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URBAN COMMUNITY OF MEKNES

PRIVATIZATION OF WASTE MANAGEMENT  
COLLECTION AND DISPOSAL

FEASIBILITY STUDY

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*Prepared For*

**United States Agency for  
International Development**  
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**URBAN COMMUNITY OF MEKNES**  
**PRIVATIZATION OF SOLID WASTE COLLECTION**  
**and**  
**LANDFILL CONSTRUCTION/OPERATION**  
**FEASIBILITY STUDY**

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## EXECUTIVE SUMMARY

### General

Several previous reports have documented the poor condition of the Meknes landfill and the inefficiency of the existing waste collection systems. In early 1997, the six communes making up the Urban Community of Meknes (UCM) voted by Council to authorize the UCM to act on their behalf in pursuing privatization of waste collection/sweeping services and construction/operation of the new landfill. The UCM has received several unsolicited proposals for these services and submitted one to the Ministry of the Interior for consideration. Due to the complexities of the six separate communes, each operating its own waste collection and sweeping service, the UCM does not have sufficient technical or financial data on which to evaluate private proposals for these services. The goal of this Feasibility Study is to provide this needed data and present a process by which the UCM can request competitive proposals for these services.

### Waste Generation

The first feasibility task is to determine the amount of waste generated and collected in the six communes. Two different methods were used to perform this task. The first method used population estimates and a waste generation coefficient of 0.7 kg/ca/day to estimate waste generation. After visiting each commune and observing the collection system, amount of recycling and informal disposal, a collection percentage was applied to the generation tonnage. These percentages varied from a high of 80% in Mechouar to a low of 60% in Ouslane and Zitouna. Total waste collected and disposed in the landfill was estimated at 228 tpd using the first method.

The second method used records from the landfill. A log is kept of each truck entering the landfill, its origin and capacity in cubic meters. Although we had to make some adjustments in the data and estimate an average waste density, these records indicated a waste flow of 160 to 170 tpd, significantly less than the first method. Until the landfill records can be verified we will assume an average daily tonnage of 228 tpd and an annual average of 86,125. This assumes a 25% increase during the peak season of July and August.

### Existing Services

The feasibility team spent a half day interviewing each commune, inspecting its equipment and collection services, and reviewing its collection/sweeping budget. Based on this evaluation, the systems were found to be very inefficient, due primarily to equipment inefficiencies, poor maintenance and low worker productivity. Collection crews worked on the average only 4 hours a day making 1.5 trips to the landfill. Only one commune, Hamrya used containers, but all communes expressed a desire to consider containers and less frequent collection frequency.

The condition of the existing landfill has been well documented in previous reports. A new landfill site north of the city has been identified and is being purchased by the UCM. The UCM would like to privatize both the construction and operation of the new landfill.

Our review of the commune budgets indicates many shared facilities, responsibilities and indirect costs associated with the existing waste collection services. The average cost for public waste collection and street sweeping is 290 dh/tonne. Although the private contract will most likely be less than the current budgeted cost of service, the communes are not likely to see a reduction in those budgets, because the indirect costs will not be eliminated once the private contractor begins operation. Indirect costs will be reduced over the long term, as other municipal services absorb the indirect costs of waste collection and sweeping.

## **Privatization Strategy**

The Feasibility Study evaluated many aspects of the privatization process, obtaining feedback from the UCM, Communes and private sector. Our recommendation includes Requests for Tenders for two contracts, one for collection/sweeping in all six communes and the second for construction and operation of the landfill, and closure of the existing landfill. The collection contract term will be five years with a two year option and will require the contractor to purchase the commune's waste compactors that are less than five years old. The contractor will also be required to utilize 75% of the communes current staff. Several other options will be included in each tender request, including converting the former compost facility to a sorting/transfer facility.

A major emphasis in the privatization strategy will be the definition of services. These services are not sufficiently defined at present to proceed with a Request for Tenders. Each commune must prepare a map outlining each area of service, housing densities and streets to be swept. In addition to securing competitive proposals, the definition of services will be used to monitor the contractor's performance.

## **Legal Financial**

The legal and financial issues of privatization in the UCM must be addressed before privatization can proceed. The legal formation of the UCM, the authority of each commune and most important, the financial guarantee to the private contractor that he will be paid, must be resolved. Several alternatives and procedures are presented in the body of the report which should be addressed at the local and national level before privatization can proceed.

## **Contracting Procedures**

The next step in the process will be a review of the Feasibility Study by the UCM and six communes and finalization of the Request for Tender. Service definitions, equipment lists, employee lists and a revised conceptual landfill design must be completed before the Requests for Tenders can be issued.

# **1 INTRODUCTION**

## **1 1 BACKGROUND**

The United States Agency for International Development (USAID), through the Urban and Environmental Services Project (U&ES), is assisting cities and municipalities in Morocco in managing their urban environmental problems. Work began in the Urban Community of Meknes (UCM) in July 1995 with a global assessment of solid waste problems. This assessment identified several problems in both the collection and disposal systems. Subsequent studies in October 1995 and June 1997 have confirmed the deterioration of services and urged the UCM to take action. During the early months of 1997, the six communes making up the UCM agreed to authorize the UCM to act on their behalf and consider privatization of all collection and waste disposal services. Prior to moving forward with privatization it is important to understand the current systems, their problems, and their costs, so that privatization proposals can be evaluated and properly monitored when implemented. This Feasibility Report is the first step in the privatization of waste management services in the UCM.

## **1 2 GOALS AND OBJECTIVES**

The privatization of environmental services is a relatively new concept in Morocco. Although there are many examples of privatization in other business sectors there are only a few examples of private solid waste services which have met with limited success. Very often, privatization is assumed to be the answer to many problems but this is not always the case. By performing a detailed feasibility study of the UCM before privatization, the technical, financial, and legal issues specific to the UCM will be defined. Through this Feasibility Study, the E&ES program will create a model for other urban communities to follow before they consider privatization.

The overall objective of the Feasibility Study is to provide the UCM with enough data in order to make informed decisions regarding the privatization process and to assist them in monitoring the private operation when implemented.

## **1 3 PREVIOUS REPORTS AND PROPOSALS**

In addition to the USAID reports referenced above, the UCM has received several unsolicited proposals regarding private operation of several waste management functions, including waste collection and sweeping, operation of the landfill, and restoration of the former compost facility. Several of these proposals were reviewed during the Feasibility Study. In general these proposals, by international companies, do not provide sufficient documentation for the UCM to take action. In addition to the lack of sufficient documentation, the UCM lacks the existing data regarding the definition of existing services and their cost, and has no basis on which to evaluate these private proposals. We recommend that the UCM not consider proposals that are not specifically requested through a competitive process.

# **2 EXISTING CONDITIONS**

## **2 1 GENERAL**

The Urban Community of Meknes has an estimated 1997 population of approximately 477,000, living in the six communes, Hamrya, Ismalia, Zitouna, Mechouar, Ouislane, and Toulal. The UCM also has a good industrial/commercial sector with several large textile factories, a paper mill, brick factories, and a large cement factory. All industries are responsible for their own solid waste and are not considered in the waste collection portion of the report.

Each commune in the UCM is unique in its population, land use, resources, and waste generation. Each has different needs and must be evaluated separately to define its existing

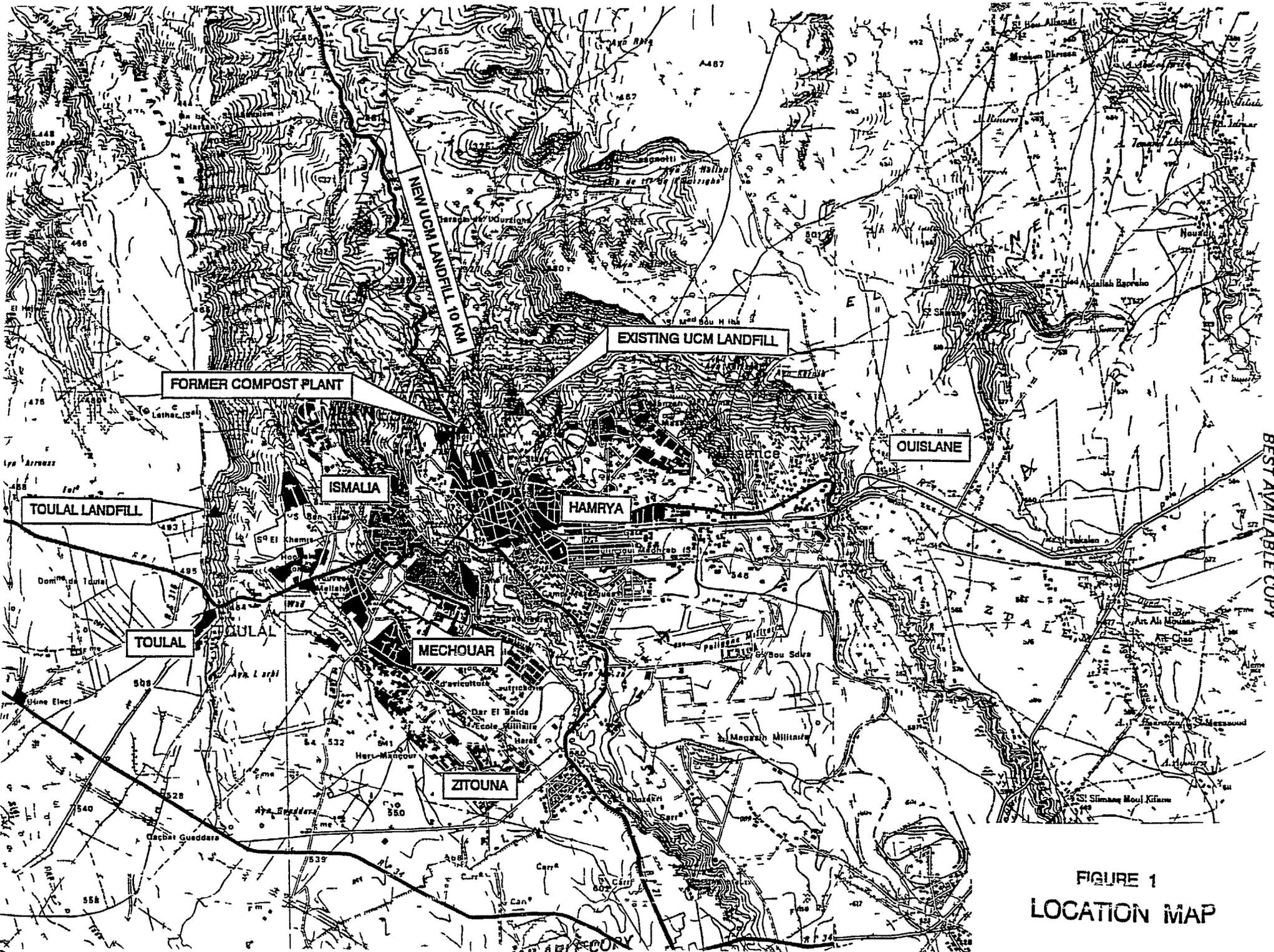


FIGURE 1  
LOCATION MAP

waste management services and potential for privatization. The following report sections will describe the technical, administrative, and financial characteristics of the existing collection and street sweeping programs in each commune. Figure 1 is a location map of Meknes showing the six municipalities and existing waste management facilities.

## 2.2 WASTE GENERATION

### 2.2.1 Population

The 1997 population estimate is based on the 1994 census and planning projections of estimated growth of 2.5% per year. Since the proposed privatization programs will not be implemented until some time in 1998, a further population projection is made at the same estimated growth of 2.5%. Although actual growth varies from commune to commune, based on many factors, we will assume a uniform growth of 2.5% for all communes. Population growth estimates above or below the 2.5% projection will be presented in Section 3 for each commune. The populations used to calculate waste generation are summarized in the following table.

#### POPULATION ESTIMATES

(Annual increase% )

COMMUNE	1994	1995	1996	1997	1998
HAMRYA	142 786	146 356	150 015	153 765	157 609
OUISLANE	28 694	29 411	30 147	30 900	31 673
ISMALIA	117 989	120 939	123 962	127 061	130 238
MECHOUAR	44 932	46 055	47 207	48 387	49 597
ZITOUNA	96 146	98 550	101 013	103 539	106 127
TOULAL	12 668	12 985	13 309	13 642	13 983
TOTAL	443 215	454 295	465 653	477 294	489 226

### 2.2.2 Waste Generation Factors

The existing UCM landfill does not have a scale and therefore no record exists regarding the actual waste generated by each commune in the UCM. Standard practice is to present waste generation as a unit of kilograms generated per person per day (kg/cap/day). These figures have been determined for many communities throughout the world and many reports and studies have been prepared regarding waste generation factors. Waste generation will vary based on economic conditions and community size. In general, small, poor communities will have lower waste generation than larger wealthier communities. Rural communities will generate less waste than urban communities. Since conditions are different in the UCM communes, it is likely that actual waste generation factors will also vary. As an example, the wealthier commune of Hamrya, with its commercial activity will produce more waste per person than Toulal, which still a rural area.

Previous estimates in Meknes have used an average waste generation factor of 0.7 kg/cap/day. Although many of the evaluations in this report have indicated that the 0.7 factor may be too high in several of the communes, we will continue using 0.7 kg/cap/day for all communes in order to avoid confusion over previous estimates.

### 2.2.3 Waste Generation and Collection Estimates

A waste generation data base was prepared for each commune in the UCM, using a waste generation factor of 0.7 and a population growth of 2.5%, for a 20 year planning period. The

amount of waste actually collected by each commune is significantly less than the amount of waste generated. Informal and illegal dumping exists in all communes to various degrees. Most of this waste is never collected and is either burned or washed away during the rainy season. Combustible waste is often burned during the colder months for heating or cooking. In the rural residential areas, some organic waste is fed to animals or composted for use in agriculture.

Recycling is another factor in reducing the amount of waste that is actually collected. In Meknes, there is a very active informal recycling system. Previous reports have defined three levels of recycling. Level 1 removes waste materials from streets and containers before they are collected. This level of recycling occurs mainly in the commercial areas and wealthier residential neighborhoods, where materials are more abundant. Level 2 recycling occurs during collection by the collection workers. Materials are placed in large sacks attached to the collection trucks. The sacks of material are then sold to intermediate processors located at the landfill. Although each commune has attempted to stop this practice they have not been successful. The collection workers use the recycling income to supplement their low wages. Level 3 recycling is performed by scavengers at the landfill, after the waste has been dumped. Materials are sold to the intermediate processor. These materials are dirty and bring lower prices than the materials from Level 1 and Level 2 recycling.

All of the above factors reduce the amount of waste that is actually collected. Each commune was inspected during the Feasibility Study, and an estimate of waste collection was made as a percentage of waste generated. These percentages varied from a high in Mechouar of 80% to a low of 60% in Zitouna and Ouislane. These factors will be explained in more detail in Section 3 of this report. The waste generation and collection estimates (7 day averages) are summarized in the following table.

## WASTE GENERATION AND COLLECTION ESTIMATES

Commune	Population (1998)	Generation at 0.7kg/cap day (tpd)	Estimated Collection (%)	Estimated Collection (Tpd)
Hamrya	160,000	112	70%	78
Ismalia	130,000	91	70%	64
Zitouna	106,000	74	60%	45
Mechouar	50,000	35	80%	28
Ouislane	32,000	22	60%	13
Toulal	14,000	10	70%	7
<b>TOTALS</b>	<b>492,000</b>	<b>344</b>	<b>68%</b>	<b>235</b>

The waste generation data bases for the six communes are included in Appendix One. In addition to estimating waste generation and collection quantities, the data base calculates the volume of waste in cubic meters at two different densities. The first volume calculation assumes a density of 350 kg per cubic meter (kg/m<sup>3</sup>). This density is the estimated waste density in open non-compaction collection vehicles, including dump trucks, pick-ups and 1 meter dumpers. The second volume calculation is at a density 500kg/m<sup>3</sup> which is the estimated density in a full compactor truck. These volume calculations can be used in evaluating waste collection systems using different vehicles.

### 2.2.4 Landfill Records

The UCM operates the existing landfill and records each truck that enters the landfill, registration number, commune and estimated volume in cubic meters. Daily records are kept and a weekly summary is prepared. Due to the limited time available for this study, we evaluated only one week of daily records, September 7 to September 13, 1997, and several weekly summaries from the peak summer period. This September daily period was selected to

represent average year-round conditions. Records are kept for Monday through Saturday. In general, waste is not collected on Sunday, but several communes reported Sunday collections in market and commercial areas. Monday is the busiest day of the week due to the lack of Sunday collection.

The review of the daily landfill records revealed several problems with the data. The first is that all compactor trucks, regardless of actual capacity, are listed as delivering 6 cubic meters. Most of the compactors are 8 cubic meters and 4 trucks from Hamrya are 12 cubic meters. By comparing truck registration numbers on the landfill records with those provided by the communes, we adjusted the records to the proper volumes for each compactor truck. The second problem is a comparison of landfill records with information provided by the communes. As an example, the commune of Zitouna reported that each of their 5 compactor trucks makes 2 to 3 trips per day to the landfill and four trips on Monday. The landfill records show that on Monday, September 8, 3 compactor trucks from Zitouna made 2 trips and the other truck made only 1 trip, compared to the 4 trips reported by the commune. On week days, all Zitouna trucks averaged 1.5 trips per day, compared to the reported 2 to 3 trips. There are several possible explanations for this problem with the data. Trucks could be entering the landfill without being recorded. First, if trucks come very early or during the midday lunch period, it is possible that they were not recorded. This would affect all communes and not just Zitouna. Second, trucks collecting waste could be dumping at other locations.

The following table summarizes the landfill data for a one week period in September. Average tonnage for Mondays, and Tuesday to Saturday were calculated from the volume data, assuming an average density of 450 kg/m<sup>3</sup>. A 7-day average was estimated by making some assumptions regarding Sunday waste deliveries and estimated trucks that were not recorded. For comparison purposes, the results of the waste generation calculation from population and generation factors is also presented.

#### LANDFILL RECORDS SUMMARY

	Monday (tpd)	Tues-Sat (tpd)	7-day Avg Estimated (tpd)	Waste Gen 7 kg/cap/day Exist% collect	Waste Gen 7 kg/cap/day 100% collect
HAMRYA	87	59	65	78	112
ISMALIA	58	34	42	64	91
Zitouna	33	25	32	45	74
MECHOUAR	20	16	17	28	22
TOULAL**	8	8	8	7	10
PRIVATE	8	8	7	NA	NA
	225	157	178	235	344

Based on 1 week data 7Sept 97 to 13Sept 97

\*\* Toulal goes to its own landfill

Although precise conclusions should not be made from such a short data period, the above summary indicates that the landfill is receiving less waste than is projected by the waste generation evaluation. The reality is somewhere in between 178 tpd and 235 tpd. A more in-depth evaluation of landfill records should be performed to confirm this preliminary finding and define seasonal variations in the waste collection. At this point in the privatization process, it is appropriate to be conservative in our estimates. Therefore for the purposes of this feasibility report we will assume an average daily tonnage of 235 tpd and an annual tonnage of 86,125, which assumes a 25% increase during the peak seasons of July and August.

## **2 3 LEGAL AND FINANCIAL**

### **2 3 1 Administrative Management of Solid Waste**

Following the example of liquid sanitation, the Moroccan legislation imposes no specific obligation on the communes as regards solid waste. However, for several decades, the town councils have been ensuring the waste collection and disposal in the council's landfill.

This work has always been performed directly under local government control to such an extent that the great majority of the council's workers are assigned to this task.

The communal legislation elaborated as of 1976 has not substantially modified this situation. However, it has led to the creation of a new type of local community known as urban community, redefining the council's attributions and reforming the tax system.

Thus Article 58 of the communal charter, originally conceived to be applied only to the commune of Casablanca, goes against the general competence of the communes by attributing to the urban community, corporate body of public law, specific competence in order to "coordinate and manage" the business interesting two or several urban communes of the community, particularly those which are specified under Article 59, namely

- Solid waste collection from a central collection point which it determines,
- Treatment of solid waste

A sharing of competence has thus come to being. The commune conserves the right to manage the public utility entrusted with the cleaning-up of waste collection facilities, waste collection and transportation to a site indicated by the urban community, with the latter being in charge, in its turn, of the transportation of the collected waste to the landfill and, possibly, of the waste treatment involved.

A careful reading of these two articles cannot but highlight a great flexibility in their elaboration. One will thus observe that the role of the urban community is defined in terms of "coordination and management", which provides it with a valuable margin in the negotiation with the commune concerned in order to define the organizational and managerial conditions of communal services. These particularly encompass the faculty which it enjoys in establishing for the communes the sites from which it is to care for urban waste towards their final destination. This allows it to do without this transport circuit portion by requiring the communes to take the waste directly to the landfill.

In fact, in Meknes as in all the other urban communities, it is very difficult to organize waste collection transfer station in the city owing to the lack of available land plots and risk. This has been confirmed by some unfortunate experiences resulting in transforming the intermediary dumps into a permanent, unhealthy site, indeed to a wild landfill. In addition, due to the fact that the creation of urban communities was achieved on cities which were constituted in municipalities and which already had had their council's landfill, the solution which imposed itself consisted of the transfer of the management of these landfills to the urban community without the need to create intermediate transfer stations.

The solution adopted in Meknes thus reduces the obligations of the urban community to manage the landfill. Furthermore, it leads the communes to provide the transportation of urban waste as far as their final destination, thus paying for the costs of this operation which fluctuate according to the site of each commune in the urban environment.

### **2 3 2 Solid waste financing**

Collection of solid waste is ensured by the urban community and by each urban commune within the limits of the attributions they are endowed with. Its financing is deeply marked by

the legal gap relating to urban waste and by the managerial mode instituted. As a result, the search for additional financing resources and of the improvement of management raises the current debate on the public service delegated management and users' contributions to the recuperation of the costs incurred.

Examination of the costs currently generated by this service for the six communes of Meknes makes this issue of particular relevance.

### **2.3.2.1 Legal System of Waste Collection and Communes' Financial Obligations**

It was already noted that the law on solid sanitation remains to be created entirely. The law is currently limited to some lapidary provisions aiming at protecting public property, namely the hydraulic property, the obligations imposed to inconvenient, unhealthy and dangerous premises, and the powers of administrative enforcement attributed to the president of the communal assembly. These rules put together do not succeed in constituting a coherent system of waste collection and management by the communes, which could have generated financial-type constraints.

The provisions of the communal charter may also be put forward, but only to some extent. Thus, its Article 21 lists the urban community's compulsory expenditures by enumerating those pertaining to the operation of the services which it legally provides. With respect to Article 22, it encompasses among the commune's obligatory expenditures the following:

- The wages, allowances and social charges relating to the commune's staff along with the clothing costs of the agents who are entitled to such a clothing in accordance with their statute,
- The costs required for the maintenance of the commune's waste collection facilities and all the related works such as sewers, piping and water reservoirs,
- The expenditures required to ensure the community's salubrity and hygiene, particularly the fight against malaria and epidemic diseases.

Thus one remarks that the commune's obligations with respect to sweeping and related works are limited to the maintenance of the existing facilities. For its part, the obligation to sweep the streets and to rid the city of waste can only be put forward as a means of ensuring hygiene and salubrity. If the related expenditures are compulsory, their importance is necessarily left to the discretionary appreciation of the needs during the elaboration of the budget and its implementation.

Contrary to an idea largely shared by the population, and indeed among local government constituents, the levy of the municipal tax called «taxe d'édilité» (or municipal administration tax), concerning waste collection does not constitute an obligation for the commune to undertake to sweeping and waste collection. The correlation which is generally put forward between the levy of this tax and public waste collection services probably originates from a misinterpretation due to the translation into Arabic of the phrase "taxe d'édilité" which has become as the case may be "waste collection tax" or "sweeping tax". In fact, the French term « edile » refers simply to the person entrusted with a municipal service. Indeed, the municipal tax proceed constitutes an ordinary source of the commune's budget which is added to the other authorized receipts authorized so as to cover operational costs.

In the urban communities, the proceed of this tax is shared on equal basis between the commune which recovers it and the urban community, for which it also constitutes an ordinary budgetary source (Article 9 of the law governing the local governments' tax system).

However, the general belief as to the obligation for the commune to undertake with the cleaning-up of the city results from the observation of the practice and is reinforced by the

general recourse to the direct and free-of-charge management of the public utility under local government's control

### **2 3 2 2 Impact of local government's direct management**

Barring some isolated experiences and recent experimentation involving delegated management of the landfill (Casablanca), treatment (water/electricity supply office, "RED", Rabat) or collection and sweeping (Essaouira and involvement of the communes of Ain Sbaa and Hay Hassani, Casablanca), communal practice in this regard is reduced to direct management under local government control. One may even say that as the commune organizes collection and sweeping services, it is led to recruit a permanent staff and to acquire costly equipment which makes its future disengagement difficult despite the relative inefficiency of its services.

In fact, until recently, the usual management of communal services has been ensured under direct state control (waste collection, management of markets, local government's heritage, etc.), except for the state-controlled autonomous-type entities (particularly urban transportation and water/electricity supply).

The studies and audits carried out over the last few years, namely on liquid and solid waste collection, highlighted the disadvantages of direct government control at financial and managerial levels. It was also noted that this administrative mode associated with the lack of analytic accounting makes uncertain the assessment of the actual costs of the services involved and prevents a correct planning. Being part of the communes' technical services, collection/sweeping services often perform other works and must respond to requests which disturb their organization and affect their efficiency. Similarly, it has been observed that direct management discards, in fact, users' participation in the costs of the services provided by the community, the system of remunerated works which are sometimes organized (construction, gardening and industrial waste) is practically never respected and as a result the state-controlled direct management process corresponds in the dominating mentality to free-of-charge nature of communal service.

In addition, the existence in the urban communities of a collection sweeping service in each communal technical service does not allow for making significant savings.

Surely, it could be argued that the direct state-controlled management does not constitute in itself an impediment to modern management, the planning of operations and rigorous cost analysis or even cost recovery. Whatever the public services managerial mode, it is always possible to keep special accounts of its operations, to specialize its staff while providing them with the material means required, and to modernize its administration by notably ensuring the required opening up of its supervising personnel to new administrative management techniques and to technological innovations. Viewed from this perspective, the reproaches voiced do not concern the mode of management selected but its effects on a local administration on eagerly staffed with specialized executives and which, despite this hindrance, is called to ensure various functions that increasingly require special know-how and constant mobilization.

In these conditions, the question of users' participation in partial or total financing of the public solid waste collection service is raised in the same terms regardless of the managerial mode adopted.

### **2 3 2 3 Access to Other Resources**

To the extent that the "municipal administration tax" (or «*taxe d'édilité*») does not legally represent a counterpart for waste collection and sweeping services and as long as the commune is subjected to no precise obligation in this realm, it can be asked if the commune is entitled to claim payment from the tax payers to whom it provides these services.

The same question has been raised recently with regard to liquid waste disposal. Even though the law foresees in this case a special fiscal contribution for the establishment of sewers and

specifically fixes the bracket of its computation, the financial calculations validated by the various administrations concerned (Interior, Finance, Economic Affairs) have approved the participation of land and real-estate owners to the costs of the facilities on the basis of an innovated computation, as well as the settlement by the users of the drinking water supply network of a liquid waste tax proportional to their water consumption

The same financing scheme has been adopted by the liquid waste master plan of Tetouan which nevertheless has opted for a direct government-controlled management with the institution of a special account

At the legal level, the problem is a complex one in view of the fact, to the extent that the Moroccan law neither organizes the delegation of public service nor the conditions under which the basic public services may be organized water, electricity, waste disposal, communications. As a result, the debate is confined to doctrine-type considerations deriving its foundation from the French law

By referring thereto, one notices that public law scholars have at first advocated that one of public service criteria is represented by its free-of-charge nature. Its normal financing must thus originate from taxation. This view was largely shared as long as the administrative activity was limited to non-individualized services and coming under the general interest (Hauriou). Later on, public institutions of industrial and commercial nature were to be created and, subsequently, the principle of payment settlement by the user for the service which is provided to him by an institution coming under the public community has been accepted. However, the free-of-charge nature of the administrative public service continued to be required along with the support of a clear distinction between the administrative-type service which can be financed solely through taxation and the industrial/commercial service which resorts to common law contracts and, consequently, admits the remuneration of service and profit (Waline)

The subsequent evolution has led the public administration to multiply its interventions and to resort to the users to secure the financing resources required parking on the public highway, sport facilities, resort areas, etc. Services which had been traditionally provided free of charge have come to claim participation from their users hospital services, education, particular services from the public activities, etc. Individuals' financial contribution has even been established for operations which they never requested soil restoration, regrouping of lands, urban development, etc. The delegation of public service management contributed, in its turn, to speeding up this trend, largely coinciding with service remuneration

Nevertheless, while these deep changes have been accompanied in France by laws defining the conditions of delegated management of communal services and elaborating typical statutes to that end, the transplanting of these reforms in Morocco was not been preceded with similar legislative and regulatory measures. Thus, the rules previously consecrated by the administrative practice were shaken while the positive law has been unable to provide its support to the institutions which are being constituted notably in the area of cost recovery. In these conditions, it is hardly surprising that the solutions adopted recently with regard to the delegation of public service management and the determination of taxes are clearly contrasted and seem to derive, sometimes, from contradictory legal interpretations

On the basis of the above considerations, one must argue in favour of the admissibility of the levy for waste collection and sweeping services. This levy, moreover, has been instituted by certain communes for refuse other than household waste. To what extent, therefore, is it relevant to distinguish between household waste and other refuse?

#### **2 3 2 4 Effects of Distinction based on the Nature of waste for the Levy of a Remuneration**

The only legal reference to household waste comes in the list of urban community's attributions, specifying "the household waste collection from a central evacuation point" and the organization of the "treatment of household waste"

If the urban community may put forward these provisions in order to avoid any implication in the transportation and disposal of other wastes (hospital waste and other dangerous wastes, special wastes such as construction waste, garden waste, industrial refuse), urban communes have no legal basis to seek shelter under a restrictive interpretation of their mission in this regard. But unlike the urban community which is specifically designated to coordinate and manage part of the operations, the communes are not specifically called upon to undertake the sweeping and waste collection services whatever their nature. The absence of legal provisions, undoubtedly, authorizes them to take some liberties in this field.

In practice, there have seldom been different collection systems of solid waste according to their nature. Generally, industrialists take care of the elimination of cumbersome waste to the public landfill while tradesmen benefit from special municipal services which are sometimes organized for them: public markets, slaughter houses, etc. It is only when persons order a particular service of waste collection or transportation that a remuneration can be claimed.

These factual considerations shed light on a practice which the law does not necessarily impose.

However, it may be understood that the communes may face difficulties in introducing a certain cost recovery system vis-a-vis the population. Even by limiting such an initiative to certain operators, such as contractors, there would be substantial risks of fostering conducts that jeopardize public hygiene.

Nevertheless, it would always be possible to proceed gradually in this regard as the system develops and the adherence of the population is ensured.

### 2.3.3 Means for shared management of solid waste in Meknes

The management of solid waste in the six Communes of the Urban Community is carried out according to this model. Thus, each Commune has its own cleaning department which is placed under the authority of the municipal engineer and which uses a considerable amount of human and material resources.

ANNUAL EXPENSES MADE BY THE SIX COMMUNES FOR SOLID WASTE DISPOSAL DURING 1996-97 BUDGET YEAR (BASED ON A 12 MONTH BUDGET YEAR)

EXPENSES ON PERSONNEL	11 503 268
INJURIES TO WORKERS	210 467
CLOTHING	407 333
FUEL AND LUBRICANTS	2 111 667
TIRES AND SPARE PARTS	987 580
INSURANCE	403 285
MAINTENANCE	568 667
RENTAL OF MACHINES	240 000
REFUND OF LOANS AND DEPRECIATION	8 517 002
MISCELLANEOUS	137 000
<b>TOTAL</b>	<b>25 086 269</b>

### **3 COLLECTION AND SWEEPING OPERATIONS**

#### **3 1 HAMRYA**

##### **3 1 1 General**

Hamrya is the largest commune in the UCM by population and waste volume. The 1998 population is estimated at 160,000 with a mixture of middle and low income families. It has an active commercial downtown, industrial areas and good transportation access. Formerly, Hamrya had two large shanty towns of Ain Chebick and Borj Moulay Omar, with an estimated population of 70,000. Over the last ten years, these neighborhoods have been upgraded to formal, low income residential areas through a successful World Bank project.

Hamrya is also the location of the existing UCM landfill. As seen on Figure 1, all trucks from all 6 communes must travel through the downtown area of Hamrya to access the landfill. Existing housing is within 150 meters of the landfill and proposed future development will be directly adjacent to the landfill. The increased truck traffic, up to 150 trips per day is a significant problem, especially for the downtown commercial areas. In addition to the traffic, smoke from the burning landfill, odors and insects are common problems.

##### **3 1 2 Waste Collection**

The commune of Hamrya uses a variety of equipment and methods to collect its solid waste. Six compactor trucks collect waste in the downtown commercial areas and newer residential neighborhoods. Two of the 6 compactor trucks are equipped with lifting devices to service containers. Two multi-benn container trucks service 3 cubic meter containers at 10 locations and a front end loader and dump truck service the large market areas and clean informal dumps. With the exception of 60 containers, all collection is daily, door-to-door.

Most of the streets in Ain Chebick and Borj Moulay Omar are too narrow for compactor trucks or dump trucks. These neighborhoods are collected with 2 cubic meter pick-up trucks and 1 cubic meter dumpers. Since the landfill is located in Hamrya, these small vehicles drive directly to the landfill. When the new landfill is operational, a transfer station will be required to transport the pick-up and dumper waste to the landfill.

Collection is performed only in the morning beginning at 6:00 am. Compactor truck personnel consist of a driver and 5 workers. Workers can go home when they finish their collection route. The average time for each collection crew is 4.5 hours per day.

In 1995 the commune purchased 140 plastic containers (550 liter capacity) for use in a middle income residential area as a pilot project. Unfortunately, the pilot project was altered by councilmen who demanded that the containers be placed in other sectors of the commune, including commercial areas. Today, only 60 of the original 140 containers still exist. The others were stolen, vandalized or burned. The containers that remained in the residential areas were not damaged. Although the container pilot project was not a total success, their use in residential areas has been successful and the commune is committed to continue their use and expand container areas when resources permit. The commune has also indicated a willingness to consider less frequent collection, 2 to 3 days per week with containers.

All collection vehicles are maintained in a central depot. The depot is well equipped with adequate parking space and maintenance areas. The commune staff performs all routine maintenance and service, but major repairs are hired to the private sector.

Level 2 recycling on the collection trucks is common practice. Although the commune discourages this practice they are unable or unwilling to effect a change in this practice. Recycling on the collection truck significantly reduces collection efficiency. Observations made during the Feasibility Study indicate that collection workers spend more time separating recyclable materials than they spend collecting waste.

Medical waste is produced at three hospitals located in Hamrya. Although containers are supplied, the waste storage areas are informal and waste is often placed on the ground and burned. The hospitals do not separate infectious waste from normal refuse. This is a major problem for collection workers and recyclers. The subject of medical waste separation and disposal is being addressed at the national level by the Ministry of Health.

Discussions with the commune engineer and staff have identified several significant problems in the collection system. One problem involves the authority of local councilors to direct specific collection services in their jurisdictions. Other problems include illegal dumping of construction waste, garden waste, inadequate funds for equipment maintenance, low salaries and lack of motivation or accountability by collection workers.

### **3 1 3 Street Sweeping**

Street sweeping is performed in the main downtown commercial streets daily except Sunday. Some secondary streets are swept on an as-needed basis, but most streets are not swept. The commune staff has a good street map outlining the sweeping program. The staff indicated a sweeping requirement of 400,000 square meters but they only have resources to sweep 100,000 square meters. The commune lists 35 street sweepers but many of these are guards and supervisors. Sweeping equipment is very basic with homemade brooms of palm leaves, flat shovels, and metal hand carts.

A significant long-term problem exists on many of the paved secondary streets which are not swept. Rainfall and erosion has washed soil into the roads, which is building up along the gutter, further restricting drainage. A program is needed to clean this material on a periodic basis.

Litter is a major problem in the commercial downtown. There are no litter containers and pedestrians merely place their litter in the street. The situation is made worse by many informal street vendors who generate additional waste. Sweeping is made difficult by cars and trucks parking on all main streets. Existing local laws calling for a 10dh fine for littering are not enforced. The commune has proposed a litter project in the commercial downtown consisting of litter containers on light poles. The program has not been implemented due to concerns over vandalism.

### **3 1 4 Current Budget**

Each commune is required to submit their budget to the Ministry of the Interior (DGCL). This budget for Hamrya is summarized in Figure 2. Also included in the summary table are basic data regarding population, waste generation and equipment. All equipment is listed with its estimated new cost and amortized annual cost at current FEC interest rates. This calculation is used to verify the amortization portion of each commune budget. The total annual budget is also shown as several unit costs for comparison, including cost per ton generated 232 dh., cost per ton collected 329 dh, and cost per capita per year 59 dh.

## **3 2 ISMALIA**

### **3 2 1 General**

Ismalia has an estimated 1998 population of 130,000. Approximately 50,000 persons live in the old medina and the other 80,000 live in newer areas with formal streets and infrastructure. For waste collection and street sweeping, the commune is divided into 3 sectors, the medina, new commercial zone and the industrial zone. In general, income and living conditions are lower than in the commune of Hamrya. The medina is the central commercial area for the commune and attracts many visitors and tourists.

### **3 2 2 Waste Collection**

The medina is a difficult area to collect due to its narrow streets and informal infrastructure. Medina waste is collected daily, door-to-door with 1 cubic meter dumpers and taken to a transfer station near the large food market at the edge of the medina. An elevated ramp allows the waste to be dumped into several 4 cubic meter containers which are taken to the landfill by one multi-benn truck. The transfer station is not monitored and the waste is often dumped on the ground near the containers because the containers are full. A front end loader is used to load this waste into the containers.

The transfer station has many problems, including an inadequate number of containers and insufficient trips by the multi-benn. This results in piles of highly organic waste left uncollected which becomes the source of leachate, flies and odors. Trucks and dumpers must pass through a crowded market area to and from the transfer station which is often totally blocked by vendors. The commune is in the process of relocating the market which should improve the situation.

The remaining areas of the commune are collected with 5 compactor trucks of 8 cubic meter capacity. None of these trucks are equipped to load containers. Two pick-up trucks service narrow paved roads and 3 dump trucks assist in cleaning up informal dumps and the transfer station. Workers start at 6:00 am and work until their assigned route is complete, usually in 4 to 5 hours.

All waste is collected daily, door-to-door without any containers. In general, residents place waste in metal or plastic containers, or plastic bags in front of their homes. In the newer multi-story residential areas, the residents place their waste at common collection points. These collection points become very dirty and should be converted to containers. The commune agrees with the use of containers in these areas but they must be cleaned regularly to reduce odors.

The commune maintains a well equipped depot and performs all routine maintenance of the collection equipment. Major repairs are hired to the private sector.

Recycling on the collection trucks is a problem only in the commercial zones. Due to the general low family incomes there are few materials to be recycled in the residential areas.

### **3 2 3 Street Sweeping**

Main streets in all three zones are swept every day in the morning. Secondary streets are not swept. Narrow streets in the medina are cleaned by residents and waste is placed in common collection areas at street corners. Litter is a major problem in all zones, especially in the medina. There are no litter bins and street litter from the many visitors and tourists fills the street gutters every night until the sweepers begin working the next morning. Sweeping is made difficult by the many cars, taxi cabs and buses that drive into the medina each day. The commune lists 39 workers assigned to street sweeping.

### **3 2 4 Current Budget**

The Ismailia commune budget is presented in Figure 3, along with other information regarding the waste collection and sweeping services. Total budget is listed as 7,694,137dh/year. This is equivalent to 232dh per tonne of waste generated, 329 dh per tonne of waste collected and 59dh per capita per year.

### **3 3 ZITOUNA**

#### **3 3 1 General**

Zitouna is the largest commune by area with 17.4 square kilometers. It is also the furthest commune from the existing landfill at 10 kilometers. It will be nearly 20 kilometers from the new landfill (see Figure 1, Location Map). Zitouna is a fast growing municipality with many new areas under construction. It is also the home of 3 universities which increases the population when the classes are in session. Zitouna has 2 high density medina sectors and many low density residential areas under construction. Although the estimated 1998 population used in the feasibility study is 106,000, the commune stated that the population is closer to 130,000, due to the rapid growth in the last 3 to 4 years.

#### **3 3 2 Waste Collection**

In general, waste is collected each day from the medina sectors and built-up residential areas. Newer areas with lower densities and areas under construction are collected on a less frequent basis. The medina is collected with 3 pick-up trucks and the remaining areas are serviced by 5 compactor trucks of 8 cubic meter capacity. One multi-benn truck services 5 container locations.

The commune proposes to convert a portion of the collection system to containers in the near future, beginning in the residential areas. This would require one or more new trucks, since none of the existing trucks is equipped to service containers.

The commune maintains two depot areas for parking only. All maintenance and repairs were reported to be performed by private contractors.

Due to the large area of the commune, scattered development and many open areas, informal dumping is a major problem. A former dump in an abandoned quarry continues to be used as a dumping area by residents. Other informal dumping areas were observed, especially near low density residential areas or new areas under construction with partial occupancy.

According to the commune staff, all compactor trucks make between 2 and 3 trips to the landfill per day and 4 trips on Monday. The pick-up trucks are reported to make 4 trips per day. A review of the landfill truck records indicates a much lower frequency of trips to the landfill than was reported by the commune. On Monday of our one-week landfill review, 3 of the 4 compactor trucks made 2 trips and 1 truck made only 1 trip. On Tuesday through Saturday the compactors averaged only 1.5 trips per day. The pick-up trucks were also well below the projected 4 trips per day, averaging only 1 trip per day. Although we should not draw conclusions from such a short period of data, it appears that waste collection efficiency in Zitouna is very low and a significant portion of the collected waste is not being dumped in the landfill.

### **3 3 3 Street Sweeping**

The commune sweeps only a few of the main streets in the medina and commercial sectors, using only 8 sweepers

### **3 3 4 Current Budget**

The current budget for Zitouna is presented in Figure 4. The total budget is 4,207,188 dh/year. The cost per tonne generated and cost per capita per year are much lower than other communes because an estimated 40% of the waste is not collected and is dumped informally. The limited amount of street sweeping also has reduced the budget figures.

## **3 4 MECHOUAR**

### **3 4 1 General**

Mechouar has an estimated 1998 population of 50,000. This is a relatively new commune, 3 years old, created to serve the special needs of the royal palace and historical monuments. The residential population lives in three medina neighborhoods. There are no industrial or highly commercialized areas.

### **3 4 2 Waste Collection**

The commune has 4 compactor trucks and 4 pick-up trucks that are used for waste collection. One compactor truck is used as a back-up, in the event that one of the active trucks breaks down. Collection is performed between 6:00 am and 9:00 am. Each truck makes 2 to 3 trips to the landfill per day, which was confirmed by the landfill records. Each truck has a 5-man crew for collecting waste from the small streets of the medina.

The commune had previously used 1 cubic meter dumpers and a 3 cubic meter container and multi-benn truck. This was discontinued in favor of the pick-up trucks because the container became an informal dumping area that was difficult to control. Due to the Royal Palace and historical monuments, a much higher standard of collection and street sweeping exists in Mechouar. Containers would be considered by the commune, only in the residential areas with a guard and frequent washing.

Two parking areas are maintained for the collection equipment but no maintenance or repairs are performed. All equipment services are provided by the private sector.

### **3 4 3 Street Sweeping**

Street sweeping is performed by 16 sweepers on all main streets between the hours of 7:00 am and 1:00 pm. Due to the high profile nature of the commune, street sweeping is a high priority and is efficiently maintained. Due to the minimal amount of commercial activity, litter is not as high as in other communes. Many of the main streets near the royal palace and monuments prohibit parking. These streets could be efficiently cleaned with mechanical equipment.

### **3 4 4 Current Budget**

The current budget for Mechouar is presented in Figure 5. The budget, as presented, did not include an item for amortization for equipment. In order to compare costs with the private sector, all budgets should include an item for amortization. We have used our calculation of amortized equipment to determine a total annual budget of 3,530,472. This budget is significantly higher than other communes, due to the higher standard of service provided in Mechouar.

## **3 5 OUISLANE**

### **3 5 1 General**

Ouislane is also a new urban commune, organized in the last two years. This former shanty town of 32,000, still maintains many aspects of its rural life. Although housing is being upgraded, most of its streets are still unpaved. The commune is adjacent to the region's large cement plant, and two housing areas belonging to the cement plant are located within the boundaries of the commune. The commune is projecting a rapid growth rate over the next decade of 9 to 10%.

### **3 5 2 Waste Collection**

Waste is collected using two dump trucks with a capacity of 4 cubic meters each, and a crew of 5 workers. Each truck makes three trips to the landfill on Mondays and two trips per day Tuesday through Saturday. Collection is door-to-door but many residents do not respect the placement of waste and dump everywhere. The commune has identified 20 informal dumping areas which are cleaned periodically when resources are available.

The commune has obtained 30 small containers of 110 and 240 liter capacity for pilot use in a residential area. They are in the process of finding guards for each container before implementing the program. Without a compactor truck and lifting devices, the 240 liter containers will be difficult to empty onto a standard dump truck. A full 240 liter container will weigh approximately 50 kg and will take several men to lift it onto the truck.

At the present time, the cement plant collects the waste from its two housing villages, consisting of about 700 persons. The waste is dumped near the cement plant and not taken to the UCM landfill. The cement plant has asked the commune to take over the collection and disposal in these two areas.

Ouislane is one of the furthest communes from the existing landfill and will be nearly 20 km from the new landfill.

### **3 5 3 Street Sweeping**

The commune employees only 2 street sweepers who clean the paved streets near the city hall and downtown market. They would like to increase the sweeping but do not have the resources to do so.

### **3 5 4 Current Budget**

The current budget for waste collection and street sweeping for Ouislane is presented in Figure 6. The costs per tonne and per capita are the lowest of all six communes. This is the result of having only one truck and two sweepers and a small percentage of population served.

## **3 6 TOULAL**

### **3 6 1 General**

Like Ouislane, Toulal is a former rural community and became part of the UCM in 1993. Its 14,000 residents are very poor and still maintain a rural lifestyle. The commune is located along the main road to Rabat and is expected to grow quickly in the future.

### **3 6 2 Waste Collection**

Waste is collected using an 8 cubic meter compactor truck, and a multi-benn servicing 3 containers. The compactor provides daily door-to-door service, 6 days per week and the multi-benn empties the 3 containers when they are full. The compactor truck makes 2 trips to the landfill on Mondays and 1 trip per day Tuesday through Saturday. Waste is dumped in a former quarry located about 1 kilometer from the commune (see Figure 1, Location Map).

### **3 6 3 Street Sweeping**

The commune employs only 3 street sweepers who sweep the main commercial street.

### **3 6 4 Current Budget**

The current operating budget is presented in Figure 7.

## **3 7 EXISTING PRIVATE COLLECTION**

Public collection services are provided only to residential, commercial and public facilities. Industrial waste is not collected by the communes and is either transported to the landfill by the industry or a private contractor. Landfill records indicate that the landfill receives about 20 trucks per day of private waste consisting of construction waste and normal waste.

## **4 COLLECTION AND SWEEPING SUMMARY**

### **4 1 GENERAL**

The six communes of the UCM operate six collection systems totally independent of each other. The previous report sections have evaluated the communes individually, defining in general terms the services provided, the equipment, manpower and budget. Since the goal of this feasibility study is to evaluate the potential for privatization by a single contractor, it is important that we now review the public services as a single entity, identifying the strengths and weaknesses of the existing systems.

### **4 2 WASTE COLLECTION VEHICLES**

Due to the variety of conditions found in the six communes, they use a variety of collection equipment. By far the most popular truck is the 8 cubic meter compactor, with a total of 16 trucks. The 8 cubic meter truck is the smallest compactor available. Hamrya is the only community to use a larger truck, with four 12 cubic meter compactor trucks. Two of these 12 cubic meter trucks are equipped with mechanical lifting devices to service containers. Hamrya's container program was successful in the residential areas but containers placed in commercial or mixed areas were vandalized.

The selection of collection trucks is an important decision that can effect collection efficiency and operating costs. In general, smaller 8 cubic meter trucks are used in communities with narrow streets or communities within 5 to 10 kilometers of the landfill. The 8 cubic meter truck is also an appropriate selection for communities generating 10 or less tonnes per day (2 to 3 trips to the landfill). Therefore the selection of 8 cubic meter trucks is an appropriate choice for the two smallest municipalities, Toulal and Ouslane due to their small size, and for Mechouar due to the narrow streets of the medina. The 8 cubic meter trucks are not an appropriate selection for the larger communes of Ismalia, Zitouna, and Hamrya. Larger trucks of 16 or 18 cubic meters would have been a more appropriate choice. The City of Rabat uses 18 cubic meter trucks. When the new landfill is opened, 12 km north of the city, the smaller 8 cubic meter trucks will be very inefficient to operate.

In addition to the size of the compactor trucks, they are used for only one shift per day, which averages only 4 to 5 hours. During this shift, they make from one to three trips to the landfill and then are parked at the depot for the remainder of the day. This is a very inefficient use of the existing collection vehicles. A consolidated collection system could make better use of existing equipment.

All of the communes have high density areas that cannot be serviced with compactor trucks. These areas are serviced with 2 cubic meter pick-up trucks or with 1 cubic meter dumpers. Although some of these areas could be converted to container service, most areas should continue using the small vehicles. A big problem will arise when the new landfill is opened, 12 km north of the city. These small vehicles should not drive to the new landfill, and transfer stations, located near the waste generation should be used.

Maintenance of vehicles is another significant problem. The larger communes of Hamrya and Ismalia have well equipped depots and stated that they perform routine maintenance in accordance with manufacturer's standards. But the other four communes do not have adequate depots or resources for maintenance. These communes stated that the vehicles are maintained by private contractors, but no documentation was offered to support these claims. Other sources interviewed during the Feasibility Study indicated that routine maintenance was seldom performed in accordance with manufacturer's standards.

As a result of poor maintenance, the average life of the collection vehicles is very short in the range of 4 to 5 years as opposed to 7 to 10 years for a well maintained vehicle. One commune engineer blamed the short life on the difficult roads in the commune and the poor access road into the landfill. Another potential equipment problem is that public sector drivers are seldom held accountable for accidents or poor driving.

When vehicles are damaged or require major repair, the administrative process authorizing the repair, obtaining new parts and making the repairs is very slow, sometime taking several months.

### **4.3 MANAGEMENT AND STAFF**

In general, the evaluations performed in the Feasibility Study found that managers at the commune level were very capable of managing the collection and street sweeping services. This capable management ability and organizational skills were most apparent in the larger municipalities with greater resources, especially Hamrya, Ismalia and Mechouar. Lack of adequate budget, interference from councilors and a difficult work force were cited as significant management problems.

General collection workers, sweepers and drivers were reported to be difficult to manage by the commune management staff. They are independent and unwilling to change or to be held accountable for their actions. Each collection crew has an assigned route. When they finish the route they return to the depot and are finished for the day. This does not provide an incentive to be efficient and thorough in collecting the waste. Waste is often spilled on the street and not

picked up and loose waste around containers is not swept. They seem more interested in completing the route as quickly as possible rather than doing a good job. As a result of these problems, worker productivity is very low.

#### 4.4 TOTAL COST ESTIMATES

The current budget estimates provided by each of the six communes are summarized as follows:

Commune	Total Budget (dh/yr)	Cost Per Tonne Collected (dh/t)	Cost Per Capita (dh/cap/yr)
HAMRYA	8,330,147	293	52
ISMALIA	7,694,137	329	59
ZITOUNA	4,207,188	256	40
MECHOUAR	3,530,472	345	71
OUISLANE	584,062	123	18
TOULAL	786,763	308	56
TOTAL/AVG	25,132,769	293	51

#### 4.5 EFFICIENCIES OF EXISTING SERVICES

The evaluations performed in the feasibility study have documented low efficiencies for the waste collection and street sweeping programs.

Equipment utilization is low and could be improved by consolidating the six communes and revising collection routes to a full 8 hour shift, so that each truck can make 3 full trips to the landfill. The route standard seems to be established by Monday's collection which is much greater than Tuesday through Saturday. The trucks are nearly fully utilized on Mondays but underutilized Tuesday through Saturday. The standard should be Tuesday through Saturday and work a little longer on Monday. A second afternoon shift would greatly improve equipment efficiency.

Worker efficiency is also low. Workers are independent and difficult to manage. They are reluctant to change or be held accountable for their actions. Recycling on the trucks is a major efficiency problem. Although management has attempted to terminate all recycling on the trucks they have not been able to do so. The workers are very strong people and insist that they have the right to these materials and ignore management's directives. We made several observations during the Feasibility Study where collection workers spend up to 50% of their collection time sorting and separating recyclable materials. This varies from commune to commune.

## **5 WASTE TREATMENT AND DISPOSAL**

### **5.1 EXISTING FACILITIES**

#### **5.1.1 Urban Community Landfill**

The existing UCM landfill in Hamrya has been the subject of several previous reports. The initial assessment report was completed in July 1995 and identified many problems with the existing landfill. The second report, completed in October 1995 presented interim measures to extend the existing landfill while a new site is located and evaluated. The problems and negative impacts to Hamrya and the environment in general are well known. The reader is referred to the two previous reports for more detailed information regarding the existing landfill.

The existing landfill remains basically unchanged since the original assessment in July 1995. Although a portion of the landfill was covered in February 1996, the UCM permitted waste to be placed on top of the cover. The interim measures recommended in the October 1995 study were not implemented. Today, there is no evidence that the landfill was covered.

#### **5.1.2 Toulal Landfill**

The commune of Toulal has operated its own landfill for approximately 20 years in an abandoned quarry, about 1 km from the commune. The approximate location is shown on the Location Map, found in Figure 1. The landfill, which receives approximately 8 tonnes of waste per day, is not supervised and no full time equipment is used. Waste is dumped in the quarry and spread by several recyclers, looking for materials. Once per month the commune hires a local contractor to level the site with a bulldozer. The site is periodically burned by the recyclers.

The Toulal landfill site is located in a remote agricultural area and its impacts from smoke and odors are minimal. The quarry is a former clay quarry for brick manufacture and it can be assumed that the general soil is clay. A more thorough evaluation would be required to determine its full environmental impact.

#### **5.1.3 Former Compost Facility**

The former compost facility has not operated for many years. Although most of the equipment is still on the site, its condition is unknown. The two large fermentation buildings are in fair condition but in need of some minor repairs. During the Feasibility Study, several comments were received regarding the use of this facility. At least one of the unsolicited proposals was for restoration of the compost plant but the cost was prohibitive. The UCM does not have the resources to restore this facility as a public operation but should consider totally private proposal to restore the facility.

Other suggestions included converting it to a transfer station and sorting facility or as the main depot for the private collection contractor. All the above suggestions have merit and could be incorporated into the privatization project as alternatives. Considering the limited financial resources, currently available to the UCM it is not likely that restoration of the facility as a compost plant or a transfer/sorting facility will be cost effective.

## **5 2 NEW LANDFILL SITE**

### **5 2 1 Current Status**

The new landfill site is located on state owned property in the rural commune of Dkhissa, which is not included in the UCM. Dkhissa had initially objected to the landfill location but negotiations are progressing with the governor for the purchase of the property which is approximately 60 Ha.

Final purchase of the site should be completed in the next few months. Hydrogeological investigations and environmental testing, recommended in the October 1995 report have not been completed.

### **5 2 2 Conceptual Design**

The October 1995 report included a conceptual design of the new landfill site based on approximate topographic maps and assumptions regarding property boundaries. The final boundaries of the site are different than those used in October 1995 and an updated conceptual landfill design should be performed to be used in the Request for Tenders.

### **5 2 3 Cost Estimate - Public Operation**

A cost estimate was completed in the October 1995 report for construction and operation of the new landfill. This estimate included a total capital cost with equipment of 6,400,000 dh and an operating budget of 710 000 dh per year. Total costs were estimated at 25dh per tonne. This estimate is now 2 years old and should be revised. Several things have changed in the two years since the first estimate. In addition to inflation, the UCM now includes two additional communes which were not included in the initial cost estimate. A decision has been made to pursue private construction and operation of the landfill and to include a scale in the initial construction.

The UCM has requested that the privatization tender for the new landfill construction also include closure of the existing landfill. The most efficient way to accomplish both tasks will be to use the excavated soil from the new landfill as cover soil for the existing landfill. This will impact the design, construction and operation of the new landfill. The conceptual design and cost estimate must be revised to reflect these changes.

## **5 3 RECYCLING**

As defined previously, recycling occurs at three levels in the current waste collection and disposal systems. Level 2 recycling on the waste collection trucks is a significant problem in the current public system, reducing overall collection efficiency. If privatized, the private sector managers will probably not permit this activity to continue.

In addition to restricting level 2 recycling, level 3 recycling at the landfill is not consistent with the operation of a controlled landfill. The private operator of the landfill must be permitted to control the total operation, including limiting or eliminating recycling. Limited removal of some materials such as plastic bottles and cardboard will be possible but only under strict controls.

The restriction or elimination of level 2 and level 3 recycling will force recyclers to increase level 1 recycling. Privatization of collection services will eventually increase the use of containers for waste storage, further restricting access to the waste for recycling. The UCM and the individual communes must be prepared for this and be willing to enforce the littering laws against recyclers who empty waste from containers in search of materials.

One solution to this situation is the conversion of one of the fermentation basins at the former compost facility to a sorting/transfer station. All waste would be taken to the sorting/transfer

station, and dumped on the open floor for recycling. After a specified amount of time to remove recyclables, the waste would be loaded into large trucks and taken to the new landfill. The second fermentation building could be leased to intermediate processors to process and ship the materials to markets. Although this proposal has technical merit, the added costs of additional equipment to load and transfer the waste to the landfill will most likely exceed the benefits of the recycling.

A second solution would be to evaluate the expansion of level 1 recycling through education and source separation programs. This has been successful in other countries and has created new micro-enterprises who organize and operate source separation programs in schools, offices, commercial areas and businesses.

## **6. PRIVATIZATION STRATEGY**

### **6.1 TECHNICAL**

#### **6.1.1 Private Collection/Sweeping**

##### *General*

Previous report sections have documented the inefficiencies of the existing public waste collection and sweeping services. The private sector will be more efficient at managing equipment and manpower while improving service. While this is often performed at a cost lower than the public cost this is not always the case. The following strategy is recommended for the UCM as it proceeds with privatization.

##### *Service Definition*

The most important aspect of the tender process is service definition. This is especially important since all of the communes have different areas that require different services. Prior to issuing the Request for Tender, each community must define its services as accurately as possible. This will serve as a guide for the private contractor in preparing his tender and will be used by the UCM and commune to monitor the contractor's performance. The service definition should include the following:

- 1 Prepare a detailed map of the total commune showing all streets and major features. Two maps are required, one for waste collection and one for street sweeping. These maps must be up to date, showing all existing and proposed development.
- 2 Indicate which streets are paved and which are not paved.
- 3 Indicate sectors used to define existing collection routes, with population served.
- 4 Indicate areas that are to remain door-to-door collection.
- 5 Indicate areas of existing container service or areas that can be converted to container service.
- 6 Show the location and size of all existing containers, and transfer stations.
- 7 Indicate areas that can be converted to 3-day per week collection.
- 8 Indicate all informal dumping areas to be cleaned by the private contractor.
- 9 Indicate travel distance to the existing landfill, former compost facility and the new landfill.
- 10 On the street sweeping map indicate all streets and public areas to be swept daily.
- 11 Indicate all streets to be swept once per week.
- 12 Provide a written description of any special sweeping areas such as public parks, gardens, etc.

Each commune may wish to take this opportunity to expand its waste collection and sweeping services. But they should keep in mind that cost will increase if the service is expanded.

The above definition of service will be easy for some communes but more difficult for others. The communes of Ouislane and Zitouna are undergoing rapid change and their development is not well defined. In general, private collection costs are lower in high density urban areas than they are in lower density urban areas. Ouislane and Zitouna should consider privatizing only the more densely populated sectors of the commune while maintaining public collection in the low density areas and currently developing areas.

### *Equipment*

Each commune owns an assortment of waste collection vehicles. Many of these vehicles are less than 5 years old and the communes are still paying the FEC loans used to purchase them. After privatization the compactor trucks will have no further use in the commune. Other vehicles such as dump trucks, pick-up trucks and dumpers can be used in other municipal functions.

It is the recommendation of the Feasibility Report, that the Request For Tender require the private contractor to purchase all waste compactor trucks from the communes which are less than five years old. Based on our evaluation this would include four 12 cubic meter trucks and eleven 8 cubic meter trucks. As part of the service definition, each commune should determine the price to be paid by the contractor for each truck. It is suggested that this price should be the remaining FEC loan amount or remaining amortized value.

In addition to the trucks purchased from the communes, the private contractor will provide several new trucks, with lifting devices to load containers. These trucks will most likely be 16 to 18 cubic meters in capacity.

### *Containers*

The use of containers instead of door-to-door is a distinct advantage in many collection areas, particularly in multi-story residential areas or areas where informal dumping areas have developed. Although we should not require the contractor to convert to containers, the Request for Tender should include a preference for containerized service. Each commune should identify in its service definition, those areas where conversion to containerized service would be acceptable.

Conversion of waste collection to containers allows the contractor's equipment and staff to be used more efficiently. As an example, a 12 m<sup>3</sup> compactor truck collecting door-to-door should make about 2.5 trips to the landfill during a standard shift. That same truck servicing only 750 liter containers can make four trips to the landfill.

### *Frequency of Collection*

With the conversion to container collection, the potential also exists to reduce the frequency of collection to 3 times per week. This will result in significant savings. Areas to be considered for less frequent collection should be identified in the service definition for each commune.

### ***Depot***

The contractor will need one or more depots to store his equipment and make repairs. Since the former compost facility is on the road to the new landfill, it would make an excellent depot for storage and maintenance. The Request for Tender will include an optional item for use of one of the fermentation buildings as an equipment depot. The contractor will be required to submit a plan of roads and improvements plus the price he is offering for lease of the depot.

### ***Labor***

The evaluation of the transfer of labor from the public to the private sector has been a difficult task. All communes requested that the private sector be required to hire all of the current staff of the commune. One major advantage of the private sector is the ability to require accountability from its workers. If the worker does not perform he will be dismissed. An unconditional requirement that the private contractor hire all of the public labor will not be in the best interests of the contractor or the commune.

Based on our discussions with the communes and several private sector representatives we recommend that each commune prepare a list of personnel currently employed for waste collection. The list shall include:

- 1 Name of Employee
- 2 Age
- 3 Trade
- 4 Years with the commune
- 5 Current salary

The six lists of public employees will be included in the Request for Tender and the Contractor will be required to interview all persons on the list and hire at least 75% of them. These workers may not be dismissed without cause for the first 2 years of the contract. They may be dismissed at any time for cause or failure to perform.

### ***Number of Contractors***

The current inefficiencies of six separate collection services are well documented in the Feasibility Study. These inefficiencies will be continued if each commune was issued as a separate contract to a separate contractor. Although this would open the process to a greater number of contractors, costs would be higher than with a single contractor. The UCM costs to monitor and administer six contracts would also be much higher.

### ***Subcontractors***

The primary contractor, who will most likely be an international contractor, will be encouraged in the Request for Tender to utilize local subcontractors as much as possible. All subcontractors must be listed in the contractor's proposal.

### ***Contract Term***

It is recommended that the contract be issued for a term of five years with an option to re-new for an additional two years, at the UCM option. This should give the private contractor adequate time to amortize his equipment.

## **6 1 2 Landfill construction and operation**

### *Landfill Construction*

Two contracting options exist for construction of the new landfill. The first option includes a typical construction contract where the contractor constructs the landfill according to a set of plans and specifications and then is paid the full amount of the contract when completed. The operation portion of the contract is then a separate item based on a cost per tonne. This method separates construction costs, which are not related to tonnage, from operation, which is related to tonnage. This method assumes that the urban community would finance the 3,000,000 to 4,000,000dh estimate to construct the landfill. The basic advantage of this method is that it permits the operating contract to be a shorter duration of 5 years.

The second method of contracting assumes that the UCM cannot raise the needed 3,000,000 to 4,000,000 dh to construct the landfill and must combine the construction and operating costs into a single cost per tonne contract. This combination of capital and operating costs usually requires a longer term contract of 10 years. Assuming that the second situation applies, we will assume that the construction and operation will be combined with a contract term of 10 years.

Under either method, the UCM should maintain ownership of the landfill in order to have control over the site and the flexibility to dismiss contractors for non-performance. If the site is sold to the contractor, this flexibility will be lost.

### *Closure of Existing Landfill*

The closure of the existing landfill will require a large volume of soil. Fortunately the new landfill site has very good clay soils for covering and the two activities can be combined. In order to maximize the full potential of the new site it should be excavated before placing waste. The design of the excavation should be sufficient to produce adequate cover soil for the new landfill and sufficient final cover soil for the existing landfill.

### *Design-Build*

The construction of the landfill should proceed as a design-build project. Under this procedure, the Request for Tenders includes some basic design parameters and a conceptual design. The contractor is then responsible for completing the final design and submitting it to the UCM for their approval. After receiving approval, the contractor may proceed with construction.

### *Landfill Operation*

The existing landfill is uncontrolled and is the source of significant environmental problems from surface water pollution and air pollution and should be closed. The new landfill should be operated as a controlled landfill with proper compaction and cover soil. In the absence of national standards for landfill operation, the private contract agreement should include the required technical methods for operating a controlled landfill. The draft tender documents, included in Appendix Three include an operating plan for the new landfill.

## **6 1 3 Private resources**

The Feasibility Study evaluated the existence of private resources to perform the waste collection and landfill contracts. Since waste management services have traditionally been a public operation there are no specific companies in Morocco capable of managing a large collection contracts such as the Urban Community of Meknes. However, in the past few years, several French waste management companies have established Moroccan companies in Casablanca. During the Feasibility Study, we visited one of these companies, Smarcollect. They are actively soliciting solid waste collection in all major cities in Morocco. They recently

signed a contract to manage the medical waste produced in the Rabat-Salle region Smarcollect is a division of Sita, one of the largest waste management firms in the world

In addition to Smarcollect, there are reports of other French and Italian companies are interested in doing business in Morocco

In the short term, these international companies are probably the only firms available with the management skills and financial resources to perform the collection services in Meknes In the long term it is desirable to develop Moroccan companies with similar skills and management abilities The Request for Tenders will encourage subcontracting or joint ventures in order to begin this long term process

The landfill contract is a different matter The construction and operation of the landfill will not be a difficult or high tech process Any good heavy construction company with large earth moving equipment could be trained to operate the new landfill During the Feasibility Study, we met with the Chamber of Commerce of Meknes and explained our mission They were very interested in our proposals and provided some useful data which has been incorporated into this report

Meknes has a significant amount of heavy industry Although time did not permit a complete review of private contractors, there were several noted who are associated with the brick factories and cement plant These industries themselves may want to diversify into landfill operation

Although the UCM recommended one contractor for both collection and landfill operation, we do not feel this is in the best interests of the UCM or the State of Morocco and therefore two

separate contract processes are recommended, in hopes of attracting a Moroccan company to operate the landfill

#### **6 1 4 Recycling**

As discussed in Section 5 3, the privatization process will most likely cause a set-back for recycling in Meknes Although the Request for Tenders will include an alternative for a sorting and transfer facility at the former compost facility, the increased cost is likely to be prohibitive Therefore, the privatization strategy should include a long term goal to improve level 1 recycling through educational programs and coordination with the new private contractor Pilot programs in schools, offices, government buildings, hotels should be considered to separate recyclable materials at the source of generation

#### **6 1 5 Special Waste**

##### **Construction/Demolition Waste**

All cities in Morocco have a problem with construction and demolition waste This is a very long term problem and will take a long term solution, which is greater regulation and enforcement of existing laws prohibiting the dumping of this waste In the short term, the communes need a program to remove construction and demolition waste that builds up along roadways and in open areas One of the problems with this waste is there is usually no designated location to dump it With the new landfill located 12 km north of the city, it will not be feasible for communes to take demolition waste to the new site Therefore, each commune should designate one or more locations within its boundaries for the disposal of construction waste These could also be storage areas, which could be loaded and disposed of periodically A fee should be charged for dumping in these locations

With the privatization of waste collection services, the communes may have additional equipment and manpower to address other problems in the community These resources could

be directed at cleaning up the accumulations of construction waste. Once these areas are cleaned, regulations must then be enforced.

For large areas of demolition waste, the communes may wish to use the services of the private contractor. Therefore, the Request for Tender will include an item for removing demolition waste on a cost per cubic yard basis.

### **Medical Waste**

The subject of medical waste is being addressed at the national level by the Ministry of Health. Unfortunately, the higher profile cities like Casablanca and Rabat will get solutions before Meknes. For the near future, medical waste will continue to be disposed of in the landfill along with other wastes. Although previous educational programs have not been implemented, a more active approach should be taken by the UCM, as an issue of privatization. At the very minimum, the hospitals should separate their waste and place all infectious waste in "red" plastic bags to warn collection workers of its infectious contents.

### **6.1.6 Education Program**

The quality of waste collection systems is largely determined by the degree of cooperation between the generators of solid waste and the waste collection workers. This involves the time of collection, use of containers, types of waste accepted and impacts of informal dumping and littering.

The proposed privatization project will involve changes in the way waste is generated, stored and collected. An effective educational program is essential if this process is to be successful. In the short term, the contractor should be required to conduct an education campaign in each commune, informing the residents and businesses of the changes to be made. He should use printed advertisements, radio broadcasts or small neighborhood meetings to explain these changes. The contractor's trucks, containers and litter bins can be used to communicate more global messages about environmental awareness and littering.

One of the more important aspects of the education campaign is the need to remove recyclable materials from the waste before it is disposed. Plastic bottles, cardboard, paper and other materials can be removed by the generator and stored for later collection by level 1 recyclers.

In the long term, the UCM should establish a broader education campaign, aimed at schools, businesses, and civic organizations such as the chamber of commerce. Collection of recyclable materials in schools has been a very successful tool in many developing countries. Civic organizations, such as the chamber of commerce, are often willing to participate in educational programs in exchange for advertising.

The recently completed Guidelines for Solid Waste Management, completed by the ministry of the Environment, includes an entire chapter on education and serves as an excellent guide.

## **6.2 Financial and Legal**

### **6.2 ADMINISTRATIVE AND FINANCIAL ASPECTS**

#### **6.2.1 Alternative solutions to management by contractors**

An efficient management of solid waste in Meknes implies an integrated system that covers the various sweeping operations of public areas and waste collection, transport and disposal.

By strictly observing the competence of Urban Communes and the management by direct authority mode, the best that can be achieved is to create an inter-communal coordination of

which the urban community is the natural framework. However, considering the diagnosis made, such a coordination is not in itself sufficient to grant the city of Meknes an efficient solid waste management system. To attain such objective, it is necessary to bring together all available means, to progressively improve them and to separate the waste collection/sweeping department from the daily administration of the Commune so as to insure to its management the know-how and regularity required.

The solution is therefore to be sought through a delegation of management of the public solid waste utility. Such delegation can theoretically be made either to a specialized entity which is nevertheless answerable to the Communes concerned, or to private companies.

In both cases, to be successful, the management autonomy of this public utility requires that, as a preliminary step, clear options be taken regarding the extent and implementation terms of the transfer.

### **6 2 1 1 Management by local public contractors**

When they decide to give up the management by direct authority mode, the Communes can choose a management under private law, whereby they nonetheless, retain direct power in terms of managing the sector.

Thus, they can create either a public establishment at the urban community level in the form of an autonomous authority, or a mixed economy company whose capital may or may not be open to the public.

In both cases, the utility management will be unified and autonomous and can reach, if granted the necessary means, a certain degree of efficiency.

However, it is not guaranteed that such a solution offers more advantages as compared to the current situation.

Indeed, the participation of private capitals in a mixed economy company of local interest is improbable. Even if such a participation is obtained, it is not sure that a local public establishment could actually reach the autonomy of management formally conferred to it by its legal status. Consequently, there remains a risk to see the present management copied, considering the reduced space of the contractor, their lack of experience in this field and the administrative sluggishness they will certainly experience both when choosing people and during the exercise of oversight and control.

As a matter of fact, if a decision is made to use specialized companies and private management, it is preferable to call upon professionals and use their skill to ensure competition while retaining enough leeway to regularly adjust management methods and means to municipal requirements.

### **6 2 1 2 Management by private companies**

Administrative law distinguishes between conventions dealing with the delegation of a public utility management and public contracts for work, supplies and services.

The first legal category comprises all processes through which the management of a public utility is entrusted to a private entity in lieu of the administration against perception of dues from users.

Usual processes falling within this type of delegation are managership, leasing and concession. Differences between these reside in the taking over of investments and working risks.

Thus, the concessionary company uses its own funds, performs works and carries out the management, and is paid by the users. The duration of the concession has therefore to be

sufficiently long to allow amortization of the investment and making of profits. While complying with the obligations pertaining to the price and quality of the service performed, the concessionary company manages at its own risk the public utility in question.

Regarding the tenant, it does not contribute any capital. It manages a utility that is already equipped by the Administration and takes care of the operating expenses by means of dues paid by users. Unlike the concessionary company, the tenant's only risk is to have to cover a working deficit.

As for the manager of a public utility, it is in an even more comfortable position since it conducts the activity for the Administration for whom it collects moneys. It is generally remunerated by a fixed share which can nevertheless be indexed on performance results.

These three situations are different in theory from the public deal which has the form of a contract by which the Administration places an order with a company for the performance of pieces of work or the supply of goods and services against an amount directly paid to it.

There seems to be a clear distinction between the two categories of conventions. However, the changes undergone by the various types of delegated management of a public utility sometimes make them resemble contracts for a service. The specific aspects of the concession, in particular, are significantly less conspicuous both in Morocco and abroad.

Thus, the principles of continuity of the public utility and its adaptation induced the Administration to reduce the management risks by directly making some investments or by guaranteeing a minimum profitability, or even by substituting to the dues a remuneration it pays directly to the concessionary company (concession of the TV in France and of the Jorf Lasfar thermal station in Morocco).

In these conditions, one can rightfully wonder on the legal nature of the delegation of the management of public household waste services.

#### NATURE OF THE DELEGATED MANAGEMENT OF THE SOLID WASTE SERVICES CONCESSION OR CONTRACT FOR SERVICES ?

To answer this question, it is necessary to consider certain criteria such as the duration of the contract, the funding methods, the collection of dues from users, the ownership of the property once the agreement is over and the attribution of privileges outside the scope of common law.

Without raising a school debate on the matter, the following is to be noted:

- the proposed operation does not necessarily require from the contractor any particular investment (its own means could be available before the contract) ,
- the equipment used will be brought in by the contractor and will remain its property ,
- the successful bidder will not enjoy the privileges of a public authority ,
- the remuneration will be in the form of a price due by the Administration and not of dues payable by users ,
- judging by its duration, the convention rather covers the medium term.

All of these reasons tend to privilege the service contract option over that of the more attractive concession. It is also this option that is adopted in Tunisia, France and Spain.

The above implies two major consequences:

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1 - The conclusion of contract for service, unlike the granting of a concession, does not in itself necessitate a discussion at the Communal Assembly

However, it should be noted that a change in the method of managing an already existing public department requires the matter to be discussed at the Council, which still means the same result will be reached, at least in the case of Meknes

2 - The conclusion of a convention, as a public contract, has to follow a procedure which is determined by the current regulations while a concession is governed only by administrative practice

Once the legal nature of the relationship is established with certainty, the parties to the contract are still to be designated

### THE CONTRACTING PARTIES

Here too, the issue seems to be an ordinary one. In reality, however, we are in a situation where what is assumed is the opposite of the usual practice with public contracts since we will have, on the one hand, only one private contractor acting for its own account and, on the other hand, seven distinct communities whose privileges are different and interests probably divergent as regards secondary issues. We have, on the one hand, the Urban Community and, on the other hand, the six Communes in question

The Urban Community can conclude a separate landfill operation contract. This solution corresponds to the legal distribution of competence in this respect. It seems all the more appropriate as conditions of landfill operation do not so much interfere with the operations of sweeping, and waste collection and transportation

Another solution could be suggested when the Urban Community is requested to also insure transportation of waste between the transfer stations and the landfill, but such is not the case in Meknes

As far as the Communes are concerned, the tasks they will have to ask the private contractor to perform are identical in their nature, but they will inevitably vary in their magnitude and their real cost according to the configuration of streets, the amount of waste and the distance to the landfill

But, apart from these differences which can be dealt with by contractual means, it is obvious that the economy of scale and the quality of collection/sweeping services depend mostly on the designation of only one contractor. This way, the Communes objectively will tend to unite to deal with the question as a single entity

Therefore, if the conclusion of several service contracts is excluded, two other administrative solutions are naturally needed

- the creation of an inter-communal union for the solid waste management to be entrusted with awarding the contract, controlling its implementation and insuring the payment

- the designation of a sole representative which can be the Urban Community

The first solution avoids plurality of actors. The procedure for creating an inter-communal union is nevertheless a rather cumbersome one and its management can, in practice, raise conflicts of interest that sometimes result in delays in the settlement of members contributions. Failures within the union may have unwanted consequences on the observance of conventional commitments, be costly for all Communes and even seriously disturb the contract implementation. However, this solution remains the best when the Communes involved do not belong to the same community. It can also be improved mainly by limiting as much as possible the union's competence (Article 54 of the Charter)

The designation of a sole representative seems a more flexible solution but it is also more precarious from a legal point of view. First, delegation of powers can always be withdrawn, then, it is not sure the Communal Charter authorizes the commune's President to delegate his powers to persons other than those he appoints namely, in this case his deputies or Assembly members (Article 50 of the Charter)

As regards Communes belonging to the same Urban Community, the choice of such representative seems to be made by right in favor of the Urban Community. Indeed, Article 58 of the Charter refers to Urban Community for "coordinating and managing businesses interesting two or more Communes"

We have already underlined the flexibility of this legal provision which puts side by side "coordination" and "management", thus leaving room for further internal negotiation resulting in the Urban Community taking over the management of common businesses in lieu of the collectivities concerned (See 2.6 above). As such, it is designated as landfill operator by the law as well as of solid waste each time its management involves several Communes

In this double capacity, it will have to conclude the two contracts and to organize its relationship with the Communes concerned in order to insure, in particular, the payment of the cost and the control of the contract implementation

Naturally, these operations cover the services as will have been defined in the contract

## SCOPE OF THE DELEGATION OF MANAGEMENT

Communes may delegate the management of all solid waste services or only part of them. They may consider keeping under their fold the management of some of activities (like sweeping) or of specific areas (those which are remote, under-equipped or necessitating special services)

It should be recalled here that this report, being solely devoted to household waste, excludes other types of waste for which solutions have to be sought

The Commune may therefore consider keeping a minimum cleanliness department whose action can be remunerated by users and which would work as an intervention team in case of emergency (strike, lock-out, exceptional sweeping services )

One of the fundamental criteria in the choice to make is the cost

### **6.2.2 Financial management alternative solutions**

Three basic questions must be addressed: How to determine a fair price for the services and control the accuracy of invoices? According to what periodicity and procedures to settle the price? What mutual guarantees to take?

#### **6.2.2.1 Price calculations**

Waste management operations concern four distinct activities

- Landfill operation: reception of trucks, weighing, sorting, burying of waste, security and possibly marketing of recyclable materials,

- street sweeping according to a frequency to be determined and possibly installation and maintenance of waste-bins for paper

- household waste collection according to methods to be determined: door-to-door, containers, vats, etc

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- household waste transportation till the landfill

Landfill operation cost analysis can be made either on the basis of the volume of waste received or on the basis of an assessment of expenses on the personnel and equipment the contractor is contractually bound to assign in a permanent manner to the landfill

The cost of sweeping can be estimated either as a lump sum or on the basis of the length of streets. The reference price can be modulated according to the agreed upon frequency and the intensity of activities: residential areas, commercial areas, etc. The same applies to water cleaning when it is included.

The cost of the household waste collection has to be integrated with that of waste transportation each time it is directly moved to the landfill. The reference price can be fixed according to the volume and distance covered.

It is also possible to evaluate all costs as a lump sum. Such solution has the advantage of being simple, especially as regards budget estimates and regular settlements. It can, nevertheless, lead to some laxity.

A combination of the lump sum formula and calculation according to the actual work performed can be found by fixing for the first years a ceiling price based on the data presently available.

#### **6 2 2 2 Periodicity and settlement mode**

As we are dealing with a contract for a service to be carried out repeatedly over a given period of time, it is obvious that the operating cost decreases as the contractor does not resort to loans. The more settlements are made at short and regular intervals, the lesser the final cost since it is ridden of any financial burden.

It is therefore in the interest of both the Contractor and Communes that settlements are regularly made at an interval of two or three months.

Budget estimates of the first budget year will be worked out using the information available on waste volumes and areas to be serviced. It can be stipulated in the contract that amounts above this ceiling be settled within a limit of 20%. In the light of actual data collected during the first 10 months of delegated management, more accurate estimates can be made which will then justify the removal of a ceiling for the following years.

This approach offers each Commune and the Urban Community an assessment and adjustment ability which helps them honor their commitments in time.

Furthermore, as the management of this inter-communal service is legally entrusted to the Urban Community, it is possible to consider a monthly transfer of a twelfth part of the provisional credit to be made from each Commune budget to a special account opened to this end by the Urban Community.

Payment of the operator for the collection and transportation of waste will then be made every two months by debit of that account on presentation of invoices.

As for the settlement of the landfill operation cost, it can be made on a quarterly basis by the Community in accordance with ordinary procedures of commitment and clearing.

#### **6 2 2 3 Financial guarantees**

Since this is a service contract, the parties are granted the guarantees associated with public contracts. However, as the question of regularity in the settlements is a very sensitive one, it is desirable to provide for and apply interest on over-due payments each time an invoice is not honored beyond a certain time (15 working days).

Conversely, any delay in the implementation of the contract will result in applying similar penalties

The Contractor must also be indemnified to the extent of the prejudice suffered each time changes are introduced on the conditions of execution of the service as well as in case of early termination of the contract for a reason not attributable to the contractor's fault

### 6 2 3 OUTSTANDING ISSUES

Transferring public waste management services to the private sector has repercussions on the communal personnel. It also raises questions concerning the current equipment of each Commune as well as the fate of the equipment acquired by the contractor

As this is a medium term service contract, one may also think of the necessary coordination and control relationships with the Administration and of how to deal with the conflicts which may arise therefrom

#### 6 2 3 1 Personnel

The six Communes have currently a personnel whose members are for the most part statutory and benefiting from all rights deriving from this status. Of course, some of them are not actually assigned on a permanent basis to waste collection/sweeping activities and can be retained by the Commune within their effective functions

It is also worth noting that the problem is not raised with the same seriousness in all Communes. Ouislane and Toulal, for example, have respectively 11 and 14 employees -with short length of service- while Ismailia has 209 and Hamrya 154

#### EMPLOYEES ASSIGNED TO WASTE COLLECTION/SWEEPING IN MEKNES URBAN COMMUNES

COMMUNES	COLLECTION/SWEEPING EMPLOYEES
ISMAILIA	209
HAMRYA	154
ZITOUNA	88
MECHOUAR	62
OUISLANE	14
TOULAL	11
TOTAL	<b>538</b>

Regulations applicable to communal employees are largely based on the general status of the public Administration and do not provide for any kind of secondment or assignment of staff from public collectivities to private companies (decree of 27 September 1977 on the particular status of the communal personnel, Official Gazette N° 3387 of 28 September 1977, p 1068)

The destiny of this personnel is restricted to one of the two following possibilities

1 - each employee voluntarily elects to renounce his status of communal officer in order to be employed by the private company ,

2 - each Commune undertakes to dismiss its personnel members while at the same time negotiating the recruitment of most of them by the successful Contractor

The first solution is difficult to achieve because it relies entirely on the willingness of the workers concerned who objectively have nothing to gain from changing their status and keeping the same salary

Indeed, their current status grants them stability in their career without requiring the performances that a well managed company would expect from its workers

In their view, joining a private company involves the risk of making their situation precarious and would raise practical problems which require too much time to solve like regularizing their registration in the CNSS (National Social Security Fund), the payment of their family allowance and the re-purchase of their contributions to the RCAR ('dahir' of 10 September 1990)

The question of their future when the contract ends should also find a satisfactory solution, unless their re-recruitment is systematically envisaged by any contractor in the future

The solution implied by their possible dismissal is also difficult to implement from both the legal and social perspective. The communal employee status refers in this matter to the provisions of the general status of the public Administration. However the only provision used by this status to treat a case of dismissal for a reason not attributable to the wage-earner reads as follows: "dismissal of officials resulting from the cancellation of permanent positions held by them can only occur in application of special 'dahirs' releasing officials and specifying, in particular, conditions of prior notice and indemnization" (Article 40)

Considering the constitutional changes introduced in 1958, we can assume that texts organizing such disengagement are of a regulatory nature. It remains nonetheless that the procedure for dismissing communal employees will have to be organized by a decree

Innovative solutions can be found through conventions whereby communal employees would be put at the disposal of the contractor while remaining part of the communal personnel members. Such arrangements exist between public establishments as well as in the public Administration even if they have no legal foundation. But the precariousness of this situation is covered by the gain it offers the employees concerned who thus abstain from questioning the lawfulness of the process. Such a subterfuge might greatly disturb the management of human resources and lead to laxity in terms of control.

In the best case, the integration of part of the communal waste collection/sweeping personnel within the private company should be considered as a major criterion for the award of the contract. This should be accompanied by the safeguard of vested rights, and this would undoubtedly represent an important burden for the enterprise.

It is then clear that, as the law stands currently, there is no satisfactory solution. The social treatment of the issue necessarily infringes somehow the legal provisions.

The least constraining means for the Contractor is to hire the employees after their resignation or after they obtain their temporary release from the Communal Administration. The Administration can guarantee their right to be re-recruited on a priority basis in case of resumption of the waste collection/sweeping services by the communes, and maintain their priority of re-employment in case of change of the contractor.

The privatization of waste management will then lead to a total transformation of the status of the communal personnel who will definitively become private law wage-earners.

One can also consider using a form of placement of communal employees at the disposal of the Contractor while keeping their administrative status unchanged. Such solution would oblige the contractor to manage a personnel that is not totally under its authority and to send back to the communal Administration undisciplined or insufficiently productive individuals.

Formally, employees would continue to receive their salary and social coverage from the Commune

On the other hand, if the solution chosen is the secondment to the private company, the latter would undertake to pay the personnel directly, to settle social contributions and to subscribe an insurance against work hazards. The employee would be liable to disciplinary sanctions, except for dismissal which can be decided only by the communal Administration after recall of the employee concerned.

The implementation of all these solutions necessitates the approval of the workers and the preparation of a favorable environment.

### **6 2 3 2 Fate of the commune equipment assigned to collection sweeping**

Several Communes have acquired medium sized vehicles and equipment which are still in good shape and which they will no longer need.

To avoid its loss, two solutions are possible:

- its sale by auction ,
- its taking over by the Contractor

The second solution is in fact feasible only for non depreciated equipment. It may however raise an evaluation problem due to the fact that the transfer will finally be made by mutual agreement. Nevertheless, in order to increase the transaction transparency, a take-over price can be fixed in the specifications according to the depreciation made and to provide for the possibility to take over the non-depreciated equipment at the end of the Contract on the same basis, for either the Commune or the new Contractor.

It is also possible to rent this equipment to the Contractor for a duration corresponding to that of its utilization in good conditions and then undertake its scrapping. Such a solution could suit the Contractor's interest when the latter envisages to acquire all of the equipment only once the contract is concluded.

However, in this option some practical problems regarding the responsibility of the commune will have to be solved (insurance, registration, ...) unless the rental is made in the form of a remunerated service, in which case the truck remains, during the rental period, in the hands of a driver belonging to the communal personnel. Although not so much practical, this solution can represent a continuation of the secondment of the communal personnel.

## NON SCRAPPED COMMUNAL EQUIPMENT ASSIGNED TO CLEANSING

COMMUNES	NON DEPRECIATED VEHICLES	VEHICLES STILL IN USE AFTER 5 YEARS
Toulal	1 Dumper truck (1994) 1 Multi-benn truck (1994) 4 Dumpers (1994)	1 Compactor (1988)
Hamrya	4 Compactors of 12 m3 (1995) 4 Dumper trucks of 4 m3 (1995) 2 Small trucks (1995) 1 Tractor (1995) 2 Dumpers (1995)	2 Compactors of 8 m3 (1988) 1 Bin carrier (1990) 2 Tractors (1993)
Mechouar	3 Compactors (1994) 14 Peugeot Satellite (1993 and 94)	1 Compactor (1990) 1 Bucket Paris type (1990) 1 Bin carrier 1 Small truck
Azzitoune	4 Compactors of 8 m3 (1994) 1 Bin carrier 1 Truck (1994) 2 Small trucks (1994) 1 Tractor (1994)	1 Compactor of 8 m3 (1990) 1 Bucket Paris type 1 Small truck (1991)
Ismailia	5 Compactors (1994)? 4 Dumpers 2 Pick ups 2 Trucks 1 Bucket Paris type	
Ouslane		2 Benn trucks (1992)

### 6 2 3 3 Ownership of the equipment assigned by the Contractor to Meknes collection/sweeping activities

Unlike the concession which usually ends up with the company becoming owner of the property assigned, a service provider uses its own means and keeps full property at the end of the contract

Therefore, it is advisable to opt for on a contract duration which corresponds not only to the accounting depreciation of the equipment but also to the limits of its utilization in good conditions so as to reduce costs

Nevertheless, it is possible to make it compulsory for the contractor to acquire the non depreciated communal equipment and even an obligation to transfer, at the end of the contract, the equipment will have acquired and which would not have been depreciated

### 6 2 3 4 Control

The Administration is granted by law the control and adjustment authority concerning the implementation of public contracts The sector of solid waste management is also a field of action that is largely covered by the power of administrative police which is placed under the authority of the Presidents of Communes

Consequently, to obtain the best possible implementation, it is necessary to harmonize the authority conferred by law to the local Administration by these two aspects with the clauses of the specifications

Performance of a regular monitoring is a prerequisite for a good execution of the contract. The documents that have to be submitted by the contractor must, in particular, be requested in time and meticulously examined

In particular, additional information must be requested whenever necessary, and accuracy of statements must be checked. Concerning this issue, contemporary laws make it an absolute obligation for the Administration's representatives to undertake necessary controls so as to make them as much as the contractor alive to their responsibilities in case non observance of the agreed-upon clauses ( French Law of 8 February 1995 )

In this context, penalties will have to be provided for in the specifications and applied in case of non fulfillment by the Contractor of his obligations: collection frequency, vehicle maintenance, etc

This deterrent means allows at the same time to preserve the efficiency of monitoring, to facilitate the Contractor's control over his personnel and to avoid the recourse to more serious sanctions such as termination of the Contract

But, beyond the administrative control and the observance of obligations and prerogatives of the contracting parties, it is important to establish the best cooperation possible between all those concerned by the process of prevention, management, hygiene and public health

Inter-communal cooperation has therefore to lead to the designation of a sole representative in the matter and to the harmonization of provisions and practices in terms of administrative police

A typical communal decree can thus be adopted with a view to giving the technical prescriptions in the specifications a corresponding conduct of the population and other parties concerned (conditions of waste presentation, collection hours, sweeping )

A horizontal coordination between communal departments should allow for a regular follow-up of solid waste management activities and for discussing problems with the Contractor as they arise. A permanent follow-up commission can be created comprising, on the one hand, technicians from the Urban Community and, on the other hand, the head of the technical department of each of commune

Communes could separately maintain regular and direct relationships with the Contractor company regarding the complaints of by the population and mutual information. However, only the head of the commission will be entitled to give instructions to the Contractor so as to conciliate between the necessity to daily manage health questions at the Commune level and to preserve the unity of decision and administrative control

The follow-up commission could be enlarged to comprise representatives of other authorities to discuss, at longer intervals, improvements to introduce concerning waste management and to better integrate it among the other activities related to the safeguard of public health and the protection of environment: representatives of the RED in their capacity as responsible for liquid waste, physicians in charge of municipal hygiene, organizers of awareness and education actions concerning public health and environment, etc

### **6 2 3 5 Management of conflicts**

The interpretation of the specifications, the periodic or regular assessment of the Contract execution as well as the application of penalties can give rise to litigation

Even if these normally end up before administrative jurisdictions, it is important for the sake of continuity of the public service and for the maintenance of close cooperation between all those who contribute to its functioning that, first, amicable procedures be initiated

Such procedures have often been used in the field of management of water or waste collection/sweeping services

We may therefore think of a free arbitration that maintains the possibility to go to court in accordance with the administrative law. The simplest process consists in appointing an arbiter by each party. The two persons thus designated agree on the choice of a third arbiter. The arbitration decision is therefore made by the tripartite authority. It is only when the arbitration commission does not reach an agreement, or when such agreement is refused by one of the parties after its official notification, that the procedure is declared unfruitful and then the parties are authorized to go to court.

The establishment of such a procedure and, as a general rule, the maintenance of a reasonable degree of communication between the parties in case of conflict, make it necessary for procedures of presentation of claims and injunctions, as well as the time allowed for reply, to be precisely stated in the specifications.

At the limit of control and sanction measures, it is possible to also provide for the placement under provisional authority. In view of the necessity to ensure the continuity of the public service and maintenance of the public health, the Administration may, in case of serious default or prolonged discontinuance of the service, temporarily take possession of the Contractor's means to insure their functioning at its own risk until such time when the Contractor is in a position to normally resume his services.

Social conflicts, especially strikes and lock out, may also hinder the continuity of the public service.

The current law governing collective conflicts prescribes neither prior notice, nor preliminary negotiations, nor the obligation to maintain the minimum service.

So long as the service is performed by communal staff, social movements are under certain control. A private company can be more open to risks of stoppage and harsh strikes. The balance of power between the employer and his employees can be unfavorable to the former who is bound to insure the service continuity since strikes are not considered as a case of force majeure.

It is therefore necessary to find a practical solution to insure the service continuity in similar cases, such solution serving also to reestablish the balance of power between the parties.

Two complementary methods can be adopted:

- maintaining in each Commune an emergency team to intervene in case of need, using in particular occasional workers. It can be constituted around the team of workers in charge of sweeping services,

- creating a flexible procedure allowing the Contractor to<sup>2</sup> sub-contracting in case of serious temporary difficulties preventing him from carrying out its duty.

Hence, the appreciation of the conflict circumstances and the authority to allow recourse to others can contribute to moderating the parties' positions and promoting peaceful solutions.

## 6 2 4 Local ordinances and enforcement

The improvement of cleanness in the city of Meknes does not hinge solely on the public solid waste management. It also necessitates legal and institutional support measures.

Thus, the specification clauses pertaining to the definition of household waste, and to the general conditions of performance must imperatively find a continuation in the communal health.

They also must find in the cooperation of the communal officers and, in case of need, of the judicial police, the necessary support for sanctioning repeated violations.

It should be noted that, as long as a legal regime for solid waste is not adopted, only penal law provisions and administrative police regulations can be applied.

Thus, Article 608 punishes by a 1<sup>st</sup> class fine those who encumber the public thoroughfare by laying down and unnecessarily leaving there materials or any objects that prevent or hinder the freedom or safety of walking by (Paragraph 10)

Article 609 provides for a 2<sup>nd</sup> class fine against

- those who neglect or refuse to comply with regulations or decrees concerning the public streets or to obey summons by the administrative authority to repair or demolish buildings in danger of falling ,
- those who throw or lay down on the public streets rubbish, garbage, sweepings, waste water or other materials which may be harmful if they fall, or produce unhealthy or inconvenient fumes ,
- those who fail to clean streets or walking paths in districts where this is to be done by the residents ,
- those who place or leave in waterways or water sources materials or other objects that are likely to encumber them

As for the specific texts, they are of a relatively limited scope. Apart from a law which protects public gardens, the only major text that can be applied to solid waste management is the 1980 'dahir' which has granted the President of the Communal Council new powers in this field. They concern measures to be taken to suppress either the disturbance or threat of disturbance to the safety or comfort of the walking paths, or an unquestionable unhealthiness. Therefore, mere threat to walkers' security justifies such actions. On the other hand, the recourse to this exceptional procedure concerning public health requires the existence of an unquestionable unhealthiness.

A report is submitted to the President of the Communal Council by the departments concerned. He then ordains measures to be taken, proportionately to the disturbance or actual threat.

If the individual concerned challenges the established facts or the measures ordered, he may have a valuation made by an expert of his own choice. The conclusions reached by the latter are transmitted, together with the view of the administrative departments' representative to the President of the Council who then takes appropriate measures. In case of emergency, he may order the measures to be enforced within a limited period of time. Such decision cannot be challenged. On the other hand, in order for it to be enforceable, the decision should be countersigned by the Governor. If the person concerned does not obey, the President may require the immediate implementation of the measures ordered while suing the respondent for the recovery of the expenses incurred, increased by 10%.

This procedure can be envisaged in the field of waste collection/sweeping only in the exceptional cases of pollution or of an unquestionable danger for health

Consequently, the compatibility of the specifications with the general regulatory environment implies the adoption of general regulations on public health by the President of each Communal Assembly, campaigns of awareness and dissuasive sanctions

Sanctions for infringements in this matter can then indifferently be based on the provisions of the aforementioned Articles 608 and 609 or on those of Article 609, Paragraph 11, concerning violations of administrative orders

## **6 3 RECOMMENDATIONS**

### **6 3 1 Technical**

The various evaluations performed in the Feasibility Study have found that the existing public collection system is inefficient and it should either be totally reorganized with central management and new equipment or privatized. The current inefficiency is related to both equipment and manpower inefficiencies which will become worse when the new landfill is activated, adding over 20 kilometers to each trip to the landfill. Existing small trucks will be even more inefficient in the future. Given the lack of financial resources available to the UCM for public reorganization, it is our recommendation that the UCM proceed with privatizing the collection system. In order to avoid some of the mistakes of the past we recommend that a single contract be implemented for all six communes, taking advantage of economies of scale.

The existing landfill should be closed as soon as possible and properly covered with soil. The new landfill site has been selected based on its location, hydrogeological conditions and limited potential for environmental impacts. Due to the high costs of developing this site we recommend private construction and operation.

### **6 3 2 Legal and Financial - Recommendations and Procedures**

#### **6 3 2 1 Recommendations**

Out of the various options considered, the institutional package that seems to be best adapted in the case of Meknes consists in the delegation of the household waste management to the Urban Community.

The Urban Community will then issue two tenders

- one in its capacity as the authority in charge of the public landfill ,
- the second in its capacity as the manager of the inter-communal management of household waste. This will cover street sweeping, household waste collection and its transportation to the landfill.

The duration of both conventions can be either the same or different. As a matter of fact, taking into account the effort of equipment required by the collection and transportation of waste, the duration of the convention should correspond to that of depreciation of vehicles, i.e. 5 years. This can also be extended by one year by a decision from the Administration.

For the sake of convenience, the same conditions can be applied to the landfill operation contract. But the rather smaller size of the equipment required here allows for a different duration.

Except for imperative reasons, the appreciation of which lies with the Communes concerned, it is recommended to *entrust the entire sweeping and waste collection and transportation activities*

to the private contractor and to maintain a reduced emergency scheme around the public thoroughfare maintenance department. It could undertake, as a remunerated task, the collection of special non domestic waste and intervene exceptionally in case of failure of the contractor

The financial burden to be borne by each Commune will be determined on the basis of the volume of waste collected and of areas swept. The cost of collection and transportation should be the same for all Communes regardless of the distance between them and the landfill

Budget estimates will be worked out the first year on the basis of the current estimates, reduced to the unit price. Contract provisions shall stipulate that, the total price will not exceed 20% of the estimates during the first year. Provisional expenses will nevertheless be fixed the following years on the basis of actual results of the preceding year

The Communes will monthly transfer to a special account open by the Urban Community an allocation equivalent to one twelfth of these amounts. Every two months, the Community will settle the invoices covering work accomplished since 30 days at least

Any delay in payment exceeding 15 working days will result in the payment to the Contractor of an indemnity calculated on the basis of an annual interest rate of % . The Community will recover this amount from the Communes responsible for the delay

As concerns equipment and personnel, it is preferable that the Contractor be given the greatest possible autonomy of action while stressing in the contract prescriptions that proposals pertaining to the recovery of the personnel and equipment will be a major criterion when selecting the best offers

Nevertheless, a persuasion campaign has to be conducted with the personnel to convince them that their future lies in the voluntary status change, and that they are not protected against dismissal by the Commune after privatization of the service

### **6 3 2 2 Procedures**

Because of its innovative aspect, the transfer of the solid waste public service to a private contractor requires, , a meticulous preparation

Current studies must be further improved by maps and final figures which will be used to precisely define all the technical prescriptions

In the light of the above, each Commune must evaluate the opportunities thus offered and the means it can assign to this operation

Thus, final options have to be determined concerning the personnel and, incidentally, the equipment

The case thus prepared should be submitted to each communal assembly, which will be invited to validate its options and take a decision on the transfer of the public service to a private Contractor through the Urban Community (Article 30 - 4° of the Communal Charter) and fix a date from which the Urban Community will take over the matter

For all Communes this should correspond to the date of issuance of the ordinance to the Contractor

The recommendation has then to be submitted to the supervising authority for approval (Article 31-8°)

Consequently, it is important to set a precise planning and take into account, in particular, the periods of time necessary for the approval of the recommendation, the award of the Contract

and its approval by the supervising authority (Article 49, 'dahur' of 30 September 1976 on local collectivity accounting and their groupings)

## **7 CONTRACTING PROCEDURES**

### **7.1 General**

Privatization of public services is a relatively new concept in Morocco where municipalities have historically provided all public services. Although several municipalities have considered privatized solid waste services in the past, only a few have been implemented. This fact presents a unique problem for the proposed UCM privatization project in that there are no private companies presently in Morocco with specific solid waste collection experience. Therefore, in order for the contracting process to be successful, it must be structured to attract related industries and other enterprises willing to diversify into new areas, or international companies with the capacity to perform the required services.

### **7.2 Request for Qualifications (RFQ)**

Given the lack of experienced solid waste firms in the region, the first step in the contracting process is a critical phase of the overall process. Typical RFQ processes are normally straight forward, requesting interested firms to submit their qualifications, experience in similar work, references and financial resources. The responses are reviewed and a short list of prequalified firms is selected who will receive the final proposal document. The process often includes a meeting of interested firms to explain the project and answer questions before the final qualification statements are received.

In the case of the UCM project, the RFQ process must also assume an educational role, especially for the landfill contract, where local construction companies have expressed interest in the project. Although the preliminary work performed during the Feasibility Study has identified several firms who have expressed interest in performing the proposed service, more firms are needed to insure a competitive bidding process. Advertisements for qualification statements must be prepared to attract a wider spectrum of interested parties and telephone follow-up may be necessary to insure adequate participation.

Joint ventures should be encouraged in the RFQ process that combine local equipment and manpower resources with the technical management skills of a related business or waste management consultant. Related businesses include trucking firms and general contractors who understand the efficiencies of transportation routing and equipment maintenance. The Meknes region includes a lot of trucking firms associated with the agricultural sector who may wish to diversify into waste collection. Meknes also has several heavy equipment contractor's associated with the brick factories and cement plant. These are all potential contractors.

### **7.3 Work Shop**

Although the typical RFQ meeting is usually short and to the point we recommend a workshop approach that includes a detailed explanation of the services to be provided, maps of the proposed area to be privatized and a field inspection of the pilot areas and the types of equipment to be used. Additional work will be required by the UCM and communes prior to the workshop to fully define the services its wishes to privatize.

The final activity of the workshop will be the distribution of a questionnaire which will be the basis of the qualification statement.

In addition to educating prospective contractors, the workshop will also be an indicator to the UCM and its consultants of the quality of the contractors who are likely to submit proposals.

This may have an impact on how the final Request for Tender (RFT) is structured. If the workshop indicates a lower level of understanding of the proposed work, then the RFT must be more specific in defining the services to be performed and all contractual issues. If the level of understanding is high, then the RFT can be more general, leaving some of the contract issues for later negotiations.

It is imperative that the workshop be designed to be educational and give the prospective contractors the knowledge sufficient to prepare a responsible bid. If the workshop goes beyond this educational role and dictates methodology or specific cost information, the UCM may become accountable for the contractor's activities during implementation. One of the basic principals of privatization is accountability. The contractor must be solely accountable for his proposal and provision of the service. The contract will stipulate that the UCM will have the authority to withhold payment or assess penalties for consistent non-performance of the contractor.

#### **7.4 Pre-Qualify Contractors**

The final step in the RFQ process is the selection of the pre-qualified firms. Preferably, the prequalified firms will be those that have demonstrated the necessary resources and management skills to perform the work. In general 3 or more such firms should insure competitive proposals.

Typically a proposal committee is formed to review qualifications and prepare the final list of pre-qualified firms. Committee members should include a cross section of the municipal administration including management, technical and financial representatives. In general, a committee between 3 and 5 members is adequate. A larger committee often prolongs the process.

#### **7.5 Request for Proposals (RFT)**

The next step in the contracting process is the finalization of the RFT which sets forth the specific terms of the work to be performed and responsibilities of both contracting parties. The RFT is structured as a legal document and in-fact will be the Contract to govern the contractor performance. Key components of the RFT include the following:

- Proposal Terms
- Service Descriptions
- Terms of Contract
- Insurance Requirements
- Bonding Requirements
- Equipment Specifications
- Use of Commune Labor
- Personnel Requirements
- Payment for Services
- Penalties for non-performance
- Citizen Complaints
- Termination
- Indemnifications
- Price Escalation
- Implementation Schedule

A draft copy of a Request for Tender for the waste collection contract is included as Appendix Two and the landfill construction and operation is included as Appendix Three. These drafts are comprehensive documents and may include issues that may not be relevant to the current proposals or need revision to suit Moroccan laws or contracting procedures. The requirement for performance bonding, proposal surety and insurance provisions should be adjusted to suit local conditions.

After distributing the RFT to the prequalified firms, it is appropriate to hold another meeting to discuss the document and answer questions. If significant comments are received on specific issues, the RFT can be revised prior to receipt of proposals. A period of time is defined in the RFT for the proposers to prepare their proposals. Due to the complexity of the proposed services and the lack of experienced waste collection companies, an 8 week proposal period is recommended.

## **7.6 Selection Criteria**

Prior to the receipt of proposals, a tender committee should meet to establish the criteria to be used in selecting the final contractors. Typical criteria include:

- Cost
- Experience
- Contractor Resources
- Implementation Plan

In most instances the committee will want to interview several firms before making a final selection or negotiate terms with one or more bidders. In either case, the RFT should include a section on selection criteria so that the contractor knows precisely how his proposal will be evaluated.

## **7.7 Contract Negotiations**

Prior to awarding the contract, the tender committee may elect to negotiate any issue during the interview process, especially if the lowest proposal exceeds the amount budgeted for the project. Negotiations are normally conducted with the lowest proposal first. When all issues have been mutually agreed to, the contract award is made.

At this point all of the major contract issues should have been addressed, either in the proposal document or during the interview and negotiation process. Therefore the actual contract signing should be a formality without significant additional negotiations.

## **7.8 Implementation**

After contracts have been signed, the process moves into the implementation phase, which begins with the ordering of equipment. Depending on the type and number of units, receipt of the equipment may take up to 4 months. The contractor will use this period to complete an Operations Plan to include his collection routing, street sweeping program and implementation schedule. The Contract will require that the Plan be submitted to the UCM for review and approval within a specific time period after contract signing, usually 60 to 90 days. The UCM may approve of the Contractor's Operation Plan as submitted or suggest revisions. After acceptance of the Operations Plan and receipt of the equipment, the actual privatization of the collection begins.

Since the proposed program will include six communes, and transfer of equipment and manpower, the implementation program must be planned very carefully and coordinated with each commune and the UCM

## **7.9 Contract Monitoring**

The implementation of the private contract will not end the public involvement in the waste collection. The contractor's operations must be monitored on a periodic basis to insure compliance with contract conditions. Since the current commune technical staff are familiar with the collection zones it is recommended that they be retained as contract monitors. Procedures for issuing notices of non-compliance and the contractor's responsibility to remedy the violation will be defined in the contract documents. Procedures for receiving and addressing citizen complaints will also be defined in the contract document. Consistent notices of non-compliance will constitute cause for withholding payment or issuing penalties.

## **8. IMPLEMENTATION SCHEDULE**

The following preliminary Implementation Schedule is presented for consideration by the UCM. It is a very optimistic schedule based on the UCM's desire to move quickly to privatization of these services. In most instances, the actual schedule will depend on reviews and approvals at the local and national level.

## **IMPLEMENTATION SCHEDULE**

October 17, 1997	Completion and Distribution of Feasibility Report
October 27, 1997	Issue Request for Qualifications
November 10, 1997	Hold Prequalification Workshops
November 24, 1997	Qualification Statements Due
December 1, 1997	Finalize and Issue Request For Tender Complete Service Area Maps and Descriptions
December 15, 1997	Hold Tender Workshops
January 15, 1998	Receive Tenders - Begin Tender Evaluation
February 1, 1998	Award Contract
March 1, 1998	Negotiate and Sign Contract
April 1, 1998	Collection Contractor Submits Operations Plan Landfill Contractor Submits Design and Hydrogeology Study
May 1, 1998	Begin Landfill Construction
June 1, 1998	Begin Collection Implementation Open New Landfill

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**APPENDIX ONE**

**Waste Generation Data Bases**

MUNICIPALITY	<b>HAMRYA</b>
POPULATION (1998)	160,000
WASTE GENERATION (KG/CAP/DAY)	0.7
ANNUAL POPULATION INCREASE (%)	2.5%
WASTE DENSITY LOOSE (KG/M)	350
WASTE DENSITY IN COMPACTORS (KG/M)	500

YEAR	POPULATION	WASTE GENERATION (T/DAY)	PERCENT COLLECT (%)	WASTE COLLECT (T/DAY)	WASTE COLLECT (T/YR)	COLLECT VOLUME LOOSE (M/DAY)	COLLECT VOLUME COMPACT (M/DAY)	
1	1997	160,000	112	70%	78	28,616	224	157
2	1998	164,000	115	71%	82	29,750	233	163
3	1999	168,100	118	72%	85	30,924	242	169
4	2000	172,302	121	73%	88	32,137	252	176
5	2001	176,610	124	74%	91	33,392	261	183
6	2002	181,025	127	75%	95	34,689	272	190
7	2003	185,551	130	76%	99	36,030	282	197
8	2004	190,190	133	77%	103	37,417	293	205
9	2005	194,944	136	78%	106	38,850	304	213
10	2006	199,818	140	79%	110	40,332	316	221
11	2007	204,814	143	80%	115	41,864	328	229
12	2008	209,934	147	81%	119	43,447	340	238
13	2009	215,182	151	82%	124	45,083	353	247
14	2010	220,562	154	83%	128	46,773	366	256
15	2011	226,076	158	84%	133	48,520	380	266
16	2012	231,728	162	85%	138	50,325	394	276
17	2013	237,521	166	86%	143	52,190	409	286
18	2014	243,459	170	87%	148	54,117	424	297
19	2015	249,545	175	88%	154	56,108	439	307
20	2016	255,784	179	89%	159	58,164	455	319

MUNICIPALITY	<b>ISMALIA</b>
POPULATION (1998)	130,000
WASTE GENERATION (KG/CAP/DAY)	0.7
ANNUAL POPULATION INCREASE (%)	2.5%
WASTE DENSITY LOOSE (KG/M)	350
WASTE DENSITY IN COMPACTORS (KG/M)	500

YEAR	POPULATION	WASTE GENERATION (T/DAY)	PERCENT COLLECT (%)	WASTE COLLECT (T/DAY)	WASTE COLLECT (T/YR)	COLLECT VOLUME LOOSE (M/DAY)	COLLECT VOLUME COMPACT (M/DAY)	
1	1997	130,000	91	70%	64	23,251	182	127
2	1998	133,250	93	71%	66	24,172	189	132
3	1999	136,581	96	72%	69	25,125	197	138
4	2000	139,996	98	73%	72	26,111	204	143
5	2001	143,496	100	74%	74	27,131	212	149
6	2002	147,083	103	75%	77	28,185	221	154
7	2003	150,760	106	76%	80	29,275	229	160
8	2004	154,529	108	77%	83	30,401	238	167
9	2005	158,392	111	78%	86	31,566	247	173
10	2006	162,352	114	79%	90	32,770	257	180
11	2007	166,411	116	80%	93	34,014	266	186
12	2008	170,571	119	81%	97	35,301	276	193
13	2009	174,836	122	82%	100	36,630	287	201
14	2010	179,206	125	83%	104	38,003	297	208
15	2011	183,687	129	84%	108	39,423	309	216
16	2012	188,279	132	85%	112	40,889	320	224
17	2013	192,986	135	86%	116	42,405	332	232
18	2014	197,810	138	87%	120	43,970	344	241
19	2015	202,756	142	88%	125	45,588	357	250
20	2016	207,825	145	89%	129	47,258	370	259

MUNICIPALITY	<b>ZITOUNA</b>
POPULATION (1998)	106,000
WASTE GENERATION (KG/CAP/DAY)	0.7
ANNUAL POPULATION INCREASE (%)	2.5%
WASTE DENSITY LOOSE (KG/M)	350
WASTE DENSITY IN COMPACTORS (KG/M)	500

YEAR	POPULATION	WASTE GENERATION (T/DAY)	PERCENT COLLECT (%)	WASTE COLLECT (T/DAY)	WASTE COLLECT (T/YR)	COLLECT VOLUME LOOSE (M/DAY)	COLLECT VOLUME COMPACT (M/DAY)	
1	1997	106,000	74	60%	45	16,250	127	89
2	1998	108,650	76	61%	46	16,934	133	93
3	1999	111,366	78	62%	48	17,642	138	97
4	2000	114,150	80	63%	50	18,374	144	101
5	2001	117,004	82	64%	52	19,133	150	105
6	2002	119,929	84	65%	55	19,917	156	109
7	2003	122,928	86	66%	57	20,729	162	114
8	2004	126,001	88	67%	59	21,569	169	118
9	2005	129,151	90	68%	61	22,439	176	123
10	2006	132,379	93	69%	64	23,338	183	128
11	2007	135,689	95	70%	66	24,268	190	133
12	2008	139,081	97	71%	69	25,230	197	138
13	2009	142,558	100	72%	72	26,225	205	144
14	2010	146,122	102	73%	75	27,254	213	149
15	2011	149,775	105	74%	78	28,318	222	155
16	2012	153,520	107	75%	81	29,418	230	161
17	2013	157,358	110	76%	84	30,556	239	167
18	2014	161,292	113	77%	87	31,732	248	174
19	2015	165,324	116	78%	90	32,947	258	181
20	2016	169,457	119	79%	94	34,204	268	187

MUNICIPALITY	<b>MECHOUAR</b>
POPULATION (1998)	50,000
WASTE GENERATION (KG/CAP/DAY)	0.7
ANNUAL POPULATION INCREASE (%)	2.5%
WASTE DENSITY LOOSE (KG/M)	350
WASTE DENSITY IN COMPACTORS (KG/M)	500

YEAR	POPULATION	WASTE GENERATION (T/DAY)	PERCENT COLLECT (%)	WASTE COLLECT (T/DAY)	WASTE COLLECT (T/YR)	COLLECT VOLUME LOOSE (M/DAY)	COLLECT VOLUME COMPACT (M/DAY)	
1	1997	50 000	35	80%	28	10,220	80	56
2	1998	51 250	36	81%	29	10,606	83	58
3	1999	52,531	37	82%	30	11,006	86	60
4	2000	53,845	38	83%	31	11,419	89	63
5	2001	55,191	39	84%	32	11,845	93	65
6	2002	56 570	40	85%	34	12,286	96	67
7	2003	57,985	41	86%	35	12,741	100	70
8	2004	59,434	42	87%	36	13,211	103	72
9	2005	60,920	43	88%	38	13,697	107	75
10	2006	62 443	44	89%	39	14,199	111	78
11	2007	64,004	45	90%	40	14,718	115	81
12	2008	65,604	46	91%	42	15,253	119	84
13	2009	67,244	47	92%	43	15,806	124	87
14	2010	68,926	48	93%	45	16,378	128	90
15	2011	70,649	49	94%	46	16,968	133	93
16	2012	72,415	51	95%	48	17,577	138	96
17	2013	74 225	52	96%	50	18,206	143	100
18	2014	76,081	53	97%	52	18,856	148	103
19	2015	77,983	55	98%	53	19 526	153	107
20	2016	79 933	56	99%	55	20,219	158	111

MUNICIPALITY	<b>OUISLANE</b>
POPULATION (1998)	32,000
WASTE GENERATION (KG/CAP/DAY)	0.7
ANNUAL POPULATION INCREASE (%)	2.5%
WASTE DENSITY LOOSE (KG/M)	350
WASTE DENSITY IN COMPACTORS (KG/M)	500

YEAR	POPULATION	WASTE GENERATION (T/DAY)	PERCENT COLLECT (%)	WASTE COLLECT (T/DAY)	WASTE COLLECT (T/YR)	COLLECT VOLUME LOOSE (M/DAY)	COLLECT VOLUME COMPACT (M/DAY)	
1	1997	32,000	22	60%	13	4,906	38	27
2	1998	32,800	23	61%	14	5,112	40	28
3	1999	33,620	24	62%	15	5,326	42	29
4	2000	34,461	24	63%	15	5,547	43	30
5	2001	35,322	25	64%	16	5,776	45	32
6	2002	36,205	25	65%	16	6,013	47	33
7	2003	37,110	26	66%	17	6,258	49	34
8	2004	38,038	27	67%	18	6,512	51	36
9	2005	38,989	27	68%	19	6,774	53	37
10	2006	39,964	28	69%	19	7,045	55	39
11	2007	40,963	29	70%	20	7,326	57	40
12	2008	41,987	29	71%	21	7,617	60	42
13	2009	43,036	30	72%	22	7,917	62	43
14	2010	44,112	31	73%	23	8,228	64	45
15	2011	45,215	32	74%	23	8,549	67	47
16	2012	46,346	32	75%	24	8,881	70	49
17	2013	47,504	33	76%	25	9,224	72	51
18	2014	48,692	34	77%	26	9,579	75	52
19	2015	49,909	35	78%	27	9,946	78	55
20	2016	51,157	36	79%	28	10,326	81	57

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MUNICIPALITY	<b>TOULAL</b>
POPULATION (1998)	14,000
WASTE GENERATION (KG/CAP/DAY)	0.7
ANNUAL POPULATION INCREASE (%)	2.5%
WASTE DENSITY LOOSE (KG/M)	350
WASTE DENSITY IN COMPACTORS (KG/M)	500

YEAR	POPULATION	WASTE GENERATION (T/DAY)	PERCENT COLLECT (%)	WASTE COLLECT (T/DAY)	WASTE COLLECT (T/YR)	COLLECT VOLUME LOOSE (M/DAY)	COLLECT VOLUME COMPACT (M/DAY)	
1	1997	14,000	9.8	70%	7	2,504	20	14
2	1998	14,350	10.0	71%	7	2,603	20	14
3	1999	14,709	10.3	72%	7	2,706	21	15
4	2000	15,076	10.6	73%	8	2,812	22	15
5	2001	15,453	10.8	74%	8	2,922	23	16
6	2002	15,840	11.1	75%	8	3,035	24	17
7	2003	16,236	11.4	76%	9	3,153	25	17
8	2004	16,642	11.6	77%	9	3,274	26	18
9	2005	17,058	11.9	78%	9	3,399	27	19
10	2006	17,484	12.2	79%	10	3,529	28	19
11	2007	17,921	12.5	80%	10	3,663	29	20
12	2008	18,369	12.9	81%	10	3,802	30	21
13	2009	18,828	13.2	82%	11	3,945	31	22
14	2010	19,299	13.5	83%	11	4,093	32	22
15	2011	19,782	13.8	84%	12	4,246	33	23
16	2012	20,276	14.2	85%	12	4,403	34	24
17	2013	20,783	14.5	86%	13	4,567	36	25
18	2014	21,303	14.9	87%	13	4,735	37	26
19	2015	21,835	15.3	88%	13	4,909	38	27
20	2016	22,381	15.7	89%	14	5,089	40	28

**APPENDIX TWO**

**Draft Tender Documents  
Waste Collection and Street Sweeping**

## 1 0 CONDITIONS OF PROPOSALS AND INSTRUCTIONS TO PROPOSERS

### 1 1 GENERAL

Proposals from prequalified Proposers are invited by the Urban Community of Meknes for the collection and transportation of waste from residences, and commercial businesses, restaurants, hotels and public litter bins in the Service Areas. Waste collection services shall also include the sweeping of certain streets, sidewalks and public areas as herein defined. The selected Contractor shall perform the services as defined in the Proposal Document.

All interested Proposers shall complete and submit two (2) copies of the attached Proposal Form and related documents to President's Office, Urban Community of Meknes, prior to 4 00 pm local time, on the first \_\_\_ day of \_\_\_\_\_ 1997, at which time the Proposals will be publicly opened and read aloud.

Proposal documents shall be enclosed in a plain sealed envelope clearly marked **TENDER NO \_\_\_\_\_ WASTE COLLECTION SERVICES**

All mailed Proposals should be sent by registered post to ensure delivery. Telephone, telegraph, telex or facsimile Proposals will not be accepted.

All Proposals shall provide a detailed statement of qualifications, including a list of references. Particular emphasis will be put on solid waste handling experience, carting or trucking experience, organizational ability, existing equipment and business background.

Each Proposal must be accompanied by a Proposal Surety, in favor of the Urban Community of Meknes, issued by an approved Insurance Company or Bank in the amount of one (1) percent of the base annual proposal.

The UCM may conduct personal interviews with selected Proposers. The UCM expects that Proposers selected for interviews will make available key personnel proposed to work on this project available for such interviews.

### 1 2 PROPOSAL PERIOD

The Proposals shall remain valid for ninety (90) days from the final date for submission of Proposals stipulated above.

The UCM shall notify the accepted Proposer (if any) of such acceptance by letter written within the stipulated ninety (90) day Proposal Period or such extension of the Proposal Period as mutually agreed to by the UCM and Proposers and said Proposer shall execute the formal contract within thirty (30) of said acceptance letter.

The UCM shall not be bound to accept the lowest or any Proposal or to assign any reason for its acceptance or rejection of any Proposal and in no case shall any Proposer be paid for any expense incurred in the preparation of this Proposal

### **1 3 PRE-PROPOSAL MEETING**

A Pre-Proposal meeting will be held at 9 00 am on \_\_\_ December 1997 for the purpose of reviewing the Proposal Documents and answering any questions from Proposers regarding the Scope of Work or any other aspect of the proposed waste collection services

### **1 4 REPRESENTATION OR INTERPRETATION OF DOCUMENTS**

Representation or interpretation of Proposal Documents shall be done in writing by the President, Urban Community of Meknes If during the Proposal period, subsequent to the Pre-Proposal Meeting, the UCM makes any interpretation, clarification or change in the Proposal Documents, the UCM will issue a letter to all Proposers explaining the interpretation, clarification or change The Proposer shall acknowledge the receipt of such letter in his submitted Proposal

### **1 5 REQUIRED PROPOSAL INFORMATION**

Each Proposal shall contain the following information

- 1 Proposer's Company name, address, telephone number, and contact individual,
- 2 Completed Proposal form(s)
- 3 Proposal Surety
- 4 Statement of qualifications and list of references
- 5 Description of proposed equipment
- 6 Implementation Schedule,
- 7 Subcontractor Declaration
- 8 Form of Intent for Performance Bond

### **1 6 SIGNATORY REQUIREMENTS**

Each Proposal shall be accompanied by an original cover letter committing the Proposer, if selected, to carrying out the proposed work at the Proposal price This price is to be valid for ninety (90) days from the date of the Proposal It must further state that all information submitted in support of the proposal is accurate The cover letter must contain the signature of a person authorized to commit the firm(s) to a Contract

All forms requiring signatures shall be signed by the same individuals signing the cover letter

### **1 7 PROOF OF GENERAL LIABILITY INSURANCE**

The selected Contractor will be required to obtain Liability Insurance of the Limits and

conditions stated in Appendix F Proof of insurance in the form of a Certificate of Insurance will be required within 30 days of the notice of acceptance and prior to Contract signing, whichever is less

## **1 8 PERFORMANCE BOND REQUIREMENTS**

A Performance Bond, in the amount of 10% of the base Proposal price, shall be required of the successful Proposer in the form stipulated in Appendix H, executed by a surety company duly authorized to do business in the Country of Morocco The Proposal Documents shall include a completed Intent for Performance Bond as included in Appendix G

The Performance Bond shall be executed for the first year of the Contract and shall be a condition precedent to the execution of any Contract and any renewal thereof A Performance Bond shall be renewed annually for the work performed in each successive year of the Contract Term, increased accordingly The Performance Bond shall be in the amount of ten (10) percent of the yearly total sum

The Performance Bond shall be furnished within thirty (30) days, after the date of notification to the selected Contractor by UCM and his acceptance of the Proposal and prior to Contract signing

## **1 10 PROPOSER RESPONSIBLE TO LEARN LOCAL CONDITIONS**

All Proposers submitting Proposals for the proposed work are cautioned to examine carefully the conditions affecting the collection and transportation of waste, and sweeping of streets and public areas, and to acquaint themselves with the quantity and character of the materials to be handled under the proposed work

Each Proposer is also cautioned to become fully familiar with each Commune, and all the physical characteristics of that Commune which may affect the Proposal and all services stipulated herein

Submission of a Proposal shall be deemed conclusive evidence that the Proposer is fully acquainted with and shall be fully responsible for any restrictions, constraints or any physical difficulties within the Service Areas, as defined, including the disposal site to which all waste shall be collected and delivered

## **2 0 DESCRIPTION OF SERVICE AREA & CURRENT SERVICES**

### **2 1 SERVICE AREAS**

The proposed work included the service areas as defined as the municipal limits of the following communes making up the UCM They include the following

- 1 Hamrya
- 2 Ismalia

- 3 Zitouna
- 4 Mechouar
- 5 Ouslane
- 6 Toulal

The geographic limits of the proposed collection areas and services to be performed are further defined in the Service Area Maps, found in Appendix X

## 2.2 EXISTING LEVEL OF SERVICE

### 2.2.1 Hamrya

#### Waste Collection

The commune of Hamrya uses a variety of equipment and methods to collect its solid waste. Six compactor trucks collect waste in the downtown commercial areas and newer residential neighborhoods. Two of the 6 compactor trucks are equipped with lifting devices to service containers. Two multi-benn container trucks service 3 cubic meter containers at 10 locations and a front end loader and dump truck service the large market areas and clean informal dumps. With the exception of 60 containers, all collection is daily, door-to-door.

Most of the streets in Ain Chebick and Borj Moulay Omar former shanty towns, are too narrow for compactor trucks or dump trucks. These neighborhoods are collected with 2 cubic meter pick-up trucks and 1 cubic meter dumpers. Since the landfill is located in Hamrya, these small vehicles drive directly to the landfill. When the new landfill is operational, a transfer station will be required to transport the pick-up and dumper waste to the landfill.

Collection is performed only in the morning, beginning at 6:00 am. Compactor truck personnel consist of a driver and 5 workers. Workers can go home when they finish their collection route. The average time for each collection crew is 4.5 hours per day.

#### Street Sweeping

Street sweeping is performed in the main downtown commercial streets daily except Sunday. Some secondary streets are swept on an as-needed basis, but most streets are not swept. The commune staff has a good street map outlining the sweeping program. The staff indicated a sweeping requirement of 400,000 square meters but they only have resources to sweep 100,000 square meters. The commune lists 35 street sweepers but many of these are guards and supervisors. Sweeping equipment is very basic with homemade brooms of palm leaves, flat shovels, and metal hand carts.

### 2.2.2 Ismailia

#### Waste Collection

For waste collection and street sweeping the commune is divided into 3 sectors, the medina, new commercial zone and the industrial zone. In general, income and living conditions are lower than in the commune of Hamrya. The medina is the central commercial area for the commune and attracts many visitors and tourists.

The medina is a difficult area to collect due to its narrow streets and informal infrastructure. Medina waste is collected daily, door-to-door with 1 cubic meter dumpers and taken to a transfer station near the large food market at the edge of the medina. An elevated ramp allows the waste to be dumped into several 4 cubic meter containers which are taken to the landfill by one multi-benn truck. The transfer station is not monitored and the waste is often dumped on the ground near the containers because the containers are full. A front end loader is used to load this waste into the containers.

The transfer station has many problems including an inadequate number of containers and insufficient trips by the multi-benn. This results in piles of highly organic waste left uncollected which becomes the source of leachate, flies and odors. Trucks and dumpers must pass through a crowded market area to and from the transfer station which is often totally blocked by vendors. The commune is in the process of relocating the market which should improve the situation.

The remaining areas of the commune are collected with 5 compactor trucks of 8 cubic meter capacity. None of these trucks are equipped to load containers. Two pick-up trucks service narrow paved roads and 3 dump trucks assist in cleaning up informal dumps and the transfer station. Workers start at 6:00 am and work until their assigned route is complete, usually in 4 to 5 hours.

All waste is collected daily, door-to-door without any containers. In general, residents place waste in metal or plastic containers in front of their homes. In the newer multi-story residential areas, the residents place their waste at common collection points. These collection points become very dirty and should be converted to containers. The commune agrees with the use of containers in these areas but they must be cleaned regularly to reduce odors.

### Street Sweeping

Main streets in all three zones are swept every day in the morning. Secondary streets are not swept. Narrow streets in the medina are cleaned by residents and waste is placed in common collection areas at street corners. Litter is a major problem in all zones, especially in the medina. There are no litter bins and street litter from the many visitors and tourists fills the street gutters every night until the sweepers begin working the next morning. Sweeping is made difficult by the many cars, taxi cabs and buses that drive into the medina each day. The commune lists 39 workers assigned to street sweeping.

### 2.2.3 Zitouna

#### Waste Collection

In general, waste is collected each day from the medina sectors and built-up residential areas. Newer areas with lower densities and areas under construction are collected on a less frequent basis. The medina is collected with 3 pick-up trucks and the remaining areas are serviced by 5 compactor trucks of 8 cubic meter capacity. One multi-benn truck services 5 container locations.

Due to the large area of the commune, scattered development and many open areas, informal dumping is a major problem. A former dump in an abandoned quarry continues to be used as a dumping area by residents. Other informal dumping areas were observed, especially near low density residential areas or new areas under construction with partial occupancy.

#### Street Sweeping

The commune sweeps only a few of the main streets in the medina and commercial sectors, using only 8 sweepers.

#### 2 2 4 Mechouar

#### Waste Collection

Mechouar is a relatively new commune, 3 years old, created to serve the special needs of the royal palace and historical monuments. The residential population lives in three medina neighborhoods. There are no industrial or highly commercialized areas.

The commune has 4 compactor trucks and 4 pick-up trucks that are used for waste collection. One compactor truck is used as a back-up, in the event that one of the active trucks breaks down. Collection is performed between 6 00 am and 9 00 am. Each truck makes 2 to 3 trips to the landfill per day which was confirmed by the landfill records. Each truck has a 5-man crew for collecting waste from the small streets of the medina.

The commune had previously used 1 cubic meter dumpers and a 3 cubic meter container and multi-benn truck. This was discontinued in favor of the pick-up trucks because the container became an informal dumping area that was difficult to control. Due to the Royal Palace and historical monuments, a much higher standard of collection and street sweeping exists in Mechouar. Containers would be considered by the commune, only in the residential areas with a guard and frequent washing.

#### Street Sweeping

Street sweeping is performed on all main streets between the hours of 7 00 am and 1 00 pm. Due to the high profile nature of the commune, street sweeping is a high priority and is efficiently maintained. Due to the minimal amount of commercial activity, litter is not as high as in other communes. Many of the main streets near the royal palace and monuments prohibit parking. These streets could be efficiently cleaned with mechanical equipment.

## 2 2 5 Ouislane

### Waste Collection

Ouislane is also a new urban commune, organized in the last two years. This former shanty town of 32,000, still maintains many aspects of its rural life. Although housing is being upgraded, most of its streets are still unpaved. The commune is adjacent to the region's large cement plant, and two housing areas belonging to the cement plant are located within the boundaries of the commune. The commune is projecting a rapid growth rate over the next decade of 9 to 10%.

Waste is collected using two dump trucks with a capacity of 4 cubic meters each, and a crew of 5 workers. Each truck makes three trips to the landfill on Mondays and two trips per day Tuesday through Saturday. Collection is door-to-door but many residents do not respect the placement of waste and dump everywhere. The commune has identified 20 informal dumping areas which are cleaned periodically.

The commune has obtained 30 small containers of 110 and 240 liter capacity for pilot use in a residential area. They are in the process of finding guards for each container before implementing the program. Without a compactor truck and lifting devices, the 240 liter containers will be difficult to empty into a standard dump truck. A full 240 liter container will weigh approximately 50 kg and will take several men to lift it onto the truck.

At the present time, the cement plant collects the waste from its two housing villages, consisting of about 700 persons. The waste is dumped near the cement plant and not taken to the UCM landfill. The cement plant has asked the commune to take over the collection and disposal in these two areas.

Ouislane is one of the furthest communes from the existing landfill and will be nearly 20 km from the new landfill.

### Street Sweeping

The commune employs only 2 street sweepers who clean the paved streets near the city hall and downtown market. They would like to increase the sweeping but do not have the resources to do so.

## 2 2 6 Toulal

### Waste Collection

Like Ouislane, Toulal is a former rural community and became part of the UCM in 1993. Its 14,000 residents are very poor and still maintain a rural lifestyle. The commune is located along the main road to Rabat and is expected to grow quickly.

Waste is collected using an 8 cubic meter compactor truck, and a multi-benn servicing 3 containers. The compactor provides daily door-to-door service, 6 days per week and the

multi-benn empties the 3 containers when they are full. The compactor truck makes 2 trips to the landfill on Mondays and 1 trip per day Tuesday through Saturday. Waste is dumped in a former quarry located about 1 kilometer from the commune.

### Street Sweeping

The commune employs only 3 street sweepers who sweep the main commercial street.

### 2.2.7 Containers

Containers are used only in the Commune of Hamrya where they have met with limited success. Of an initial 140 containers (550 liters) only 60 remain. The others were damaged or vandalized. Those containers placed in the residential areas were not damaged and the commune is interested to expand the container usage. The remaining container locations are indicated on the Hamrya Service Area Map.

## 2.3 SOLID WASTE GENERATION

Waste generation was estimated using two methods. The first was population estimates and waste generation coefficient of 0.7 kg/cap/day and estimates of collection efficiencies. The second was landfill records which record each truck by commune and capacity in cubic meters. Landfill records were converted to tonnage using several assumptions. These two methods are summarized below.

### WASTE GENERATION AND COLLECTION ESTIMATES

Commune	Population (1998)	Generation at 0.7kg/cap day (T D)	Estimated Collection (%)	Estimated Collection (T D)	Estimated From Landfill Records (T D)
Hamrya	160,000	112	70%	78	60
Ismahia	130,000	91	70%	64	38
Zitouna	106,000	74	60%	45	28
Mechouar	50,000	35	80%	28	16
Ouislane	32,000	22	60%	13	7
Toulal	14,000	10	70%	7	8
<b>TOTALS</b>	<b>492,000</b>	<b>344</b>	<b>68%</b>	<b>235</b>	<b>163</b>

The above quantity estimates are presented only for information and are not to be assumed as having any contractual relationship to the services or costs as defined in the scope of services. The low landfill records are the result of low collection efficiencies and informal dumping by municipal workers. We anticipate this number to increase dramatically when the collection systems are privatized. The scope of services and contract cost is based on the collection of actual waste, regardless of the amount of waste collected. For the purposes of establishing a base proposal price we will assume an annual tonnage of 86,125 tonnes per year.

### 3 0 SCOPE OF SERVICES

### 3 1 LENGTH OF CONTRACT AND RENEWALS

The UCM is seeking a five (5) year operating contract, which may, subject to satisfactory performance, to be renewed for a two (2) year period. At the conclusion of seven (7) years, the UCM will repeat the proposal process.

### 3 2 CONTRACTOR RESPONSIBILITIES - WASTE COLLECTION

#### 3 2 1 General Description of Services

Hamra (To be Supplied by Commune)

Ismalia (To be Supplied by Commune)

Zitouna (To be Supplied by Commune)

Mechouar (To be Supplied by Commune)

Ouislane (To be Supplied by Commune)

Toulal (to be Supplied by Commune)

#### 3 2 2 Provision of Containers

It is the intent of this proposal that the collection of waste in each commune be improved through a more efficient application of equipment and manpower. The communes accept the concept of converting the existing door-to-door collection to containers as a cost savings method where conditions permit. Each commune has indicated areas within their service area where they will consider conversion of door-to-door service to containers, and a reduction in collection frequency to 3 times per week. The communes will also entertain additional proposals from the contractor for containerization subject to their approval including less frequent collection times. The contractor shall indicate in his initial Operating Plan which areas he intends to use containers or reduce collection frequency.

In general, the containers shall be of plastic or metal construction. All containers shall be water tight, equipped with covers which shall be maintained in operating condition throughout the term of this contract. All containers shall be provided with lettering, permanently affixed to the sides of each container requesting the user to close the cover after every use. Lettering shall be in both Arabic and French.

Each container shall have, the Contractor's name, telephone number and a reference number corresponding to its reference location on the Service Area Map and the Contractor's Operations Plan.

The Contractor shall close the Container every time he services the container

The Contractor shall be responsible for the cleanliness of all containers and shall clean containers of all built-up food waste at least on a monthly basis. Any solid material or soiled wash water resulting from the cleaning of the container shall be removed by the contractor

The specifications of the types and sizes of containers shall be included with the proposal documents

The Contractor shall maintain and repair the containers during the term of the Contractor and maintain an adequate spare parts inventory

### **3 2 3 Placement of Containers**

During the implementation of the Contract, the Contractor shall be responsible for the placement of his new containers at the locations of existing containers or as indicated on the Service Area Maps

### **3 2 4 Servicing of Containers**

The Contractor shall empty all containers at the times and frequencies as herein described and defined in the Contractor's Operations Plan. Servicing of the containers shall include the waste within the container and any waste which has fallen from the container or placed on the ground near the container, or waste which was spilled from the container during servicing. The Contractor shall be responsible for the general cleanliness of each container location

### **3 2 5 Collection Trucks**

The contractor shall provide and maintain collection trucks suitable for the efficient servicing of the number and types of waste containers to be included in the Service Area. The number and size of collection trucks shall be at the Contractor's discretion but must be stated in the proposal documents. All trucks shall bear the name of the contractor and telephone number

The contractor will be required to purchase all compactor collection trucks from the communes which are five (5) years old or less, at the commune's option. All trucks shall be certified by the commune to be in good working condition. If the trucks are not in good working condition, the Contractor may refuse to purchase the truck or negotiate a lower price. Payments for the trucks shall be made in three annual payments to the commune who owns the truck. Cost of the trucks shall be included in the contractor's price for service. These trucks are listed below

### **3 2 10 Subcontractors**

The Contractor may utilize the services of a Subcontractor to perform specific portions of the collection services up to a maximum of 50% of the number of services, as herein described. The Contractor shall list all Subcontractors that he intends to use on this project in Appendix E along with the specific task to be performed. All subcontractors shall be subject to City review and approval.

### **3 2 11 Education Program**

The Contractor shall conduct an education program in each commune to inform the residents of the changes in waste collection from public to private operation. Items to be included shall be times of collection, method of collection, use of containers, types of waste accepted and items of recycle value which should be separated and stored for later collection by recyclers. As a minimum, the program shall include a written notice delivered to all residents and posted in public places. Meetings with neighborhood groups and councilors is also advised.

The education program shall be included in the Operations Plan and be subject to review by each commune.

## **3 3 CONTRACTOR RESPONSIBILITIES - STREET SWEEPING**

Normal sweeping shall consist of sweeping all sidewalk and street gutters in the streets or public areas as defined in Section 4 2 1 and designated on the service area maps. In paved areas, sweeping shall include the removal of litter, soil and other debris from the paved surface. This shall include earth areas around trees, light poles, benches or other facilities within the sidewalk. Sweeping shall also include removal of litter from grass areas in parks, trees, shrubs or other green spaces. The sidewalk is defined as the area between the street curbing and houses or structures along the street. Normal sweeping shall not include trimming trees, hedges, cutting grass or other green space maintenance, nor the waste produced by tree trimmings. The contractor may use manual labor or mechanical devices to perform street sweeping.

Heavy sweeping shall consist of periodic cleaning of built-up sand or soil from street gutters that are not normally swept. The price included in the Proposal Form shall be per meter of street cleaned which includes both gutters. The price shall include removal of the material to a location designated by the commune. This work shall be performed only as directed by the commune.

## **3 4 CONTRACTOR RESPONSIBILITIES - RUBBLE AND GARDEN WASTE**

Each proposer shall include in the appropriate locations on the Proposal Form, the price in cubic meters, for the loading, and disposal of rubble and garden waste as directed by the Commune, but within 5 km of the commune.

### 3 5 CONTRACTORS RESPONSIBILITIES - LITTER CONTAINERS

The contractor shall provide, install, maintain and service litter containers in commercial areas of each commune. Litter containers shall be metal or plastic construction which is resistant to vandalism and breakage. The selection of litter bins design shall be approved by the UCM. The locations of litter containers shall be jointly determined by the Contractor and the president of each commune. The number of containers to be placed in each commune shall be the following:

Hamrya	75	Mechouar	30
Ismalia	50	Ourslane	15
Zitouna	30	Toulal	15

The cost for installing and servicing the above number of litter containers shall be included in the Base Waste Collection Price. The cost of replacing damaged containers shall be made at the commune's option, at the price included in the Form of Proposal. Each commune may request additional litter containers which shall be supplied at the replacement cost.

### 3 6 CONTRACTOR'S DEPOT & HOURS OF OPERATION

The Contractor shall maintain and staff a central office and appropriate maintenance facilities with radio dispatch capability that comply with all applicable acts, bye-laws and regulations established by the national government. Said office(s) will be open for business from 7:30 am - 4:30 pm, Monday through Saturday, holidays excluded, to coordinate collection activities and to take complaints and/or information calls.

The UCM owns a former compost facility located in Hamrya on the road to the new landfill. This facility is offered for lease to the Contractor for use as his main office and depot. If the contractor accepts this offer he shall include in his proposal, a site map, and verbal descriptions of improvements he intends to make to the facility, and the proposed condition of lease. This offer is limited to 50% of the facility, including not more than one of the existing fermentation buildings. The UCM reserves the right to lease other portions of the facility for other waste management related activities.

At the conclusion of the contract term, the facility and all permanent structures shall revert to UCM ownership, and all mobile equipment and vehicles shall be removed from the site.

In the event that the Contractor does not wish to use the former compost facility for his depot he shall make his own arrangements in the UCM. The location of the Contractor's depot shall be identified in the Operations Plan.

### 3 7 LANDFILL DISPOSAL & HOURS OF OPERATION

The UCM is in the process of closing its current landfill and opening a new landfill. Construction and operation of the new landfill will be privatized through a separate

### 3 9 OPERATIONS PLAN

Within 60 days after signing the Contract and prior to implementation of any collection services, the Contractor will submit an Operations Plan to the UCM, describing in detail the contract services he will supply. The Plan shall include as a minimum the following items:

1. A list of all vehicles, trucks, containers and miscellaneous equipment, and their specifications to be used in this Contract, including new vehicles and those to be purchased from the communes.
2. A description of collection zones, time schedules and truck assignments to be used in each commune of this contract.
3. A list of all existing and proposed containers by reference number, their general location, collection zone and truck assignment.
4. A description of maintenance and cleaning facilities for waste containers.
5. Location of main office and depot including phone and fax numbers.
6. Final plans and lease conditions for the former compost facility if this is to be used by the contractor.

### 3 10 PAYMENTS

#### 3 10 1 General

The Contractor shall submit Payment Requests to the UCM on the last working day of the month for services performed during that month. The request shall include a payment item for each commune for all payment items and services provided during that month. Payment shall be due and payable 60 days thereafter.

The City may withhold any amount as a result of non-performance of the collection services as herein described.

#### 3 10 2 Price Fluctuation Clause

Due to the length of this Contract, the Contractor shall be entitled to an adjustment of the Proposal Price due to fluctuations in the cost of any material or labor cost as a result of Customs Duty, Tax, Currency Exchange Rates, Minimum Labor Rates or any other governmental action, which shall occur after seven (7) days preceding the date of Proposal.

Price fluctuations due to inflation will be considered on each yearly anniversary date of the contract signing. At least 60 days prior to the Contract anniversary date, the Contractor shall submit to the UCM his request for an increase in the Proposal Price due

## **4 5 CONDUCT OF CONTRACTOR'S EMPLOYEES**

The Contractor shall comply with existing local labor laws, regulations and labor standards

The Contractor shall formulate and enforce an adequate safety programme with respect to all work under this Contract, whether performed by the Contractors or subcontractors The Contractor has the assurance from the UCM of cooperation where the implementation of these safety measures requires joint cooperation

All Contractor and subcontractor employees shall at all times conduct themselves within the laws of Morocco

## **5.0 CONDITIONS OF CONTRACT**

### **5 1 ARBITRATION**

If any dispute or difference of any kind shall arise between the UCM and the Contractor in connection with or arising out of the Contract or performance of the specified services, it shall in the first place be fully documented in writing and negotiated amongst the two parties If these negotiations do not produce a settlement within 90 days, from the date of written notice of a dispute or difference by either party, the matter shall be referred to arbitration An arbitrator will be selected from a list of candidates agreeable to both parties The matter may be referred to arbitration prior to expiration of 90 days upon mutual consent of both parties

If the dispute or difference involves payments to the Contractor, only that portion of the payment which is in dispute shall be withheld during the arbitration period and all other payments due the Contractor shall be paid as stipulated under the payment provisions of this document Submission of a dispute or difference to arbitration shall not relieve the Contractor from his obligations to perform the services as specified herein

The said arbitrator/s shall have full power to open up, review and revise any decision, opinion, any decision, direction, or valuation of either party and neither party shall be limited in the proceedings before the arbitrator to the evidence or arguments for the purpose of obtaining a decision The decision of the arbitrator shall be binding upon both parties

### **5 2 TERMINATION**

#### **5 2.1 By UCM for Cause**

If at any time during the Contract Term, the Contractor is deemed by law unable to pay his debts or enters into voluntary or involuntary bankruptcy, liquidation or dissolution, or without reasonable excuse has failed to perform the stipulated services after due notice and reasonable time to correct the area of non-performance, the UCM may, issue a written termination notice, terminating the Contractor

The termination notice shall stipulate the conditions of termination including the time of termination and the disposition of equipment. The UCM shall have the option of purchasing the Contractor's equipment based on the fair market values as determined by a third party appraiser agreed to by both parties. The time of termination may be a period of up to 90 days to allow the UCM to arrange for another contractor to perform the services. The Contractor shall continue to provide refuse collection services during the termination period and be paid as stipulated herein.

The dispute of any component of the termination notice, or the submission of any dispute to arbitration, shall not relieve the Contractor of his responsibility to perform the collection services during the termination period.

#### **5.2.2 By Contractor for Cause**

If at any time during the Contract term, the UCM is unable to make payments to the Contractor or otherwise is unable to perform its obligations under the Contract without cause, after written notice and reasonable time to correct said area of non-performance, the Contractor may upon 14 days written notice, terminate the Contract. Upon termination, the Contractor shall be paid all sums that are payable to him for providing services under the Contract, plus damages suffered by the Contractor due to the premature termination of the Contract.

#### **5.2.3 Termination by UCM for Convenience**

If at any time before the completion of the Contract Term, it shall be found by the UCM that for reasons beyond the control of the parties render it impossible or against the interest of the UCM to continue the Contract, the UCM at any time, by 90 day written notice to the Contractor may discontinue work and terminate the Contract in whole or in part. Upon service of such notice of termination, the Contractor shall discontinue to work in such manner, sequence and at such times as the UCM may direct, continuing and doing after said notice only such work and only until such time or times as the UCM may direct. The Contractor shall have no claim for damages for such discontinuance or termination of the Contract but the Contractor shall receive compensation for reasonable expenses incurred in good faith for the performance of the Contract and for reasonable expenses associated with termination of the Contract. The UCM will determine the reasonableness of such expenses. The Contractor shall have no claim for anticipated profits on the work thus terminated, nor any claim, except for the work actually performed at the time of complete discontinuance.

### **5.3 INDEMNIFICATIONS**

The Contractor shall indemnify, protect and save harmless the UCM against all losses and claims for death of or injury to any person, or loss or damage to any property, which may arise out of or in the consequence of the Contractor's performance under this Contract, except those that are due to willful or negligent acts, or omissions by the UCM.

**APPENDIX A**

**URBAN COMMUNITY OF MEKNES**

**WASTE COLLECTION SERVICES**

**FORM OF PROPOSAL**

(Note All Appendices form part of the Form of Proposal)

President  
Urban Community of  
Meknes

Having examined the written Scope of Services, the Appendices and the locations of the Waste Collection Services to be performed under the Collection Proposal, we offer to perform the Waste Collection Services in conformity with the Scope of Work and Appendices for the following Costs

Proposer shall enter Proposal Costs for all of the following Items

**ITEM 1 - BASE WASTE COLLECTION PRICE**

For performance of the Waste Collection within the six (6) defined Service Areas and as described in the Scope of Services, including the provision, operation and maintenance of waste collection trucks, the provision and maintenance containers, all under the terms and conditions included herein

**ITEM 1A** - For waste collection, transportation and disposal at the existing landfill of proposed Transfer/sorting facility, a price per tonne of

\_\_\_\_\_ (\_\_\_\_\_ dh per tonne)  
(Dh per tonne in words)

**ITEM 1B** - For waste collection, transportation and disposal at the new UCM landfill, a price per tonne of

\_\_\_\_\_ (\_\_\_\_\_ dh per tonne)  
(Dh per tonne in words)

**ITEM 1C - TOTAL ESTIMATED ANNUAL PRICE**

(\_\_\_\_\_ dh per tonne) X 86,125 tonnes = \_\_\_\_\_ dh per year  
(Price 1B)

**ITEM 2 - NORMAL STREET SWEEPING**

For performance of street sweeping services within the six (6) defined Services Areas and as described in the Scope of Services, including the provision of all labor, equipment, tools and related items, all under the terms and conditions included herein, for a monthly lump sum price of

ITEM 2A - Hamrya \_\_\_\_\_ (\_\_\_\_\_ dh per month)  
(Dh per month in words)

ITEM 2B - Ismalta \_\_\_\_\_ (\_\_\_\_\_ dh per month)  
(Dh per month in words)

ITEM 2C - Zitouna \_\_\_\_\_ (\_\_\_\_\_ dh per month)  
(Dh per month in words)

ITEM 2D - Mechouar \_\_\_\_\_ (\_\_\_\_\_ dh per month)  
(Dh per month in words)

ITEM 2E - Ouislane \_\_\_\_\_ (\_\_\_\_\_ dh per month)  
(Dh per month in words)

ITEM 2F - Toulal \_\_\_\_\_ (\_\_\_\_\_ dh per month)  
(Dh per month in words)

**ITEM 3 - HEAVY STREET SWEEPING**

For performance of heavy street cleaning or dirt and sand from gutter areas, including the provision of all labor, equipment tools and related items for unit cost per meter of road

\_\_\_\_\_ (\_\_\_\_\_ dh per meter)

**ITEM 4 - OPTIONAL RUBBLE AND GARDEN WASTE PROPOSAL**

For the loading, removal, transportation and disposal of Rubble and Garden waste, as directed by the commune, a unit cost per cubic meter of

\_\_\_\_\_ (\_\_\_\_\_ dh per m<sup>3</sup>)  
(Dh per cubic meter in words)

**ITEM 5 - LITTER CONTAINERS**

For providing and installing replacement litter containers

\_\_\_\_\_ (\_\_\_\_\_ dh each)  
(Dh each in words)

- 2 We acknowledge that Appendices A to G to the Form of Proposal form part of this Proposal
- 3 We undertake if our Proposal is accepted, to commence work in accordance with the Scope of Work and the Implementation Schedule
- 4 If our Proposal is accepted, we will within thirty (30) days, execute the formal Contract Agreement and obtain the guarantee of a Bank or acceptable insurance company (subject to your approval) to be jointly and severally bound to the Urban Community of Meknes in the sum of 10% of the Proposal Cost and as stipulated Appendices D and E hereto, for due performance of the Contract under the terms of a Performance Security in the form appended hereto
- 5 We agree to abide by this Proposal for the period of ninety (90) days from the date fixed for receiving the same and it shall remain binding upon us and may be accepted at any time before the expiration of that period, or such other extended period that may be agreed between ourselves and the Urban Community of Meknes
- 6 Unless and until a formal Agreement is prepared and executed, this Proposal with our written acceptance shall constitute a binding Contract between us, and shall be deemed for all purposes to be the Contract Agreement
- 7 We understand that you are not bound to accept the lowest or any Proposal you may receive and that you will not defray any expenses incurred by us in proposing

DATED this \_\_\_\_\_ day  
of \_\_\_\_\_ 19 \_\_\_\_\_

SIGNATURE \_\_\_\_\_

(Name of Signatory Printed) \_\_\_\_\_

In the Capacity of \_\_\_\_\_

Duly authorized to sign Proposals for and on behalf  
of \_\_\_\_\_

ADDRESS \_\_\_\_\_

\_\_\_\_\_

SIGNATURE OF  
WITNESS \_\_\_\_\_

ADDRESS \_\_\_\_\_

NAME OF WITNESS

(Printed) \_\_\_\_\_

DATE \_\_\_\_\_

## APPENDIX C

### FORM OF INSURANCE

The selected Proposer shall be required to obtain general liability insurance as a condition of Contract signing within thirty (30) of notice of award. The selected Proposer shall provide an Insurance Certificate at Contract Signing as proof of insurance coverage for the following amounts:

For liability for bodily injury, including accidental death, 2,000,000dh on account of any one occurrence, and 4,000,000dh aggregate limit

For liability for property damage, 1,000,000dh on account of any one occurrence and 1,000,000dh aggregate limit

The contractor shall also be required to secure the following insurance:

- 1 Motor vehicle on equipment and vehicles, owned or leased
- 2 Workmen's Compensation Insurance

**APPENDIX THREE**

**Draft Tender Documents  
Landfill Construction and Operation**

## 1 0 CONDITIONS OF PROPOSALS AND INSTRUCTIONS TO PROPOSERS

### 1 1 GENERAL

Proposals from prequalified Proposers are invited by the Urban Community of Meknes for the construction and operation of the new UCM landfill and closure of the existing landfill. The selected Contractor shall perform the services as defined in the Proposal Documents and Landfill Operating Plan.

All interested Proposers shall complete and submit two (2) copies of the attached Proposal Form and related documents to President's Office, Urban Community of Meknes, prior to 4 00 pm local time, on the first \_\_\_ day of \_\_\_\_\_ 1997, at which time the Proposals will be publicly opened and read aloud.

Proposal documents shall be enclosed in a plain sealed envelope clearly marked **TENDER NO \_\_\_\_\_ LANDFILL CONSTRUCTION AND OPERATION**

All mailed Proposals should be sent by registered post to ensure delivery. Telephone, telegraph, telex or facsimile Proposals will not be accepted.

All Proposals shall provide a detailed statement of qualifications, including a list of references. Particular emphasis will be put on solid waste handling, heavy equipment operation and earth moving/excavation experience.

Each Proposal must be accompanied by a Proposal Surety, in favor of the Urban Community of Meknes, issued by an approved Insurance Company or Bank in the amount of one (1) percent of the total base proposal.

The UCM may conduct personal interviews with selected Proposers. The UCM expects that Proposers selected for interviews will make available key personnel proposed to work on this project, available for such interviews.

### 1 2 PROPOSAL PERIOD

The Proposals shall remain valid for ninety (90) days from the final date for submission of Proposals stipulated above.

The UCM shall notify the accepted Proposer (if any) of such acceptance by letter written within the stipulated ninety (90) day Proposal Period or such extension of the Proposal Period as mutually agreed to by the UCM and Proposers and said Proposer shall execute the formal contract within thirty (30) of said acceptance letter.

The UCM shall not be bound to accept the lowest or any Proposal or to assign any reason for its acceptance or rejection of any Proposal and in no case shall any Proposer be paid for any expense incurred in the preparation of this Proposal

### **1 3 PRE-PROPOSAL MEETING**

A Pre-Proposal meeting will be held at 9 00 am on \_\_ December 1997 for the purpose of reviewing the Proposal Documents and answering any questions from Proposers regarding the Scope of Work or any other aspect of the proposed work

### **1 4 REPRESENTATION OR INTERPRETATION OF DOCUMENTS**

Representation or interpretation of Proposal Documents shall be done in writing by the President, Urban Community of Meknes If during the Proposal period, subsequent to the Pre-Proposal Meeting, the UCM makes any interpretation, clarification or change in the Proposal Documents, the UCM will issue a letter to all Proposers explaining the interpretation, clarification or change The Proposer shall acknowledge the receipt of such letter in his submitted Proposal

### **1 5 REQUIRED PROPOSAL INFORMATION**

Each Proposal shall contain the following information

- 1 Proposer's Company name, address, telephone number, and contact individual,
- 2 Completed Proposal form(s)
- 3 Proposal Surety
- 4 Statement of qualifications and list of references
- 5 Description of proposed equipment
- 6 Implementation Schedule
- 7 Subcontractor Declaration
- 8 Form of Intent for Performance Bond

### **1 6 SIGNATORY REQUIREMENTS**

Each Proposal shall be accompanied by an original cover letter committing the Proposer, if selected, to carrying out the proposed work at the Proposal prices These prices shall be valid for ninety (90) days from the date of the Proposal The cover letter must further state that all information submitted in support of the proposal is accurate The cover letter must contain the signature of a person authorized to commit the firm(s) to a Contract

All forms requiring signatures shall be signed by the same individuals signing the cover letter

**1 7 PROOF OF GENERAL LIABILITY INSURANCE**

The selected Contractor will be required to obtain Liability Insurance of the Limits and conditions stated in Appendix C Proof of insurance in the form of a Certificate of Insurance will be required within 30 days of the notice of acceptance and prior to Contract signing, whichever is less

**1 8 PERFORMANCE BOND REQUIREMENTS**

A Performance Bond, in the amount of 10% of the base Proposal price, shall be required of the successful Proposer, executed by a surety company duly authorized to do business in the Country of Morocco

The Performance Bond shall be executed for the first year of the Contract and shall be a condition precedent to the execution of any Contract and any renewal thereof A Performance Bond shall be renewed annually for the work performed in each successive year of the Contract Term, increased accordingly The Performance Bond shall be in the amount of ten (10) percent of the yearly total sum

The Performance Bond shall be furnished within thirty (30) days, after the date of notification to the selected Contractor by UCM and his acceptance of the Proposal and prior to Contract signing

**1 10 PROPOSER RESPONSIBLE TO LEARN LOCAL CONDITIONS**

All Proposers submitting Proposals for the proposed work are cautioned to examine carefully the landfill site and all conditions affecting the construction and operation of the landfill and to acquaint themselves with the quantity and character of the materials to be handled under the proposed work

Submission of a Proposal shall be deemed conclusive evidence that the Proposer is fully acquainted with and shall be fully responsible for any restrictions, constraints or any physical difficulties within the Service Areas, as defined, including the disposal site to which all waste shall be collected and delivered

**2 0 DESCRIPTION OF SERVICES**

**2 1 SERVICE AREA**

The proposed work will include the design, construction and operation of a controlled landfill to serve the existing six communes of the Urban Community of Meknes (UCM) The work will also include the closure of the existing landfill as an option The communes included in the UCM are as follows

- |           |            |
|-----------|------------|
| 1 Hamrya  | 4 Mechouar |
| 2 Ismalia | 5 Ouislane |
| 3 Zitouna | 6 Toulal   |

## 2 2 BACKGROUND

The UCM currently operates an uncontrolled landfill located in the commune of Hamrya, very near the main commercial zone of the UCM. The existing landfill has been the subject of several previous studies by the USAID. These studies have all recommended that the existing landfill be closed as soon as possible. Existing problems include constant fires, odors, insects, lack of cover soil, inadequate access, grazing animals and congestion caused by recycling activities. This proposal also includes covering the existing landfill with excess soil, excavated from the new landfill during initial construction. The cover soil is proposed as a lump sum price alternative, to be selected and implemented at the option of the UCM. A copy of a topographic map of the existing UCM landfill is included in Appendix D showing the approximate limits in 1995.

In the October, 1995 report a new landfill site was evaluated and eventually selected for implementation by the UCM. The October, 1995 report included a conceptual design of the new landfill, to determine its ultimate useful life. This conceptual design is included in this document as Appendix E. The actual 60 Ha parcel of land, purchased by the UCM for the landfill is smaller than the site used for the 1995 conceptual design. However, the basic aspects of the conceptual design are still valid and should be considered in the final design. The boundary survey of the site with survey coordinates is presented Appendix F.

The proposed privatization of waste collection and disposal services will have significant impacts on the existing informal recycling system. The current practices of recycling on the collection trucks or in the landfill will be eliminated or drastically reduced. In evaluating alternatives to the existing recycling process, the UCM requests optional proposals from private contractors for conversion of the existing composting facility into a sorting/transfer station. Under this option, all waste would be delivered to the sorting/transfer station. The landfill contractor would have the responsibility of operating the sorting and recycling activity and transferring the remaining waste to the landfill. The operation should incorporate existing recyclers and processors if possible.

## 2 3 SOLID WASTE GENERATION

Waste generation in the UCM was estimated using two methods. The first method utilized population estimates, a waste generation coefficient of 0.7 kg/cap/day, and estimates of collection efficiencies. The second method utilizes landfill records which record each truck by commune and capacity in cubic meters. Landfill records were converted to tonnage using several assumptions. The results of these two methods are summarized below.

## WASTE GENERATION AND COLLECTION ESTIMATES

Commune	Estimated Population (1998)	Generation at 0.7kg/cap day (tpd)	Estimated Collection (%)	Estimated Collection (tpd)	Estimated From Landfill Records (tpd)
Hamrya	160,000	112	70%	78	60
Ismahia	130,000	91	70%	64	38
Zitouna	106,000	74	60%	45	28
Mechouar	50,000	35	80%	28	16
Ouislane	32,000	22	60%	13	7
Toulal	14,000	10	70%	7	8
<b>TOTALS</b>	<b>492,000</b>	<b>344</b>	<b>68%</b>	<b>235</b>	<b>163</b>

The above quantity estimates are presented for information only and are not to be assumed as having any contractual relationship to the services or costs as defined in the scope of services. The lower estimates based on landfill records are the result of low collection efficiencies and informal dumping by municipal workers. We anticipate this number to increase dramatically when the collection systems are privatized. The scope of services and contract costs will be based on the landfilling of actual waste, regardless of the amount of waste landfilled. For the purposes of establishing a base proposal price we will assume an annual tonnage of 86,125 tonnes per year. This estimate is based on approximately 235 tpd plus a 20% increase during the peak season of July and August.

### 3.0 SCOPE OF SERVICES

#### 3.1 GENERAL

The proposed work under this proposal includes capital and operating costs of the new landfill, as well as capital costs for the closure of the existing landfill. Due to a variety of options available for financing this work, the UCM requests proposals according to the following two alternatives:

**ALTERNATIVE ONE** - This alternative assumes that the capital costs for landfill infrastructure and initial excavation, and the costs for closing the existing landfill are paid as lump sum costs. The operations contract will be paid on a cost per tonne basis. The term of the operations contract under Alternate One is five (5) years with an additional two (2) year option.

**ALTERNATE TWO** - This alternate assumes that the UCM is not able to finance the landfill infrastructure and initial excavation as a lump sum. Under this alternative, the infrastructure and initial excavation are combined into the operations contract on a cost per tonne basis. The cost of closing the existing landfill will remain an optional lump sum cost. Under this alternative, the operations contract term will be increased to ten (10) years.

***SORTING/TRANSFER OPTION-*** Under this option, all waste would be delivered to a sorting/transfer station located at the existing, former composting facility. The contractor will be responsible for converting the compost facility to a sorting/transfer station and operating the station for a contract term of 10 years. If the Contractor elects to submit a cost under this option (not required) he should include a plan of the proposed changes to the compost facility, equipment proposed for sorting and recycling and equipment/vehicles proposed for transferring sorted waste to the new landfill. Operation of the sorting/transfer station will be a cost per tonne to be added to the landfill operations contract item in either Alternate One or Alternate Two.

## 3.2 CONTRACTOR RESPONSIBILITIES

### 3.2.1 LANDFILL DESIGN/BUILD

The contractor shall be responsible for the design and construction of the new landfill. The contractor shall complete the final design of the landfill within 90 days of notice to proceed by the UCM. The final design shall be in accordance with all national guidelines of the Ministry of the Environment and the following UCM specifications:

#### DESIGN

**1 Topographic Mapping** The contractor shall complete a topographic survey of the site including all physical features and topographic contours on the site and within 100 meters of the site. The survey data shall be presented on a design scale drawing showing contour intervals of at least 2 meters.

**2 Hydrogeology** Existing geology mapping indicates that the new landfill is located in low permeability clay soils, but no specific on-site testing has been performed. The contractor shall perform subsurface hydrogeologic testing to confirm soil and groundwater conditions. Testing shall include, as a minimum, four (4) test borings and six (6) test pits as indicated on the Field Investigations Map included in the conceptual design found in Appendix E. Test borings shall be installed to a depth two (2) meters below ground water level or 50 meters, whichever is less. Test pits shall be installed to a depth of three (3) meters. Both borings and test pits shall record general soil conditions and any changes in soil type.

Laboratory analysis shall be performed on both soil and groundwater samples obtained during the installation of borings and test pits. A minimum of four (4) soil samples shall be analyzed for grain size distribution and water permeability (cm/sec). A minimum of two (2) groundwater samples, one from a test boring on the site and one from the existing downgradient well, shall be analyzed for the following:

PH	Lead
Iron	Mercury
Manganese	Zinc
Calcium	Cadmium
Sodium	

Chloride  
Specific Conductance  
COD

**3 Landfill Base** Subject to confirmation by the hydrogeological investigations, the landfill design shall utilize the existing clay soil as the landfill base without the need for a synthetic plastic liner or leachate collection systems

**4 Leachate Management** The conceptual design included an evaluation of leachate generation and estimated that approximately 2 to 4 centimeters of leachate would be produced per year. This estimate was based on weather conditions in Meknes (577 mm rainfall per year), and standard controlled landfill operation, including waste compaction and the application of daily cover soil. Since actual leachate generation will vary based on rainfall patterns, initial moisture content of the waste, and operating conditions, the final design shall include an evaporation basin to collect all leachate that may drain from the site. The contractor shall conduct his own evaluation of estimated leachate generation and design the leachate evaporation basin to contain all leachate on-site and prevent any off-site leachate flow. Leachate recirculation back into the landfill may be incorporated into the leachate management design.

**5 Excavation Plan** The final landfill design shall include an excavation plan showing the ultimate limits and slopes of the landfill base. The excavation plan shall include a contour map with one (1) meter contour intervals, which directs all leachate to the leachate evaporation basin. The excavation plan shall include an estimate of total volume of excavation in cubic meters. The total volume of soil to be excavated over the life of the landfill shall be sufficient to provide cover soil for all landfill operations and for covering the existing landfill.

**6 Final Contour Plan** The final landfill design shall include an ultimate final contour map showing the upper limits of the completed landfill at a contour interval of 1 meter. The slope of the final contour map shall not exceed 33% in order to reduce erosion potential.

**7 Construction Phasing** The final design shall include a design plan showing the construction phases of the landfill, both vertically and horizontally. The plan shall include the initial construction phase and all subsequent phases.

**8 Initial Construction Phase** The initial construction phase (3 to 5 year capacity) shall be in accordance with the excavation plan and the construction phasing plan. The initial phase shall include excavation of soil of sufficient volume to cover the existing landfill and provide initial daily cover for landfill operations. Daily cover may be obtained by daily excavation for subsequent construction phases.

**9 Infrastructure Requirements** The final design shall include the following infrastructure improvements:

**Access Road** The gravel access road shall be constructed to standard engineering design values. It shall have a minimum width of six (6) meters and extend from the main paved highway to the scale and depot facilities.

**Weighbridge** The weighbridge shall be a standard platform weighbridge capable of weighing waste collection trucks and dump trucks delivering waste to the facility and removing soil for covering the existing landfill. Complete specifications for the weighbridge shall be submitted with the final design for UCM approval.

**Depot Facility** The depot facility design shall include office areas for landfill administration, weighmaster, record keeping, and sanitary facilities for landfill workers.

**Maintenance Facility** The design shall include a covered maintenance facility for performing routine maintenance and repairs to landfill equipment.

**Utilities** The final design shall include the provision of utilities to the depot facility including, potable water, electricity, telephone and wastewater disposal (toilets).

**10 Construction Schedule** The final design shall include a schedule for construction of the landfill.

**11 Design Submission and Review** The Contractor shall submit the final landfill design within 90 days of notice to proceed. The Contractor shall not start construction of the landfill until the design has been approved by the UCM and the Ministry of the Environment. The UCM shall review the design within 30 days. The UCM may either approve the final design, as submitted, or request changes in accordance with the above specifications. If changes are requested, the contractor shall revise and resubmit the final design within 30 days.

## **CONSTRUCTION**

After approval of the final design by the UCM, the contractor shall begin construction of infrastructure improvements and the initial excavation phase. If the UCM has awarded the covering of the existing landfill, the Contractor shall transport excavated soil to the existing landfill and place and compact the soil as specified in Section 3.2.3. If the UCM has not awarded the covering of the existing landfill, excavated soil shall be stockpiled on-site for later use in covering the existing landfill.

Upon authorization to proceed with construction, the contractor shall complete construction within 120 days.

### 3 2 2 CLOSURE OF EXISTING LANDFILL

Under this Contract Item, the Contractor shall close the existing landfill with excavated soil in accordance with the following procedures and specifications

#### CLOSURE DESIGN

**1 Topographic Mapping** The contractor shall complete a topographic map of the existing landfill with contour intervals of 1 meter. The map shall include all areas that have received waste. The map shall also include features of the existing site and adjacent property that will be impacted by the closure, including streams, sewer discharges, leachate seeps, roadways, and existing structures.

**2 Closure Contour Plan** The contractor shall complete a closure contour plan showing the final contours of the site. The final contours shall be designed to cause the site to drain during rainfall. Low spots such as existing roadways or other depressions shall be filled and graded so that all areas have a positive slope toward the edges of the site. The objective of the plan shall be to avoid ponding of water during rainfall.

The Closure Contour Plan shall also identify the areas to receive cover soil. In general, all upper areas of the landfill and side slopes less than 33% shall receive cover soil. Side slopes greater than 33% shall not be covered due to high erosion potential.

**3 Cover Soil Volume** The closure design shall include a calculation of the volume of soil required to cover the existing landfill as described in the Closure Contour Plan, in cubic meters. This volume shall be used to design the initial excavation of the new landfill.

**4 Review and Approval** The contractor shall not proceed with the landfill closure until the UCM has reviewed and approved the closure design.

#### CLOSURE CONSTRUCTION

**1 Closure Date** The Contractor shall coordinate with the UCM to determine a closure date and closure schedule for the existing landfill. The closure date shall coincide with the opening of the new landfill. The UCM shall be responsible for terminating disposal activity at the existing landfill and transferring all waste to the new landfill or other locations. The UCM shall notify all recyclers at the landfill that they must remove their operation from the site by the closure date. All recycling materials, structures or equipment remaining on the site after the closure date shall be demolished and graded according to the Closure Contour Plan. The UCM shall be responsible for security at the site to prohibit dumping at the site after the closure date.

**2 Grading** Upon authorization from the UCM, the contractor shall begin the landfill closure by grading the site to the final contours as shown on the Closure Contour Plan, using bulldozers or landfill compactors. The contractor shall grade the site using existing waste materials.

*3 Placement of Cover Soil* After grading the site to the final closure contours, the contractor shall cover the site with soil to a thickness of 50 cm. The soil, excavated from the new landfill, shall be placed and compacted in two 25 cm layers. The contractor shall monitor the soil moisture during the placement and compaction of cover soil, to achieve a minimum of 90% maximum soil compaction. Water shall be added as necessary to achieve this degree of compaction.

### **3 2 3 LANDFILL OPERATIONS**

The work to be performed under this section of the contract shall include the provision of all labor, equipment, supplies and related items to operate the new UCM landfill, in accordance with Landfill Operating Plan, included as Appendix G to this document.

### **3 3 PAYMENTS**

#### **3 3 1 General**

Under Alternative One, the Contractor shall be paid lump sum amounts for Landfill Construction and Closure of the Existing Landfill, upon completion of the work herein described. Upon completion of the work, the Contractor shall request a final UCM inspection of the work for compliance with the contract plans and specifications. If the work is approved by the UCM, a Certificate of Completion will be issued by the UCM. Payment will be due and payable 60 days after the Certificate of Completion is issued by the UCM.

For the Operations Contract under either Alternative One or Two, the Contractor shall submit Payment Requests to the UCM on the last working day of the month for services performed during that month. The request shall include tonnes received and a payment item for each commune for all payment items and services provided during that month. Payment shall be due and payable 60 days thereafter.

The UCM may withhold any amount as a result of non-performance of the Contract as herein described.

#### **3 3 2 Price Fluctuation Clause**

Due to the length of the operations portion of this Contract, the Contractor shall be entitled to an adjustment of the Proposal Price due to fluctuations in the cost of any material or labor cost as a result of Customs Duty, Tax, Currency Exchange Rates, Minimum Labor Rates or any other governmental action, which shall occur after seven (7) days preceding the date of Proposal.

Price fluctuations due to inflation will be considered on each yearly anniversary date of the contract signing. At least 60 days prior to the Contract anniversary date, the Contractor shall submit to the UCM, his request for an increase in the Proposal Price due to inflation, to be effective during the next year of the contract. All requests for

inflation increases must be supported by an accepted national price index or other valid documentation

### **3 3 3 Uncontrollable Events**

If the Contractor is unable to perform his responsibility under the conditions of the Contract due to circumstances beyond his control, which results in increased cost to the Contractor for overtime or work on weekends, or other increased costs, the Contractor shall be reimbursed for said additional cost. If the Contractor experiences an unforeseen and uncontrollable circumstance he shall give immediate notice to the

City, prior to incurring any additional cost, who shall review the notice and, direct the Contractor accordingly

## **4 0 PERSONNEL**

### **4 1 COMPETENT LABOR**

The Contractor shall use all diligence in arranging for sufficient and competent labor at all times during the term of this Contract. Competent supervisory and managerial staff shall be employed to oversee the landfill operations and to ensure that the services are performed as stipulated in the Landfill Operating Plan

### **4 2 EMPLOYEE TRAINING**

The Contractor shall provide all hired staff with the appropriate training in the use of all equipment, safety gear and uniforms. Training shall include sanitary and environmental practices for identifying and handling waste materials

### **4 4 EMPLOYEE APPEARANCE**

The Contractor personnel shall be representing UCM and the proposed program. As such, they shall be neatly dressed, well-groomed, courteous, and knowledgeable about landfill operations

### **4 5 CONDUCT OF CONTRACTOR'S EMPLOYEES**

The Contractor shall comply with existing local labor laws, regulations and labor standards

The Contractor shall formulate and enforce an adequate safety programme with respect to all work under this Contract, whether performed by the Contractor or subcontractors. The Contractor has the assurance from the UCM of cooperation where the implementation of these safety measures requires joint cooperation

All Contractor and subcontractor employees shall at all times conduct themselves within the laws of Morocco

## 5 0 CONDITIONS OF CONTRACT

### 5 1 ARBITRATION

If any dispute or difference of any kind shall arise between the UCM and the Contractor in connection with or arising out of the Contract or performance of the specified services, it shall in the first place be fully documented in writing and negotiated amongst the two parties. If these negotiations do not produce a settlement within 90 days, from the date of written notice of a dispute or difference by either party, the matter shall be referred to arbitration. An arbitrator will be selected from a list of candidates agreeable to both parties. The matter may be referred to arbitration prior to expiration of 90 days upon mutual consent of both parties.

If the dispute or difference involves payments to the Contractor, only that portion of the payment which is in dispute shall be withheld during the arbitration period and all other payments due the Contractor shall be paid as stipulated under the payment provisions of this document. Submission of a dispute or difference to arbitration shall not relieve the Contractor from his obligations to perform the services as specified herein.

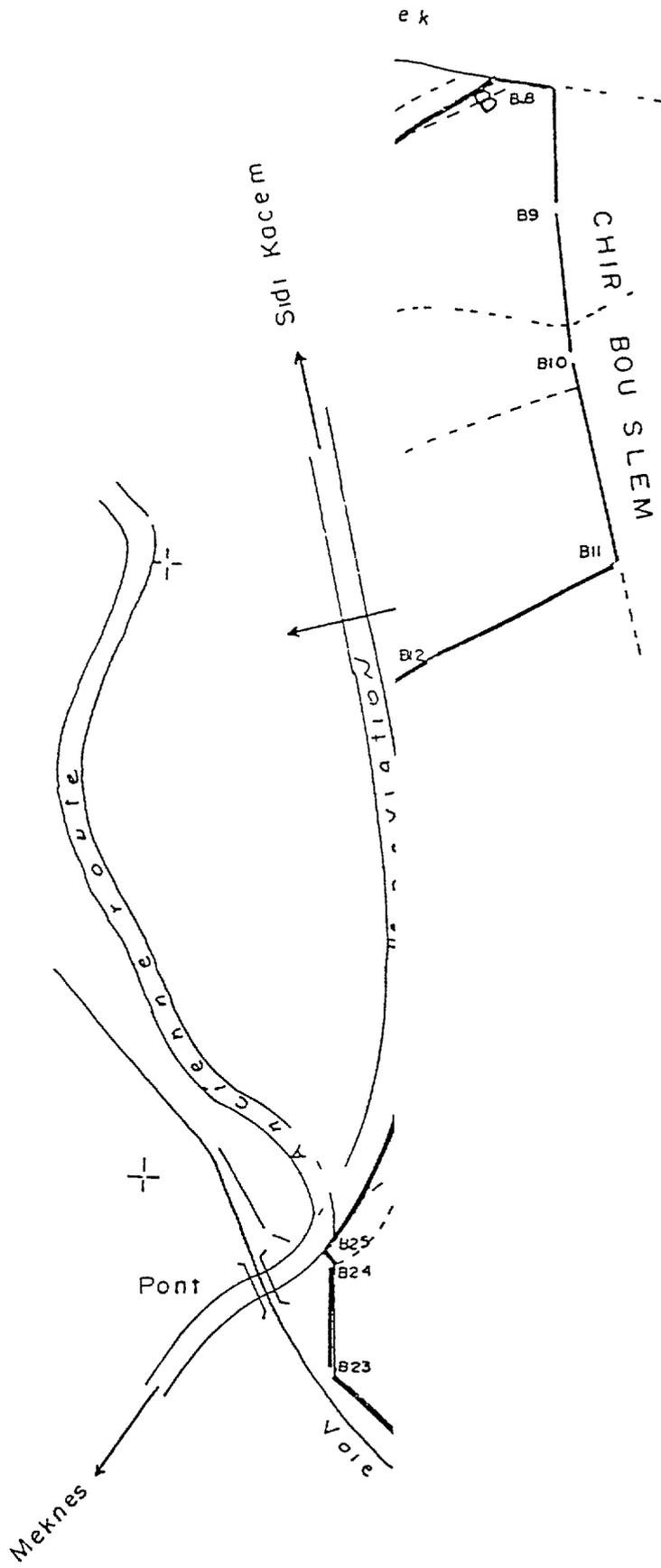
The said arbitrator/s shall have full power to open up, review and revise any decision, opinion, any decision, direction, or valuation of either party and neither party shall be limited in the proceedings before the arbitrator to the evidence or arguments for the purpose of obtaining a decision. The decision of the arbitrator shall be binding upon both parties.

### 5 2 TERMINATION

#### 5 2 1 By UCM for Cause

If at any time during the Contract Term, the Contractor is deemed by law unable to pay his debts or enters into voluntary or involuntary bankruptcy, liquidation or dissolution, or without reasonable excuse has failed to perform the stipulated services after due notice and reasonable time to correct the area of non-performance, the UCM may, issue a written termination notice, terminating the Contractor.

The termination notice shall stipulate the conditions of termination including the time of termination and the disposition of equipment. The UCM shall have the option of purchasing the Contractor's equipment based on the fair market values as determined by a third party appraiser agreed to by both parties. The time of termination may be a period of up to 90 days to allow the UCM to arrange for another contractor to perform the services. The Contractor shall continue to provide services during the termination period and be paid as stipulated herein.



**APPENDIX G**

**LANDFILL OPERATIONS PLAN**

—

**THE URBAN COMMUNITY OF MEKNES**  
**LANDFILL OPERATIONS**  
**PLAN**

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## LANDFILL OPERATIONS PLAN

### ARTICLE 1 - DEFINITIONS

Terms and references included in the following contract articles shall have the following meaning

- 1 *Solid Waste* is waste of a solid nature generated by a person, business or industry,
- 2 *Domestic solid waste* is solid waste generated by single or multifamily residential dwellings, and solid waste of a non-hazardous nature, generated by wholesale, retail, institutional or service establishments such as office buildings, stores, markets, restaurants, theaters, hotels, warehouses, industrial operations and manufacturing processes,
- 3 *Hazardous waste* is any waste which by reason of chemical reactivity, or toxic, explosive, corrosive or other characteristics causes danger or is likely to cause danger to human health or the environment, whether alone or in combination with other wastes,
- 4 *Medical waste* is any waste generated by hospitals, clinics, nursing homes, doctor's offices, medical laboratories, research facilities and veterinarians, which is infectious or potentially infectious,
- 5 *Special waste* is a non-hazardous waste, which due to its nature requires special or separate handling at a sanitary landfill. Special wastes include but are not limited to tires, asbestos, demolition waste, industrial sludges of a non-hazardous nature, paper mill sludge, olive oil waste, abattoir wastes and petroleum waste oil,
- 6 *Solid Waste Management facility* is any facility used for the transportation, processing or disposal of solid waste, and includes transfer stations, recycling facilities, composting facilities, waste incinerators, and sanitary landfills,
- 7 *Transfer Station* is a facility that receives solid waste from collection vehicles and reloads that waste into larger vehicles for transfer to a disposal or processing facility,
- 8 *Incineration* is the controlled combustion of solid waste employing closed combustion chambers, controlled combustion air, temperature monitoring and control

to insure complete combustion of organic matter with a minimum of undesirable air emissions and wastewater discharges,

9 *Controlled landfill* is a solid waste management facility used for the disposal of non-hazardous domestic waste and non-infectious medical waste, which employs compaction of wastes, covering of waste with soil cover material, and the management of leachate and gaseous materials produced by the organic decomposition of the landfilled waste, all in such a manner as not to harm human health and minimize negative impacts to the environment,

10 *Leachate* is the liquid byproduct of organic decomposition of landfilled waste or any liquid which comes in contact with solid waste in a sanitary landfill,

11 *Landfill gas* is the gaseous byproduct of organic decomposition of landfilled waste. Landfill gas contains significant concentrations of methane gas which is explosive at concentrations exceeding 5 percent

12 *Recycling* is the sorting, processing, and transportation of solid waste materials, products or containers for the purpose of remanufacture or reuse,

13 *Sorting* is the authorized separation of solid waste materials for the purpose of recycling or disposal, either at the source of generation or at a solid waste management facility,

14 *Scavenging* is the unauthorized separation of solid waste for recyclable materials and food for human consumption,

15 *Surface water* is all waters in or coming from a water source which is found on the surface of the ground, excluding water under the surface of the ground and sea water,

16 *Perimeter drains* are open ditches surrounding the landfill installed to prevent surface water from entering the landfill

17 *Groundwater* is all waters flowing or existing under the ground surface,

18 *Cell* is a volume of waste generally placed during one working day and covered on all horizontal surfaces by cover soil

19 *Lift* is a series of one or more landfill cells forming a section of landfilled waste that extends horizontally across the landfill

20 *Daily cover* is a daily application and compaction of approximately 15 centimeters of soil intended to control blowing litter, odors, flies, rats and fires, intended for an exposure of less than one week

21 *Intermediate cover* is an application and compaction of cover having the same

functions as daily cover but applied at a thickness of 30 centimeters, intended to be exposed for a period of one week to one year

22 *Final Cover* is an application and compaction of soil on the landfill after it has reached its designed elevation. The final cover soil shall be relatively impermeable and have a thickness of approximately 50 centimeters

23 *Working area* is the area of the landfill where waste is unloaded, compacted and covered. It generally includes adequate space for several trucks to unload at the same time, for waste compaction and storage of cover soil

24 *Vectors* are birds, insects, and rodents capable of carrying disease-causing bacteria, viruses or fungi from one host to another

25 *Design Drawings* are drawings prepared by the landfill designer and include dimensions, specifications and other technical data regarding the construction of the landfill,

26 *Operating Plan* consists of drawings, descriptions and other documents regarding the operation of the landfill, placement of waste, building daily cells and lifts, leachate management, landfill gas management and all other functions related to the operation of the landfill

27 *Operator* is the person or organization responsible for the operation of the landfill. The operator may be the owner, another public agency or private contractor

28 *Owner* is the person or organization who owns the property and/or facilities that constitute the landfill

## GENERAL CONDITIONS

### ARTICLE 2 - GENERAL

The Operator shall supply all labor, tools, supplies and supplemental equipment required to operate the landfill in accordance with the following articles and the operating plans. This shall include receipt and inspection of all waste, placement and compaction of waste, application of cover soil, control of surface water, operation of leachate management systems, control of vectors, control of litter and record keeping

All landfill operations shall conform to all laws and regulations of the Government of Morocco and the Ministry of the Environment

### ARTICLE 3 - CERTIFICATION OF SITE CONDITIONS

The operator shall review all landfill design drawings, operating plans and site conditions, and become familiar with all facilities and equipment, their capacities and their operational function. The owner shall provide access to all relative drawings, maps, documents and

facilities as required by the operator to perform his evaluation of site conditions. By submission of his tender and signature on the tender documents, the operator certifies that he has inspected the site, equipment, designs and plans and finds them to be adequate to perform all landfill operations in conformance with the contract and for the contract prices included in his tender. If the operator finds any design, operating plan, equipment or site condition to be deficient in any way, he shall list the deficiency in his tender.

#### **ARTICLE 4 - (NOT APPLICABLE)**

#### **ARTICLE 5 - ACCESS ROADS**

The owner has constructed a permanent access road from the paved public highway to the receiving facility. The permanent access road has been designed and constructed for rubber tired vehicles only and is not to be used by the landfill compactors or bulldozers. The operator shall construct a separate equipment access road on the site for use by landfill compactors and bulldozers, between the maintenance and repair depot and the active working areas of the landfill. The operator shall construct and maintain temporary access roads in the active areas of the landfill as required to provide truck access and dumping. Temporary access roads shall have a maximum slope of 15%. All access roads are to be free of obstacles or sharp objects, maintained and repaired by the operator and be passable under all weather conditions.

#### **ARTICLE 6 - OTHER FACILITIES**

The owner has constructed receiving facilities, including a weighbridge, administrative offices and an equipment maintenance/repair area for the exclusive use of the landfill operator. The operator shall be responsible for maintaining these facilities during the term of the operating contract. These facilities may not be used for any purpose other than landfill operation, without the written permission of the owner.

#### **ARTICLE 7 - UTILITIES**

The owner has installed electricity, telephone and water to the site. The operator shall be responsible for paying all utility invoices during the term of this contract.

#### **ARTICLE 8 - INSURANCE**

The operator shall maintain adequate insurance during the performance of the contract, in accordance with Appendix C of the contract documents.

### **EQUIPMENT**

#### **ARTICLE 9 - EQUIPMENT**

The operator shall supply all equipment, of the size and capacity necessary to operate the landfill in accordance with the conditions included in the Operations Plan. As a minimum, the equipment shall include

- 1 *One Steel Wheeled Waste Compactor* for use in compacting and covering waste which is placed in the landfill
- 2 *One Track Bulldozer* (D7 or Equivalent) for general excavation, waste compaction and covering, access road construction and maintenance
- 3 *One loader or excavator* for excavation and loading of cover materials
  
- 4 *One Dump Truck* for use in loading and transporting cover soil
- 5 *One water truck* for wetting roads and dust control

#### **ARTICLE 10 - EQUIPMENT OPERATION, MAINTENANCE AND REPAIR**

The operator shall be responsible for the operation, maintenance and repair of the equipment, in accordance with the manufacturer's recommendations. A preventive maintenance plan shall be prepared by the operator and submitted to the owner within 30 days of the operator's notice of tender award. As a minimum, the preventative maintenance plan shall meet manufacturer's recommendations including fuel, oil, lubricants, filters, etc. The operator's monthly report shall include a listing of all maintenance and repairs performed during that month in accordance with the preventative maintenance plan. The operator shall keep all receipts and invoices to document maintenance and repair, which may be reviewed by the owner at his request.

In addition to providing the above equipment, the operator shall arrange for replacement equipment in the event that the main equipment is inoperative because of breakdowns or extended maintenance or repairs. The Operator shall inform the owner within 24 hours of any major equipment breakdowns.

#### **ARTICLE 11 - EQUIPMENT OPERATORS**

All equipment operators shall have previous experience on similar equipment and shall have completed a training course on equipment operation.

### **LANDFILL OPERATION**

#### **ARTICLE 12 - CAPACITIES**

The landfill and related facilities have been designed and constructed for a daily capacity of 250 to 350 tonnes per day. The actual amount of waste received by the landfill will vary during the term of this contract, based on many factors, including the privatization of the collection systems. Waste to be delivered and landfilled during the months of July and August may be 10 to 20% greater than other months.

#### **ARTICLE 13 - HOURS OF OPERATION**

The landfill shall be available for waste disposal during normal working hours 6:00 am to 5:00 pm, 7 days per week. Based on experience at the existing landfill, peak periods are 10:00 am to 1:00 pm daily, with Mondays being the heaviest day. Waste collections on Sunday are

minimal, from market and commercial areas. The operator shall adjust his staff and equipment needs to meet the expected truck traffic.

During times when the landfill is not open for the receipt of waste, all vehicle access gates should be closed and locked. A full time guard shall secure the site at all times.

#### **ARTICLE 14 - RECEIPT OF WASTE**

All waste received at the landfill shall be weighed at the weighbridge. The operator shall record the type of waste received, the origin of the waste by commune, truck registration number and the truck's capacity in cubic meters. Initially, all trucks shall be weighed as they enter the landfill and when they leave. The difference in these weights is the weight of waste dumped in the landfill. After several trips, the empty or tare weight of each truck can be determined. Thereafter, it will only be necessary to weigh the truck as it enters the landfill. All waste entering the landfill shall be summarized by commune in daily, weekly and monthly reports.

#### **ARTICLE 15 - OPERATION & MAINTENANCE OF WEIGHBRIDGE**

The owner reserves the right to oversee or operate the weighbridge to insure an accurate account of waste entering the landfill. The weighbridge shall be tested by the operator and its accuracy certified every 6 months. The cost of weighbridge testing and certification shall be included in the operator's general costs.

In the event that the weighbridge becomes inoperable, the operator shall immediately notify the owner, and arrange for repairs as soon as possible. When the weighbridge is not operational for any reason, the operator shall estimate the volume of waste in each truck and record it in the weighbridge log. The owner and operator shall determine a mutually agreeable method for estimating tonnage from volume estimates when the weighbridge is not functioning.

#### **ARTICLE 16 - INSPECTION OF WASTE**

The landfill operator shall accept only domestic waste and special wastes identified by the owner in Article 17. The operator shall perform periodic inspections of the waste as it is received, to confirm its type. Any waste that is not authorized for disposal shall be rejected by the operator. All waste that is rejected shall be recorded in the operator's log, including its type, reported origin and truck registration number.

#### **ARTICLE 17 - ACCEPTABLE WASTE**

The operator shall accept domestic solid waste plus the following special wastes:

- 1 Demolition and Construction waste
- 2 Brush and wood waste
- 3 Tires

- 4 Medical waste
- 5 Incinerator ashes

The operator shall not accept the following wastes

- 1 Hazardous wastes
- 2 Liquid wastes
- 3 Industrial waste and sludge
- 4 Olive processing wastes
- 5 Automotive waste

#### **ARTICLE 18 - TRAFFIC FLOW AND UNLOADING**

The operator shall be responsible for maintaining an orderly and controlled flow of traffic into and out of the landfill. Traffic shall not be permitted to by-pass the weighbridge unless it is inoperable. Barricades, fences, empty drums, and signs shall be used by the operator to direct the trucks to the appropriate dumping area. Dumping shall be approved only in approved active areas. The operator shall provide at least two attendants in the active area to direct traffic and insure that the waste is placed in the proper location.

The number of active areas and temporary access roads shall be established according to the amount of waste and number of trucks using the landfill. In general, traffic queues of 5 trucks or more shall indicate inefficient traffic flow and additional areas and temporary access roads shall be added by the operator.

The operator may direct certain wastes to separate dumping areas. Construction and demolition wastes should be placed in a separate storage area for later use as cover, for stabilizing access roads and extinguishing fires.

#### **ARTICLE 19 - DESIGN PLANS**

The Design Plans specific to this landfill are found in Appendix AA. They consist of the following drawings:

**General Site Conditions** This drawing shows the major components of the site including property lines, access roads, weighbridge, maintenance facilities and leachate holding facilities.

**Initial Construction Phase** This drawing shows the recommended initial operating procedures to begin filling in Phase 1.

**Landfill Phases** The landfill is to be constructed in phases. This plan shows the general location of each phase of the landfill and the sequence of phases.

**Excavation Plan** This plan shows the elevations and limits of the landfill base, as a guide for phased construction and excavation of cover soil.

**Final Contour Plan** At completion of the landfill, it is important have the proper grades and drainage to limit leachate generation

**Compaction and Cell Construction** This one page schematic drawing presents the typical procedures for unloading, compacting and covering the waste

**Sequential Filling Plans** (3 pages) This general series of schematic drawing shows the typical sequential filling of the first four phases of the landfill

**Final Cover & Methane Vent** This detail is a cross showing the installation of a typical landfill gas vent and application of the final cover soil

## **ARTICLE 20 - (NOT APPLICABLE)**

## **ARTICLE 21 - CELL AND LIFT DIMENSIONS**

The landfill shall be constructed in cells and lifts as shown in the Sequential Filling Plan, found in Appendix AA. The vertical depth of each landfill lift shall be 2 to 3 meters in depth. The horizontal width of each cell shall be determined by the operator to suit field conditions. Since the site is subject to strong winds and blowing debris, the width of the active cell should be minimized.

The operator shall begin landfill operations in Phase 1 as indicated in the design plans. Subject to the estimated volume of daily waste, one or two active areas shall be utilized. Cell construction may progress in either direction after initial operations begin.

The operator shall establish elevation benchmarks around the site for the purpose of elevation control. An elevation survey shall be performed once per year, establishing the horizontal and vertical extent of the completed portions of the landfill. The survey map shall be submitted with the operator's annual report.

## **ARTICLE 22 - WASTE COMPACTION**

All waste placed in the landfill shall be compacted with mechanical equipment before being covered. Compaction shall be performed by either a steel wheel landfill compactor or a tracked bulldozer. At least three passes of the compaction equipment will achieve sufficient compaction. Spreading and compaction of waste shall begin as soon as the waste is placed in the landfill. All waste shall be compacted and covered with soil within 6 hours of placement in the landfill. In areas that will serve as temporary access roads, additional compaction may be necessary. Compaction shall proceed as shown in the Compaction and Cell Construction Diagram, in the Operating Plan found in Appendix AA.

## **ARTICLE 23 - COVER**

***Daily Cover*** The primary function of daily cover is to control litter, vectors and fire

- Daily cover may be any type of soil having a compacted thickness of 15 centimeters
- Daily cover is to be excavated on site, stockpiled and applied as required. Demolition

material or waste soil delivered to the landfill may also be applied as cover material  
Daily cover may be removed before placing additional waste

*Intermediate Cover* Intermediate cover has the same general purpose as daily cover but it also must support the traffic flow of trucks and compaction equipment placing the next vertical lift. Therefore, intermediate cover shall be 30 centimeters thick and applied to all horizontal surfaces which will not receive additional waste for 7 days or more. Intermediate cover is also a method of controlling rainwater from entering the waste, by absorbing water during rainfall and evaporating water during dry periods. Intermediate cover may be any type of soil with suitable strength to support truck traffic.

*Final Cover* When any portion of the landfill reaches its final contour elevation, the operator shall place final cover soil, having a minimum thickness 50 centimeters. Final cover soil shall be a low permeability soil material in order to promote drainage of rainwater off the site and the absorption/evaporation of water from the soil. Final cover soil shall have sufficient organic material to support plant growth.

The landfill has been designed with sufficient excavation to provide soil for final cover of the existing UCM landfill in Hamrya and all cover soil requirements at the new landfill. The operator is advised to follow the excavation plan in his daily operations to insure an adequate supply of cover material. Failure to follow these guidelines may result in a shortage of cover soil. The operator will not be paid for cover soil imported from an off-site source.

All cover soil, regardless of its origin shall be loaded onto trucks and weighed at the weighbridge before being used. A record shall be kept of all cover soil used. Daily and intermediate cover soil shall not exceed 15% of the waste, as measured by volume.

## ARTICLE 24 - LEACHATE MANAGEMENT

The landfill has been designed so that all leachate will drain into an evaporation basin. The operator will be responsible for the operation and maintenance of this system for the duration of this contract. The amount of leachate to be produced by the landfill will vary based on many conditions, including rainfall, temperature and operating conditions. In general, the compaction and covering of the waste as specified herein will reduce or eliminate the amount of leachate produced.

The landfill base design and the impermeable nature of the base soil will cause leachate to drain to the evaporation pond. The purpose of the evaporation pond is to capture the leachate and prevent it from entering the stream below the landfill. Leachate stored in the pond shall be permitted to evaporate naturally. In the event that the level of leachate reaches 1 meter below the top of the pond, the operator shall recirculate the leachate into the landfilled waste using temporary piping or trucks. Leachate shall be recirculated into the landfill in areas having at least 5 meters of waste. The collected leachate may also be spread on access roads to control dust or to extinguish fires. All leachate withdrawn from the evaporation pond shall be recorded in the operator's log.

## ARTICLE 25 - LANDFILL GAS CONTROL

The organic waste placed in the landfill will produce landfill gas as it decomposes. Landfill gas is a mixture of carbon dioxide, hydrogen sulfide, methane and other minor gases. The rate of waste decomposition will vary based on several factors including moisture. Since the waste placed in the landfill is 70% water, some leachate and landfill gas will always be produced. Considering Morocco's low rainfall and assuming good landfill operation, moisture in the waste should be minimal and both leachate and landfill gas should be minimal problems.

The methane component of the landfill gas is a concern because it can become explosive if permitted to build-up in a confined space. Under normal operating conditions, landfill gas escapes to the atmosphere through the waste or cover soil. When the final layer of cover soil is placed and compacted, a potential exists for methane gas to be contained in the landfill. Therefore, methane vents are installed at the time of final cover to vent the gas to the atmosphere. Installation of methane vents is not included in this Operations Contract and will be designed and installed as a separate contract during final closure.

## ARTICLE 26 - SURFACE WATER CONTROL

The landfill has been designed with a surface and rainwater control system consisting of open drainage ditches around the landfill. This system of perimeter drains is designed to keep surface water from draining into the landfill. The operator is responsible for cleaning and maintaining these ditches. The operator shall also apply and grade cover soil in a manner that will reduce the amount of rainwater entering the landfilled waste.

## ARTICLE 27 - LITTER CONTROL

The landfill site is subject to frequent high winds. The operator shall control wind blown litter using the following methods:

*Portable Catch Fences* The operator shall use portable litter catch fences at each active area of the landfill to trap wind blown debris. Portable fences shall be 3 meters high and constructed of metal netting with maximum opening of 15 centimeters. The length of the portable fence shall suit the size of the working area but not less than 50 meters.

*Litter Collection Crew* The operator shall maintain a litter person whose sole purpose will be to collect litter around the site. Litter shall be collected every day on the site and at least one day per week along the public and private lands adjacent to the site.

## ARTICLE 28 - SCAVENGING AND RECYCLING

The operator shall not permit unauthorized scavenging of food or other materials from the waste. Sorting and recycling of specific materials may be permitted, subject to a plan submitted by the operator for the owner's review and approval. Recycling of material shall be performed only by the operator's workers in an orderly manner. All recycled material must be removed from the site every 24 hours. Recycling of materials shall not interfere with

compaction and covering procedures as herein described. The operator will have complete control of the site and authority to prevent access by unauthorized persons.

#### **ARTICLE 29 - FIRES**

The primary prevention of fires at the landfill will be the compaction and application of cover soil as specified in Articles 22 and 23. In the event that a fire starts at the landfill, the operator shall extinguish the fire within 24 hours, using cover soil, leachate from the leachate holding pond or water from an off-site source.

Most fires in landfill are set by scavengers in search of more materials or to keep warm during the cooler winter months. By prohibiting scavenging at the landfill, the potential of fires should be reduced. Some fires are started by hot coals placed in litter bins and collected in waste collection trucks. The operator shall establish a separate area during the winter for dumping of waste which may cause a fire. If a fire starts it should be promptly extinguished.

#### **ARTICLE 30 - VECTOR AND DUST CONTROL**

The operator shall be responsible for controlling vectors on the site, including flies, mosquitoes, rodents and other animals. The primary method for the control of vectors is the compaction and covering of the waste as specified herein. In the event that vectors become a major problem, the operator shall use insecticides or poison to eliminate the problem. The operator shall inform the owner of the application of all insecticides or poisons used for vector control.

The operator shall control dust by the proper construction and maintenance of access roads and wetting with water or leachate.

#### **ARTICLE 31 - SECURITY**

The operator shall provide guards, gates, fences, and any other means to control unauthorized access or dumping at the site. A Security Control Plan shall be prepared and submitted to the owner within 30 days of the notice of award. The plan shall describe the security measures to be employed by the operator and the number of security guards to be used.

#### **ARTICLE 32 - OWNER ACCESS**

The owner shall have access to the site and all facilities at all times for the purpose of administering this contract.

#### **ARTICLE 33 - RECORD KEEPING AND REPORTING**

The operator shall keep records of the following:

- 1 Tonnes of waste received in each category by commune
- 2 Tonnes per day of Cover soil applied
- 3 Leachate pumped from the storage pond

- 4 Equipment maintenance
- 5 Rejected waste

In addition, the operator shall maintain an operator's log, in which he will enter any other information regarding the operation of the landfill

Landfill operations shall be summarized by day, month and year, with signed copies submitted to the owner

## **APPENDIX AA**

**General Site Conditions Plan (by landfill contractor)**

**Initial Construction Phase (by landfill contractor)**

**Landfill Phases (by landfill contractor)**

**Excavation Plan (by landfill contractor)**

**Final Contour Plan (by landfill contractor)**

**Compaction and Cell Construction (included)**

**Sequential Filling Plan (included)**

**Final Cover and Methane Vent Detail (included)**



Step 1 - Unload Solid Waste



Step 2 - Remove Recyclable



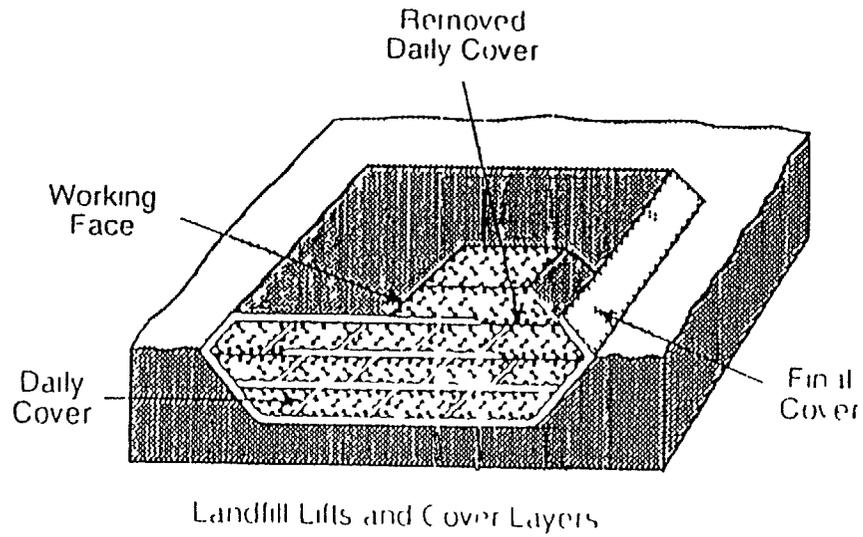
Step 3 - Spread into Thin Layers



Step 4 - Compact Waste

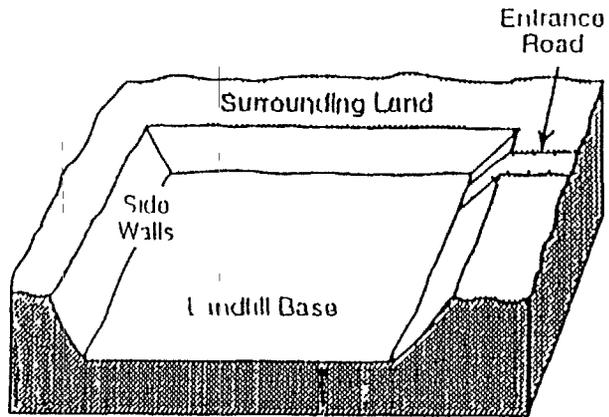


Step 5 - Cover Waste

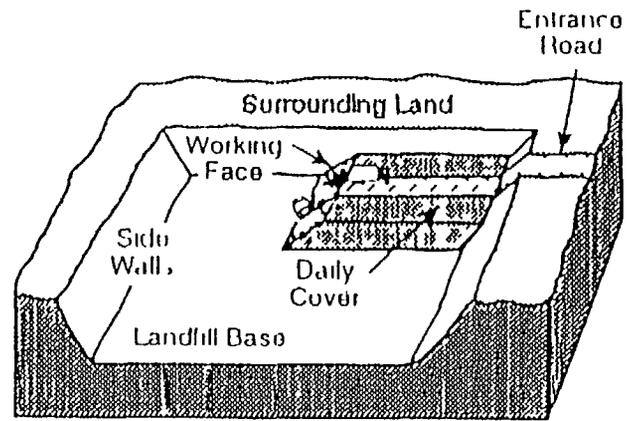


## COMPACTION AND CELL CONSTRUCTION

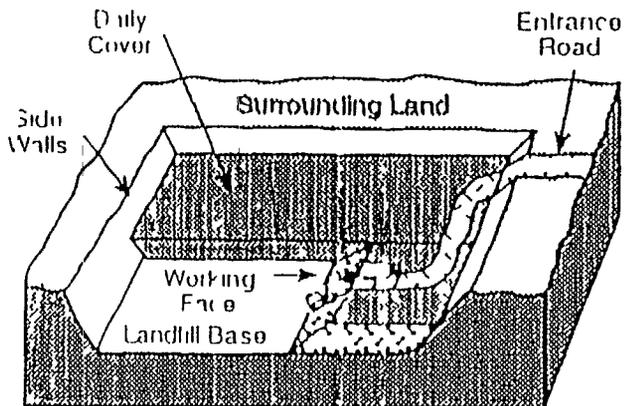
Landfill – As Constructed



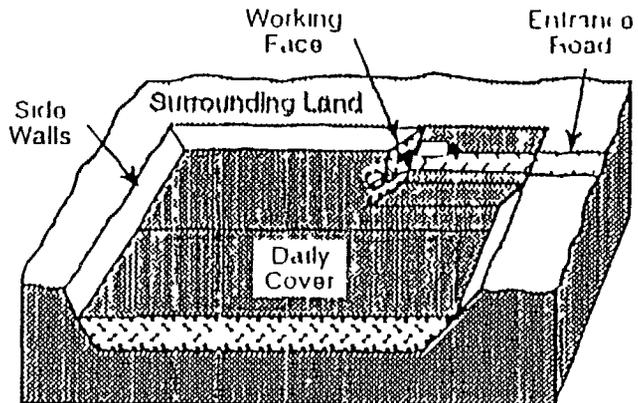
Placing First Waste Layer



Placing First Waste Layer



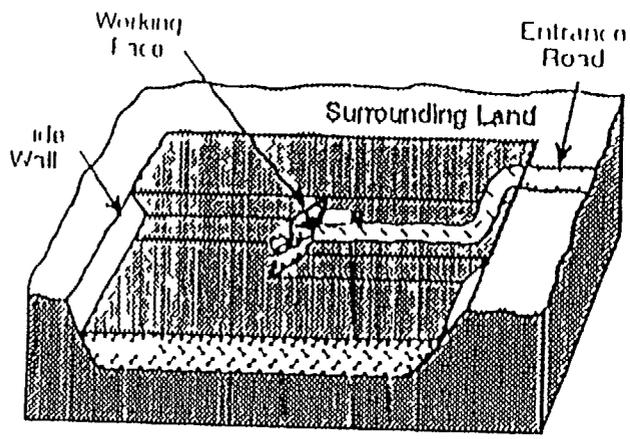
Placing Second Waste Layer



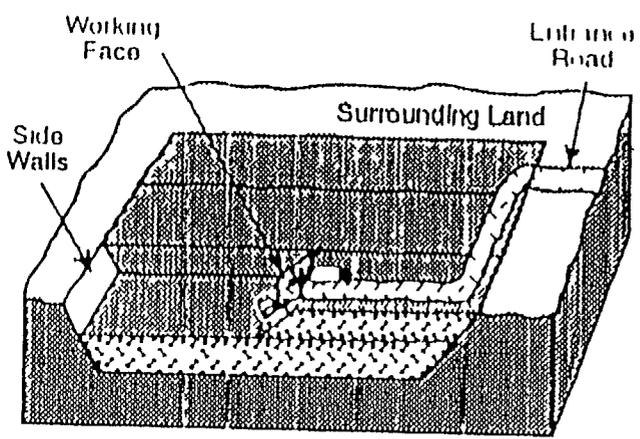
## SEQUENTIAL FILLING PLAN

10p

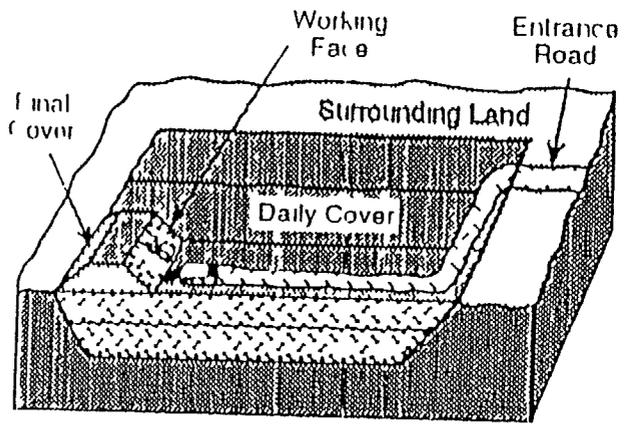
Placing Second Waste Layer



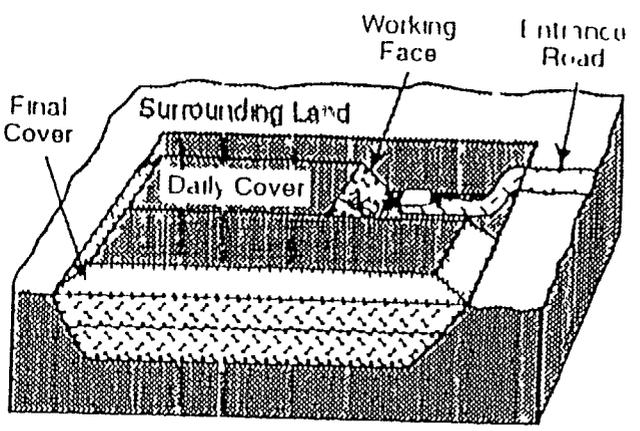
Placing Second Waste Layer



Placing Third Waste Layer

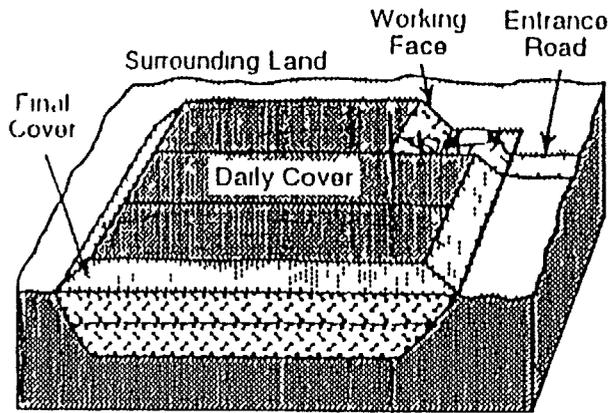


Placing Third Waste Layer

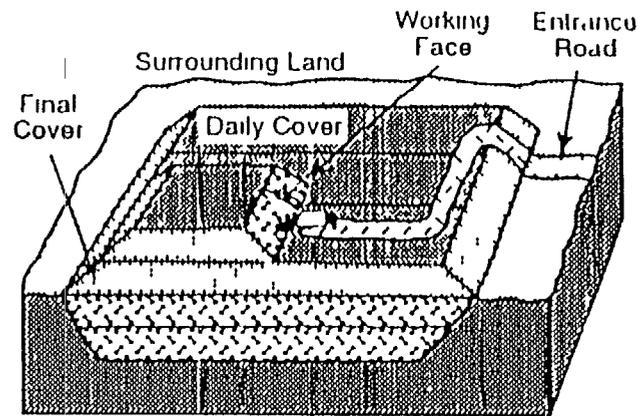


**SEQUENTIAL FILLING PLAN**

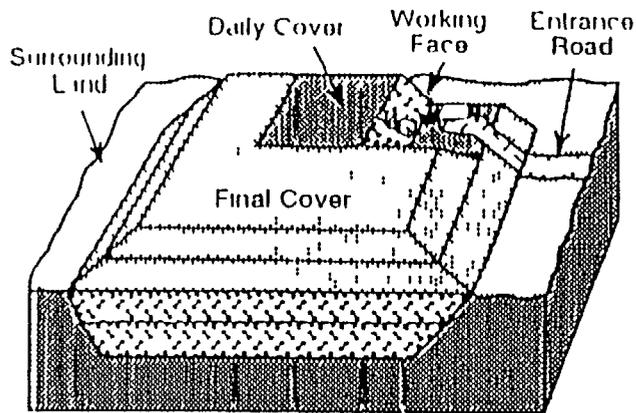
Placing Third Waste Layer



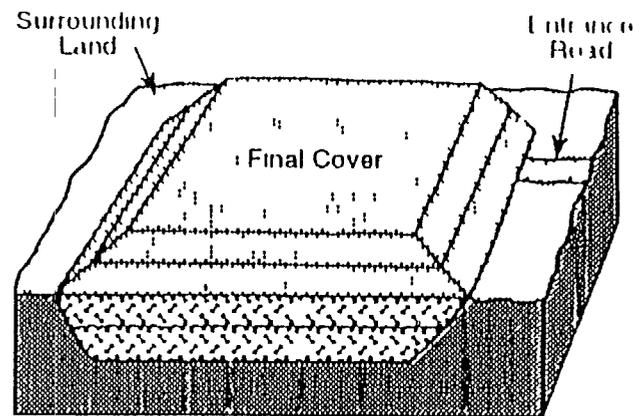
Placing Fourth Waste Layer



Placing Fourth Waste Layer

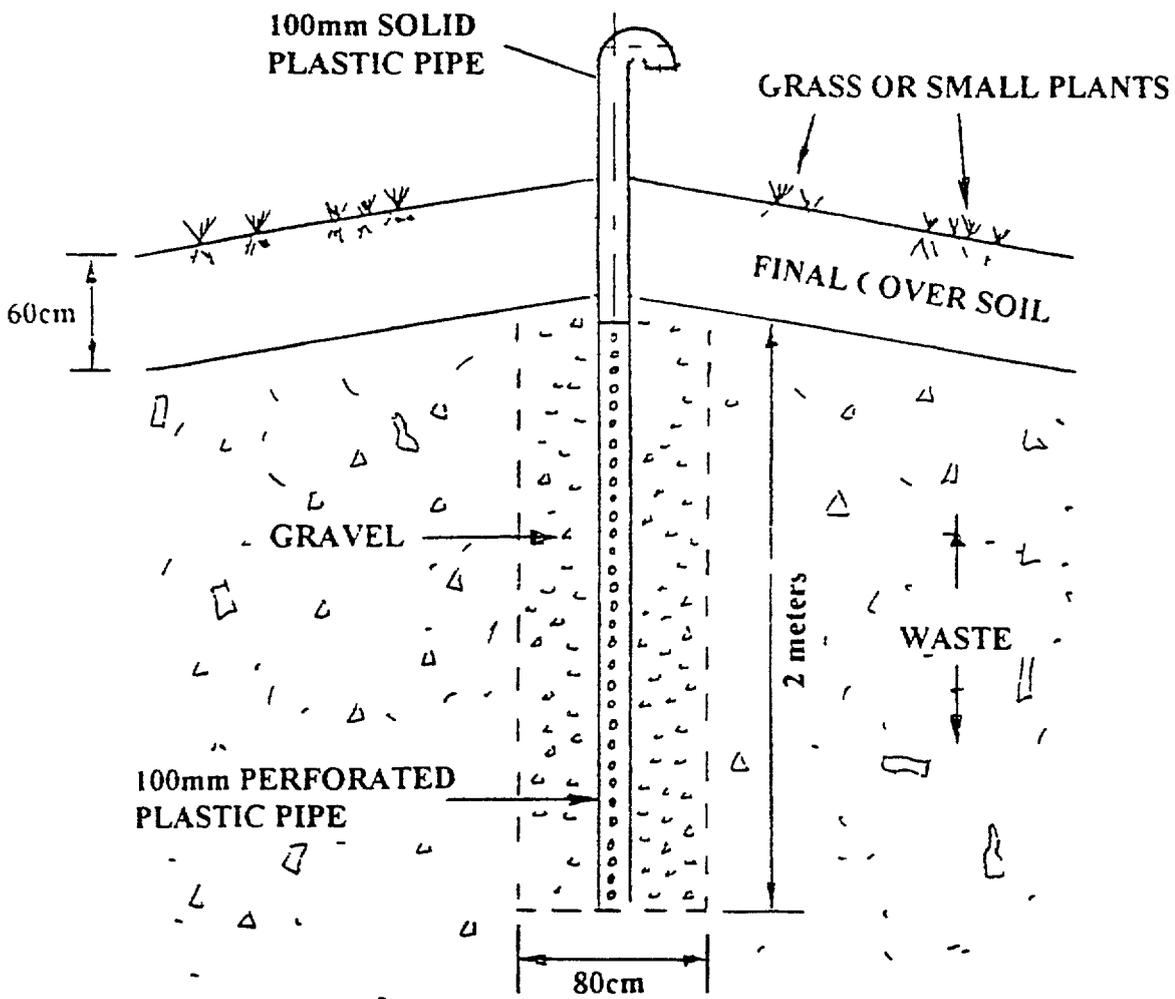


Closed Landfill



## SEQUENTIAL FILLING PLAN

108



**FINAL CLOSURE AND  
GAS VENT**



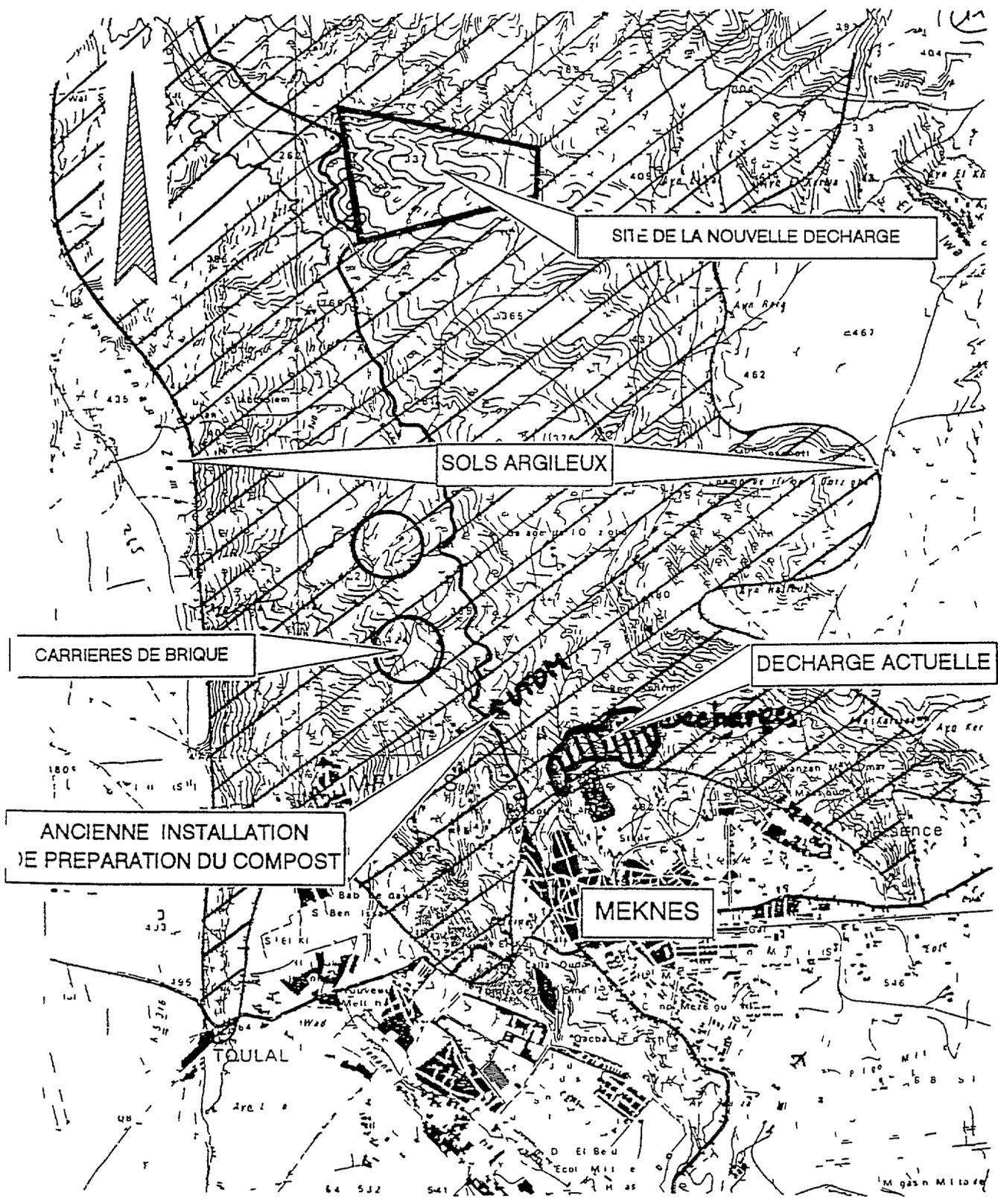
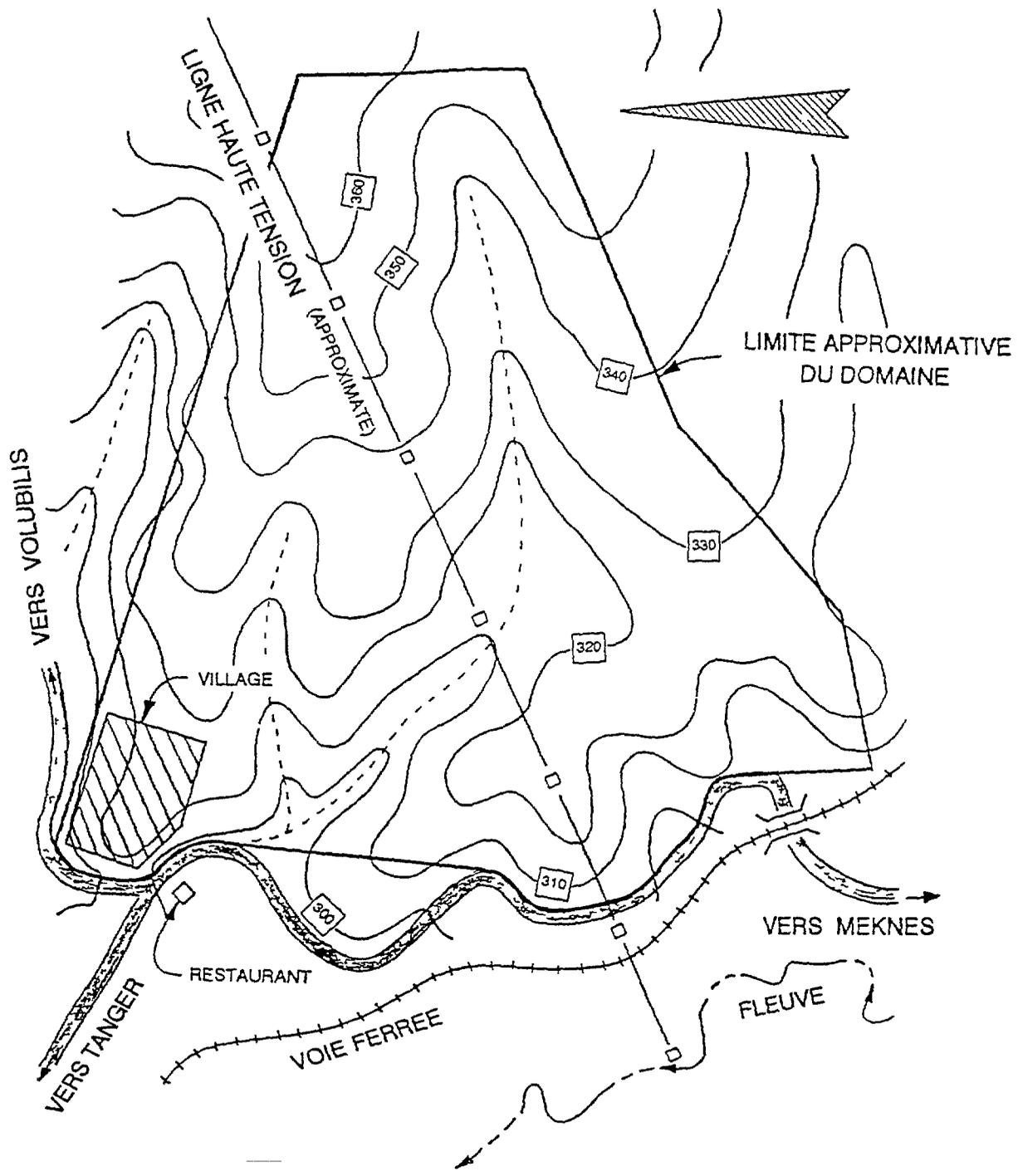


FIGURE 3  
CARTE GEOGRAPHIQUE

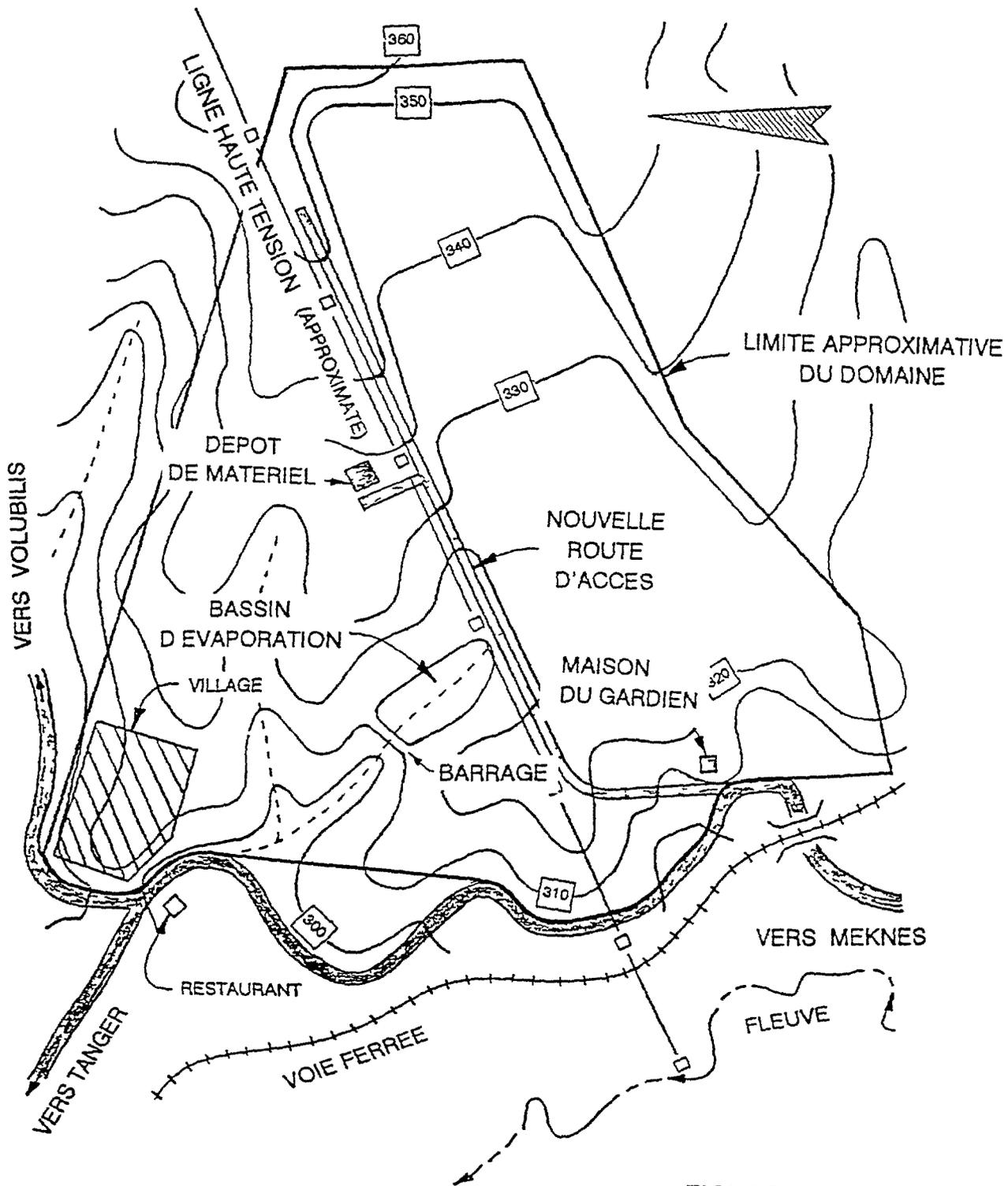


ECHELLE 1 1,250

FIGURE 4  
PLAN DU SITE

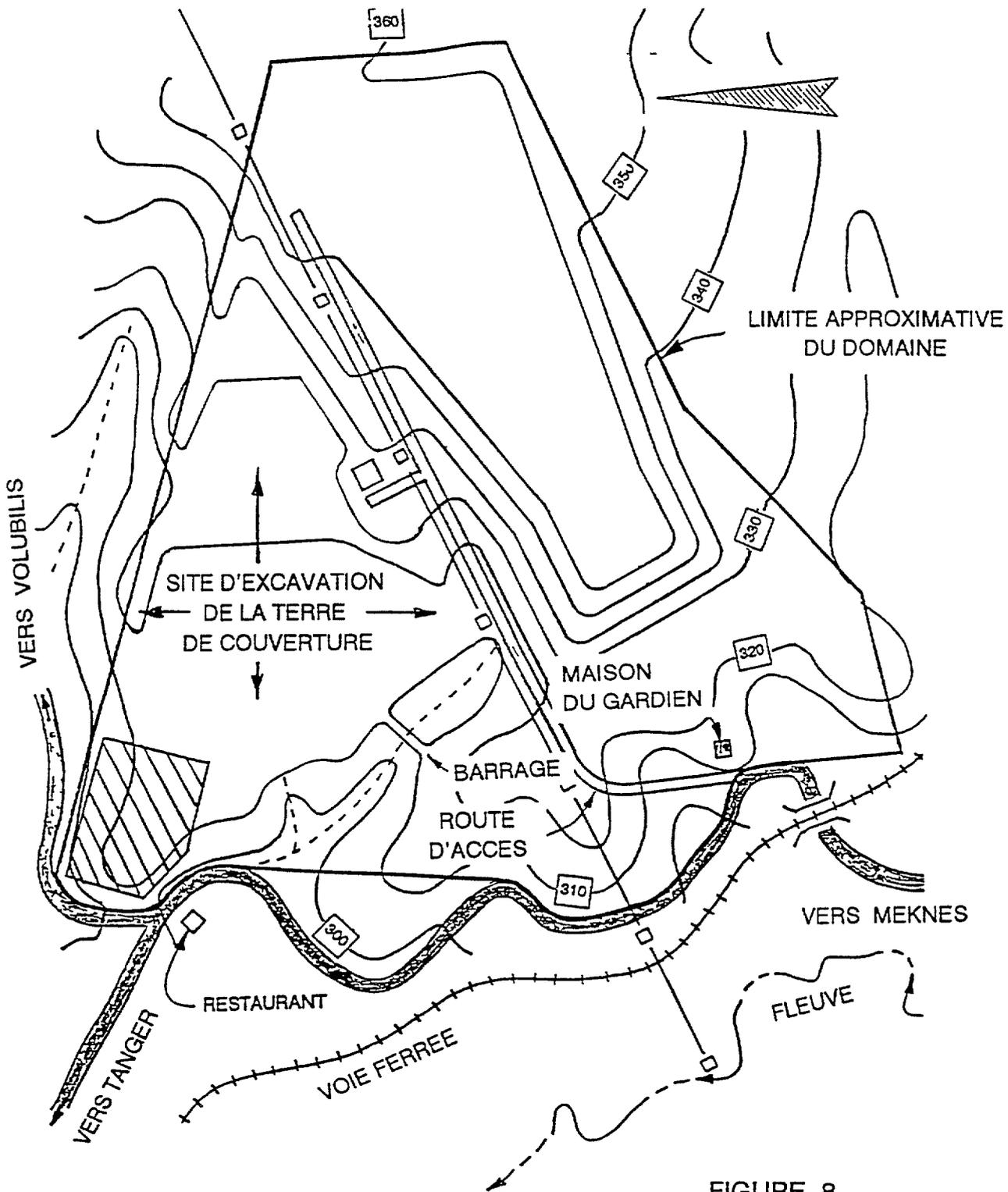
1/2





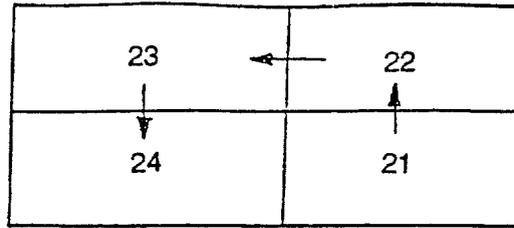
ECHELLE 1 1,250

FIGURE 7  
PLAN D'EXCAVATION

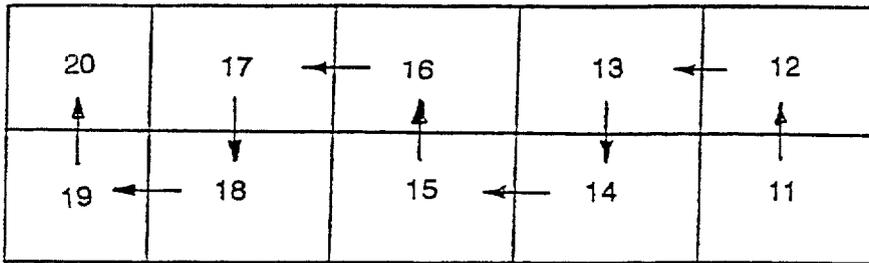


ECHELLE 1 1,250

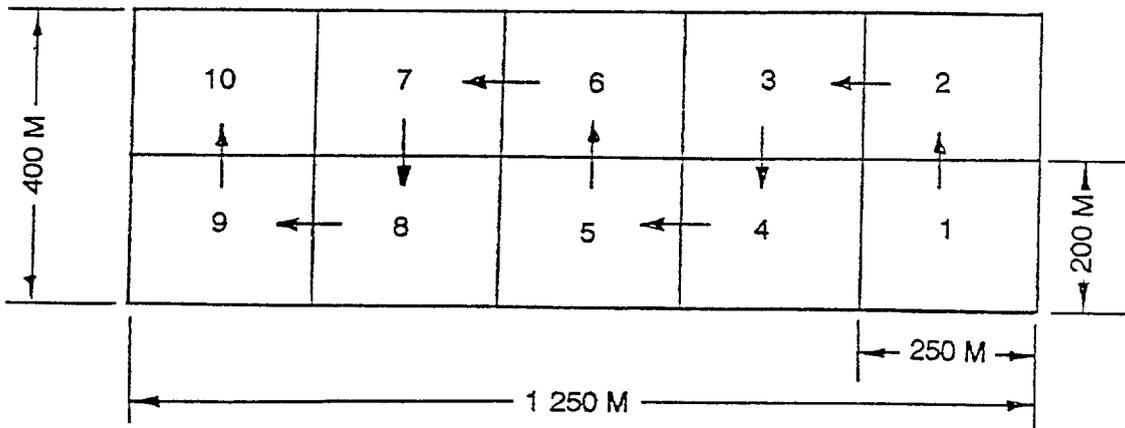
FIGURE 8  
CONTOURS DEFINITIFS



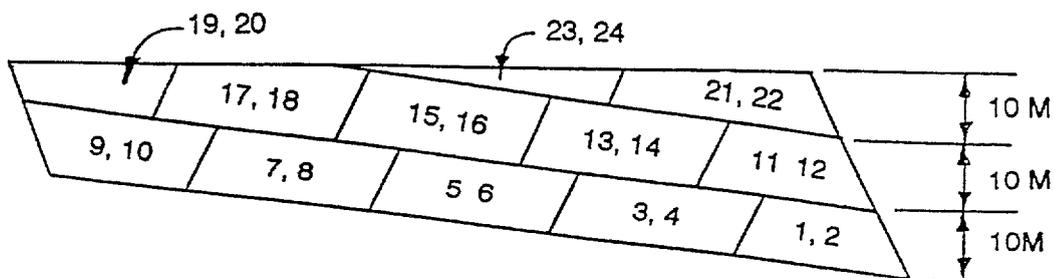
PLAN SEQUENTIEL NIVEAU 3



PLAN SEQUENTIEL NIVEAU 2



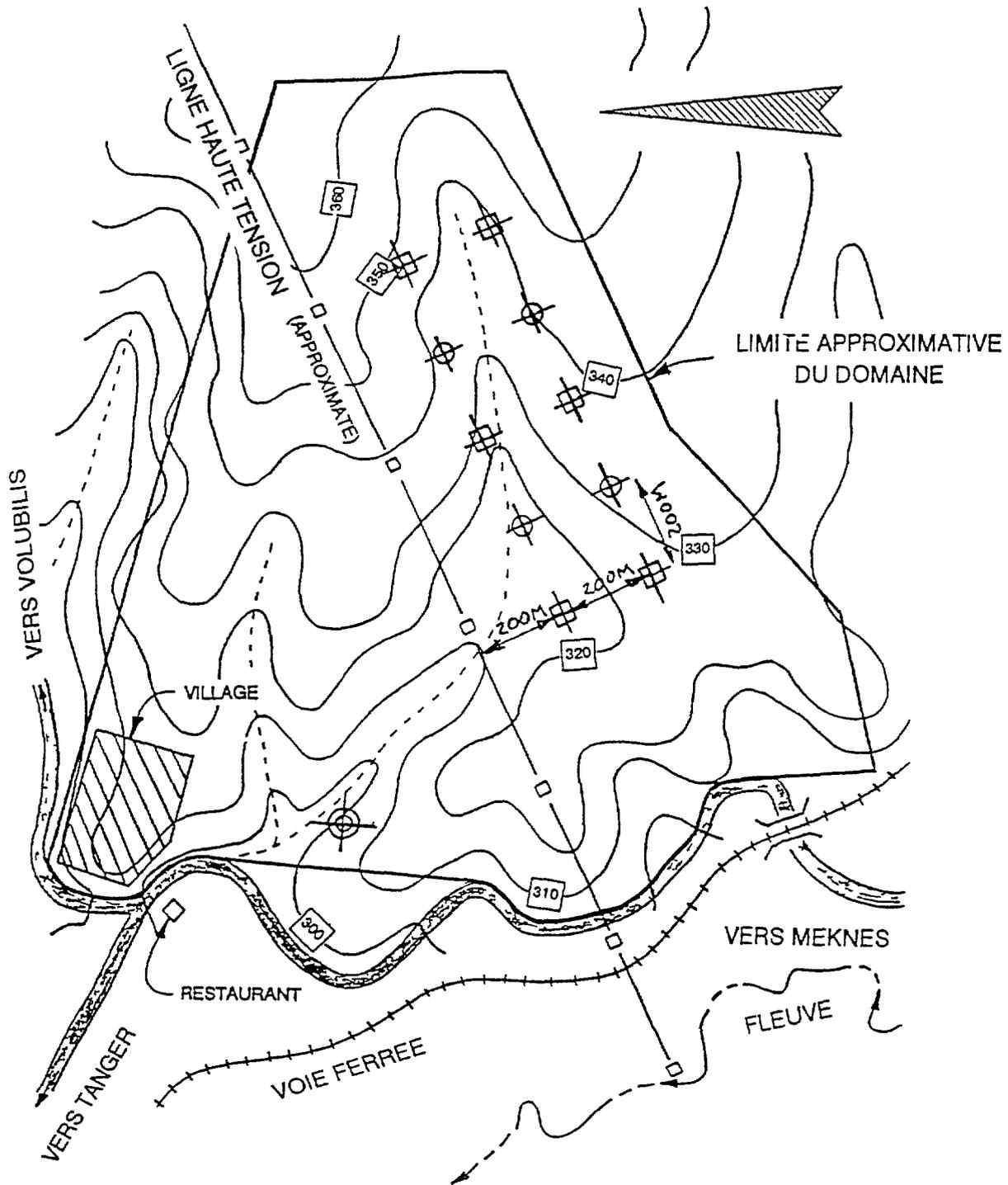
PLAN SEQUENTIEL, NIVEAU 1



SEQUENCE DE L ELEVATION

FIGURE 9  
SEQUENCE DES TRAVAUX  
DE CONSTRUCTION

1/0



SCALE 1 1,250

ANNEXE 1  
 ENQUETES HYDRGEOLOGIQUES  
 AU SITE

- ⊕ FORAGES DE PRELEVEMENTS
- ⊞ FOSSE DE PRELEVEMENTS
- ⊙ PUIES DE PRELEVEMENTS OPTIONNEL

**APPENDIX F**

**SURVEY MAP - NEW LANDFILL**

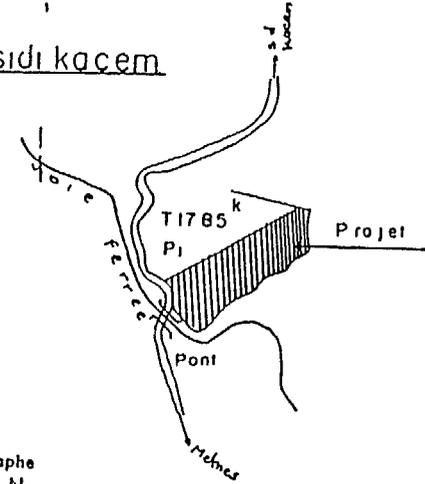
LISTE DES COORDONNEES

N° de Borne	X	Y
B	484 949 53	374 946 30
B 8	485 008 90	374 937 60
B9	485 013 10	374 837 70
B10	485 026 00	374 715 20
B11	485 066 70	374 550 20
B12	484 914 50	374 472 40
B13	484 664 00	374 316 70
B14	484 452 80	374 218 70
B15	484 277 50	374 095 40
B16	484 148 60	373 950 40
B17	484 048 10	373 773 10
B18	483 951 54	373 723 66
B19	483 914 11	373 720 75
B20	483 866 88	373 718 69
B21	483 809 57	373 723 96
B22	483 772 57	373 734 16
B23	483 656 55	373 837 87
B24	483 662 46	373 935 04
B25	483 655 76	373 948 46
A	483 705 00	374 104 00

PLAN DE SITUATION

Echelle 1 50 000

km 6 R<sup>te</sup> de Meknes à sidi kacem



ALAMI OUALI ALI  
Ingénieur Geometre Topographe  
N 14 Rue Aca - V N  
Tél : 51 69 88 - MEKNES

*[Handwritten signature]*

Plan dresse par Cabinet Topographique ALAMI

485 000

**APPENDIX E**

**CONCEPTUAL DESIGN DRAWINGS**

The dispute of any component of the termination notice, or the submission of any dispute to arbitration, shall not relieve the Contractor of his responsibility to perform the services during the termination period

#### **5 2 2 By Contractor for Cause**

If at any time during the Contract term, the UCM is unable to make payments to the Contractor or otherwise is unable to perform its obligations under the Contract without cause, after written notice and reasonable time to correct said area of non-performance, the Contractor may upon 14 days written notice, terminate the Contract Upon termination, the Contractor shall be paid all sums that are payable to him for providing services under the Contract, plus damages suffered by the Contractor due to the premature termination of the Contract

#### **5 2 3 Termination by UCM for Convenience**

If at any time before the completion of the Contract Term, it shall be found by the UCM that for reasons beyond the control of the parties, render it impossible or against the interest of the UCM to continue the Contract, the UCM at any time, by 90 day written notice to the Contractor may discontinue work and terminate the Contract in whole or in part Upon service of such notice of termination, the Contractor shall discontinue to work in such manner, sequence and at such times as the UCM may direct, continuing and doing after said notice only such work and only until such time or times as the UCM may direct The Contractor shall have no claim for damages for such discontinuance or termination of the Contract but the Contractor shall receive compensation for reasonable expenses incurred in good faith for the performance of the Contract and for reasonable expenses associated with termination of the Contract The UCM will determine the reasonableness of such expenses The Contractor shall have no claim for anticipated profits on the work thus terminated, nor any claim, except for the work actually performed at the time of complete discontinuance

### **5 3 INDEMNIFICATIONS**

The Contractor shall indemnify, protect and save harmless the UCM against all losses and claims for death of or injury to any person, or loss or damage to any property, which may arise out of or in the consequence of the Contractor's performance under this Contract, except those that are due to willful or negligent acts, or omissions by the UCM

The UCM shall indemnify, protect and save harmless the Contractor against all losses and claims for death of or personal injury to any person, or loss or damage to any property which may arise out of or in the consequence of the GCC's obligations under this Contract, except those that are due to the willful or negligent acts or omissions of the Contractor

#### 5.4 UCM REPRESENTATION

The UCM's authorized representative shall be the UCM President who may, in whole or in part, delegate such authority to one or more persons appointed to carry out such duties and exercise such authority as may be delegated to them by the President. The UCM will inform the Contractor on or before Contract signing the identity of the UCM representatives and will outline their duties and authority to represent the UCM during the term of the Contract.

#### 5.5 COMMUNE REPRESENTATION

All contact with the communes shall be through the president of the commune or his designated representative.

#### 5.6 NOTICES

All notices, including payment requests, disputes and other correspondence given to the UCM shall be sent by post, facsimile or delivered in person addressed to the President, Urban Community of Meknes. All notices, or instructions given to the Contractor by the UCM under the terms of the Contract, shall be sent by post, cable, telex or facsimile to or left at the Contractor's principal place of business or other such address as the Contractor shall nominate for that purpose.

#### 5.7 ACCESS TO CONTRACTOR'S FACILITIES AND RECORDS

Upon reasonable notification, the UCM shall have access to the Contractor's offices, maintenance depot, other facilities and records for the purpose of determining the Contractor's compliance with the Contract conditions.

## APPENDICES

- APPENDIX A - FORM OF PROPOSAL
- APPENDIX B - SUB-CONTRACTOR DECLARATION
- APPENDIX C - FORM OF INSURANCE
- APPENDIX D - EXISTING LANDFILL MAP
- APPENDIX E - CONCEPTUAL DESIGN DRAWINGS
- APPENDIX F - SURVEY MAP - NEW LANDFILL
- APPENDIX G - LANDFILL OPERATIONS PLAN

APPENDIX A

URBAN COMMUNITY OF MEKNES

LANDFILL CONSTRUCTION AND OPERATION

FORM OF PROPOSAL

(Note All Appendices form part of the Form of Proposal)

President  
Urban Community of  
Meknes

Having examined the written Scope of Services, the Appendices and the locations of the landfill construction, landfill operations and existing landfill closure, to be performed under the Landfill Construction and Operation Proposal, we offer to perform the Services in conformity with the Scope of Work and Appendices for the following Costs

Proposer shall enter Proposal Costs for all items in Alternates One and Two Proposal for Sorting/Transfer Facility is Optional

ALTERNATE ONE

**ITEM 1A - NEW LANDFILL CONSTRUCTION** For supplying all labor, equipment and supplies for the design and construction of the new UCM landfill, as defined in Section 3 2 1, for the lump sum price of

\_\_\_\_\_ ( \_\_\_\_\_ dh)  
(dh in words)

**ITEM 1B - EXISTING LANDFILL CLOSURE** For supplying all labor, equipment and supplies for the closure design and closure of the existing UCM landfill, as defined in Section 3 2 2, for the lump sum price of

\_\_\_\_\_ ( \_\_\_\_\_ dh)  
(dh in words)

**ITEM 1C - NEW LANDFILL OPERATION** For supplying all labor, equipment and supplies for the operation of the new UCM landfill in accordance with Item 3 2 3 and the Landfill Operations Plan in Appendix G for the unit price of

\_\_\_\_\_ ( \_\_\_\_\_ dh per tonne)  
(dh per tonne in words)

TOTAL PROPOSAL PRICE - ALTERNATE ONE

ITEM 1A \_\_\_\_\_ dh  
ITEM 1B \_\_\_\_\_ dh  
\_\_\_\_\_ X 86,125 tpy = \_\_\_\_\_ dh  
(ITEM 1C)  
TOTAL PROPOSAL PRICE \_\_\_\_\_ dh

ALTERNATE TWO

ITEM 2A - NEW LANDFILL CONSTRUCTION AND OPERATION For supplying all labor, equipment and supplies for the design, construction and operation of the new UCM landfill, in accordance with Items 3 2 1, Item 3 2 3 and the Landfill Operations Plan in Appendix G, for a unit price of

\_\_\_\_\_ (\_\_\_\_\_ dh per tonne)  
(dh per tonne in words)

ITEM 2B - EXISTING LANDFILL CLOSURE For supplying all labor, equipment and supplies for the closure design and closure of the existing UCM landfill, as defined in Section 3 2 2, for the lump sum price of

\_\_\_\_\_ (\_\_\_\_\_ dh)  
(dh in words)

TOTAL PROPOSAL PRICE -ALTERNATE TWO

ITEM 2B \_\_\_\_\_ dh  
\_\_\_\_\_ X 86,125 tpy = \_\_\_\_\_ dh  
(ITEM 2A)  
TOTAL PROPOSAL PRICE \_\_\_\_\_ dh

**SORTING/TRANSFER OPTION.**

For supplying all labor equipment and materials for the design, construction and operation of a sorting/transfer facility at the former compost facility

\_\_\_\_\_ (\_\_\_\_\_ dh/tonne)  
(dh per tonne in words)

- 2 We acknowledge that Appendices A to G to the Form of Proposal form part of this Proposal
- 3 We undertake if our Proposal is accepted, to commence work in accordance with the Scope of Work and the Implementation Schedule
- 4 If our Proposal is accepted, we will within thirty (30) days, execute the formal Contract Agreement and obtain the guarantee of a Bank or acceptable insurance company (subject to your approval) to be jointly and severally bound to the Urban Community of Meknes in the sum of 10% of the Proposal Cost for due performance of the Contract under the terms of a Performance Security in the form appended hereto
- 5 We agree to abide by this Proposal for the period of ninety (90) days from the date fixed for receiving the same and it shall remain binding upon us and may be accepted at any time before the expiration of that period, or such other extended period that may be agreed between ourselves and the Urban Community of Meknes
- 6 Unless and until a formal Agreement is prepared and executed, this Proposal with our written acceptance shall constitute a binding Contract between us, and shall be deemed for all purposes to be the Contract Agreement
- 7 We understand that you are not bound to accept the lowest or any Proposal you may receive and that you will not defray any expenses incurred by us in proposing

DATED this \_\_\_\_\_ day  
of \_\_\_\_\_ 19 \_\_\_\_\_

SIGNATURE \_\_\_\_\_  
(Name of Signatory Printed)  
\_\_\_\_\_

In the Capacity \_\_\_\_\_  
of \_\_\_\_\_

Duly authorized to sign Proposals for and on behalf

126

of \_\_\_\_\_

ADDRESS \_\_\_\_\_

SIGNATURE OF  
WITNESS \_\_\_\_\_

ADDRESS \_\_\_\_\_

APPENDIX B

**SUB-CONTRACTOR DECLARATION**

If the Proposer wishes to sub-contract any portion of the work described in the Scope of Work under any heading, he shall be free to do so but must give full details of the Sub-Contractors he intends to employ for each portion of the Work

Failure to declare subcontractor information may invalidate the Proposal

1      Portion of the Work \_\_\_\_\_

    I      Sub-contractor \_\_\_\_\_

        Address \_\_\_\_\_

    ii     Experience in \_\_\_\_\_

        similar work \_\_\_\_\_

2      Portion of the Work \_\_\_\_\_

    I      Sub-contractor \_\_\_\_\_

        Address \_\_\_\_\_

    ii     Experience in \_\_\_\_\_

        Similar Work \_\_\_\_\_

Signature \_\_\_\_\_

Date \_\_\_\_\_

Name of  
Signatory \_\_\_\_\_

In the Capacity  
of \_\_\_\_\_

Duly Authorized on behalf of \_\_\_\_\_

## APPENDIX C

### FORM OF INSURANCE

The selected Proposer shall be required to obtain general liability insurance as a condition of Contract signing within thirty (30) of notice of award. The selected Proposer shall provide an Insurance Certificate at Contract Signing as proof of insurance coverage for the following amounts:

For liability for bodily injury, including accidental death, 2,000,000dh on account of any one occurrence, and 4,000,000dh aggregate limit

For liability for property damage, 1,000,000dh on account of any one occurrence and 1,000,000dh aggregate limit

The contractor shall also be required to secure the following insurance:

- 1 Motor vehicle on equipment and vehicles, owned or leased
- 2 Workmen's Compensation Insurance

**APPENDIX D**

**EXISTING LANDFILL MAP**

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**APPENDIX FOUR**

**Cost Estimates  
(Confidential)**

**COST ESTIMATE**  
**LANDFILL CONSTRUCTION AND OPERATION**

The following estimated costs for landfill design, construction and operation are presented for planning purposes only and represent estimates based on many assumptions which can only be verified during a competitive process. The estimate of construction costs without a final design is especially difficult and should be revised when the design is completed.

**LANDFILL CONSTRUCTION COSTS**

Project Development Costs	DH
Survey, Investigations	50,000
Hydrogeology Study	150,000
Engineering	220,000
Legal & Administration	25,000
Subtotal Development Costs	270,000
Initial Landfill Construction Costs	
Access Road	700,000
Weighbridge	500,000
Office Facilities	100,000
Maintenance Depot	150,000
Utilities, water, power, tel	90,000
Phase 1 Excavation	900,000
Evaporation Basin	80,000
Monitoring Wells	50,000
Contingencies @ 10%	250,000
Subtotal Construction Costs	3,090,000
VAT @ 20%	618,000
Profit @ 15%	465,000
<b>TOTAL LANDFILL CONSTRUCTION</b>	<b>4,173,000</b>

## EXISTING LANDFILL CLOSURE COSTS

Topographical Survey	50,000
Engineering Design	80,000
Transport & place cover soil	2,000,000
Subtotal Construction Costs	2,130,000
VAT @ 20%	426,000
Profit @15%	319,000
TOTAL LANDFILL CLOSURE	2,875,000

## EQUIPMENT COSTS

Landfill Compactor	3,000,000
Bulldozer	2,000,000
Excavator	1,800,000
Dump Truck	800,000
Water Tanker	400,000
Sub-total Equipment Costs	8,000,000
VAT Tax @20%	1,600,000
TOTAL EQUIPMENT COST	9,600,000
ANNUAL EQUIPMENT COSTS	2,104,000

## OPERATION & MAINTENANCE COSTS

Labor 6 Common Labor @ 24,000 DH/yr	144,000
4 Operators @ 36,000 DH/yr	144,000
1 Mechanic @ 36,000	36,000
1 Site Manager @ 42,000 DH/yr	42,000
3 Administration @ 36,000 DH/yr	108,000
Subtotal Labor	474,000
Equipment Operation & Maintenance	250,000
Utilities	50,000
Environmental Testing	20,000
Administration & Overhead	50,000

Sub-Total Operation & Maintenance	844,000
VAT @ 20%	169,000
Profit @ 15%	127,000
<b>TOTAL OPERATION AND MAINTENANCE COSTS</b>	<b>1,140,000</b>
<b>TOTAL COSTS INCLUDING EQUIPMENT</b>	<b>3,244,000</b>
Cost per Tonne @ 86,125 tpy	38

### **PRIVATE CONTRACT ESTIMATES**

#### **ALTERNATE ONE**

Item 1A - New Landfill Construction	4,170,000 dh
Item 1B - Existing Landfill Closure	2,875,000 dh
Item 1C - New Landfill Operation	38 dh/tonne

#### **ALTERNATE TWO**

ITEM 2A - Landfill Construction and Operation	50 dh/tonne
ITEM 2B - Existing Landfill Closure	2,875,000 dh

**COST ESTIMATE**  
**WASTE COLLECTION AND STREET SWEEPING**

The Feasibility Study found the existing waste collection systems to be very complex and in many cases poorly defined. The study recommends that each commune complete a definition of services that better defines the services that are to be performed under the private contract. Part of that definition includes the areas where the commune will permit the private contractor to utilize containers or 3 day per week collection to improve collection efficiency. Until these service definitions are completed it is very difficult to prepare an estimate of the private contractor's costs.

The Communes have also stipulated that the private contractor must purchase the existing compactor trucks from the communes at a price yet to be determined. The use of the smaller 8 and 12 cubic meter trucks will restrict the private sector's ability to improve efficiency.

At the present time the communes are taking their waste to the existing UCM landfill in Hamrya. It is anticipated that the new landfill will be operational prior to the privatization of the collection system. Since the new landfill is approximately 12 km from the city center, costs will increase approximately 40 to 50 dh/ tonne for the added transportation distance.

Without further definition of the services to be performed, the following cost estimate assumes that waste and street sweeping is conducted in the same manner as the current system, with some increases in efficiency with multiple shift operations and the purchase of two new 18 cubic meter compactors. The cost estimates utilize reference materials to estimate the number of trips to the landfill per shift and standard equipment maintenance and repair costs.

<u>Budget Category</u>	<u>Cost (dh/vr)</u>
Vehicles & Equipment	4,550,000
Labor Costs	8,870,000
Equipment operation, maintenance and repair (Includes fuel & tires)	2,770,000
Clothing and supplies	500,000
Depot Costs	1,000,000
Vehicle Insurance & Registration	400,000
Sub-Total	18,090,000
Taxes @ 20%	3,618,000
Profit @ 15%	2,713,000

TOTAL COST ESTIMATE	24,421,000
Cost per Tonne @ 86,125 tpy	284 dh/tonne

The above cost estimate results in a private cost estimate which is only slightly less than the estimated costs of the current public system. A more detailed cost estimate is highly recommended once the definition of services has been determined.