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Public–Private Partnerships for Solid Waste Management Services

M. MASSOUD[1]
M. EL-FADEL*
Department of Civil and Environmental Engineering
American University of Beirut
PO Box 11-0236, Bliss Street
Beirut, Lebanon

ABSTRACT / The increasing cost of municipal solid waste (MSW) management has led local governments in numerous countries to examine if this service is best provided by the public sector or can better be provided by the private sector. Public–private partnerships have emerged as a promising alternative to improve MSW management performance with privately owned enterprises often outperforming publicly owned ones. In Lebanon, several municipalities are transforming waste management services from a public service publicly provided into a public service privately contracted. In this context, a regulated private market for MSW management services is essential. The present study examines a recent experience of the private sector participation in MSW management in the Greater Beirut Area. The results of a field survey concerning public perception of solid waste management are presented. Analysis of alternatives for private sector involvement in waste management is considered and management approaches are outlined.

Public–private partnerships (PPPs) can be defined as the transfer and control of a good or a service currently provided by the public sector, either in whole or in part, to the private sector. It involves a wide range of private sector participation in public services and serves as a potential strategic management tool (Hutchinson 1996, Donaldson and Wagle 1995, US EPA 1999). The increased interest in PPPs can be attributed to: (1) improved performance of the public sector by employing innovative operation and maintenance methods; (2) reduced and stabilized costs of providing services by ensuring that work activities are performed by the most productive and cost effective means; (3) improved environmental protection by dedicating highly skilled personnel to ensure efficient operation and compliance with environmental requirements; and (4) access to private capital for infrastructure investment by broadening and deepening the supply of domestic and international capital (Walters 1989, Van De Walle 1989, Ramanadham 1991, Sabra 1994, Jefrey 1996, Shami 1998, US EPA 1998).

Municipal solid waste (MSW) management is a nonexclusive and nonrivaled service, that is, once it is provided to some portion of the community, it benefits the overall public welfare and any resident can enjoy the benefit of the service without diminishing the benefit to anyone else. Generally, it is not feasible to exclude from service those who do not pay since public cleanliness and safe waste disposal are essential to public health and environmental protection. Being nonexclusive, nonrivaled, and essential renders MSW management a public service for which the local government is typically responsible. This does not mean that local government has to accomplish the task entirely. It is important to note that privatizing some aspects of MSW services does not take away the need for local government to be fully responsible for these services. In this context, a number of financial and nonfinancial factors should be addressed in developing policies and strategic plans for private sector participation in MSW services. These include but are not limited to: cost recovery, finance, economies of scale, cost, efficiency and public accountability, institutional management, and legislation.

The application of PPPs as a management tool requires active and continuous examination of rendered services to determine whether they are more appropriately and effectively performed by the private sector. The present study assesses the experience encountered to date with private sector participation in MSW management in the Greater Beirut Area (GBA). In addition to the evaluation of the MSW system and financial performance, the public perception about services rendered by the private sector is also examined using a structured field survey. The study concludes with an analysis of alternatives for private sector involvement in waste management.

KEY WORDS: Solid waste management; Public–private partnership; Lebanon

[1]Current address: Environmental Health Department, Faculty of Health Sciences, American University of Beirut, Beirut, Lebanon.

*Author to whom correspondence should be addressed; *email:* mfadel@aub.edu.lb

The Lebanon Context

The ever-increasing amount of solid waste generation has created disposal problems for many developing countries, and Lebanon is no exception. Refuse generation continues to increase with population and economic growth rendering waste management as one of a host of challenging development-related issues that the government is facing. Historically, refuse collection and disposal has always been the responsibility of municipalities. As is the case in many developing countries, most public enterprises in Lebanon are run with inadequate attention to profitability, cost control, or efficiency. The municipalities in particular are wasteful in their use of capital and labor, and this in turn leads to inefficient performance or even failure to meet the goals. They are generally characterized by operating deficits, causing a drain on public budgets, and overstaffing, in many cases with relatives and others who lack skills and have little concern and real incentives for efficient management. In addition to the lack of financial resources, municipalities in Lebanon suffer from a lack of a qualified and motivated human resource base that can efficiently implement local development projects and use modern municipal planning and management tools.

Following nearly two decades of civil unrest, the municipalities have emerged weak administratively and financially, and refuse collection equipment was either damaged or had deteriorated due to aging and lack of maintenance. Consequently, the municipalities were unable to continue providing a much-needed service, and until recently slow burning and uncontrolled dumping on hillsides and seashores have been the common methods practiced for solid waste disposal in Lebanon, resulting in serious land, sea, and air pollution problems. In the capital Beirut, most of the refuse was dumped in the sea, together with rubble and rocks, thereby encroaching on the seafront. Figure 1 depicts the basic components of MSW in the GBA before and during the war. Similar examples of serious adverse environmental impacts were encountered in almost every coastal city due to a general lack of an integrated solid waste management (ISWM) policy in the country.

Official and public concerns about MSW has peaked in recent years, bringing about the closure of existing dumpsites and a great need to identify alternative methods for the disposal of refuse, particularly from the GBA, where land is scarce and prohibitively expensive. Under these conditions, the Lebanese government embarked on developing a national policy and management plan to find a solution for the management of MSW. For this purpose, a private company was contracted to manage MSW generated in the GBA, including collection and street sweeping as well as the management and operation of two processing plants, a composting facility, and two controlled landfills (El-Fadel and Khoury 2001). The management of the GBA waste represents a prototype of the comprehensive national plan and consists of several components as depicted in Figure 2.

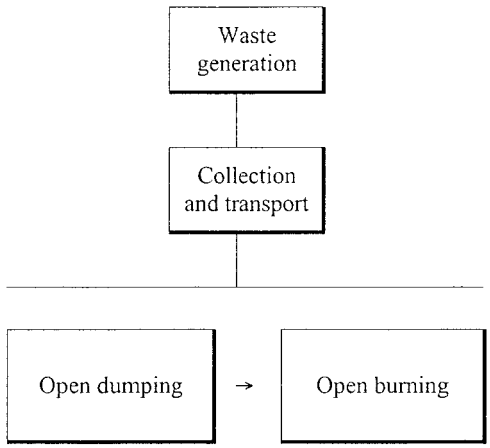

Figure 1. Basic components of MSW in GBA before and during the war.

Public–Private Partnership Experience

Organizational Framework

At present, direct responsibility for MSW management in the GBA lies with the Council of Development and Reconstruction (CDR), and to a lesser extent, the Ministry of Environment (MoE), and the Ministry of Municipal and Rural Affairs (MMRA). As for the municipalities, their role is restricted to overseeing the work of the private company contracted for solid waste management services. Moreover, they are still responsible for refuse collection from public gardens, coasts, slaughterhouses, watercourses, and public and private obsolete lands. In its effort to ensure proper development and operation, CDR designated an independent consulting company (LACECO) to provide technical assistance to the Government through the supervision of the operator's activities primarily the operation of the processing plants, compost facility, and landfills (Figure 3).

Assessment of Solid Waste Collection and Transport

For many years, the sight of scattered, misdisposed, and illegally dumped MSW was a common occurrence. The causes for this problem can be attributed primarily

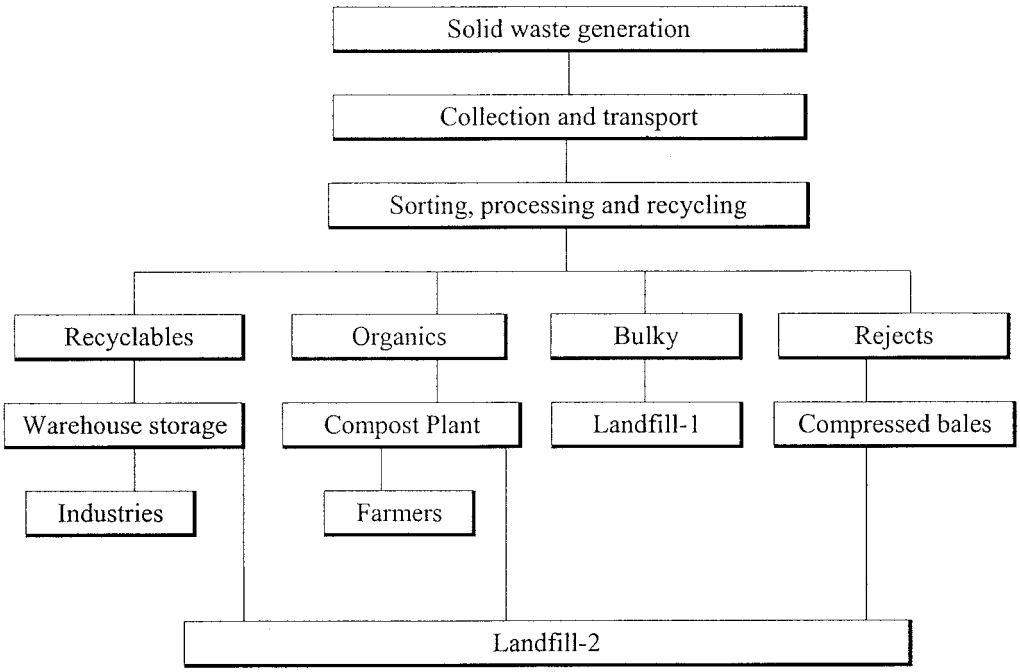

Figure 2. Basic components of solid waste management in the GBA.

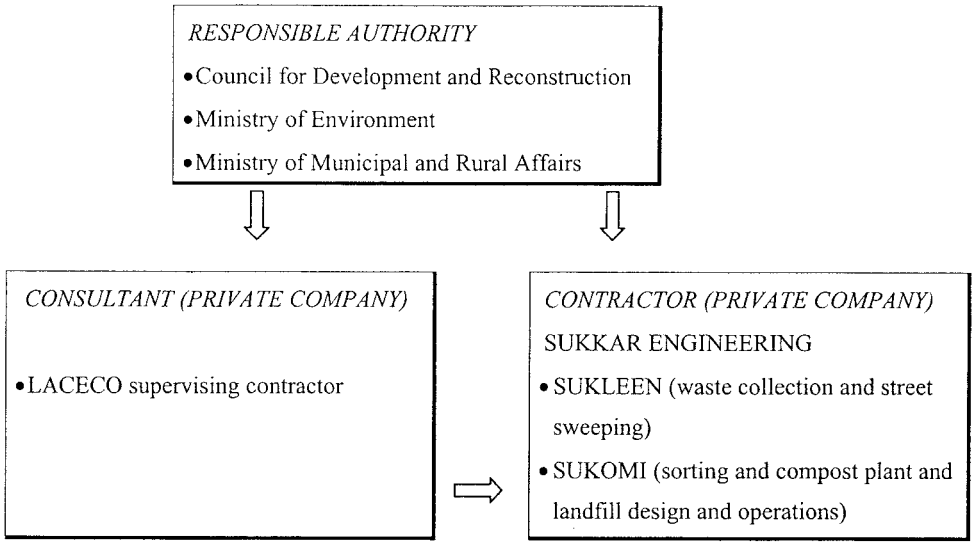

Figure 3. Organizational framework of solid waste management in the GBA.

to 15 years of civil unrest and the inefficiency of municipality employees. The end of the civil unrest and the semiprivatization of waste collection and transport activities marked the beginning of the improvement. Since its inception, the private contractor (Sukleen) has made impressive progress in strengthening its operating efficiency. It has improved both collection and sweeping significantly. Its first step was to implement an emergency investment program focusing on urgent repairs and rehabilitation throughout the system. Collection, street cleaning, and transport of raw municipal waste recorded by far the most significant improvement to date. Before the period of civil unrest (1975–1990), refuse was collected once a day from each house. During the war, solid waste collection equipment was either damaged or deteriorated due to aging and lack of

Table 1. Summary of public vs private solid waste collection

Criteria	Public[a]	Private[b]
Population (000s)	939	1,286
Waste generated (tons/yr)	239,761	347,349
Frequency of collection/day	0–1	2–3
Collection method	House-to-house	Curbside
Number of trucks	32	78
Number of trucks/100,000 persons	3.4	6.1

[a]Before and during the war.

[b]After the war.

maintenance. At the end of the civil unrest, authorities were therefore unable to collect the refuse generated in urban areas where the population had grown accustomed to taking their own waste in plastic bags and dumping it by the side of the road. Waste was collected daily when possible. Cleaning activities were mostly restricted to roadside cleaning along main roads due to lack of resources. Small roads were occasionally cleaned. Table 1 presents a summary of public (before and during the war) versus private (after the war) solid waste collection.

Assessment of Waste Treatment and Disposal

In contrast, sorting and processing facilities experienced several problems in their initial stages, such as lack of space, line overload, high organic content in end product, and odors, to name a few. These problems are not unusual at the onset of operations and can be eliminated or minimized by increasing space and capacity handling, decreasing the waste flow rate into the process lines, ensuring even waste distribution into process lines to allow adequate time for the separation of bulky and recyclable items, increasing the number of hand pickers along the different stages of the process line, implementing proper equipment maintenance, and spraying odorants. Efforts to streamline facility operations are in progress and many of the problems have been remedied. However, the continuous increase in the wastestream is increasing the operational stress at these facilities, which will not be able to accommodate future waste generation rates without increased capacity.

Initially, the composting process suffered from significant odor emission problems and poor-quality compost product. Odor emissions can be attributed to waste composition (low C/N ratio), poor temperature control, excessive moisture, low oxygen content, and poor mixing. Considering that some of these parameters are often very difficult to control continuously, occasional odor events are inevitable. Even when these parameters are well controlled, odor emissions will be reduced but not completely eliminated. The poor quality of compost was due primarily to lack of space or system overload in addition to the inefficient separation process of glass, plastics, and metals from the raw material at the compost site. The presence of glass particles in the final product decreased its marketability. Corrective measures undertaken included the installation of a biofilter for odor control and decreasing intake, as the facility is being used beyond design capacity. While the odor problem has been minimized, the compost quality needs more improvement for farmers to be satisfied and, more importantly, the market for the compost material generated remains weak.

System Performance Evaluation

The persistence of operational difficulties since the initiation of the emergency plan for solid-waste management in the GBA warrants an evaluation of the appropriateness of its various components. As the system operates now, more than 90% of the total waste generated in the GBA has ultimately been disposed of at the landfill, calling into question the purpose of the sorting–processing–composting facilities as well as the recycling program. Apparently, the market demand for compost and recyclable materials may be either less than the generation rate or is not economically competitive. Lack of marketing plans for the final compost product, poor accounting practices that neglect externalities affecting the economics of composting, such as reduced soil erosion and avoided disposal costs, poor integration with the agricultural community, and minimal land requirements are additional constraints on compost applicability and marketability. Thus, whether viewed as a hierarchy or as complementary components, the current waste management activities, particularly recycling and composting, have not measured up favorably with the steps outlined in an ISWM system. Neither does the waste management system have an adequate education program that explains the costs of each component in the system or the benefits that can be derived by recycling, reusing, and source reduction.

Moreover, the difficulty associated with locating and approving a suitable site for landfilling will only increase with time, which dictates the adoption of policies that will minimize the amount of waste that should be disposed of in a landfill. Recycling and composting can form a basic step in the right direction depending on the implementation and the market demand for the end product. Successful waste minimization through recycling, for instance, starts at the source. For this

purpose, while education and awareness programs have been commonly reported in academic media as influencing factors, it is more likely to succeed when coupled with the creation of individual monetary incentives and a marketplace.

Similarly, composting, in all its possible methods, requires special systematic maintenance and monitoring skills, analytical characterization technology, and a market for the end product. While technical skills and technology are becoming more available in Lebanon (or can be imported), a market for the end product of composting has not been clearly defined. More importantly, the location of a compost facility plays an important role in the decision on whether to construct such a facility. For instance, it is highly undesirable to locate a compost facility near densely populated urban areas and far from areas where the end product will ultimately be used. In this respect, the present sorting–processing–composting facilities are located in the immediate vicinity of highly populated and residential areas. While it is acceptable (with reservations) to locate a sorting–processing facility in such areas, it is certainly not recommended to operate an open-system composting facility in such proximity to residential areas due primarily to potential odor nuisances that cannot be completely eliminated even in the presence of odor control equipment. Indeed, operations at the present composting facility started only on a temporary basis until a more suitable location was identified, which did not happen. Therefore, other waste minimization alternatives such as properly managed and well-controlled incineration must be considered despite the legacy of uncontrolled incineration practices in Lebanon that has apparently resulted in the elimination of this option in the first place.

While this option does not completely eliminate the need for a landfill because of ash generation, it minimizes the amount of end waste that should be disposed of in a landfill and hence the need for land is kept at a minimal level that can indeed be sustainable in the long term. Such a plan is being practiced in many developed countries, especially where land is scarce or prohibitively expensive. The limited amount of suitable land available in Lebanon for landfilling, particularly along the coastal region, creates the necessity for considering the incineration alternative. It is certainly not sustainable to continue with the same policy of locating new landfills in the future (El-Fadel and Chahine 1999).

While performance quality is a key factor when evaluating public versus private solid waste services, cost is equally important. The duration of a collection contract is five years, and the contractor is paid on the basis of weight collected, with an approximate cost of US$16/capita/y, which is consistent with average costs in low- and middle-income countries (Table 2).

Table 2. Cost of MSW management services in Beirut

Population (000s)[a]	1,286
Generation rate (kg/capita/day)[b]	0.74
Waste generated (tons/yr)[c]	347,349
Total cost (collection and sweeping in US$)[c]	20,575,000
Cost per capita (US$/yr)	16
Cost per ton (US$/yr)	59
Low income country[d]	
Cost per capita (US$/yr)	3.6–7.2
Cost per ton (US$/yr)	45–90
Middle income country[d]	
Cost per capita (US$/yr)	10.8–25.2
Cost per ton (US$/yr)	90–210

[a]ERM (1995).

[b]Ayoub and others (1996).

[c]El-Jor (2000).

[d]UNEP (1996).

Field Surveys

As is the case in many developing countries, data on solid waste management in Lebanon is generally limited. Therefore, field surveys were adopted to complement available published data. Interviews were conducted with responsible authorities outlined in the organizational framework (Figure 1). Interviewed individuals (a total of nine) represented a cross section of key decision-makers or influential stakeholders in the solid waste sector. The questions were designed particularly to address the feasibility of PPPs for MSW management. Questions emphasized the level of satisfaction with current services compared to those previously provided by the municipalities, present and past expenses, attitude with regards to the partnership experience, barriers, and advantages and disadvantages of the private sector participation.

In addition, a field survey was conducted in an attempt to evaluate the public perception of MSW management services and the level of satisfaction with the quality of current services. Screening interviews with a small sample preceded the survey to define appropriate questions and issues that are potentially important to residents. Then, a more comprehensive survey questionnaire was developed and distributed to nongovernmental organizations (NGOs) and individuals in the Beirut area. Individuals were selected randomly to indicate their opinion about the quality of solid waste collection and treatment, to compare between current

Table 3. Summary of conducted interviews

	Frequency	Percentage
Private contractor compared to municipalities		
Private contractor better	8	89
Municipalities better	1	11
Similar	0	0
No opinion	0	0
PPP of solid waste collection		
Successful	7	78
Unsuccessful	1	11
No opinion	1	11
PPP of other sectors		
Yes	8	89
No	1	11
No opinion	0	0
Cost per ton before and during the war		
No response	9	100
Barriers to PPP		
Political	9	100
Absence of a capital market	7	78
Well-developed infrastructure	7	78
Advantages of PPP		
Attract capital	7	78
Improve management	7	78
Improve economic performance	6	67
Introduce competition	5	56
Disadvantages of PPP		
Employee lay off	9	100
Monopoly	9	100

Table 4. Summary of survey results

	Frequency	Percentage
Collection method		
Excellent	156	33.1
Good	193	40.9
Satisfactory	95	20.5
Unsatisfactory	26	5.5
Ideal method of collection		
Municipality	179	38.1
Private company	253	53.8
No opinion	38	8.1
Knowledge of solid waste treatment		
Yes (aware)	158	33.6
No (not aware)	312	66.4
Treatment and disposal method		
Excellent	57	12.1
Good	97	20.6
Satisfactory	93	19.8
Unsatisfactory	41	8.7
No opinion	182	38.7
Private contractor compared to municipalities		
Private contractor better	179	38.0
Municipalities better	161	34.3
Similar	120	22.5
No opinion	10	2.2
PPP of solid waste collection		
Successful	365	77.7
Unsuccessful	87	18.5
No opinion	18	3.8
PPP of other sectors		
Yes	279	59.4
No	157	33.4
No opinion	34	7.2

services and those previously offered by municipalities, and to indicate whether they consider the PPP a successful experience. A total of 500 questionnaires were distributed, of which 470 were completed and returned. The collected data were coded systematically and analyzed following a univariate statistical analysis, which comprises frequency distribution and percentages using the Statistical Package for Social Sciences (SPSS).

Official Perception

Most interviewed officials (eight of nine) agreed that the private sector participation in MSW management gives the impression of efficiency and thoroughness, and in spite of problems associated with the introduction of a new service, waste is being removed and streets are clean. Regarding PPPs in general, opinions varied among those who view the process as an effective solution, those who consider it not necessary, and those who prefer a joint venture. Advocates of a PPP consider it the most efficient and economical solution since the private sector is more innovative. Moreover, they emphasized that PPPs will attract capital and improve management. They also consider it as a tool to improve economic performance, relieve the enterprise from political interference, and introduce competition and efficiency.

In contrast, opponents of the PPP believe that it is more important to establish capital markets and improve the performance of the public sector. In addition, they consider PPPs to have a negative impact on employees and that a monopoly may arise through the ultimate transfer of ownership from the public to the private sector. Advocates of a partial PPP believe that it is an optimal compromise solution since the participation of the public as well as the private sectors is anticipated. Note that most officials stressed that at present there are political barriers against privatization in addition to the absence of a capital market and a well-developed infrastructure. Table 3 presents a summary of the interviews conducted.

Public Perception

Generally, surveyed individuals are aware that a private company is responsible for solid waste collection in

Table 5. Respondents' problems regarding refuse collection by the private sector

Complaint	Respondents (*N*)	Percentage of total
Containers without lid and not in proper places	251	53.4
Foreign employees	268	57.0
Monopoly	102	21.7
Traffic problems, especially in the morning	122	26.0
High price (increase in taxes)	95	19.4
PPP is pushing down sorting and recycling	73	15.5
No quality control and equity in service	71	15.1
No collection from houses	112	23.8
Wrong timing	145	30.9
Process of emptying containers is noisy	45	9.6
Smell and cleanliness of containers	98	20.6
Containers occupy space (less parking space in the neighborhood)	94	20.0
No problems	69	14.7

the GBA and most of them consider the collection method satisfactory to excellent and better than those previously provided by the municipalities. The majority perceives the PPP as successful and recommends similar initiatives in other sectors (Table 4). The main complaints that were put forth by respondents about the current solid waste management system are summarized in Table 5 (Massoud 2000). Evidently, complaints were limited to collection services because the general public is exposed primarily to this activity. Very little is indicated about the final treatment and disposal of the waste, which is not surprising given that the latter activities are confined to smaller areas with minimal population exposure to actual processes.

Analysis of Private Sector Participation Alternatives

Limited financial resources and the absence of incentives to encourage high performance productivity translate into services that are often not as efficient as they could be. Therefore, whether to adopt a PPP for a specific aspect or portions of the public service, the government needs to weigh various risks and examine several criteria that deal with many market and humans factors that affect the ability of the private and public sectors to perform efficiently and effectively. The desired efficiency of a PPP will materialize only in situations where competition, performance monitoring, and accountability exist. Predatory pricing, collusion, cartels, unsafe labor practices, hidden subsidies, unnecessary costs, and excessive risks are possible factors that are not unusual, particularly in developing countries. As such, it becomes important that a solid waste management system be established within the appropriate regulatory framework. The system must be backed by sufficient authority, adequate financing, efficient operating ability, and have the flexibility to adapt to meet changing conditions. Within this framework, there are several public and private sector ownership and operation options that can be implemented. However, certain MSW management activities lend themselves well to being completely privatized, while in other cases a sound practice will almost always involve government control and operation.

Considering that most of the MSW management expenditure is for collection (up to 75%) (Tchobanoglous and others 1993), this should be the first service to examine for private sector participation arrangements that could reduce costs through improved efficiency. Moreover, because solid waste disposal and transfer systems are more capital intensive than collection and sweeping systems, these could be examined for private sector participation as well, particularly a participation that could provide investment. In this context, contracting, franchising and concessions have been commonly practical in MSW (Cointreau-Levine 1994). Accordingly, contracting and franchising are examined as potential management alternatives for solid waste collection whereas concession arrangements, which involve build, operate, and own (BOO) and build, operation, own, and transfer (BOOT), are considered for waste treatment and disposal facilities. Table 6 summarizes the advantages and disadvantages to a municipality of such MSW management practices.

The greatest opportunity to involve the private sector lies in having firms provide collection service under contract with local municipalities. It is feasible for local firms with modest financial resources to enter into the business of solid waste collection. Contracting is a viable means of securing service as long as it is possible to adequately describe outputs anticipated from the con-

Table 6. Advantages and disadvantages to municipality of various MSW management alternatives

Advantages	Disadvantages
Municipality (public ownership and operation)	
Less complicated financing	Assumes entire financial risk
Control of system	Assumes entire environmental risk
Potential for income from tipping fees	Personnel efficiency may be lower than private companies
Retention of ownership of equipment and facilities when debt is paid	Capital expenditures may take longer to process
Money for solid waste services stays in the region	System may be susceptible to political interference and short term benefits
MSW collection alternatives	
Contracting	
Can take advantage of private sector experience and efficiency in operation	Assumes entire financial risk
Retains some control over system	Assumes most of the environmental risk
Retain ownership of equipment and facilities when debt is paid	Must manage the contract
	Necessary administrative oversight and enforcement
Likely to result in the lowest collection cost	Contractor fee is often collected from residents
Franchise	
The government does not have to raise money to pay the private company	Some residents will object to changing service providers
Administrative involvement is minimized	Private company may want the government or municipality to bear some risk for bad accounts
Will result in lower costs for residents	Will not result in the lowest collection costs
MSW treatment and disposal facilities management alternatives	
BOO concession	
No up front capital costs to municipality, less, strain on the municipal budget	Financial rewards occur to private owner, solid waste is a cost without potential for generating income, and tax dollars leave region
Financial risk assumed by private owner	Must share the environmental risks
Private owner remains committed because of financial investment	Must manage contract, financial difficulties and contract problems may hinder service
Can take advantage of private sector experience and efficiency in operation	Once a municipality is out of the solid waste business it may be difficult to get back which weakens negotiating position in the future
More flexibility in establishing management structure	Do not own facility or equipment after debt is paid
Less susceptible to political interference	Loss of control over system
BOOT concession	
Retain some control over system	Will lose some control over system
Private sector finance facilities	Ownership will eventually be transferred over to the government
Outline the final condition in which the facilities must be presented to the local government at the time of ownership transfer	Requires meticulously developed specifications

tract. In contracting, the private firms are paid by local municipalities from general revenues or through money raised by direct user charges. Moreover, the service bill is typically part of a combined bill for a number of services such as water, electricity, and telephone.

On the other hand, in a franchise system, private firms collect user charges from each household and establishment that receives private services. Thus, private firms must individually bear the cost of billing and collecting user charges, which is estimated at 10% of the total cost of service to the consumer. It is one of the reasons why franchise does not usually result in the same low cost as contracting. Apart from the concern of potential corruption in granting a franchise, it is more popular in large cities. Contracting appears to be a

more feasible option for Lebanon, considering that it results in the lowest collection cost, is a common practice in many communities, and a good model already exists. Moreover, contracting can be a good way to obtain services needed for a limited period of time, acquiring specialized skills not available in the municipal pool of employees, or as a way of introducing competition into the governmental services arena. It may also help to reveal inefficiencies of the government monopoly. An additional reasons to begin involving private companies through contracting is that there are no long-term impacts from any wrong-doing of the private firm.

Regarding waste treatment and disposal facilities, concession agreements provide a reasonable option. BOOT arrangements provide means of having the private sector finance facilities whose ownership will eventually be transferred to the government. More importantly, these agreements outline the regular maintenance requirements that the private sector must provide to the facilities, as well as the final condition in which the facilities must be preserved at the time of ownership transfer to the local government. Without such specifications, it is anticipated that the facility would have a planned obsolescence matching the schedule for transfer.

A BOO agreement also provides means of financing major investment projects; however, the private partner does not eventually transfer ownership of facilities to the government. Completely getting out of the ownership and operation of solid waste services and facilities may reduce or eliminate the possibilities of getting back into the business if a municipality would want to at some time in the future (i.e., no staff, no equipment, no facility, and no experience would make it hard to begin again). Besides, such agreements put the municipality in a weak negotiating position. Taking into account the lower risks in implementing BOOT projects, it is favorable to adopt such practices for waste treatment and disposal facilities in developing countries.

Conclusion

In Lebanon, considering that municipalities lack financial resources as well as a qualified and motivated human resource base, public–private partnerships for MSW management services in the GBA lead to increased performance efficiency and environmental protection enhancement. The greatest opportunity to involve the private sector lies in having firms provide collection services under a contract with the local government since it results in the lowest collection cost, is a common practice in many communities, and there are no long-term impacts from any wrong-doing of the private firm. Concession agreements provide a reasonable option for waste treatment and disposal facilities. However, it would be desirable for analysts, policy-makers, and practitioners to evaluate the environmental obligations to be met by privatized enterprises, establish detailed impacts of monitoring plans of PPPs, develop performance indicators, and conduct a cost–benefit analysis to assess the difference between the various forms of PPPs and define the least expensive and most effective option. A legal framework, allowing the widening of ownership, preventing its concentration, and encouraging competition, must be devised. In this context, competitive tendering and complete transparency particularly with regards to financial accountability are essential elements.

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