

Annex 6

Institutional Requirements for M/P

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6 Institutional Requirements for the Master Plan

In this chapter general requirements of institutional development for the target municipalities - Adana and Mersin GMs (greater municipalities), and their DMs (district municipalities) - are presented in the section 6.1. Then the section 6.2 presents specific requirements of institutional development for DMs in Adana GM and section 6.3 for DMs in Mersin GM. The specific requirements of institutional development for Adana GM is presented in the chapter 12.

6.1 For Adana and Mersin GMs and their DMs

Solid waste management units of individual municipalities in Adana and Mersin need to be institutionally promoted. This promotion is not supposed to be realised by externally provided supports by all means. Own internal betterment endeavours would naturally be required in selected issues.

Regarding administration and organisation, the functional existence of the solid waste management units is essential rather than their physical existence under any name and organisation model at all. The only practical action is to 'redefine' the assignments of the respective units with appropriate job description for personnel and ensure the optimum allocation of manpower in accordance with required personnel size, positions and tasks. A special attention has to be devoted to vertical and horizontal coordination of activities. These measures are oriented towards the achievement of uniqueness in each solid waste management and/or cleansing department and/or directorate with connected sections and/or divisions.

There is no need for the introduction of new or additional legislative instruments for strengthening the enforcement fields of the municipalities. Laws and regulations avail a sufficient legal infrastructure for successful implementations, which offer a wide range of privatising and contracting options. However, the administration and management of individual municipalities should be able to bring all these scattered legal provisions in diverse laws and regulations into an integrative and transparent instrumental package.

In connection with privatising and contracting actions, the municipalities should pass through an expertise gaining process for a certain period of time. It would naturally be rational, if collective actions are preferred or extern experiences and know-how are transferred by aid of appropriate collaboration and acquisition of purposeful consulting services.

One of the weak points in solid waste management units of the municipalities is the monitoring and information management system. This handicap can be eliminated, if and only if, each respective unit would be capable to undertake independent decision preparation, decision taking, implementation and evaluation steps within the whole process. Once this self-reliance is recognised to the respective solid waste management units through political, administrative, managerial and financial means, it would consequently lead to the establishment of a satisfactory monitoring and information management system. However, a supplementary prerequisite to the internal mechanism is the application of auditing and external evaluation practices.

Another important issue is the intensification of public relations not only as a pragmatic instrument for supervision, monitoring and performance assessment of provided solid waste removal services, but also for prospective material recovery and recycling actions along with management of diverse solid waste processing and treatment facilities.

Since it is a significant problem to hire and employ qualified personnel particularly with specific experience in solid waste management, the municipalities should be more eager firstly to utilise their available human resources; and secondly, to train and promote them. In such cases, personal political engagements have to be neglected and qualificaltional promotion as well as experience gaining ought to be attained.

Rules and regulations as well as formalised working procedures and implementation principles developed towards the achievement of identified goals, must be obeyed. Self-disciplinary and systematic approaches are extremely important for efficiency maximisation. Incremental betterment in efficiency levels could only be assessed through quantified expressions and comparative analyses. Therefore, formalisation and quantification of activities throughout decision and action stages must be secured and referred in form of operational norms and guidelines. This is the only way to be oriented towards identification of priorities in attaining a successful solid waste management.

6.1.1 Administration and Organisation

For practical measures and applications related to the administration and organisation, a methodology can be pursued, with which each cleansing and/or solid waste management department and/or section can undertake a self-criticism to identify the gaps and requirements. This approach is also closely connected with the concept 'redefinition' of the tasks and assignments for and in each individual solid waste management unit.

At top managerial post, the assigned person for Head or Director position should possess specific qualifications and capabilities. Managerial qualifications comprise two relevant assets; namely, administrative capabilities and operational skills. While the former asset relates to administrative management qualifications, the latter refers to operational management qualifications. The synthesis of these assets can avail an excellent background for the top responsible person to set up a decision making process supported by relevant feedback from monitoring and evaluation records.

Under administrative management functions, the solid waste management unit should deal with; (i) legislative and regulatory issues, (ii) personnel recruitment, manpower requirements and allocation, contractual employment, (iii) financial requirements, accounting, comparative costs and cash-flow analyses, fiscal management, budgeting, (iv) public relations. The operational management functions, on the other hand, embrace; (i) manpower mobilisation and logistical organisation, (ii) supervision of service implementations, (iii) proceeding achievement records, (iv) instructions and manuals oriented training. These functions have to be carried out by mid-career personnel, while support staff in the field is engaged in implementation phases as practitioners. Once this pre-conditional framework is achieved by each solid waste management unit, the functions could be bound to self-sustainability and self-reliance

principle, where rational and independent administration and organisation models are applied by respective municipalities.

In the development of adequate administrative and organisational models, each municipality should be free to make own choices in line of their political and optional preferences. The pre-conditions mentioned above are the building blocks, on which flexible models can be structured. The philosophical approach towards the identification of a suitable administrative model should be associated with self-experiencing principle. The observations show, that there are roughly three political preferences for solid waste services; (i) privatisation, (ii) semi-privatisation, and (iii) non-privatisation. Whichever option the municipalities take, one issue stays however essential; namely, the aforementioned 'pre-conditional framework'. Once this issue gains a clarification, the rest of the work to be undertaken is the determination of personnel size.

Following determinants have to be taken into account regarding the personnel size:

- service types - collection, separation, transportation, disposal, recovery, processing, public relations, etc.
- service size in quantified terms - service area, target groups, volume, capacity, distance, costs, efficiency, etc.
- service modes - privatisation, semi-privatisation, non-privatisation; contracting, subcontracting, etc.
- service requirements - planning, programming, budgeting, financing, organising, implementing, supervising, monitoring, evaluating, operating, strategy formulation, decision making, etc.

Based on these determinants, an appropriate model can be found under optional preferences of individual municipalities in compliance with their political viewpoints and instrumental availabilities in financial, personnel and material terms.

6.1.2 Legislation and Enforcement

The legislative constraints and weaknesses at national level require betterment actions oriented primarily towards municipalities to commercialise and to involve the private sector more effectively in delivery of their solid waste management services. Furthermore, limited power of municipalities to obtain necessary sites for solid waste management facilities as well as their limited rights to access to use those facilities located outside their boundaries should also be re-regulated. Marginal contributions provided through public participation need to be converted to fruitful contributions and consultative character of NGO involvement must be transferred into compulsory references in decision making processes. On the other hand, it is an undeniable fact that there is no 'umbrella law' for solid waste management. Legislation for the collection, transport, disposal and financing of solid wastes is currently dispersed over a number of laws and regulations, many of which require a substantial review.

The current legislative instruments are, however, partially sufficient for the enforcement of any service mode as desired by the respective municipality. Although they provide a basis for municipalities to make choices between privatised,

semi-privatised and non-privatised service options in solid waste management with contracting and subcontracting possibilities in this respect, the laws are, however, considered as anti-competitive, which hinder private sector involvement. Generally, two methods are currently used in Turkey for promoting private sector participation in carrying out operational functions in municipal services. The first method involves the contracting of private companies, while the second involves the commissioning of municipal owned companies to perform envisaged services.

Application of the first method runs under the enforcement of the provisions of the State Bidding Law No. 2886, which require the obligatory selection of the lowest tender. This clause makes it impossible to rule out unrealistic or technically deficient tenders. Although the municipalities are complaining to suffer under this tendering legislation, there are possibilities, however, to overcome the bottleneck. The first possibility is to prepare consistent tender documents including meaningful specifications of standards and scope of works, which makes comparative tender analysis easy. This requirement is also valid for the preparation of the municipality contract documents to be mutually signed by the private companies. The second possibility is to confine on the technical pre-qualification criteria prior to subjecting the financial offer to final evaluation. This is the only way to associate high quality performances with low cost requirements in compliance with the provisions of the current tendering legislation.

Both of the steps indicated above necessitate a certain level of expertise. The lack of qualified, skilled and experienced personnel dealing with these issues result in undesired and unintended outcomes, with which the municipalities themselves are not satisfied and begin to complain. Therefore, acquisition of external support through know-how transfer by training programs and consultancy services, which might be delivered by an experienced municipality or union of municipalities as well as a private company, seems to be essential and indispensable. Inter-municipal co-operation and collaboration within an exchange program collectively developed by respective municipalities in Adana and Mersin would be extremely beneficial.

Contracting out solid waste management services to municipal owned companies is the other method for promoting private sector participation in operational functions of the municipalities. In this case, the municipalities enjoy the exemption from the State Bidding Law and have the advantage to commission the service to an own Municipal Economic Enterprise. The main obstacle of this model is the politisation of the management staff as well as deterioration of principles and mechanisms set for functional operation of an independent and free enterprise, which ought to be active within the competitive system of business market. If this method of contracting is preferred, it requires an extreme caution for securing and ensuring the autonomy, which is jurisdictionally recognised to such legal entities.

Another outstanding source of complaint from the municipality side is associated with the procedures required by the General Accounting Law No.1050, which limit the contract period to one year, only. In effect, the respective clause removes any incentive for contractors to invest in new plant and equipment for the sake of quality betterment in service performances. The extension of the contract period over one year reaching to a 3-5 year duration could be an encouraging factor for the contractors. Nevertheless, this issue must be arranged by legislating organs of the nation.

6.1.3 Financial System

a. Basic Concept

Cleansing tax should be charged enough cover the whole SWM costs which include operation and maintenance cost, and depreciation cost. The following measures should be taken in order to secure the financial source.

- Review and raise Cleansing tax amount to sufficient cover the SWM costs including the depreciation.
- Establish tax collection management system and increase collection rate up to more than 90%.
- Tipping-fee shall be collected from direct waste hauliers in proportion to the waste amount brought into a composting plant and a disposal site.

Moreover, when setting up waste tax amount, most appropriate combination of the following principles shall be considered.

- Polluter-pays-principle (waste dischargers pay the SWM cost)
- Cross-subsidy mechanism (the affluent pays for the less well off)
- Different service levels in accordance with the amount of collection fee paid.

b. Problems in the Present Waste Fee Collection System

Present cleansing tax amount is set up per type of the building by respective provincial tax collection committee based on tax table per group and rank, which was decided by the Undersecretariat of Treasury of Prime Minister's Office. The increase rate of the tariff in 1999 is only between 1.386 and 1.391 times of that of 1998. The amount of tax reviewed by the Undersecretariat of Treasury is not sufficient to cover the SWM costs increase caused by inflation.

Although collection rate of cleansing tax is said to be between 70 to 90 percent, the actual collection amount of tax are between 45 and 93 percent against planned budget in 1998. The gap attributes to insufficient data management of taxable buildings.

Adding above problems, Cleansing tax has other problems as follows;

- Same tariffs are adopted in same province, therefore it is difficult to modify the differences of SWM costs by DMs.
- It is not efficient to motivate the minimisation of waste discharge or segregate collection for recycling.

Considering that the tax has a compelling force and the present collection rate is more than 70 percent, the present cleansing tax will be continuously charged for the base of SWM revenues with reviewing the SWM costs and setting rational tariff.

c. Calculation of Cleansing Tax Revenue

c.1 For Adana

Total SWM expense in Adana in 1998 was 3,549 billion TL, in which depreciation cost is not fully included.

On the assumption as following, the necessary SWM costs exceed present expenditure.

- Collection and haulage US\$ 30/ton
- Public area cleansing US\$ 186/ton
- Final disposal US\$ 10/ton

Table 6-1: SWM Costs (Adana) in 1998

		Amount (ton/year)	Unit price (US\$/ton)	Cost in US\$	Cost in TL (million)
Seyhan DM	Collection/haulage	176,426	US\$30/ton	5,292,780	1,505,690
	Public area cleansing	10,186	US\$186/ton	1,894,596	538,975
	Sub-total	186,612	(38.5)	7,187,376	2,044,665
Yuregir DM	Collection/haulage	71,432	US\$30/ton	2,142,960	609,629
	Public area cleansing	2,088	US\$186/ton	388,368	110,483
	Sub-total	73,533	(34.4)	2,531,328	720,112
Adana GM	Public area cleansing	5,908	US\$186/ton	1,098,888	312,612
	Final Disposal	271,515	US\$10/ton	2,715,150	772,406
	Sub-total			3,814,038	1,085,018
Total		266,040*	(50.9)	13,532,742	3,849,795

Notes: Exchange rate 1US\$=284,480 TL

* Sum of the collection/haulage amount and public area cleansing amount.

() means figures of calculation result of Costs in US\$/amount of waste.

On the other hand, the revenue of cleansing tax are shown in Table 6-2 that the collection rate increase to 90%.

Table 6-2: Revenue from Waste Fee Collection (Adana)

unit: million TL				
	Tax collected in 1998	Collection rate (%)	Potential of tax charged	Amount of tax collected (90% collection rate)
Seyhan DM	251,798	80%	314,748	283,273
Yuregir DM	136,711	85%	160,836	144,752
Total	388,509		475,584	428,025

As a result, it can be concluded that cleansing tax need to be raised 9 times of that in 1998 in order to entirely cover SWM costs.

Considering current Turkish economy, it is very difficult to increase the cleansing tax at once to cover the SWM costs fully. Therefore in the master plan, the cleansing tax will be proposed to increase step by step to cover the SWM costs in continuation of present system. The target will be as following;

Phase I (2005) Cleansing tax will cover 50% of overall SWM costs

Phase II (2012) Cleansing tax will cover 75% of overall SWM costs

Phase III (2020) Cleansing tax will cover 100% of overall SWM costs

c.2 For Mersin

Total SWM expense in Mersin in 1998 was 903 billion TL, in which depreciation cost is not fully included.

On the assumption as following, the necessary SWM costs exceed present expenditure.

- Collection and haulage US\$ 25/ton
- Public area cleansing US\$ 221/ton
- Final disposal US\$ 10/ton

Table 6-3: SWM Costs (Mersin) in 1998

		Amount (ton/year)*	Unit price (US\$/ton)	Cost in US\$	Cost in TL (million)
Yenisehir DM	Collection/haulage	31,303	US\$ 25/ton	782,575	222,627
	Public area cleansing	1,866	US\$ 221/ton	412,386	117,316
	Sub-total	33,169	(36.0)	1,194,961	339,943
Toroslar DM	Collection/haulage	50,925	US\$ 25/ton	1,273,125	362,179
	Public area cleansing	3,012	US\$ 221/ton	665,652	189,365
	Sub-total	53,937	(35.9)	1,938,777	551,544
Akdeniz DM	Collection/haulage	56,473	US\$ 25/ton	1,411,825	401,636
	Public area cleansing	3,284	US\$ 221/ton	725,764	206,465
	Sub-total	59,757	(35.8)	2,137,589	608,101
Mersin GM	Public area cleansing	1,692	US\$ 221/ton	373,932	106,376
	Composting plant	7,300	(19.1)	139,750	39,756
	Final Disposal	143,262	US\$ 10/ton	1,432,620	407,552
	Sub-total			1,946,302	553,684
Total		148,555*	(48.6)	7,217,629	2,053,272

Note: Exchange rate US\$ 1 =284,480 TL

* Sum of the collection/haulage amount and public area cleansing amount.

() means figures of calculation result of Costs in US\$/amount of waste.

On the other hand, the revenue of cleansing tax are shown in Table 6-4 that the collection rate increase to 90%.

Table 6-4: Revenue from Waste Fee Collection

unit: million TL				
	Tax collected in 1998	Collection rate (%)	Potential of tax charged	Amount of tax collected (90% collection rate)
Yenisehir DM	89,225	80	111,531	100,378
Toroslar DM	76,701	70	109,573	98,616
Akdeniz DM	167,296	90	185,884	167,296
Total	333,222		406,988	366,290

As a result, it can be concluded that cleansing tax need to be raised 6 times of that in 1998 in order to entirely cover SWM costs.

Considering current Turkish economy, it is very difficult to increase the cleansing tax at once to cover the SWM costs fully. Therefore in the master plan, the cleansing tax

will be proposed to increase step by step to cover the SWM costs in continuation of present system. The target will be as following;

- Phase I (2005) Cleansing tax will cover 50% of overall SWM costs
- Phase II (2012) Cleansing tax will cover 75% of overall SWM costs
- Phase III (2020) Cleansing tax will cover 100% of overall SWM costs

d. Financial Control

Financial control by SWM services has not done by the cleansing department in both GMs and DMs, though Mersin GM tried to formulate budget by groups of SWM in 1995. But in order to execute efficient SWM, it is very important to establish separate accounting system by SWM services and budget planning system in the cleansing department. That does not mean to contract to private enterprises or to pay directly by the cleansing department, but that makes it necessary to feed back the information of actual revenue and actual expenditure periodically.

Actual revenue should consist of the cleansing tax, tipping fee and selling of usable materials. Actual expenditure should consist of current expenditure, including direct personnel expenses, indirect personnel expenses, contracting out expenses and other operation and maintenance expenses, and capital expenditure. It is necessary to feed back every quarter at least, while it is desirable to feed back every month between the financial department and the cleansing department.

The cleansing department should keep documents on the working records of stuffs and workers by SWM services and amount of fuel consumption by vehicles (including heavy equipment) by SWM services as well as maintenance report by vehicles, and etc. every day. And the cleansing department reports the separate accounting expenses by SWM services to the general manager of municipality and the director of financial department. (It is necessary to be reported every half year, though it is desirable to be reported every quarter.)

Stocking and analysing these separate accounting data, the director of Cleansing department requires the budget of next year with the issues to be improved.

6.1.4 Privatisation and Contracting System

Privatisation is not a means for overwhelming financial bottlenecks as well as getting rid of personnel and maintenance costs as expressed by many of the municipal administrators. Every service has a cost in return; however, the essential principle centres around the efficiency maximisation and cost minimisation. In this connection, the main objective of private sector involvement is to reduce costs of service delivery, whilst maintaining and improving the level of supplied services. In order to be able to judge the advantageous and disadvantageous commitments in privatisation and contracting out solid waste management services, each of the municipalities in Adana and Mersin should assess their current unit costs and must implement a separate cost accounting system for themselves detached from the general accounting system of the municipality.

Solid waste management is a significant public service which must be available for all citizens in order to maintain public health and to protect the environment.

Involvement of the private sector in solid waste management should increase competition, investment, competent management and operation. Appropriate models to be used are contracting out for collection services and concession contracts for building, operating and transferring of waste treatment, processing and disposal facilities. In both cases, the responsibility for raising revenues to pay for these services will, however, remain with the municipalities. The objectives of the Build, Operate and Transfer (BOT) Law No. 3996 allow the provision of solid waste management related investments and services. Factually, the concession contracts based on BOT-models would gain a meaning as an instrument to encourage private sector involvement, if regional associations and unions are promoted and mobilised for collective treatment and disposal of solid wastes along with clinical and hazardous wastes. This is at least a preposition in regard of 'economies of scale' to operate manageable facilities.

In contracting out solid waste management services, the municipalities should introduce appropriate performance contracts for private sector involvement. This could be well achieved by inter-municipal co-operation, in which exchange of ideas and experience may take place. This co-operation can be carried to further stages for preparing specimen tender documents with typical specimen contract clauses, which are developed on a systematic base. Identification of tasks in precise connections with terms of reference falls appropriate for the management of performance contracts and smooth monitoring of accomplishments. However, necessary legislating actions have to be undertaken, in order to authorise municipalities to enter into contractual commitments for certain periods exceeding one year.

The executive municipal personnel engaged in solid waste management and cleansing assignments have to be in a position to evaluate the benefits of contracting out selected services and concessions recognised for waste treatment and disposal facilities.

The municipalities in Adana and Mersin practising privatisation models have more or less the necessary expertise; (i) to prepare sound bidding documents with clear performance specifications, and (ii) to carry out competitive and transparent tender procedures. However, if those municipalities at the outset have a further breakdown of services along with a rough indication about unit costs, a more unique contracting could be attained. This would further avail a clear performance monitoring. It should not be neglected, on the other hand, that not only the municipalities but also the candidate contractors, are not sufficiently familiar with and experienced in the assessment of unit costs of contracted services. Therefore a certain period of time is required for both sides to be mutually more experienced in client and contractor relations in this sector for professional and institutional reasons.

For the time being, neither the private companies possess the required expertise nor the conditions are favourable in street cleansing and waste removal business. As long as the municipalities regard privatisation as an escape from bureaucratic, administrative and legislative handicaps as well as a cheaper way of manpower hiring, neither the quality of services get better, nor the required professionalisation in this sector could be achieved. The experiences mention that, given suitable guidance from proficient consultants or joint venture with internationally renowned contractors, some business opportunities may arise and waste collection, recycling, treatment and disposal contracts would be more attractive; particularly, if the disposal route is

landfill rather than incineration or other process technologies. However, those companies will be looking for clear indications that the municipalities are looking for the best utilisation of money, not the cheapest price, and offering a reasonable contract duration.

6.1.5 Monitoring and Information Management System

Without any exception, all of the municipalities in Adana and Mersin are lack of properly prepared and precisely organised guidance documents. Extensive dissemination of formalised and formatted information is rarely the case, whereas verbal communications and transmission of instructions are predominantly preferred in course of an hierarchically respected 'order and obey' principles among public and private personnel.

The essential handicap of the municipalities lies in the identification of unit costs of operations, which allow no monitoring action based on cost/benefit, cost/efficiency, and cost/effectiveness type of evaluation instruments. This deficiency hinders the development of an adequate decision making process related to managerial and operational issues aided by accurate and quantitative assessments.

The absence of a set of technical and financial performance criteria allows no possibility for the executive personnel of the cleansing and solid waste management units, to determine operations and projects related requirements in an accurate manner. Developing and maintaining a database on solid waste management activities is therefore essential, primarily, for:

- Registering solid waste generators
- Inspecting waste removal and disposal activities and facilities
- Undertaking appraisals on potential public and private sector operations influencing the currently applied solid waste service.
- Auditing financial and operational performance as well as levels of cost recovery
- Providing guidance for operations as well as proof of evidence for enforcement

The data about costs, quality and accountability is indispensable to judge the efficiency of services, effectiveness of performances as well as affordabilities of cleansing and solid waste management units. A set of indicators could be used on a comparative basis, which is of vital importance for a good management and decision making. Under current conditions prevailing in each of municipalities, no judgements can be made concerning the following throughout the fulfilment of the requirements of a successful solid waste management:

- The appropriateness of the mode of service applied.
- The performance of the involved public and private personnel and the service quality.
- Budgetary and financial affordability.

The respective solid waste management units of individual municipalities in Adana and Mersin should be competent in; (i) preparation of contracts in compliance with legislation and regulations as well as professional and managerial requirements, (ii) inspection, supervision and control of operations as well as monitoring of implementations and enforcement, (iii) assessment of service and financial performances.

Although the municipalities highly rely on public observations in performance records, technical instruments need also to be developed and practised in order to identify goals achievement rates throughout in-house and field services, objectively.

Aforementioned monitoring and information management related recommendations for system betterment purposes are primarily oriented towards those municipalities; such as Adana and Mersin Greater Municipalities as well as Yenisehir, Akdeniz and Toroslar District Municipalities, which apply full-privatisation and contract out solid waste services. However, the Seyhan District Municipality, which applies a semi-privatised model should clearly identify, whether this option is preferred as a consequence of system deficiency in monitoring. The Yuregir District Municipality, which applies a non-privatised model on the other hand, should undertake a thorough comparative analysis and be able to justify and substantiate quantitatively, why a non-privatised service mode is pursued in stead of a privatised one. A critical question should be posed here, whether privatisation option would have been still preferred, if the Yuregir District Municipality have had an effective monitoring and evaluation system.

For both Seyhan and Yuregir District Municipalities, it should be made transparent that ‘monitoring’ and ‘controlling’ are two different concepts, which are, however, interchangeably applied. The public agencies usually try to compensate monitoring deficiencies by amplifying control mechanisms. Once the control mechanisms are set up at a desirable level, thereafter one can think about practising monitoring instruments. This fact is generally valid for all municipalities in Turkey.

In this regard, the Seyhan District Municipality may wish to carry the experiences made within a semi-privatisation framework to a full-privatised action field. The successfully applied control mechanism, as verbalised by the responsible personnel of the Seyhan District Municipality, could perpetuate respectively throughout a full-privatised model. When this transition takes place, more efforts must be mobilised for developing effective monitoring instruments.

The situation in the Yuregir Municipality on the other hand, is relatively critical, since a shift from a non-privatised model to a privatised one would require radical decisions. It would further mean an internal and institutional restructuring, which deserves a cautious transition period comprising step by step privatising and contracting approaches. This period has to be adequately commensurated with gradual introduction and implementation of identified monitoring instruments, respectively. In order to come up with such a radical decision, the responsible personnel of the Yuregir District Municipality needs first to convince themselves, that control mechanisms on indoors and outdoors employees are effectively applied. Depending on such a secure basis, the Yuregir District Municipality could then be mentally in a position to tackle with monitoring instruments.

If the requirements of an effective monitoring are not fulfilled, no efficiency maximisation effort could be taken up on a comparative basis. Implementation of betterment and improvement measures should rely on operational and quantitative data. Therefore, empirical analyses should be applied as technical instruments in identification of performance targets and in assessment of success levels.

In this regard, the core staff of the solid waste management units, which pursue a full-privatised service mode, has to be well equipped with necessary monitoring instruments. In such models, central monitoring and evaluation are essential for contracted services; which is the case for Adana and Mersin Greater Municipalities as well as Akdeniz, Yenisehir and Toroslar District Municipalities.

For partial privatisation approaches, as experienced by the Seyhan District Municipality, the activities and performances of both municipal and hired personnel have to be monitored and evaluated.

In non-privatisation model, which is currently applied by the Yuregir District Municipality, effective monitoring and evaluation of activities and performances of the municipal personnel require a fair management mentality suitable for auto-criticism. Therefore, top-managerial posts should be occupied by open-minded employees, who are disclosed to new approaches and innovations, rather than 'order and obey' relations. In other words, they have to possess the willingness to implement monitoring instruments rather than insisting on control mechanisms.

Departing from the relevance of the reliable data for the following, an appropriate information management system has to be developed by each municipality pertaining basically to service provision and financial performance.

- Service related inputs (level, quality and costs of services provided)
- Mobilisation of available resources (cost-effectiveness of services)
- Performance review (information base for policy making and managerial decisions).

Service provision oriented database has to confine precisely on operating details including number of premises; size of population served; type and volume of wastes collected; size of vehicle pool; distances travelled for collection, haulage and disposal; vehicles operating duration; service routes followed as well as means of collection. By attaching special attention to apportioned services provided and facilities shared by public and private parties, indicators based calculations have to be carried out for both total expenditures and explicit cost components. Accordingly; operating costs, employee costs, fuel costs, total capital costs and vehicle costs have to be associated with specific service characteristics to identify unit costs; such as costs per 1,000 of population served, cost per households served, cost per bin or container handled, cost per ton of waste collected, etc.

In order to identify financial performance in an accurate manner; beside fixed and variable costs, tax and revenues collected need also to be identified. Adequate financial information required in this respect can be more easily obtained, if a separate accounting system is applied particular for solid waste management. Otherwise, within the overall current and capital expenditures as well as transfer payments flow of the municipality, it is not possible to differentiate between the costs attributable to diverse solid waste service categories.

Conclusively, a systematic information management is required for all municipalities in Adana and Mersin to avail more accurate, relevant, comparable and up-to-date assessments necessary for effective monitoring, which is in fact the functional building block of appropriate evaluation and decision making. In this regard, the fundamentals of information system should comprise three main components, namely: (i) service provision, (ii) operational aspects, and (iii) financial records.

Information related to overall service provision should include:

- Service area, population and households size
- Volume, weight and composition of wastes collected
- Service mode and frequency
- Characteristics of service fleet, equipment and means
- Personnel size engaged in office and field services
- Public complaints

Operational information component, on the other hand, has to be structured on:

- Size of vehicle pool and duration of operations
- Vehicular operations records
- Vehicle operation costs
- Personnel size and employment period

Financial information component, lastly, should cover records related to:

- Vehicle operation costs
- Labour costs
- Office management costs
- Unit costs of apportioned services per ton, person, household, employee, etc.
- Collected tax and revenues

Above mentioned documentation need to be designed by taking into account further specific details not only for monitoring, but also for reporting purposes on daily, weekly, monthly, quarterly or yearly basis, as required. By this way, instrumental aid for an adequate monitoring would be provided leading to objective evaluations and strategic decisions connected with necessary planning, programming, scheduling and budgeting aspects of implementation oriented actions.

6.1.6 Human Resources Development

The heads of the responsible departments in the greater municipalities or the directors of the related directorates in district municipalities engaged in solid waste management services, have to be in a position to tackle with managerial issues encompassing both administrative and operational engagements. Administrative engagements include; defining performance standards, accounting, financial management, contracting, regulation and control functions related to maintaining standards, enforcement of licence conditions for waste removal, storage, treatment and disposal facilities as well as registering waste generators.

The decision making approach associated with the Head or Director post has to rely on effectively applied diagnosis and prognosis techniques availing an appropriate

basis for monitoring and evaluation, followed by implementation oriented preparations and actions. Accordingly; the service area, size of target groups and their socio-economic and cultural status, volume of work and the organisation of operations should be well determined by the person in charge.

Since the required qualification for such a post is relatively high under current conditions, the municipalities have to be very keen in appointing the most suitable persons, who might be already available in their own personnel, but have been neglected due to political or any other reason. Since a particular training program in compliance with the acquisition of above mentioned skills is not presently available, the solid waste managers should be eager to undertake investigations and researches to intensify their knowledge on own initiatives. Therefore, every occasion for self-training has to be provided to the employees bearing such an eagerness.

A rough distinction can be made between the Deputy Heads or Deputy Directors; normatively two, each supervising internal (in-house / indoors) management and external (field / outdoors) operations. Internal activities should focus on following subjects, which could be dealt by respective division or section chiefs. These subjects of concern are related to: (i) administrative and personnel recruitment issues, (ii) legislative and regulatory issues, (iii) accounting as well as financial and budgetary issues. Similarly, the following external activities could also be dealt by a respective division or section chief. These subjects of concern are: (i) operational organisation, supervision, inspection and performance assessment, (ii) logistics, support services, repair and maintenance, (iii) manual development and personnel training.

This prototype model on division of labour in a certain solid waste management unit could be subjected to further diversification in accordance with the professional and the qualifications needed by respective municipalities versus available human resources.

Although the size of in-house management staff has to vary due to volume of work determined by the size of service area and target group as well as service mode, this staff constitutes a permanent core unit, which has to exist with respective experts no matter full-privatisation, semi-privatisation or non-privatisation model is applied in service delivery.

The size of outdoors operations staff, on the other hand, is determined by the service mode as well as size of service area and target group. This staff possesses a flexible character and is subject to variations according to full-privatisation semi-privatisation or non-privatisation model applied in service delivery. The size of municipal personnel engaged in outdoors operations will diminish in case of full-privatisation, proportionally correspond in case of semi-privatisation and increase in case of non-privatisation. This affirmation is conversely valid for the size of hired personnel of the private contractor.

The normative personnel standards correspondingly developed for managerial and operational personnel size, would give indications on manpower requirements of each individual municipality by taking into account the needed qualification and specialisation as well as applied service mode.

The background and further training of the mid-career staff is extremely important, because they have to provide upwards and downwards support within the functional and vertical stream of activities. Unfortunately, training possibilities for mid-career

staff engaged in solid waste management assignments are enormously limited or almost none in Turkey. Therefore, top level municipal administrators have to devote a specific regard to training issues and intend to find pragmatic solutions. A strong recommendation in this respect is to get in touch with more experienced greater municipalities and municipal unions and ask for their assistance. Such contacts and requests should also be extended to internationally organised public institutions and associations and NGOs, e.g., Municipal Association of Turkey (TBD-Turkiye Belediyecilik Dernegi), IULA (International Union of Local Administrations), etc., which are interested in providing training programs to local administrations and communal agencies.

Another recommendation could be the strengthening of experience and idea exchange engagements or inter-municipal coordination between greater and district municipalities in Adana and Mersin. This would naturally provide a platform to discuss and evaluate the experiences made by individual municipalities in diverse solid waste management issues. Especially the debates on privatisation practices, transmission of experiences and ex-post-facto evaluations would be extremely valuable and beneficial. It would, for instance, be very interesting to hear the confers of the Adana Greater Municipality, Seyhan District Municipality and Yuregir District Municipality, which implement full-privatised, semi-privatised and none-privatised service models, respectively.

Beside above mentioned efforts oriented towards the training of top-level and mid-career management staff of the solid waste management units of individual municipalities in Adana and Mersin, systematically developed training programs have to be offered to the municipal and/or private personnel engaged in operational services of solid waste management. Although such personnel is subjected to short-term training programs applied by certain municipalities at modest levels, their qualificational up-grading is unavoidable. It would be a rational approach, if these training courses are designed on manual basis, where the practices are amply described and illustrated.

The training programs should be designed and tailored for the development of formal basis of managerial and operational activities. Implementations in line with manuals, guidelines, instructions should be introduced and demonstrated on basis of formalised procedures, formatted transmissions, schematic organisations supplemented by phasing and scheduling techniques, bar-charts and checklists. These should be the training tools used by trainers and multipliers for dissemination of knowledge and experience.

In order to rationalise the training related endeavours and to meet the urgent requirements in this respect, the municipalities have to possess the intention for collective organisations. This is the way, in which the burdens are tremendously minimised and multiplier effects, in contrary, are effectively maximised. Training concerned collective approaches in the Cukurova Region could be more easily promoted to advance levels, if inter-municipal co-operation is realised in specific joint operations; e.g., facility management, recyclables marketing, hazardous waste disposal, etc. A certain degree of experience gained in a couple of concrete partnerships would open new and diverse lanes for further co-operation opportunities. Therefore, the relevance of municipal unions should be reconsidered by the

municipalities in Adana and Mersin with respective task attributions, where high priority is placed to training activities.

6.1.7 Public Education and Co-operation

a. Objectives

Public education and co-operation are important components of any integrated SWM program. In view of limited resident participation in SWM and modest public awareness of waste problems in Adana GM and Mersin, there is a need to inform the public of the SWM problems, e.g., increasing waste volume, environmental deterioration, and inappropriate handling procedures, etc.

With the exception of isolated demonstrative experiences, e.g., waste separation at household level, which is done informally by the “eskici”, such activities are not frequently found to have considered to sensitive participants through inductive talks and education on appropriate solid waste management and segregation.

Incentives toward waste minimisation and recycling are the basic requisites of improving solid waste management accompanied with participation in waste collection, transportation, disposal and stabilisation costs as well as increasing public awareness in these issues. However, the functional dissociation of those actors active in solid waste production and haulage is the main reason of modest public awareness in Adana GM.

Therefore, the main objective of the public education and co-operation programs is to raise public awareness on SWM issues through the proper waste handling practices (reuse, reduction and recycling), to promote common responsibility for sustainable development and particularly the city environment in co-operation with the citizens.

In order to achieve the objectives, the followings are proposed:

- Raise public awareness on SWM issues.
- Introduce public co-operation and participation as a mean of keeping the city environmentally clean.

b. Importance of Aesthetic and Environmental Issues

Raise public awareness on regional environmental issues and the benefits that result from a cleaner environment. The need to conserve non-renewable natural resources should also be emphasised.

c. Importance of Proper Waste Handling Practices

Most of the wastes are discharged and collected using mainly communal containers without any form of segregation except the items separated to be sold to *eskici*, the residents are hardly aware of the SWM problems. Therefore, it is important to promote the use of appropriate (separated) containers and storage methods for waste prior to collection. Separate collection is indispensable to waste volume reduction, resource recovery, and in particular, for the improvement of the environment and life quality.

d. Responsibilities of Individuals, Various Groups and Authorities Regarding SWM

The municipalities of Adana are lack of properly prepared and precisely organised guidance to inform the public on waste minimisation and importance of recycling. On the other hand the public need to cooperation with the authorities that manage waste collection, haulage, treatment and disposal

e. How the Public Can Make a Change. What They Could do to Assist Future SWM

The public as consumers, they have the power to change consumption pattern, as well as the quality of manufactured goods and packaging, through selective purchasing, e.g., refraining from buying virgin materials, non-biodegradable plastics. Conversely, the use of goods made from recycled materials should be encouraged. As producers of waste, the different methods of waste minimisation, recycling and conscientious discharge manners can be discussed.

f. Promotion of Public Interest in Future SWM for Adana

The authorities can encourage public motivation to participate and devise a SWM system, unique to the local culture and common practices.

g. Institutional, Administrative, and Legislative Changes

National and regional laws and legislation in place, that help maintain regional sanitation and mitigate environmental pollution, should be made know to the general public. Also for future reference, the public should be encouraged to contribute any ideas that could be used to enforce and enact new regulations for environmental protection.

h. Main Actors in SWM for Public Education and Co-operation

The public education campaign project shall be planned and implemented by the counterpart with the co-operation of related agencies and the citizens. The relevant actors aiming SWM public education and co-operation are shown below:

Public Actors: Administrative entities generally concerned with SWM

- MoE: Ministry of Environment
- SPO: Undersecretariat of the State Planning Organisation
- MND: Ministry of National Education
- Greater Municipality of Adana (departmental office related to social promotion activities)
- District Municipalities of Adana
- Schools

Communal Actors: Power potential entities for the source separation and recycling.

- Community residents (potential communal actors: housewives, “*kapicis*” (doorkeepers), “*eskici*” (recyclable material pickers), children, etc.).

Moderate Actors: Both public and private entities covering niches of SWM services.

- NGO's organisations
- Voluntary workers, etc.

i. Experiment to Promote Separate Collection System for Composting

Experimental pilot project should be carried out as environmental education and co-operation projects, with the following objectives:

- To increase public awareness on SWM issues and change people attitudes towards waste minimisation, recovery and recycling from indifferent to very concerned.
- To introduce public co-operation and participation as a mean of promoting separate waste collection system. Awareness of the limitation of natural resources, realise the magnitude of the impacts of human activities on the environment, learning about composting and recycling as a ways to help to reduce the amount of waste being produced.
- To formulate and conduct public education programs on SWM issues through workshops.

In making the pilot project for public education, it is necessary to select the more appropriate area in Adana MG and materials to get joint participation of the whole area population. In order to achieve the objectives of campaign project the following campaign methods and tools are proposed:

- **Campaign Tools:** poster, stickers, leaflets, pamphlets, educational books, broadcast canvassing, etc.
- **Equipment and receptacles for separate collection:** separate containers, separate waste bin, separate dustbin, plastic bags, etc.

j. Citizens' Training

The public education project to be developed it will focus especially towards waste minimisation and source recovery in the target areas through work meetings in the community. The implementation of training activities in the whole regional areas should be recommendable, however firstly these methods may be executed in selected area of the target areas where the experiment is practically and technically applicable.

These training activities (methods and techniques) should be planned, designed and implemented by the government agencies. Because, it is an absolute necessity that the counterpart side participate actively (and the residents), if the abatement of the SWM problems is going to be successful. The pilot project should be conducted within a month and can be reinforced through campaign tools and additional publicity means.

k. Outline of the Experiment on Public Education

Public education is not an absolute: it is highly dependent on various intrinsic features of a given society, and therefore must be planned and implemented accordingly. The following are rough guidelines for a public education plan, bearing in mind that

specific and details of long-term education programs will be devised and undertaken by the counterparts of Adana GM.

Table 6-5: Outline of the Experiment on Public Education

Programs in the Community	
1. Implementation period :	During the implementation of the public education
2. Targets :	Building representatives, householders, "kapticis" (doorkeepers), residents
3. Methods :	Work meetings, workshops, lectures, leaflets, pamphlets, educational booklets, broadcast canvassing, site visits
4. Sponsor :	MoE, MNE, AGM, DM, NGO, municipalities, community organisations

6.1.8 Guidelines

The utmost problem of Turkey in solid waste management is the dumpsite implementation habits of the municipalities without undertaking hygienic and technical measures required for waste disposal. Over 99% of all dump-sites in Turkey, which are about 2,200 in sum, are lack of sanitary conditions, even such practices are strictly prohibited by the Solid Waste Control Regulation. The prime reason for this acute problem could be attributed to the missing clauses of the concerned regulation related to the financing of such an obligation to be fulfilled by the municipalities. Not only from the financing but also from the economical standpoint, it would be a rational policy to undertake necessary actions towards developing regional and/or sub-regional sanitary landfills for collective use of municipalities.

Under the leadership of the greater municipalities, the district municipalities in Adana and Mersin should be motivated for collective initiatives. These initiatives may plan an exemplary role for regional approaches towards the solution of nation-wide problems as indicated above. The geographical and economic conditions prevailing in the Cukurova Region provide diverse opportunities to the municipalities to enjoy the advantages of collective and joint actions. This must be the political guideline to be followed, where diverse fields of actions for mutual benefits can be identified. In concrete terms, the municipalities have politically to orient themselves towards collaborations, co-operations, co-ordinations at regional and local levels. Organisation of workshops, panel discussions, debates and disputes on specific management and operation issues would be highly effective for the elimination of various solid waste related problems.

An urgent action is required for the rehabilitation of the existing dump-sites by taking into consideration the relevant issues pertaining to risk assessment, monitoring, phasing, financing and identification of suitable technology. This national problem can also be handled co-operatively by Adana and Mersin Greater Municipalities at regional level. Intra-regional initiatives on this issue can also be supported by external guidance actions and consultancies acquired from other experienced greater municipalities or proficient private companies. Another topic of co-operation between both greater municipalities in the Cukurova Region is the compost plant establishment and operation. For sure, there exists a considerable experience accumulated in Mersin, from which Adana may benefit, as well. Further potential

topics for co-operation are disposal of medical and hazardous wastes as well as harmful chemicals at management and facility operation levels.

Personnel training is a pertinent issue, in which vast amount of concrete benefits can be obtained, if organised and utilised collectively by the municipalities. Manuals and in-depth instructions can be developed by the municipalities in compliance with the Solid Waste Regulation. Produced documents can also be promulgated and used not only as means for information dissemination, but also as training tools and references.

Incentives towards waste minimisation and recycling are the basic requisites of improving solid waste management accompanied with participation in waste collection, transportation, disposal and stabilisation costs as well as increasing public awareness in these issues. However, the functional dissociation of those actors active in production and haulage of solid wastes, is the main reason for extremely modest public awareness in Turkey. Therefore, the waste producers must be directly associated with the disbursement of costs waste removal and disposal. Environmental Cleansing Tax does not exemplify a suitable instrument neither for covering the waste removal costs nor for increasing the public awareness. A modification of Environmental Cleansing Tax is inevitable in order to charge the fees not on location oriented tariffs, but on amount of waste produced. Establishing a direct proportionality between waste amount and removal fee would be the right political action to persuade people for less waste production, which automatically leads to higher awareness for minimisation of waste and maximisation of recycling.

Although the above mentioned financial issue has primarily to be solved at national level by technocratic engagements of central government agencies and political willingness of the legislating organs, there might be some actions to be taken up at regional level. The financial bottleneck of the municipalities could be eliminated to a certain extent by undertaking some rationalisation measures. This means savings and cost minimisation in operations without jeopardising efficiency maximisation in services. Therefore in-depth actions carried out within each municipality in this respect could be brought to an evaluation platform, where positive experiences are transmitted to other municipalities. Accordingly, in contra to currently practised Environmental Cleansing Tax, alternative financial sources could be created and new saving measures could be identified. Inter-municipal information exchange in this regard accelerates the diffusion of financial innovations and put the municipalities in a better position to plan their capital and operating expenditures. This gives rise to estimate their affordability for proposed projects and to judge the financial implications of their decisions. The utmost aim of such actions is however to increase the self-sufficiency level of the municipalities and decrease their reliance on national budget, grants and loans by extending or improving revenue collection sources, means and practices.

Taking the political guidelines as paramount for all relevant activities in the future, subsequent guidelines could be stated in legislative, administrative, managerial, operational and technical aspects, to which the attention of respective municipalities should be confined for institution building and strengthening purposes in dealing with solid waste management services.

Political Guidelines:

- Placing top priority to collaborative, co-operative and co-ordinative actions as well as participatory and contributory initiatives.
- Promoting inter-municipal support as well as collective and joint actions in coping with solid waste management problems.
- Conducting organisations for information exchange, transmission of experiences and diffusion of innovations.
- Strengthening regional and local linkages in common issues of concern.
- Providing inter-municipal support for new projects, investments, implementations and measures.
- Promoting regulatory, managerial, operational, functional and technological developments.
- Providing professional incentives and encouraging training for human resources development.
- Devoting particular attention to public awareness as a socio-cultural factor necessary for prospective actions, especially in separate collection, recycling and resource recovery practices.
- Promoting rehabilitation, restoration, up-grading and aftercare projects for diverse facilities.
- Intensifying co-operation possibilities with other local actors; governmental agencies, private business and industrial enterprises, public service entities, non-governmental organisations, academic institutions, mass media and publicity.

Legislative Guidelines:

- Gathering and compiling relevant laws and regulations on solid waste management in a concise manner.
- Identifying legal instruments to ensure and to preserve competitiveness in contracting out services within the mechanisms of free business market to encourage appropriate private sector involvement.
- Allowing auditing for intra-municipal as well as contracted out services.
- Mobilising and enforcing provisions resulting in higher service performances.

Administrative Guidelines:

- Warranting best utilisation and mobilisation of available human resources and expertise.
- Accrediting qualification in appointments for specific posts.
- Developing an adequate administrative organisation scheme by taking into account; type, size, scope and content of works to be accomplished.

- Distinguishing between management and operations oriented structuring models.
- Preparing personnel standardisation concepts and precise job descriptions.
- Formalising and formatting internal and external information flow.
- Establishing a database and promoting quantification of expressions.
- Responding human resources development and staff training requirements.

Managerial Guidelines:

- Distinguishing between administrative management and operations management responsibilities.
- Establishing system fundamentals for comparative analyses.
- Setting the building blocks for problem identification; problem solving oriented preparations and decision making; financing, budgeting and programming; action organisation; implementation; monitoring, performance assessment, evaluation and reporting.
- Identifying the most advantageous service mode on comparative basis.
- Preparing thorough tender documents and following transparent contracting procedures.
- Undertaking necessary steps for identifying unit costs by implementing a separate accounting and budgeting system particular for solid waste management services.
- Assessing financial terms and costs on unit and item basis.
- Promoting operationalisation and quantification of decisions and actions.
- Relying on empirical assessments and expressions in strategic evaluations and formulations.
- Keeping statistical records and preserving updating habits in information management.

Operational Guidelines:

- Developing standards for operations as well as working principles for field services.
- Setting and scheduling target dates for efficiency improvement.
- Describing precisely the apportionment of solid waste management services and preparing a set of instructions and directives for the particular tasks to be carried out.
- Meeting organisational and logistical requirements of operations management.
- Providing effective maintenance for vehicles and equipment.

- Developing systematic tools for field monitoring, inspection and performance measurement.
- Evaluating and reporting the service achievements and operational deficiencies.
- Preparing recommendations and proposals for the elimination of operational gaps in the delivery of services.
- Elaborating on rationalisation measures by investigating each portion of service particularly with regard to manpower, equipment, vehicular, material and financial allocations.

Technical Guidelines:

- Preparing guidance documents, manuals and handbooks, which indicate and illustrate the techniques of operations and handling of equipment.
- Promoting technical training of logistical and operational staff and conducting workshops and course programs.
- Preparing auditing checklists for municipal and private company performances covering financing and cost aspects.
- Developing project appraisal as well as project based accounting and budgeting skills.
- Elaborating issues on self-sufficiency and affordability at municipal, departmental and sectional levels.
- Introducing ‘cost recovery’ and ‘service charge’ concepts in dealing with financial aspects of provided services.
- Preparing specimen contracts and related performance documents.
- Identifying technical assistance and expert service requirements.

These guidelines formulated above depend on a logical and systematic frame, in which:

- Policy guidelines refer to overall orientation and optional preferences in delivery of solid waste management services.
- Legislative guidelines relate to intangible tools describing field of activities associated with respective authorisations and responsibilities.
- Administrative guidelines comprise the structural and organisational setting in accordance with political preferences and legislative obligations.
- Managerial guidelines give indications pertaining to decision preparation and rational decision making.
- Operational guidelines are pertinent for purposeful actions and implementations.
- Technical guidelines constitute tangible tools for efficiency enhancement.

When considered as individual aspects of an integrative package, all these guidelines determine the institutional structure of the greater and district municipalities in Adana and Mersin with due references to their service styles in solid waste management assignments.

6.1.9 Medical SWM

a. Legislation

The legal tool currently available is meticulous in style, but it is without deficiencies; in order for the regulations to be an effective tool for the control of medical waste by medical institutions, there is a need for the MoE, in consultation with medical professionals, academics, political analysts, etc., to revise the regulation in the near future.

The survey on medical institutions in Adana and Mersin revealed that the regulation's good intentions are not conveyed to the users – the hospitals and the waste collection staff. Communication is of vital importance in any management task, and medical waste management is no exception. A solid, comprehensive transcription of the hospital's and the district municipality's obligations under the regulation, or a code of practise, would be a powerful implement to tackle the current problems in medical waste management.

The first step in preparing a code of practise is to identify who the code is for and what their obligation is under the medical waste regulation. The next step is to gather the opinions of all the main parties involved, so that real problems can be identified, and agendas brought to the open. The good intentions of any guideline that does not integrate the problems faced by those involved would be redundant, for the code would merely be another bureaucratic handout with no real value. Only in developing a code of practise for all of those responsible for the safe management of medical waste would the authorities provide the means to achieve what the regulation set out to do as an objective.

b. Education & Human Resource Development

In the current world of information technology, knowledge has become a determining factor of development. And the lack of knowledge has hindered, in many parts of the world, the efforts of law makers and academia to improve the knowledge base of its people. Another problem that causes the knowledge gap is that education programs are sometimes introduced in a way that is not informative, thought provoking, and motivating, but is dictating, uninformative, and, most of all, uninteresting. The only results of this type of education program are wasted tax money, wasted resources, and a disgruntled public that sees only the failures of the program.

In the case of Adana and Mersin it is evident that the hospitals frequently hold training programs for their waste management staff, but there is no way to determine whether the knowledge is being passed on, and that the staff involved are given the opportunity to reflect upon what they have been taught. Also the study revealed that the workers who handle medical waste outside the hospital, i.e., waste collection staff and landfill operators receive no training. The indifference to sanitation outside the medical institutions, as seen by the poor waste management practises at the hospitals

and at the landfill site, is an indication, perhaps, of a failure in the training of staff by both the hospitals and the authorities.

The first step in developing an effective education program is to assign a think-tank with representatives from the following:

- i. Ministry of Environment
- ii. Ministry of Health
- iii. Ministry of Education
- iv. Greater Municipalities of Adana and Mersin
- v. District Municipalities of Adana and Mersin
- vi. Academic institutions
- vii. Healthcare professionals
- viii. Representatives of waste collection workers and private waste collection companies

c. Enforcement and Monitoring

An effective monitoring system is one of the most efficient means for the authorities to manage not only medical waste, but also municipal waste, industrial waste, hazardous waste, and municipal finances. It is also an effective means for the authorities to administer the healthcare expenditures in both private and public hospitals, so that the information can be used to plan fiscal matters.

The provincial governments of Adana and Mersin have records on the amount of medical waste generated each month, but the study revealed that none of the hospitals have their medical waste weighed. In addition, the disposal sites did not have a weighbridge at the time that the data was collected, questioning the validity of the information kept by the provincial governments. This questionable data, collected by the provincial government, is a clear symptom of an inadequate monitoring system.

It is nearly impossible for the authorities to collect the correct amount of dues for waste collection, to enforce the law in an efficient and democratic manner, to impose penalties on those who violate the system, and to make concrete future plans using inaccurate information. Therefore, the authorities must strive to collect reliable data at all times so that there is less outlay over the long term.

One of the ways in which the authorities can gather information that is reliable is to introduce a relational database system for all the administrative tasks.

There is a need to truly identify the problems faced by hospitals before the authorities introduce any new legislation, or new changes, for there may be a deeper, underlying problem – totally unrelated to medical waste – as to why hospitals are indifferent, or have an unrealistic perception of the true situation.

6.2 For DMs in Adana GM

The section presents specific requirements of institutional development for DMs (district municipalities) in Adana GM based on the interview survey to the relevant personnel in SWM of DMs, Seyhan and Yuregir DMs. The specific requirements of institutional development for Adana GM is presented in the chapter 12.

6.2.1 Important Issues

a. Comparative Service Profile in SWM

Table 6-6: SWM Service Profile of DMs in Adana

Criteria	Seyhan	Yuregir
A. Population (1998)	820,205	330,833
B. Number of Households (1998)	251,450	90,000
C. Service Area (ha)	11,550	3,500
D. Population Density (p/ha) (A/C)	74.4	96.4
E. Administrative Staff	19	43
F. Waste Collection (t/day)	559	220
G. Waste Collection Per capita (gr/day)	651	651
H. Compactor Trucks Capacity (m ³)	506	180
I. Waste Amount –Compactor Capacity Ratio (m ³ /ton) (H/F)	0.91	0.82
J. Operation Staff for Waste Collection	470 municipal	202 municipal
K. Unit Costs for Waste Collection (US\$/t)	27.3	36.0
L. Operation Staff for Street Sweeping	250 contractor	30 municipal
M. Unit Cost for Street Sweeping (US\$/t)	110.2	157.1
N. SWM Budget 1998 (US\$)	6,086,136	3,327,991
O. Per capita SWM Budget (US\$) (N/A)	7.42	10.06

Waste stream in the Greater Municipality of Adana indicates that 833 ton of waste is generated; out of which is 803 ton is discharged, 24 ton is recycled at generation sources by 'eskici' and 6 ton is buried or burned in own premises or vacant lots. 779 ton of total discharged waste is subjected to collection activity, whereas 15 ton of this amount is recycled by street pickers and 9 ton is dumped illegally in river or vacant lots. Conclusively, at the Sofulu landfill site, 779 ton of waste collected from the city and 25 ton of waste collected from adjacent municipalities along with medical and industrial wastes are finally disposed. 9 ton of waste out of 804.4 ton of finally disposed waste is recycled by scavengers at the landfill site.

Within the framework of solid waste collection and storage activities in Adana; 859,170 population in the Seyhan District and 337,450 population in the Yuregir District are served. These service groups correspond to 251,450 households dispersed over an area of 11,550 ha in the Seyhan District and 90,000 households dispersed over an area of 3,500 ha in the Yuregir District. Respective densities in these districts are 74.4 p/ha and 96.4 p/ha.

The Seyhan District Municipality collects estimably 559 ton of municipal solid waste per day, whereas the Yuregir District Municipality collects 220 ton. While both district municipalities use barrels, cubicles and bins as waste containers, contrast to the Seyhan District, no 400 / 800 lit. wheeled containers are used in the Yuregir District. The collection fleet of the Seyhan District Municipality encompasses 24

compaction trucks of 12m³, 10 compaction trucks of 8 m³, and 23 compaction trucks of 6 m³ in size plus 4 tractor trailers of 6 m³ in volume. The collection fleet of the Yuregir District Municipality, on the other hand, possesses 3 compaction trucks of 16 m³, and 11 compaction trucks of 12 m³ in size plus 50 tractor trailers of 6 m³ in volume.

The Cleansing Directorate of the Seyhan District Municipality has 19 administrative staff constituted by manager, deputy managers, supervisors and officials as well as 470 employees working on field operations. The Yuregir District Municipality, on the other hand, carries out solid waste management activities by its 43 administrative staff working in the office and 30 logistics staff as well as 202 operational staff working in the field. The administrative staff of the Seyhan and Yuregir District Municipalities are further in charge of 250 contracted employees and 30 municipal employees, respectively, who are working as street sweepers.

Above mentioned quantitative issues allow a rough comparative analysis to highlight administrative and operational characteristics of solid waste management structure in both districts of Adana.

In the two DMs 651 gr of municipal waste is collected per person per day. This collection activity is carried out by the Cleansing Directorate of the Seyhan District Municipality with a 506 m³ compactor capacity and 24 m³ tractor trailer capacity. In the premises of the Yuregir District Municipality, on the other hand, there is 180 m³ compactor and 300 m³ tractor trailer capacity available.

b. Comparative Efficiency in SWM

Table 6-7: Solid Waste Management Indicators of DMs in Adana

Responsibility SCALA per Administrative Employee	Indicator *1	Seyhan	Yuregir	Adana (average)
Size of Residents	A/E	45,219	7,848	19,300
Size of Households	B/E	13,234	2,093	5,507
Size of Operational Employees in Solid Waste Collection	J/E	24.7	4.7	10.8
Size of Operational Employees in Street Sweeping	L/E	13.2	0.7	4.5
Management of Solid Waste (t/day)	F/E	29.4	5.1	12.6
Management of Compactor Capacity (m ³)	H/E	26.6	4.2	11.0
Management of Solid Waste Budget (US\$)	N/E	320,323	77,395	151,841

Note *1 : These indicators are calculated by using data mentioned in the former table.

In the solid waste management of the Seyhan District, one office employee (administrative staff) is proportionally responsible for solid waste services to be provided to 45,219 citizens corresponding to 13,234 households. This office employee is further responsible for 24.7 field employees (operational staff) engaged in waste collection and transport as well as 13.2 field employees engaged in street sweeping. It also falls into the responsibility range of this office employee to manage the disposal of 29.4 ton of municipal solid waste per day with 26.6 m³ of compactor capacity.

These indicators reflect for the Yuregir District Municipality that in solid waste management, one office employee (administrative staff) is proportionally responsible

for solid waste services to be provided to 7,848 citizens corresponding to 2,093 households. This office employee is further responsible for 4.7 field employees (operational staff) engaged in waste collection and transport as well as 0.7 field employees engaged in street sweeping . It also falls into the responsibility range of this office employee to manage the disposal of 5.1 ton of municipal waste per day with 4.2 m³ of compactor capacity and 10.6 m³ of tractor trailer capacity.

The analysis of cost factors and financial management show that, annually US\$ 7.42 is spent per capita by the Seyhan District Municipality and annually US\$ 10.06 is spent per capita by the Yuregir Municipality in order to provide waste collection/hauling services. Proportionally, one office employee in the Seyhan District Municipality has to manage US\$ 320,323 of the SWM budget, while one office employee in the Yuregir District Municipality has to manage US\$ 77,395 of the SWM budget.

c. Internal Comparison

The analytical approach based on these indicators can yield in some findings related to comparative explanations on solid waste management carried out by the Seyhan and Yuregir District Municipalities.

- If the administrative (office) staff and the operational (field) staff comparison is undertaken, it is obvious that the managerial capabilities of the Seyhan District Municipality in solid waste disposal activities is higher than the Yuregir District Municipality. This affirmation relies on the quantitative comparison, which states that with relatively less manpower allocation in office services, the Seyhan District Municipality achieves relatively more field services and operational accomplishments.
- For municipal waste services, one office staff in the Seyhan District Municipality stands for almost a 6 times larger target group and household size, when compared with the Yuregir District Municipality.
- The managerial aspects of these services no differently indicate that, one office staff in the Seyhan District Municipality has to deal with the collection and transport of almost 6 times more volume of municipal waste by managing again almost 6 times more volume of available compactor capacity in the Yuregir District Municipality.
- The conspicuousness per employee achievements in administrative (office) services recorded by the Seyhan District Municipality is only distorted in the management of the tractor trailer capacity, which is prevalently used in Yuregir, where wheeled containers are not available. This fact reflects however the elementary level of solid waste management services provided in Yuregir.
- The personnel management indicators clearly set forth that for the operational (field) services, one office (administrative) employee in the Seyhan District Municipality is responsible for a more than 5 times larger field personnel size, when compared with an office employee in the Yuregir District Municipality. This discrepancy reaches to higher ratios, if the size of street sweepers are taken into account.

- Although, per capita SWM Budget of the Seyhan District Municipality is 28% less than the Yuregir District Municipality, comparatively more managerially effective solid waste services are provided in Seyhan. In financial management terms, one office employee in the Seyhan District Municipality is responsible for the management of almost a 4 times larger amount of monetary resources, when compared with the Yuregir District Municipality.
- Despite unit costs assessments are not very reliable, the figures however reveal that, the waste collection and street sweeping costs per ton are higher in Yuregir in comparison with Seyhan.
- Conclusively, the Seyhan District Municipality records a relatively more advanced level of SWM services in administrative, personnel, technical and managerial issues which are not succeeded by the Yuregir District Municipality.
- It is clear that the conservative approach of the Yuregir District Municipality towards privatisation has resulted in an over-concentration of administrative staff and less efficiency in personnel, technical and financial management and cost effectiveness in supplied SWM services. However, even neglecting privatisation, there are considerable management failures in the traditional structure of the Yuregir District Municipality, which need to be eliminated successively by undertaking appropriate internal measures.

The above affirmations are based on comparative quantitative analyses, which are structured on more or less equally and proportionally shared fundamental issues; such as size of service area and population density.

Therefore, it could be assumed that comparisons are carried out on a sound and fair basis under existing conditions.

d. Comparison with Mersin

Although a comparative analysis between the district municipalities in Adana and Mersin is impossible in some aspects of solid waste management due to inconsistent and missing data, especially in wheeled container and tractor trailer capacity as well as the length of streets, there are however still some issues on which some comparisons can be based.

Per capita waste generation in districts of Adana seems to be slightly higher than in districts of Mersin. The population density figures for Seyhan and Yuregir are 74.4 p/ha and 96.4 p/ha, respectively, while it is 53.8 p/ha in Yenisehir, 85.3 p/ha in Akdeniz and 92.6 p/ha in Toroslar Districts. When the available compactor capacities are observed, it can easily be seen that for one ton of municipal waste: 0.91 m³ of compactor capacity is available in the Seyhan District Municipality and 0.82 m³ of compactor capacity in the Yuregir District Municipality. These ratios are 1.87 m³ in the Yenisehir District Municipality, 1.37 m³ in the Akdeniz District Municipality and 1.07 m³ in the Toroslar Municipality. It means that the compactor capacities available in the district municipalities of Mersin are more than those of DMs in Adana.

In districts of Adana, unit costs in waste collection are relatively higher, whilst the unit costs in street sweeping are however relatively lower. In general, per capita SWM expenditures from the municipal budget in the districts of Adana are more than the case in the districts of Mersin. This issue needs however to be associated with the

overall quality of SWM services provided in each district of Adana in order to make a reasonable evaluation leading to internal and / or comparative betterments.

In the district municipalities of Adana; average size of residents and connectedly households per administrative employee is higher than in the districts of Mersin. In case of size of operational employees engaged in solid waste collection per administrative employee, Adana achieves a better record in average. However, this reflects a reverse situation and Mersin achieves a better record in case of size of operational employees engaged in street sweeping per administrative employee.

Regarding average amount of solid waste and compactor capacity management; Adana records more efficiency per administrative employee in solid waste management, whilst Mersin records more efficiency in compactor capacity management. The average amount of monetary resource managed by an administrative employee in Adana is almost a double of the case in Mersin.

6.2.2 Administration and Organisation

Regarding the administrative structuring and the position of the cleansing directorates within the district municipalities, the responsible personalities in Seyhan and Yuregir District Municipalities, indicate in the interview carried out late May 1999, that there is no need for a restructuring within the present organisation schemes in order to enhance administrative efficiency. All these directorates in Adana mention that they are satisfied with current administrative linkages within their own municipalities.

Within the context of administrative and managerial works, subjects related to legal regulations, commissioning and contracting activities of the Cleansing Directorates in Seyhan and Yuregir are worked out by legal advisors and other related directorates of these municipalities. In personnel recruitment, the Mayor's office is the decision organ. The financial recordings of the Cleansing Directorates are carried out by Accounting Directorates of individual district municipalities. It means that, none of the Cleansing Directorates are in the position to manage their own monetary resources.

In public relations, the Cleansing Directorates of the Seyhan District Municipality is dealing with complaints, while the complaints about SWM services in Yuregir are received by the Public Relations Department of the district municipality. This means two different orientation styles are adopted by the district municipalities in Adana.

Throughout operations and implementations, the logistic services are provided by the Cleansing Directorates of the Seyhan and Yuregir Municipalities themselves in their own premises.

Supervision of field operations related to the collection and transport of wastes is realised by own personnel or representatives of both district municipalities in Adana. Performance records of the field staff in operations are kept by the cleansing directorates themselves. These directorates are also active in training of the field staff.

When compared with the situation in Yuregir, the Cleansing Directorate of the Seyhan District Municipality is more inclined to decentralisation of authorisation and responsibility. Regarding inter-directorial co-operation and dependency relations, both directorates reveal a high rate of dependency and inter-directorial co-operation

necessity. However, both directorates indicate that, the assignments are uniquely and integratively fulfilled by respective directorates within their municipalities.

Regarding internal correspondence and information flow as well as co-operation and support functions, cleansing directorates indicate without any exception that, intra-municipal collaborations are successfully running. This positive picture is also valid for co-operation with other local agencies. Inter-municipal collaborations and current level of external co-operation with other local governmental and non-governmental agencies are found sufficient by both cleansing directorates. Seyhan however complains about weak dialogue with industrial plants, which are located in the district.

According to the opinion of the Cleansing Directorate of the Seyhan District, it would be more beneficial, if the cleansing directorate could internalise some portions from other support directorates; for example, municipal police. This action would also lead not only to higher service efficiency but also provide more cost effectiveness. The Cleansing Directorate of the Yuregir District Municipality finds another status for their directorate as irrelevant. They mean that no internalisation from other supportive directorates or any statutory change is required, since SWM services are offered in a precise municipal solidarity.

Concerning a reorganisation in the distribution of authorities and responsibilities, the Cleansing Directorate of the Seyhan District Municipality expresses that, more efficiency in SWM services is achievable even without undertaking any change in personnel size. Seyhan makes however a particular remark that, transfer stations must be incorporated into the system. The Cleansing Directorate of the Yuregir District Municipality, on the other hand, gives a conservative reaction and states that nothing new is required.

While the Cleansing Directorate of the Yuregir District Municipality suffice with current personnel size, the Cleansing Directorate of the Seyhan District Municipality mentions that, it is currently in need of a couple of drivers and certain number of workers but not more than 25 in sum. Regarding future oriented needs in case of expanding service obligations and capacities as well, the Cleansing Directorate of Seyhan expresses that, trained and skilled workers will be needed for transfer stations. The Cleansing Directorate of Yuregir gives a figure and states that skilled workers size has to be 400 in sum.

6.2.3 Legislation and Enforcement

Regarding the effectiveness of legislative instruments, the cleansing directorates in Seyhan and Yuregir represent two different views. While the Yuregir District Municipality mentions that there is no need for any further regulation in SWM, in contrary to this view, the Seyhan District Municipality claims that current legislative infrastructure is not adequate to carry out effective SWM services. According to Seyhan, existing gaps could be eliminated by some subsidiary but supportive actions, particularly by incorporating some vital provisions into the contracts.

The cleansing directorates in Adana mention that, the personnel is informed about the legal instruments especially through labour unions and syndicates. While the

Cleansing Directorate of Seyhan sees no advantage in establishing a municipal economic enterprise (municipally owned company) for SWM services, the Cleansing Directorate in Yuregir finds such a status more advantageous.

Both cleansing directorates in Adana indicate that, they do not undertake any information exchange based on experiences in contracting. Although the Cleansing Directorate of the Seyhan District Municipality mentions that, it would be beneficial to enter into inter-municipal joint contracting actions, the Cleansing Directorate of Yuregir cannot make any interpretation on this issue.

In acquiring orientation and consultation in judicial issues, the Cleansing Directorates in Seyhan and Yuregir are in good relations with and considerably supported by the legal advisors of their district municipalities.

6.2.4 Privatisation and Contracting System

Both district municipalities in Adana have negative judgements for privatisation and contracting. The Seyhan District Municipality has some experiences in this concern, but they are merely limited to street sweeping services. The Yuregir District Municipality, on the other hand, strictly keeps itself away from such an approach and has neither gained any experience in this field of activity.

The opinion of the Cleansing Directorate in Seyhan about the essential issues of contracting confines on concrete and quantitative description of tasks with a transparent outlook on behalf of the municipality, whereas financial profitability and payment conditions on behalf of the contractor. These issues must be clearly identified by both parties in order to benefit mutually from privatisation and to enjoy the quality of provided services. Since privatisation is applied in Seyhan only for street sweeping, it is rather hard to claim that the Cleansing Directorate has been sufficiently experienced in contracting relations.

According to the cost calculations made by the Cleansing Directorate of the Seyhan District Municipality, it is in fact less costly and more qualitative to provide this service by the municipal hand. The directorate expresses that, contracting is advantageous primarily for overcoming administrative and legislative bottlenecks in accomplishing the required SWM services. In preparing contracts, the Cleansing Directorate of the Seyhan District Municipality takes sample contracts from other directorates and adopt a proper one for own purposes. There is in fact no need for such a scope of work to receive intensive orientations from external units and agencies.

The main source of friction between the municipality and the contractor is delay in due payments. This problem has been always overcome, upon escalation rates applied by the municipality for the payments to the contractor.

Another problem field pertains to time limitation of contracts, which is fixed as 1 year, legislatively. The view of the Cleansing Directorate of the Seyhan District Municipality in this issue is contradictory. It is a positive factor for the municipality to terminate the services of an unwanted contractor. It is however a negative factor for the contractor to avoid necessary investments for a more qualified SWM service.

The directorate admits that in span of contracting activities, the cleansing directorate and the contractor as well, gain experience and the quality of services get better and better in Seyhan. However, the Cleansing Directorate of the Seyhan District Municipality claims that, privatisation is ultimately focused on the acquisition of cheaper labour force, because currently applied street sweeping is a manual work, which is not a technology intensive service by nature.

The Cleansing Directorate in Seyhan gives a positive response for packaged and integrated contracting of all services comprising collection / transportation / disposal / sorting / recycling and sanitary landfill. This could be a more suitable alternative for a proper privatisation action, and such an approach could also be more attractive for private companies. Collective actions with other municipalities for large scale investments; such as sorting and composting plants as well as sanitary landfills based on BOT models, are also appreciated by the Cleansing Directorate of the Seyhan Municipal District. The directorate thinks that, by collective contracting practices many economic and legal handicaps can be eliminated, but this kind of actions require more interdisciplinary personnel.

6.2.5 Monitoring and Information Management System

Within the framework of instructing and information forwarding, both district municipalities use predominantly verbal transmission methods in order to maximise the available time for accomplishment of certain tasks. For immediate and instant actions, they find it appropriate to use wireless as a means of communication. Beside official documents flow, verbal commitments are highly preferred for daily information exchange and instructions.

For the monitoring of works and performances of the contractor, there is only one guidance prepared by the Cleansing Director of the Seyhan District municipality and the contents of the contract, as usual. Such a document has not been developed by the Yuregir District Municipality and therefore is not available for any purpose.

In evaluating the service level and efficiency assessments, both Cleansing Directorates in Seyhan and Yuregir indicate that, they are in receipt of uninterrupted information. The Cleansing Directorate of the Seyhan District Municipality is in steady touch with the muhtars (ward officials) and receive their monthly reports, in which service performances are evaluated. The Cleansing Directorate in Seyhan is but in need of more vehicles in order to be more effective in inspection and monitoring.

The district municipalities in Adana declare, that they are in possession of information related to range, density and household size of target groups; waste volume and types; kind of services provided in SWM; instrumental and vehicular use; administrative and operational personnel list as well as complaint registers. Data related to size of vehicular park, operation and maintenance costs along with logistical personnel employment durations are also available in both district municipalities in Adana. It seems that, there is a wide and sufficient data base for them to take their management related assessments.

Unit costs of services provided by the private companies are known by the Cleansing Directorate of the Seyhan District Municipality. The Cleansing Directorate of the Yuregir District Municipality is also familiar with unit costs of services provided by

its own personnel and material resources. This information is however indirectly available, which means through Accounting Directorate of the municipality.

While the Cleansing Directorate of the Seyhan District Municipality is informed about budgetary allocations and financial availabilities, the Cleansing Directorate of the Yuregir District Municipality is not actively involved in the preparation of the municipal budget.

Beside public complaints forwarded to the municipalities and co-operation of the Seyhan District Municipality with muhtars (ward officials) related to the performance levels achieved in SWM services, the cleansing directorates of both district municipalities in Adana undertake daily control actions on routine basis.

6.2.6 Human Resources Development

The Cleansing Director of the Seyhan District Municipality is a university and the Cleansing Director of the Yuregir District Municipality is a secondary school graduate. The former has a journalist background. They had neither attended to any formal training course in SWM, nor had the chance for self-training. In the Cleansing Directorate of Seyhan, there are some officials who are in good command of foreign language. Unfortunately, there is nobody in the Cleansing Directorate of the Yuregir District Municipality, who can speak a foreign language.

Among the administrative personnel in Seyhan, there is no employee specialised in legal affairs as well as financing and accounting. This case is also valid for Yuregir. While they take care of those administrative works related to the personnel recruitment, regulatory assignments and budgeting by own office personnel of the cleansing directorates, legal affairs along with financing and accounting are predominantly carried out by other respective directorates within the municipality.

Most of the operational works related to organisation of services, supervision, control, performance assessment, logistics and supplementary services, training and field works are either organised or actively fulfilled by available personnel in the cleansing directorates of the district municipalities in Adana. As a result, perhaps not all administrative duties of the directorates are fulfilled internally, but all operational duties are performed by own personnel without getting any support from another directorate.

There are some human resources development and training programs for administrative and operational personnel of the district municipalities in Adana. These programs are sufficient in view of the Cleansing Directorate of the Seyhan District Municipality, while insufficient in the view of the Cleansing Directorate of the Yuregir District Municipality.

Inter-municipal collaboration for personnel training finds a good resonance in Seyhan and some steps must be taken for this aim. The Cleansing Directorate of the Yuregir District Municipality, on the other hand, gives but a negative reply to such an inquiry.

6.2.7 Guidelines

Guidelines for the Cleansing Directorates of the Seyhan and Yuregir District Municipalities can be categorised in two sections. The primary guidelines are those,

which are valid for all respective directorates and district municipalities in general. The supplementary guidelines, on the other hand, are those which are more particular in character and require specific reference.

Primary Guidelines:

- The cleansing directorates of both district municipalities in Adana have to be aware of the fact that, they must ultimately be motivated towards improvement of their managerial capabilities.
- In this connection, with available personnel employed in the office for administrative services, more achievements in field operations must be attained. This issue however has to be more seriously considered by the Cleansing Directorate of the Yuregir District Municipality.
- System betterment approaches ought to be undertaken in administrative, managerial and operational activities based on better mobilisation and organisation of personnel, vehicular and instrumental means as well as monetary resources. Efficiency criteria must be primarily referred by the Cleansing Directorates for internal evaluation and self-criticism, particularly by the Yuregir District Municipality.
- Technical up-gradings and capacity enhancements must be attained for more rationality in SWM services. More practical and efficient means; such as, wheeled containers, must be injected into the system, particularly in Yuregir without any further delay.
- The requirement for establishing a systematic base for unit costs calculations must be acknowledged as indispensable for transparency and rationality in decisions and actions.
- Prior to any policy decisions related to privatisation and contracting, cost-effectiveness principle must be appropriately applied, especially by the Cleansing Department of the Yuregir District Municipality.
- Managerial capabilities and service performances have to be alternatively and comparatively analysed by cleansing directorates on basis of service segments, before identifying political preferences towards privatisation.

Supplementary Guidelines:

- For more efficiency in SWM, both district municipalities in Seyhan and Yuregir should look after further intensification of inter-directorial collaboration and horizontal co-operation.
- Inter-directorial linkages should be particularly intensified in personnel recruitment, accounting and financial management for more effective administration of services, if re-organisational approaches within the municipality are not preferred.
- Organisation of logistic services encompassing maintenance and repair must be reviewed by both district municipalities, in order to identify whether some steps towards more rationality could be undertaken by alternative managerial and / or political approaches.

- Internal decentralisation of authority and / or redistribution of assignments without any change in personnel size, has to be seriously and critically reconsidered by the Yuregir District Municipality for a more effective management of solid waste services.
- Current level of external collaboration, especially of the Seyhan District Municipality with industrial plants operated under private entrepreneurial management, should be substantially improved.
- The support need of the Cleansing Directorate of the Seyhan District Municipality for supervision and control should be internally re-evaluated.
- Elaborations should be undertaken to meet 25 additional personnel demand of the Cleansing Directorate of the Seyhan District Municipality and 200 additional skilled personnel demand of the Cleansing Directorate of the Yuregir District Municipality.
- Limited experience of the Cleansing Directorate of the Seyhan District Municipality should be enriched by more information exchange and transfer of experiences from other municipalities.
- In order to avoid conflicts with the contractor, more attention should be paid by the Cleansing Directorate of the Seyhan District Municipality to due payments.
- Both directorates of the district municipalities in Adana should try to be more documentary and formal in informative and instructive transmissions.
- The contract should not be the only source of reference for monitoring of SWM services. A manual has to be immediately developed for private and municipal personnel in this respect.
- The Cleansing Directorates, but particularly of the Yuregir District Municipality, should be more actively involved in and informed about financial matters in SWM services.
- More effort should be given by both district municipalities for preparation and offer of human resources development and personnel training programs, not only for operations of field staff but for administrative and managerial duties of office staff, as well.

6.3 For DMs in Mersin GM

The chapter presents specific requirements of institutional development for DMs (district municipalities) in Mersin GM based on the interview survey to the relevant personnel in SWM of DMs, Yenisehir, Akdeniz and Toroslar DMs. The specific requirements of institutional development for Mersin GM is presented in the chapter 12.

6.3.1 Important Issues

a. Comparative Service profile in SWM

Table 6-8: SWM Service Profile of DMs in Mersin

Criteria	Yenisehir	Akdeniz	Toroslar
A. Population (1998)	145,310	255,516	234,024
B. Number of Households	35,000	48,088	62,179
C. Service Area (ha)	2,700	2,995	2,526
D. Population Density (p/ha) (A/C)	53.8	85.3	92.6
E. Administrative Staff	15	9	17
F. Waste Collection (t/day)	93	164	150
G. Per capita Waste Collection (gr/day)	641	641	641
H. Compactor Trucks Capacity (m ³)	174	224	160
I. Waste Amount – Compactor Capacity Ratio (m ³ /ton) (H/F)	1.87	1.37	1.07
J. Operation Staff for Waste Collection	42 contractor	52 contractor	38 contractor
K. Unit Costs for Waste Collection (US\$/t)	10.6	13.0	4.5
L. Operation Staff for Street Sweeping	144 contractor	172 contractor	125 contractor
M. Unit Costs for Street Sweeping (US\$/t)	157.1	186.5	78.7
N. SWM Budget 1998 (US\$)	626,318	1,748,063	625,056
O. Per capita SWM Budget (US\$) (N/A)	4.31	6.84	2.67

Waste stream in the Greater Municipality of Mersin indicates that 446 ton of waste is generated, out of which 425 ton is discharged, 15 ton is recycled at generation sources by 'eskici' and 6 ton is buried or burned in own premises or vacant lots. 407 ton of total discharged waste is subjected to collection activities, whereas 10 ton of this amount is recycled by street pickers and 8 ton is dumped illegally to river or vacant lots. 40 ton of regularly collected waste is transported to the compost plant where 25 % is rejected. Conclusively, at the landfill site of Mersin 393 ton of waste collected from the city is disposed, 1,5 ton of which is recycled by scavengers.

Within the framework of solid waste collection and storage activities in Mersin; a population of 145,310 in the Yenisehir District, 255,516 in the Akdeniz District and 234,024 in the Toroslar District are served. These correspond to 35,000 households and 2,700 ha service area in Yenisehir; 48,088 households and 2,995 ha service area in Akdeniz; 62,179 households and 2,526 ha service area in Toroslar, respectively.

The Yenisehir District Municipality is in charge of collecting 93 ton of waste per day, whereas the Akdeniz District Municipality is responsible for 164 ton and the Toroslar District Municipality for 150 ton. All district municipalities use 400 / 800 lit. containers in their waste collecting activities. The Yenisehir District Municipality has 2,160,000 lit. container capacity, while the Akdeniz District Municipality records 2,160,000 lit. and the Toroslar District Municipality possesses 2,200,000 lit. container capacities.

The waste collection fleet of the Yenisehir District Municipality comprises 4 compaction trucks of 16 m³, 1 compaction truck of 14 m³ and 8 compaction trucks of 12 m³ in size. The collection fleet of the Akdeniz District Municipality includes 8 compaction trucks of 16 m³ and 8 compaction trucks of 12 m³ in size, whilst the Toroslar District Municipality has 4 compaction trucks of 16 m³ and 8 compaction trucks of 12 m³ in size.

The Cleansing Directorate of the Yenisehir District Municipality employs 15 personnel responsible for the contracted waste collection activities carried out by a team composed of 42 foremen, drivers and workers. The Cleansing Directorate of the Akdeniz District Municipality has a core staff of 9 persons, who are looking after the services of the contractor accomplished by 52 employees. The Cleansing Directorate of the Toroslar District Municipality has 17 office staff to supervise waste collection and transport activities of the contractor with 38 personnel. The administrative staff of the Yenisehir, Akdeniz and Toroslar District Municipalities are further in charge of 144, 172 and 125 contracted employees respectively, who are working as street sweepers.

Above mentioned quantitative issues allow a rough comparative analysis to highlight administrative and operational characteristics of solid waste management structure in three respective districts of Mersin.

In the three DMs 641 gr of municipal waste is generated per person per day. This collection activity is carried out by the Cleansing Directorate of the Yenisehir District Municipality with a 174 m³ compactor capacity, by the Akdeniz District Municipality with a 224 m³ compactor capacity and by the Toroslar District Municipality with a 160 m³ compactor capacity, respectively. In Mersin, almost no tractor trailer is used for waste transportation.

b. Comparative Efficiency in SWM

Table 6-9: Solid Waste Management Indicators of DMs in Mersin

Responsibility SCALA per Administrative Employee	Indicator *1	Yenisehir	Akdeniz	Toroslar	Mersin (average)
Size of Residents	A/E	9,687	28,391	13,766	15,484
Size of Households	B/E	2,333	5,343	3,658	3,543
Size of Operational Employees in SW Collection	J/E	2.8	5.8	2.2	3.2
Size of Operational Employees in Street Sweeping	L/E	9.6	19.1	7.4	10.7
Management of Solid Waste (t/day)	F/E	8	19.1	9.4	10.8
Management of Compactor Capacity (m ³)	H/E	11.6	24.9	9.4	13.6
Management of SW Budget (US\$)	N/E	41,755	194,229	36,768	73,157

Note *1 : These indicators are calculated by using data mentioned in the former table.

In the solid waste management of the Yenisehir District, one office employee (administrative staff) is proportionally responsible for solid waste services to be provided to 9,687 citizens corresponding to 2,333 households. This office employee is further responsible for 2.8 field employees (operational staff) engaged in waste collection and transport as well as 9.6 field employees engaged in street sweeping. It

also falls into the responsibility range of this office employee to manage the disposal of 8 ton of municipal solid waste per day with 11.6 m³ of compactor capacity.

These proportional figures reflect for the Akdeniz District Municipality that in solid waste management, one office employee (administrative staff) is responsible for solid waste services to be provided to 28,391 citizens corresponding to 5,343 households. This office employee is further responsible for 5.8 field employees (operational staff) engaged in waste collection and transport as well as 19.1 field employees engaged in street sweeping . It also falls into the responsibility range of this office employee to manage the disposal of 19.1 ton of municipal waste per day with 24.9 m³ compactor capacity.

These ratios reveal for the Toroslar District Municipality that in solid waste management, one office employee (administrative staff) is proportionally responsible for solid waste services to be provided to 13,766 citizens corresponding to 3,658 households. This office employee is further responsible for 2.2 field employees (operational staff) engaged in waste collection and transport well as 7.4 field employees engaged in street sweeping . It also falls into the responsibility range of this office employee to manage the disposal of 9.4 ton of municipal waste per day with 9.4 m³ compactor capacity.

The analysis of cost factors and financial management show that annually US\$ 4.31 is spent per capita by the Yenisehir District Municipality; US\$ 6.84 by the Akdeniz District Municipality and US\$ 2.67 by the Toroslar District Municipality, respectively, in order to provide waste collection/haulage services. One office employee in the Yenisehir District Municipality has to manage US\$ 41,755 of the SWM budget, while each individual office employees in the Akdeniz and Toroslar District Municipalities have to manage US\$ 194,229 and US\$ 36,768 of their SWM budgets, respectively.

c. Internal Comparison

The analytical approach based on these indicators can yield in some findings related to comparative explanations on solid waste management carried out by the Yenisehir, Akdeniz and Toroslar District Municipalities.

- If the administrative (office) staff and the operational (field) staff comparison is undertaken, it is obvious that the managerial capabilities of the Akdeniz District Municipality in solid waste disposal activities is higher than the Yenisehir and Toroslar District Municipalities. This assumption relies on the quantitative comparison, which states that with relatively less manpower allocation in office services, the Akdeniz District Municipality achieves relatively more field services and operational accomplishments.
- For municipal waste services, one office staff in the Akdeniz District Municipality stands for more than a 2 times larger target group and household size, when compared with the Yenisehir and Toroslar District Municipalities.
- The managerial aspects of these services no differently indicate that, one office staff in the Akdeniz District Municipality has to deal with the collection and transport of almost 2 times more volume of municipal waste by managing again

almost 2.5 times more volume of available compactor capacity, respectively, when compared with the Yenisehir and Toroslar District Municipalities.

- The above indicated achievements of the Akdeniz District Municipality is however distorted in the availability of per capita wheeled container capacity, which is 8.5 m³ in Akdeniz but 14.9 m³ in Yenisehir and 9.4 m³ in Toroslar, respectively.
- The personnel management indicators clearly set forth that for the operational (field) services, one office (administrative) employee in the Akdeniz District Municipality is responsible for a nearly 2 times larger field personnel size, when compared with an office employee in the Yenisehir and Toroslar District Municipalities, respectively. This discrepancy keeps the same respective ratios, if the size of street sweepers are taken into account.
- In per capita SWM budget allocations, the highest rate is in the Akdeniz District followed by Yenisehir and Toroslar. In financial management terms, one office employee in the Akdeniz District Municipality is accordingly responsible for the management of more than a 4 times and a 5 times larger amount of monetary resources, when compared with the Yenisehir and Toroslar District Municipalities, respectively.
- Despite unit costs assessments are not very reliable, the figures however reveal that, the waste collection and street sweeping costs per ton are the lowest in the Toroslar District, when compared with the Akdeniz and Yenisehir Districts.
- Conclusively, the Akdeniz District Municipality records a relatively more advanced level of SWM services in administrative, personnel, technical and managerial issues in relation to those recorded by Yenisehir and Toroslar District Municipalities.
- It is clear that the joint-contractual approach of the Akdeniz District Municipality with the Mersin Greater Municipality have provided considerable relative advantages. These advantages are however cannot be definitely identified within the framework of the joint contract. It is rather hard to distinguish the obligation and fulfilment provisions concluded between related parties. Due to that reason, a certain degree of contingency and reservation have to be attached to above mentioned analytical results and their interpretations regarding the comparative records achieved by the Akdeniz District Municipality in the supply of SWM services.

The above affirmations are tried to be based on comparative quantitative analyses, which are structured on more or less equally and proportionally shared fundamental issues; such as size of service area and population density. There are however subtle differences in population distribution, even the size of respective service areas of the district municipalities in Mersin are approximately close to each other. Therefore, it should be kept in mind that comparisons are carried out on a possible sound and fair basis under existing conditions.

d. Comparison with Adana

Although a comparative analysis between the district municipalities in Mersin and Adana is impossible in some aspects of solid waste management due to inconsistent

and missing data, especially in wheeled container and tractor trailer capacity as well as the length of streets, there are however some issues on which some comparisons can be based.

Per capita waste generation in districts of Adana seems to be slightly higher than in districts of Mersin. The population density figures for Seyhan and Yuregir are 74.4 p/ha and 96.4 p/ha, respectively, while it is 53.8 p/ha in Yenisehir, 85.3 p/ha in Akdeniz and 92.6 p/ha in Toroslar Districts. When the available compactor capacities are observed, it can easily be seen that for one ton of municipal waste: 0.91 m³ of compactor capacity is available in the Seyhan District Municipality and 0.82 m³ of compactor capacity in the Yuregir District Municipality. These ratios are 1.87 m³ in the Yenisehir District Municipality, 1.37 m³ in the Akdeniz District Municipality and 1.07 m³ in the Toroslar Municipality. It means that the compactor capacities available in the district municipalities of Mersin are more than those of DMs in Adana.

In districts of Mersin, the available solid waste collection and transport capacities are more effectively utilised, if compared with Adana. In these districts of Mersin, unit costs in waste collection are relatively lower, whilst the unit costs in street sweeping are however relatively higher. In general, per capita SWM expenditures from the municipal budget in the districts of Mersin are less than the case in the districts of Adana. This issue needs however to be associated with the overall quality of SWM services provided in each district of Mersin in order to make a reasonable evaluation leading to internal and / or comparative betterments.

In the district municipalities of Mersin; average size of residents and connectedly households per administrative employee is lower than in the districts of Adana. In case of size of operational employees engaged in solid waste collection per administrative employee, Adana achieves a better record in average. However, this reflects a reverse situation and Mersin achieves a better record in case of size of operational employees engaged in street sweeping per administrative employee.

Regarding average amount of solid waste and compactor capacity management; Adana records more efficiency per administrative employee in solid waste management, whilst Mersin records more efficiency in compactor capacity management. The average amount of monetary resource managed by an administrative employee in Adana is almost a double of the case in Mersin.

6.3.2 Administration and Organisation

Regarding the administrative structuring and the position of the cleansing directorates within the district municipalities, the responsible personalities in Yenisehir and Akdeniz, contrary to Toroslar District Municipalities, indicate that there is no need for a restructuring within the present organisation schemes in order to enhance administrative efficiency. In the interview held in late May 1999, all these directorates in Mersin mention that they are satisfied with current administrative linkages within their own municipalities.

Within the context of administrative and managerial works, subjects related to legal regulations, commissioning and contracting are worked out by all three cleansing directorates, internally. In personnel recruitment, the Cleansing Directorate of the Yenisehir Municipality is rather influential in decision compared with the situation in

Akdeniz and Toroslar District Municipalities. In Akdeniz, the opinion of the directorate is asked by the Recruitment Directorate and in Toroslar the recruitment decision is made by the Mayor's office.

The financial recordings of all three Cleansing Directorates are carried out by Accounting Directorates of individual district municipalities. It means that, none of the Cleansing Directorates are in the position to manage their own monetary resources.

In public relations, the Cleansing Directorates of the Yenisehir and Akdeniz District Municipalities themselves are dealing with complaints. However, in the Toroslar District Municipality complaints cannot be directly forwarded to the Cleansing Directorate and this might mean an orientation defect for the municipality.

Throughout operations and implementations, the logistic services are provided to the Yenisehir District Municipality by the private sector, while those services are accomplished by the Akdeniz and Toroslar District Municipalities in their own premises.

Supervision of field operations related to the collection and transport of wastes is realised by own personnel or representatives of all three district municipalities in Mersin. While the performance records are kept by the contractor for the Yenisehir District Municipality, the other two municipalities prefer to keep these reports by their own personnel.

Regarding the training of the field staff, the Cleansing Directorates of the Yenisehir and Akdeniz District Municipalities are engaging themselves personally, while no specific training is offered but "learning by doing" principle is applied in the Toroslar District Municipality.

Regarding inter-directorial co-operation and dependency relations, only the Cleansing Directorate of the Yenisehir District Municipality reflects an independent unit vision except financial affairs, while the Cleansing Directorates in Akdeniz and Toroslar reveal a high rate of dependency and inter-directorial co-operation necessity.

Regarding internal correspondence and information flow as well as co-operation and support functions, all cleansing directorates indicate without any exception that, intra-municipal collaborations are successfully running. Unfortunately, this optimistic image is replaced by an unsatisfied articulation, when the subject is external co-operation with other local agencies. While inter-municipal collaborations are running at a modest level, none of the cleansing directorates find the current level of external co-operation with other local governmental, non-governmental, private and semi-private agencies as sufficient.

The opinion of the Cleansing Directorate of the Yenisehir District Municipality is very clear that, it would be more rational and beneficial to function under the status of a municipal economic enterprise, rather than a directorate within the district municipality. The main reason for that ambition is gaining the authorisation to manage the environmental tax revenues, autonomously. Although the expenditures would not differ, the service efficiency could at least be enhanced. The Cleaning Directorates of the Akdeniz District Municipality find another status for their

directorates as irrelevant, while the Toroslar Municipality can judge neither the disadvantages nor the advantages of any statutory change, precisely.

All cleansing directorates in the district municipalities of Mersin are pleased with present division of labour and personnel assignments within the administrative organisation scheme. Furthermore, they all suffice with current personnel size and mention no further need for the time being. Regarding future oriented needs in case of expanding service obligations and capacities as well, the Cleansing Directorate of the Yenisehir expresses that, a thorough study has to be undertaken in order to identify prospective personnel, material and instrumental requirements, while the other two cleansing directorates cannot give a definitive response to this inquiry.

6.3.3 Legislation and Enforcement

Regarding the effectiveness of legislative instruments, only the Cleansing Directorate of the Toroslar district Municipality mentions that, there is no need for any further regulation in SWM. In contrary to this view, the Cleansing Directorates in Yenisehir and Akdeniz claim that, current legislative infrastructure is not adequate to carry out effective SWM services. Existing gaps must be filled by supplementary circulars, instructions and regulations, since waste collection and transport have not been subjected to any formal procedure, yet.

All three cleansing directorates find the bidding law and tender procedures as inadequate, since contracts are limited to 1 year period, whereby the lowest cost but no quality criteria are referred. These directorates however mention that, the personnel is not amply informed and trained about the legal instruments and their enforcement scope as well as manoeuvre possibilities. Consequently, in surmounting some legal bottlenecks, municipal personnel cannot be imaginative and flexible enough.

While the Cleansing Directorates of Akdeniz and Toroslar find the status of municipal economic enterprises (municipally owned companies) better for more efficient services, provided that their statutory provisions are not corrupted. The Cleansing Directorate in Yenisehir find this status, on the other hand, extremely dangerous due to political corruptions.

All three Cleansing Directorates in Mersin are in favour of information exchange based on experiences in contracting and they mention that, they do it occasionally. However for inter-municipal joint contracting actions, the Cleansing Directorate in Yenisehir has objections, while the Cleansing Directorate in Akdeniz points out that it could be a more efficient way of service. The Cleansing Directorate in Toroslar indicates that, even better service performance is attainable, some conflicts may occur due to equipmental and vehicular beneficiaries.

In acquiring orientation and consultation in judicial issues, the Cleansing Directorate in Yenisehir is modestly, but the other two Cleansing Directorates are considerably, supported by the legal advisors of their district municipalities.

6.3.4 Privatisation and Contracting System

All three district municipalities in Mersin have positive judgements for privatisation and contracting. Even the Toroslar District Municipality has some concerns related to

the quality of service, from the cost view, its personnel also find it as a useful approach.

The legal shortcomings in privatisation and contracting as well as deficiencies in procedures permit unqualified bidder to make an offer for the tender. Beside this opinion of the Cleansing Directorate of the Yenisehir District Municipality, all of the directorates indicate that the contractors are away from accurate cost calculations, but are eager to keep their profit margins at highest possible rates. While the directorates insist on service quality, the contractors tend to avoid municipal supervision and control of their performance levels.

About the contents of the contracts, the Akdeniz Municipality indicates that, there is no provision related to social security and insurance of workers. Although this fact avails a considerable cost saving on behalf of the municipality, it is regretfully found as inhuman. The other municipalities complain about the extreme and unrealistic discount rates offered by candidate contractors in bidding and try to prevent such actions by incorporating mitigating provisions into the procedures.

Unit costs calculations are undertaken by the Yenisehir and Toroslar District Municipalities in contracted services. A previous calculation made by the Akdeniz District Municipality has indicated that, contracted services were 7 times less costly than usual municipality expenditures for this specific purpose. The Akdeniz and Toroslar District Municipalities express that the prime advantage of contracting is in fact overcoming administrative and legislative bottlenecks in accomplishing the service. The Yenisehir District Municipality articulates that, the prime advantage of contracting is cost minimisation.

It is pleasing that all three district municipalities contact each other and undertake consultations among themselves, when the contracting procedures are initiated. The views based on gained experiences are exchanged.

During the implementation phase of contracted services, the Yenisehir and Akdeniz District Municipalities have encountered some friction with the contractors. However this has occurred as result of misunderstandings and has been eliminated by aid of dialogues. The Toroslar District Municipality has had no series problem with the contractor.

Contracting duration restricted to 1 year only is found appropriate by the Cleansing Directorate of the Toroslar District Municipality. The view of the Akdeniz District Municipality in this issue is dual. It finds the duration positive for the municipality, if the contractor does not show the expected performance. The view is however negative for the contractor, because it hinders investment tendency for better service. The Yenisehir District Municipality judges this time limitation as a negative factor, which does not allow any motivation for progress. The latter two district municipalities however see no chance for this legal provision to be subjected to an amendment under current conditions reigning in Turkey.

Regarding contracted activities and experiences gained in co-operation framework with the private company, the Yenisehir District Municipality means that, the degree of experience to be gained relies on the degree of supervision made by the municipality itself. The Akdeniz Municipality indicates that, a certain orientation must be given to the contractor in order to obtain a more qualified service in return.

The Toroslar District Municipality mentions that, considerable experiences are gained on quality betterment and savings in expenditures are achieved throughout contracting.

All three cleansing directorates of the district municipalities in Mersin articulate that involvement of private sector has contributed to the enhancement of quality in services. The Cleansing Directorate of the Yenisehir District Municipality associates this fact with the simplicity of procedures applied in personnel employment and deployment.

A common view of the district municipalities is that, municipal collaborations and union building initiatives would be very beneficial for realising large scale investments based on BOT schemes. While the Cleansing Directorates of the Akdeniz and Toroslar District Municipalities are for packaged and integrated contracting of all services comprising collection / transportation / disposal / sorting / recycling and sanitary landfilling, the Cleansing Directorate of the Yenisehir District Municipality represents a different opinion and states that, waste collection and transport must be independently contracted. In case of packaged and integrated contracting, the Yenisehir District Municipality expresses that, there would be need for a more disciplined personnel to supervise those activities, while the other two municipalities indicate that no additional personnel support is necessary.

6.3.5 Monitoring and Information Management System

Within the framework of instructing and information forwarding, all three district municipalities use predominantly verbal transmission methods in order to maximise the available time for accomplishment of certain tasks. Although work plans are prepared and circulated in textual form, verbal commitments are highly preferred for daily information exchange and instant actions.

For the monitoring of works and performances of the contractor, there is no available manual or guidance, to which the municipalities can refer. All three district municipalities mention that, the only reference for monitoring is the contents of the contract.

In evaluating the service process and efficiency assessments, all three district municipalities indicate uninterrupted information flow. They together mean that, there is no need to take radical and structural measures to better the information flow system. The Cleansing Directorate of the Yenisehir District Municipality claim in this regard, that they do the best under prevailing conditions.

The district municipalities in Mersin further declare that, they are in possession of information related to range, density and household size of target groups; waste volume and types; kind of services provided in SWM; instrumental and vehicular use; administrative and operational personnel list as well as a complaints register. Data related to size of vehicular park, operation and maintenance costs along with logistical personnel employment durations are also available in all district municipalities in Mersin. It seems that, there is a wide and sufficient data base to take management related assessments.

Unit costs of services provided by the private companies are known by the Cleansing Directorates of the Yenisehir District Municipality. However, the Cleansing

Directorates of the Akdeniz and Toroslar District Municipalities are not familiar with those costs expressed on per unit basis.

Another common issue shared by the cleansing directorates of all three district municipalities is that, they are not informed about budgetary allocations and financial availabilities related to their directorates. It means that in the preparation of the municipal budget, they are not actively involved.

Making a self-criticisms, the Cleansing Directorate of the Yenisehir District Municipality underlines that, in the contracts the labour wages are relatively low, while labour conditions are relatively hard. The Cleansing Directorate of the Akdeniz District Municipality sees it as a handicap that, they do not have a machinery park of their own, because repair and maintenance services are extremely interrupted. The Cleansing Directorate of the Toroslar District Municipality points out that, due to missing computer network, the accounting system of the cleansing directorate cannot be transparently monitored.

Beside public complaints forwarded to the municipalities related to unperformed SWM services in their close surroundings, the cleansing directorates of all district municipalities in Mersin also undertake control actions on routine basis.

6.3.6 Human Resources Development

The cleansing directors of the district municipalities in Mersin are all university or college graduates. Two of them have management and one of them has agricultural engineering background. These top level administrators have had the opportunity to be trained once a year in crash programs and seminars on SWM. Additionally, they have also tried their best for self-training and on-the-job-training. Unfortunately none of them can a foreign language.

Those administrative works related to the personnel recruitment, legal affairs, regulatory assignments, accounting, financing and budgeting are all partially carried out by own office personnel of the cleansing directorates in Mersin. It means that all these intern-administrative activities are predominantly carried out by other respective directorates within the municipality.

Most of the operational works related to organisation of services, supervision, control, performance assessment, logistics and supplementary services, training and field works are either organised or actively fulfilled by available personnel in the cleansing directorates of the district municipalities in Mersin. As a result, perhaps not all administrative duties of the directorates are fulfilled internally, but all operational duties are performed with own personnel without getting any support from other directorates, except logistics, maintenance and repair, which are privately provided for Yenisehir and municipally provided for Toroslar.

There is no specific human resources development and training program for administrative personnel. Despite some training is given to operational personnel engaged in field works, the Cleansing Directorates of the Yenisehir and Toroslar District Municipalities find it insufficient.

The contractors of the Akdeniz and Toroslar Cleansing Directorates are also university graduates, however according to all cleansing directorates their contractors are weakly experienced in this service business.

Even all three cleansing directorates in Mersin are mentioning the lack of training as an essential failure, they also point out that, there is regrettably no attempt to avail such an opportunity to the municipal personnel through inter-municipal collaborations and joint organisations.

6.3.7 Guidelines

Guidelines for the Cleansing Directorates of the Yenisehir, Akdeniz and Toroslar District Municipalities can be categorised in two sections. The primary guidelines are those, which are valid for all respective directorates and district municipalities in general. The supplementary guidelines, on the other hand, are those which are more particular in character and require specific reference.

Primary Guidelines:

- The cleansing directorates of the district municipalities in Mersin have to be aware of the fact that, based on considerable experience gained in privatisation, they must now be motivated towards improvement of their capabilities.
- In this connection, with available personnel employed in the office for administrative services, more achievements in field operations must be attained.
- Within the framework of “lessons to be learned” principle, the comparatively successful consequences of the joint-contracting action implemented by the Environmental Health Department of the Mersin Greater Municipality and the Cleansing Directorate of the Akdeniz District Municipality, must be carefully analysed by other cleansing directorates on own behalf.
- System betterment approaches ought to be undertaken in administrative, managerial and operational activities based on more purposefully mobilisation and organisation of personnel, vehicular and instrumental means as well as monetary resources. In this respect, efficiency criteria must be primarily referred by the cleansing directorates for internal evaluation and self-criticism.
- Unit costs of contracted services should be more precisely assessed, particularly by the Cleansing Directorates of the Akdeniz and Toroslar District Municipalities, for undertaking more refined and detailed calculations on costs and benefits of privatisation and contracting.
- A joint symposium of the municipalities in Mersin must be organised in order to assess the positive and negative aspects of privatisation of SWM services as well as to prepare policy recommendations and guidelines for practitioners.
- Since comparatively advance level of privatisation has reached to a certain maturity in Mersin, critical discussions at serious and pluralistic platforms should be initiated in following subjects within context of a “quest for paradigm” mentality:
 - Social security of the labour force employed in contracted SWM services,

- Accomplishment of SWM services under Municipal Economic Enterprise status,
- Requirements for integrated contracting of SWM services,
- Requirements for BOT based approaches in SWM.

Supplementary Guidelines:

- For more efficiency in SWM, all three district municipalities in Mersin, but particularly Akdeniz and Toroslar, should look after further intensification of inter-directorial collaboration and horizontal co-operation.
- Inter-directorial linkages should be particularly intensified in personnel recruitment, accounting and financial management for more effective administration of services, since re-organisational approaches within the municipalities are not preferred.
- The Cleansing Directorates of the district municipalities should be more actively involved in and informed about financial matters of SWM services.
- For the fulfilment of financial monitoring requirements, a transparent accounting system should be developed, which is based on the computer networks of the district municipalities, however with first priority in Toroslar.
- Organisation of logistic services encompassing maintenance and repair must be comparatively reviewed by privately served Yenisehir District Municipalities and municipally served Akdeniz and Toroslar District Municipalities, in order to identify, whether some steps towards more rationality could be undertaken by alternative managerial and / or political approaches.
- Beside promoting current inter-municipal collaboration running at modest level, more effort should be devoted for establishing fruitful external collaborations with other local governmental, non-governmental, private and semi-private agencies, which are currently very elementary for consensus building at some vital and strategical decisions concerning SWM in Mersin. .
- Serious discussions and elaborations should be internally held by individual cleansing directorates oriented towards assessment of long range needs and identification of strategical aims for SWM in respective municipal district of Mersin.
- Endeavours supported by legal consultations should be confined on development of formal procedures in form of supplementary circulars and instructions accepted and implemented by all district municipalities in Mersin, in order to eliminate the legislative gaps in waste collection and transport activities.
- The appropriateness of the municipal economic (municipally owned) enterprise status as an alternative for the current status of cleansing directorates for the management of solid waste services in Mersin should be discussed in depth with identification of protective instruments for political corruption.
- Due attention should be paid for prevention of potential conflicts with privately employed manpower in contracted solid waste management services

pertaining to the fulfilment of the requirements of the judicial provisions of Labour Law on social security.

- All cleansing directorates of the district municipalities in Mersin should try to be more documentary and formal in informative and instructive transmissions.
- The contract should not be the only source of reference for monitoring of SWM services. A manual has to be immediately developed for private and municipal personnel in this respect.
- More effort should be given by district municipalities for preparation and offer of human resources development and personnel training programs, not only for operations of field staff but for administrative and managerial duties of office staff, as well.