



Turkish Court of Accounts

Waste Management in Turkey

**National Regulations and
Evaluation of Implementation Results**

**Performance Audit Report
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Executive Summary

Presentation

1. As is seen in the whole world, rapid urbanization and population growth in parallel with technological developments and industrialization is increasing the pressure of human activities on environment in Turkey. While the growth in production and marketing during this process makes excessive use of natural resources inevitable, wastes produced due to increasing trend of consumption have reached to threatening levels due to their quantity and hazardous contents. On this account, in parallel with the environment consciousness rising all over the world, the protection of environment has become one of the major priority policies of countries and waste management has taken a major field among the environmental protection policies of all countries. Aiming to prevent rapid consumption of natural resources and to settle the problem of wastes resulting from production, marketing and consumption activities through converting them to economic asset, the waste management strategies form the basis of “sustainable development” approach that has been gradually adopted all over the world as a prioritized policy objective.
2. In Turkey, waste management has been the subject of a number of legal arrangements starting from 1930s. Since then, the number of institutions assuming role in the environmental field has increased. However, the fields of authority and responsibility of the existing institutions were not changed, while establishing the new ones and this has resulted in overlapping powers. Moreover, the lack of an effective coordination and cooperation among relevant institutions has weakened the operability of the system. With the effects of such factors as weak financing support and inadequate knowledge and equipment, it has not been possible to establish a sound waste management system up until now.
3. Despite the fact that development of waste management system should have a prominent place among national environmental policies and sustainable development strategies; in Turkey, this field is not ranked within the prioritized policies and the arrangements, plan and projects prepared with a view to strengthening the waste management capacity have not been materialized. Although it is a legal obligation and there are international commitments in this regard, “National Waste Management Strategy” paper of Turkey and related regional and local waste management plans have not been prepared as yet.



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4. The arrangements made in this regard have not been reflected mostly in the implementations and the institutions do not show decisiveness in the fulfilment of the requirements posed by their roles and responsibilities, and all these lead to the accumulation of the problems and delays in the efforts dedicated towards finding solutions. All in all, there is an unfavourable waste picture inconsistent with Turkey's level of development and socio-cultural structure.
 5. One of the most problematic areas in Turkey in terms of harmonization with EU is the environment. Environment, which is one of the most comprehensive fields of EU Acquis, is seem to be the most challenging field in Turkey's accession process in conjunction with the field of agriculture. Waste management, which is necessary for harmonization with environmental Acquis, is among the costly fields. With a view to harmonizing with the EU Acquis in this field, several projects have been conducted with the technical and financial support of EU. Major steps have been taken within the framework of these projects in terms of harmonization of Turkey's legislation both with EU Acquis and international standards and in terms of the establishment and planning of the necessary actions to be taken within mentioned process. The work in this regard is progressing steadily.
 6. Although a sound inventory about wastes does not exist, 34 million tons of municipal waste and 17.5 million tons of industrial waste are produced in Turkey according to 2004 statistical figures of Turkish Statistical Institute (TURKSTAT). Accordingly, the amount of wastes produced per person reaches to 2 kg daily and each person produces waste equal to 10 folds of his/her weight.
 7. When we look at best practices in developed countries, we can see that only 35-45% diversion of all waste is disposed into landfills; the rest of the waste is recycled and transferred to an economic asset. More than half of the waste generated could be reused and recycled, and transformed from a problem into an asset. However, it is a well-known fact that the rates of recycling are very low, although there are no hard data in this area. Since a sound waste management infrastructure is not established in Turkey, each and every year, millions of tons of natural resources, the employment opportunity for thousands of people, a wealth of millions of dollars are wasted and the revival capacity of environment is rapidly exhausted.
 8. Although development of a waste management and strengthening its implementation capacity require high costs, we should bear in mind that the cost of non-investment in this field would be higher. Where an effective waste minimization and recycling cannot be ensured; the resulted waste mountains shall threaten the environment and human health. This shall in turn exhaust the means of life in the environment through putting pressure over the recycling capacity of environment. Likewise, if such investments were not made, the establishment of new and more distant storage areas in replace of rapidly shrinking ones would be necessary. The investment to the rehabilitation of the old storage areas which are gradually left inside the urbanized settlement areas, the increase in the costs for the construction and operation of the new ones and of the shipment of wastes shall require higher costs than the cost of the investments to the environmental-friendly technologies, recycling activities etc. Furthermore, the indirect costs such as the effects of air, earth and water pollution on human health should be taken into account. In some of the researches conducted within this framework, it is found out that the output of the investments aiming environmental protection can reach to four fold of the cost of investment.



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9. Strengthening waste management has a vital importance for ensuring sustainable use of natural resources and protection of environment and human health, and it is a fundamental factor to ensure a better quality of life for present and future generations. For this reason, first the public and private organizations and then all parts of the society should contribute and be self-sacrificing so as not to allow waste mountains to capture the nature and to establish a waste management system suitable for Turkey.
 10. In this audit report; mainly the scope, objectives and instruments of the national waste management strategy of Turkey, which is based on a number of legal arrangements, international agreements, national plan and programs etc. and its success in implementation shall be evaluated and several recommendations shall be put forward in the areas required to be improved.
 11. In this report; after looking at main sources of national waste management strategy and efforts to improve it, the policies that Turkey implements and their success shall be handled in Part 2 in context of waste prevention, recovery and landfill of non-recoverable waste, and sanctions for improper activities which are main elements of an integrated waste management strategy. In Part 3, the activities of Ministry of Environment and Forestry, the number of which has considerably increased affected by EU Membership process, are reviewed and the actions to be taken in order to eradicate the effects of long term neglect and to keep pace with the EU standards are discussed.
 12. Since Ankara is the capital and the second biggest city of Turkey, and it has chronic problems with regard to waste management, the local reflections of national strategy is assessed by reviewing the waste management implementations in Ankara based on the activities of Ankara Metropolitan Municipality and Province Management of Ministry of Environment and Forestry.
 13. By taking the findings detected in the previous parts into account, Part 5 is focusing on measures that should be taken in order to improve waste management strategy and to strengthen the implementation capacity.
 14. Appendix 1 shows the methodology applied in this study.



Main Findings and Recommendations

Findings

15. There are a number of arrangements for the protection and improvement of environment in the Constitution and in many laws. The number of such arrangements is increasing as the importance attached to environment is increasing. The arrangements on waste management constitute one of the most comprehensive parts of Turkey's environmental legislation. At present nine regulations in the field of waste management are in force and all of them were improved and updated or rearranged within the scope of various projects and with the aim of harmonizing with EU Acquis (paragraph 1.13-1.21).
16. Despite the fact that legal arrangements and other national plans and programs form a sound basis for waste management strategy; a strategy paper establishing the objectives, main principles and policies of waste management and the tools necessary to achieve these has not yet been prepared. However, both the national legislation and development plans, the international commitments and the EU Directives; the requirements of which Turkey has to fulfil within the context of harmonization to EU, require the preparation and implementation of strategies and plans on the national, regional and local levels (paragraph 1.22, 5.26-5.29).
17. That the authorities and responsibilities in the field of waste management are distributed among several institutions and organizations renders cooperation and coordination among them important. However, in practice, there is no sufficient cooperation and coordination among the institutions and organizations, especially the municipalities, which are responsible for providing technical and financial support, monitoring and follow-up, issuing permits and licenses and ensuring coordination in the field of waste management. Thus, effective and steady provision of such services in accordance with certain standards and in a way that is not to give harm to environment has not been possible (paragraph 1.2, 1.55-1.58).
18. In the core of the problems related to waste management, there exists the inadequate institutional and technical capacity of responsible institutions and organizations. That the Ministry of Environment and Forestry does not have adequate institutional structure and implementation capacity is stated in the outputs of various national and international studies (Part 3).
19. As the main implementers in waste management, the municipalities do not have adequate institutional capacity in this field. Since the municipalities deal solely with waste collection and shipment and these services are outsourced to private companies, there exists no arrangement for waste management in their administrative structure. On this account, a mechanism that is to ensure effective implementation of audit and monitoring, development and rehabilitation of existing infrastructure in accordance with contemporary standards cannot be established. Despite the fact that the establishment of waste management units under municipalities is envisaged in Development plans and other national plans and the National Program; even in Ankara, which is the capital city and the second largest city in Turkey, a separate waste management unit has not been established under the Ankara Metropolitan Municipality. This service is under the responsibility of a headship affiliated to



Küŕat Directorate under Department of Purchasing despite the chronic waste problem in Ankara (paragraph 4.27-4.30, 5.9).

20. With a view to developing the waste management system and strengthening its implementation capacity; various studies have been conducted since the establishment of the Ministry, however, the stability in the studies could not be maintained. Thus, many of them remained incomplete or those that were finalized were not implemented. The studies that were not finalized or implemented have been continuously repeated and they have resulted in duplications, inefficiency and eventually the objectives have been postponed. Since 1995, the scope of many projects financed by international agencies and carried out by the Ministry of Environment and Forestry and municipalities were solely composed of situation analysis, feasibility studies, recommendations concerning what should be done, and in terms of realization of these recommendations, no further progress was achieved (paragraph 1.41-1.54).
21. Another important problem with regard to waste management is that the will for implementation remained restricted. With various regulations and laws enacted at different dates, it was not possible to realize the arrangements such as "National Environmental Action Plan". The lack of adequate organizational and technical capacity made it unavoidable that such arrangements remained merely as written text (paragraph 1.34-1.36, 5.4).
22. It is understood that a mechanism to meet the necessity of high quality data, which is of great importance in the formulation and implementation of waste management policies has not been established as yet. The duty to prepare an inventory falls under the responsibility of various units of the Ministry, however it is seen that in practice, none of them has achieved a noteworthy success. However, the protocol signed with TURKSTAT and construction of an electronic database for hazardous wastes indicate that the shortcomings of this area will possibly be eradicated in the short term (paragraph 3.1-3.5).
23. Monitoring and control activities of the Ministry aiming to decrease the environmental damages of wastes have remained at a very limited level. The audit activities of central audit units are limited with a few provinces and facilities (approximately 20 to 25) annually and these audits, which are conducted after notifying the auditee before audits, generally result in no sanction. Thus, it is not possible to say that the audits are effective. The audit activities carried out by the provincial directorates and the sanctions imposed following these audits varies clearly from one province to another and according to years based on the factors such as the number and the qualifications of the technical personnel working under these units, the approaches of high administrators including the head of civilian administration. For instance, while five provinces including Çorum paid 50% of the fines imposed in 2004, in 17 provinces among which were large provinces, no fine was imposed at all. Likewise, it is considerable that the amount of fine paid by Ŗırnak, a relatively small province, is two folds of the fine imposed to Konya, a big province that comes first in the environmental pollution among the provinces (paragraph 2.67-2.68, 3.39-3.43).
24. In the financing of waste management, all costs should be covered by waste producers as required by the principle of "polluter pays" and the instruments to ensure this should be provided. However, effective implementation of this principle has not been possible since that the cost factor is not considered in pricing waste services, the infrastructure is inadequate and audit and monitoring activities are limited. This situation makes difficult the effective



implementation of fundamental environmental principles such as waste minimization, recycling and healthy disposal. Encouraging the use of environment-friendly technologies or discouraging waste practices polluting environment cannot be ensured properly (paragraph 2.48-2.62).

25. Solution to the chronic problems of waste management neglected for years and still shelved requires large-scale investments with high costs. Firstly, the number of regular storage areas, which are only 16 at present, should be increased immediately and the current wild dumping sites should be rehabilitated under a program as soon as possible. However, municipalities do not have resources to afford these costs and no tools such as taxes or fees through which they can cover waste management costs from the polluters in accordance with the universal principle “polluter pays” which is also added to the legislation (paragraph 1.4, 2.48-2.52, 5.11).
26. Despite the fact that separation at source and recycling activities form the basis of waste management policies, these activities are conducted at a very low level in Turkey. In fact, the legislation in force holds all production, distribution and sale units as well as final users including households responsible for separation at source and envisages criminal sanctions for illicit acts. Even the disposal of wastes other than organic wastes to regular storage areas is banned by this legislation, and in a sense, it obliges recycling. Despite this, recycling is realized mostly by street-collectors in a very unhealthy way; the production and distribution firms responsible for recycling generally fulfil their notification liabilities (quota) through financing street-collecting system instead of directly undertaking recycling responsibility (paragraph 2.16-2.24).
27. İZAYDAŞ, which is the unique hazardous waste treatment facility in Turkey, can only dispose 7% of hazardous wastes. Hazardous wastes left to nature with no control or disposed to municipal dumps together with household wastes create a serious threat to the environment and human health. Infected wastes are directly disposed to municipal dumps generally without any treatment except from some examples of good practices at some provinces. Medical wastes, which are the sources of infection on their own and have high risk of contagious diseases, especially the Hepatitis and AIDS are in generally dumped to municipal waste storage areas without due care and any treatment excluding certain good practices of big provinces (paragraph 2.38-2.47).
28. In parallel with the growth of environmental consciousness in Turkey, an awareness has been created in terms of environmental protection and establishment of a sustainable waste management. This sensitivity constitutes a strong assurance that is to ensure the participation of all segments of society in the development of a sustainable structure without any delays in finding solutions (paragraph 3.24-3.30).
29. The research and development activities directed towards strengthening social and cultural infrastructure required in the area of waste management and the training and studies aiming to create public awareness are at a very limited level. Thence, limited level of consciousness within the society and waste generators, and the restricted number of voluntary contributions are among the foregoing impediments in the implementation of an effective waste management.



Recommendations

30. For solution to the problems of waste management, initially organizational capacity should be developed. The institutional capacity of the Ministry, the control and reporting infrastructure should be strengthened and coordination among the concerned institutions and organizations should be maintained, research and training activities should be given more ground. Through strengthening the administrative and technical capacity of the provincial units of the Ministry, these units should be ensured to perform monitoring and deterrent functions.
31. As the fundamental implementing institutions, the financial, institutional and technical capacities of the municipalities should be strengthened. By taking the type and the population of the provinces into consideration, the Ministry should ensure establishment of model waste management units and determine the standards which shall be applied in the operation and structuring of these units. The activities, which have vital importance in terms of environmental protection and human health and for the common future of humankind, should not be permitted to be managed by the irrelevant and unauthorized units (paragraph 5.9-5.11).
32. Legislation on waste management should be improved particularly to strengthen implementation. Waste management plans at various levels required by legislation and by international commitments, which will constitute the main framework of an effective waste management should be prepared and put into effect. Similarly, priority should be given to the improvement of the manuals that will have a major role in strengthening the implementation capacity covering also good practices and international comparisons (paragraph 3.10-3.13, 3.37-3.38, 5.26-5.31).
33. Measures should be taken that will ensure permanent and functional flow of information among organizations and entities having authority and responsibilities at different levels in the field of waste management. The Ministry should set up necessary related mechanisms and take measures to ensure institutionalization of cooperation and coordination. For a strong coordination and cooperation, distribution of powers and duties among fewer institutions, solving the problem of overlapping powers and excessive disorganization in the distribution of powers stemming from previous arrangements shall bring great benefit. The relevant legislation should be reviewed and summarized so as to eradicate unnecessary duplications and overlapping powers. This shall pave the way for more effective functioning of institutions and more rational utilization of national resources (paragraph 5.13-5.17).
34. Monitoring and control activities should be expanded and carried out in a more effective manner. To this end, the central and local Ministry's audit capacities, which are currently very limited, should be promptly strengthened and obstacles before efficient functioning of sanctions should be removed in order to render the audit function effective. It should be ensured that authorized and responsible institutions, primarily the municipalities have a more effective role in audits and that an effective coordination and cooperation in the field of audit be set up among them (paragraph 3.39-3.43, 4.9-4.17, 4.35-4.37).
35. Environment friendly technologies should be encouraged in production processes and environment oriented investments should be supported, and in this way, reduction of waste should be encouraged. By encouraging



environmental investments, necessary measures should be taken to prevent unfair competitions of industrialists who do not allocate resources for such investments (paragraph 2.5, 2.7, 3.7).

36. Number of pilot projects encouraging recycling and collection of wastes separately at their source should be increased and this practice should be expanded immediately in all provinces. For this purpose, the Ministry should provide support to the development of necessary technical and socio-cultural infrastructure. Instead of practicing quota for recycling packaging wastes, practice of deposit should be adopted widely, which will ensure a higher level of recycling rate (paragraph 3.23, 3.27-3.29, 5.35-5.38).
37. In order to prevent discharge of most hazardous wastes that cause a very close and widespread danger for people and environment, at natural sites or at municipal dumps, urgent measures should be taken by highlighting the liabilities assumed by the private sector as being the producers. Management of hazardous wastes should not be assumed by municipalities but by industrialists and industrialists should be encouraged to settle this problem by establishing waste disposal systems in an organized manner. This will ensure settlement of the problem shortly and more effectively (paragraph 2.53, 2.59, 5.12).
38. A national action plan should be prepared for rehabilitation of the current irregular storage areas and the priorities should be listed in this regard so as to take an immediate step. Resources should be planned to cover high costs of rehabilitation of the current storage sites as well as establishment of new ones. Through considering that this problem shall cause irrevocable costs in terms of environment and human health; a resource planning should be made for the high costs required to rehabilitate the existing wild storage areas and if necessary, to rebuilt new ones (paragraph 5.22-5.24).
39. The amount of investment Turkey needs for harmonizing with EU environmental directives is calculated as 60 billion Euros by the Ministry and in this context, projected shares of public and private sector are formulated. It is of great importance that national and international financing resources are used effectively in financing these investment needs due to their high costs. Moreover, strategies enabling effective use of EU funds should be established to meet financing needs. Similarly, an action plan should be prepared in order to ensure that both the public and the private sector fulfil their liabilities within the framework of a certain schedule (paragraph 2.53-2.57).
40. In terms of legal arrangements, good practices of developed countries should be benefited in the implementation of relevant actions in addition to EU regulations. Various experiences such as public awareness campaigns in modern countries and tools used for improving the efficiency of relevant practices should be benefited as well and international comparison should be used as a method to develop the most effective management model (paragraph 5.38).
41. Development of a modern and effective waste management system cannot be achieved only by the support of public institutions and organizations or through the efforts of industrial and commercial establishments. All segments of society are responsible in this field. Thus, participatory policies should be developed so as to maximize the support and contribution of institutions and organizations such as non-governmental organizations, professional unions, educational establishments, academic institutions, media, etc. (paragraph 5.43-5.48).



Part I: General Framework of National Waste Management Strategy

Introduction: A General Overview on Turkey's Waste Management Problem

- 1.1. Rapid urbanization and population growth in parallel with technological developments and industrialization is rapidly increasing the pressure on environment exerted by human activities. Responding to unlimited human needs on higher levels with the help of technology makes it inevitable for the environment and human health to be faced with serious threats as the natural resources are increasingly destroyed and each product manufactured is finally transformed into waste. Both in the production and marketing phases, through minimizing the production of waste materials, the excessive pressure on the natural resources should be prevented; of course in the consumption phase, the production of wastes should be minimized and the remaining waste materials should be recycled and transformed from waste to an input to the economy. This is the main priority policy objective increasingly adopted all over the world, which is called as “sustainable development”, and in this approach; the concept of sustainable waste management is of great importance.
- 1.2. In Turkey, waste management has been a subject of legal arrangements since 1930s and municipalities are assigned as the main implementation authority. The tasks of policy making and directing the implementation at national level, which was initially within the mandate of the Ministry of Health, are today carried out by the Ministry of Environment and Forestry. However, it is a well-known fact that several bodies and institutions share authorities and responsibilities in this area and that this causes overlapping powers and duties in the fields such as determining standards, principles and policies related to environment, monitoring illicit acts and punishing them.
- 1.3. According to TURKSTAT data for the year 2004, the quantity of solid waste collected by municipalities is 34 million tons annually. Daily amount of solid waste per capita is 1.34 kg on average. Quantity of waste produced by manufacturing sector is annually 17, 5 tons the biggest part of which is



recycled for the year 2004, so in total daily quantity of waste per capita reaches 2 kg on average. Namely, on average each person annually produces waste nearly ten folds of his/her own weight.

- 1.4. Household waste is usually dumped to the landfills directly without any operation. Although the number of municipalities in Turkey has reached to 3225, there are only 16 sanitary landfills according to data obtained from the Ministry of Environment and Forestry. While 34% of the waste is dumped to these landfills, 66% of it is dumped to forests, lakes, rivers, seas or open spaces.
- 1.5. According to recent data (2004) of TURKSTAT, only 100,000 tons (5%) of approximately 2 million tons of hazardous waste produced annually is incinerated or landfilled properly by İZAYDAŞ, the only hazardous waste disposal facility of Turkey. Considering that 40% of the hazardous waste is recovered, it is obvious that remaining part of waste is dumped to the landfills together with household waste or directly left to nature in a way that causes big threats to environment and human health.
- 1.6. Basic requirements of a sound waste management are prevention of waste production in the first place, than separation of wastes that are produced at source, adding value to economy through recycling, and in this way waste minimization and landfilling in a way that gives no harm to environment and human health. In order to recover these requirements; a serious transformation must be materialized.
- 1.7. Half of the waste we generate can be reused and recycled, and transformed from a problem into an asset. Hence, considering the additional capacity brought by waste, which is a rich source for production, in the areas such as employment, etc, the big potential of recycling for the enrichment of national welfare should not be underestimated.
- 1.8. When recycling activities become widespread, the financial load over the municipalities will be reduced since they have to allocate 40% of their budget for the waste management according to data obtained from the Ministry and also they would be able to generate income from recycling activities in that case.
- 1.9. The chapter of environment is among the most challenging areas in the accession negotiations with EU. Environmental protection is among the main priorities of EU, it constitutes one of the most comprehensive parts of EU Acquis, which is regulated nearly by 300 Directives, and regulations. Within the scope of the projects conducted via the financial and technical support of EU in the accession process, Turkey's legislation has been mainly harmonized with EU Acquis. However, there are serious problems encountered in the implementation of these arrangements due to inadequate infrastructure, institutional and technical capacity weaknesses, etc.
- 1.10. Turkey falls behind the point where it should be in the areas from establishing the public awareness for waste management, to strengthening the institutional capacity; from punishment and encouragement system, to covering the educational needs. However, it has achieved a great deal of permanent and rapid progress in the harmonization process to EU Acquis and has taken important steps in various fields.
- 1.11. In Turkey, an effective and sustainable waste management system has not been established as yet. Among the reasons for this are as follows:



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- First, the waste management system is not a priority policy area.
 - Waste management does not have an established institutional infrastructure authorized at both national and local levels (see paragraph 4.7-4.11, 4.24-4.30, 5.7-5.12).
 - Although duties and powers are distributed among many institutions and organizations, there is inadequate coordination and cooperation among them (see paragraph 1.55-1.58, 5.14-5.16).
 - Adequate resource is not allocated to waste management (see paragraph 2.48, 3.7, 3.23).
 - Taxes and fees collected in return for the services are not adequate (see paragraph 2.48-2.52).
 - Since this problem has been neglected for many years, both the needs of today and the ones coming from past create pressure over environment.
 - The infrastructure facilities and the existing technical capacity are restricted and most of them are not modernized
 - Legal arrangements prepared in accordance with the EU norms and international standards cannot be reflected when it comes to implementation
 - The audit and monitoring activities are inadequate and there are no effective sanctions against the contradictory actions (see paragraph 2.60-2.69, 3.32-3.43).

Figure 1: Wastes spoiling the beauty of blue and green



1.12. Turkey should show more sensitivity in the fulfilment of her liabilities on environment and take serious steps in the field of waste management in



order to strengthen her position and obtain more shares from the world trade in the globalizing world.

Waste Management in the National Environmental Law

- 1.13. The fundamentals of waste management strategy which consist of principles, aims and objectives, policies and tools for implementation established at national level with a view to ensuring a sound and sustainable waste management system are the Constitution, laws and implementing regulations, international conventions, national plans, programs, etc.
- 1.14. There are a number of arrangements for the protection and improvement of environment in the Constitution and in many laws. The number of such arrangements is increasing as the importance attached to environment is increasing. The arrangements on the waste management constitute one of the most comprehensive parts of environmental legislation.
- 1.15. The beginning of legal arrangements related to waste management in Turkey goes back to very early years. Two laws that came into force in 1930, the Municipality Law no: 1580 and General Health Law no: 1593 include some provisions on collection and landfill of waste, measures to be taken to protect human health etc. In many legal arrangements made until today, there are provisions directly related to waste management or provisions indirectly related to the protection of environment and human health.
- 1.16. The Constitution of 1982 establishes some objectives regarding environmental protection and it has a provision that "Every citizen is entitled with the right to live in healthy and stable environment." in its Article 56.
- 1.17. The Environmental Law No: 2872 dated 08.11.1983, which has a nature of being a framework law, puts forward the rules and principles for the environmental protection, defines the responsible and authorized institutions and organizations, determines the processes for the implementation and establishes the punishments for the improper acts and the liabilities of the concerned within the framework of the principle "polluter pays".
- 1.18. The Turkish Criminal Code and Law on Minor Offences envisage criminal sanctions for waste management approaches that create environmental pollution. Likewise, in the laws regarding municipality administration, fundamental provisions on waste management were added. Basel Convention on the Control of Transboundary Movements of Hazardous Wastes and their Disposal, which Turkey is a party to, include provisions on waste management.
- 1.19. On the level of secondary legislation, the Solid Waste Control Regulation dated 1991 establishes the general framework of waste management system. This regulation requires the reduction of waste production as far as possible, separation of recoverable waste at its source and recycling the valuable wastes for the economy, disposal of non-recyclable wastes by means of environment-friendly methods.
- 1.20. The Regulation on the Control of Hazardous Wastes prepared based on the Environmental Law and the Basel Agreement with a view to establishing a hazardous waste management system, came into effect in 1995 and this



Regulation was rearranged and harmonized with the EU Acquis in 2005. Separate control regulations were established for packaging and packaging wastes, waste oils, medical wastes, construction and excavation wastes and used batteries and accumulators (Implementing Regulations and communiqués regulating waste management are shown in Annex 2).

- 1.21. With the amendment made to Environmental Law in 2006, concrete arrangements with regard to financing of waste services were introduced, the scope of fines for waste practices causing environmental pollution was extended and their amounts were increased considerably. Especially, tough sanctions were envisaged for those municipalities failing to fulfil its liabilities.
- 1.22. Nowadays, the waste management strategy of Turkey is in general framed with several laws and secondary legislation, which are directly or indirectly related with the arrangements about waste management. However, the complete harmonization of the national legislation with EU Acquis and international standards and especially the new arrangements ensuring the implementation of the principles and policies coming from the existing arrangements are needed. In this framework, necessary arrangements should be made so as to ensure the harmonization of EU legislation that has not yet been harmonized with the national legislation, encouragement of environmental-friendly technologies, full implementation of the principle of polluter-pays, the waste producers fulfil their liabilities, especially with regard to waste minimization and recycling.

European Union Acquis and Waste Management

- 1.23. The issue of environment that is increasingly gaining importance in EU constitutes the most comprehensive part of EU Acquis and approximately 300 regulations and directives arrange it. The main principles adopted by the Acquis in the field of environment are the integration of the environmental protection with other community policies (supplementary principle), the aim of environmental protection on the highest level by all of the EU institutions, taking measure without seeking for concrete evidence in the case of serious suspicion (the precaution principle), prevention of the damage before it actually occurs, prevention of the environmental damage firstly in its source and the principle of “polluter pays”.
- 1.24. The “waste management hierarchy” and the principle of “producer responsibility” constitute the basis of EU waste management policies. The primary priority in this hierarchy is the waste prevention on the production stage and reducing quantity and the degree of hazard of the waste materials. Reusing, recycling and recovering by generating energy are the secondary stage and incineration of the non-recyclable wastes without harming environment and landfilling are the last steps.
- 1.25. The principle of “producer responsibility” envisages the recovery of all kinds of costs resulted from wastes by the producers themselves and thus this principle is a reflection of “polluter pays” principle. Other principles are self-sufficiency on the country and community levels, utilization from the most economic technologies among the appropriate ones, disposal of wastes to areas as near to its source as possible.
- 1.26. Among the directives that constitute EU Environmental Acquis, 14 of them directly regulate waste management. Two of the directives are binding for the



member countries; however, members are obliged to harmonize their legislations with other directives. On this account, despite the fact that these directives are binding for the member countries as a rule, they are also binding for the candidate countries like Turkey and bringing heavy responsibilities to Turkey as well as the member countries.

- 1.27. One of these directives, the Directive on the Landfill of Wastes (1999/31/EC), defines the technical conditions for regular landfill of wastes. It aims to eradicate or to decrease the negative effects of landfilling activities on the environment as far as possible and stipulates the general terms and conditions regarding the location, design, monitoring and after-care of landfills. With a view to decreasing the amount of the biologically decomposable urban wastes, quantity of the wastes to be landfilled is aimed to be decreased by 75% in 2006, 50% in 2009 and 35% in 2016 by taking the quantities of 1995 as basis; heavy punishments are envisaged for those countries that can not realize this objective. The directive specifies that, by the year 2009, existing landfills operating at the time of transposition should be upgraded according to a conditioning plan to fulfil the requirements of the directive or be closed down according to the closure and aftercare procedures specified in the directive. Without any doubt, these liabilities require high-scaled and high-cost investments as well as additional institutional and technical capacity.
- 1.28. Some EU Directives have been adapted to the national legislation and studies are still going on for the adoption of the remaining ones. In the waste sector, with the adoption of the implementation regulations on the packaging wastes, hazardous wastes, used batteries and accumulators, waste mineral oil, waste vegetable oil and medical wastes, a substantial progress has been made in the adoption of the EU legislation on waste management to the domestic law.
- 1.29. Since the harmonization of the legislation with the directives concerning Waste Framework, Waste Catalogue, Waste Handling, Incineration and PCB/PCT was not finalized in 2005 in accordance with the calendar specified in the national program; it was envisaged to be finalized until the end of the year 2006. However, studies for harmonization could not be finalized in this period either. The working groups have been established for the harmonization of the Waste Framework, Waste Handling, PCB/PCT and Life-expired Vehicles Directives, Waste Electric and Electronic Equipments and RoHS Directives in the form of Implementing Regulations; also, the draft regulation studies are still going on.

Waste Management in National Plan and Programs

- 1.30. The national and international fundamental documents such as the Five-Year Development Plans, National Environmental Action Plan, and National Program for the Adoption of the EU Acquis covers the objectives and policies concerning waste management as well.
- 1.31. Although the environmental topics have been given more place in the fifth five Five-year National Development Plan covering 1985-1989; the issue was not handled under a separate title. In the Sixth Five-Year Development



Plan (1990-1994); the waste management issue was handled under a separate title. Some objectives and policies were determined such as supporting the municipalities in the establishment of joint solid waste disposal facilities, the principles concerning the selection of location for regular landfilling, and operational principles, the separate disposal of medical wastes, production of landfilling tanks for the liquid wastes of the nuclear waste units.

- 1.32. In the Seventh Plan, several policies are determined such as the preparation of national environmental strategy, harmonization of the environmental legislation with EU and other international standards, giving support to the local administrations, support of waste minimization and recycling operations, prevention of all types of waste import. Moreover, it is underlined that capacity building in the field of waste management shall be attached higher importance.
- 1.33. In the Eight Plan (2001-2005), some objectives, principles and policies have been determined such as source separation, raising awareness in the households, revisions in legislation, increasing the amount of environmental clear up tax to the level sufficient for covering the costs, planning and implementation of waste management by one single authority in the Metropolitan Municipalities. The Solid Waste Commission, which is one of the 100 Specialized Commissions served in the preparation of the plan, put forward the following recommendations in its report:
- Giving priority to reduction of the wastes generated, for this purpose making changes in the content of school books,
 - Increasing the institutional efficiency of local administrations,
 - Increasing the quantity of the materials recovered to the industry via recycling, advertising campaigns in order to ensure the consumption of recovered productions,
 - Maintaining the separation of solid wastes at the source,
 - Waste disposal on regional level,
 - Preparation and implementation of a “National Solid Waste Disposal Master Plan”,
 - Making necessary legal arrangements for waste disposal by “built-operate-transfer” model.
- 1.34. The National Environmental Strategy and Action Plan (NEAP) prepared with the support of the World Bank was put into effect in 1998 and it mainly includes the following policies:
- Attaching importance to waste minimization, recovery and recycling and developing technologies accordingly,
 - Improving the situation of old waste disposal facilities,
 - Making investments to regular landfill and disposal of hazardous wastes, and selection of reasonable and appropriate technology,
 - Creating national and regional waste stocks,
 - Strengthening local capacity which is inadequate in terms of financial resources, equipment and personnel, (The municipalities should be strengthened with a view to generating income, increasing coordination



of the actions and measuring the performance.)

- Establishing a “Waste Management Unit” with a special budget within Metropolitan Municipalities,
- The control/annihilation of hazardous and medical wastes, dealing with private participation at regional level, establishment of regional hazardous waste units,
- Besides the local and regional administrations, establishing an institutional structure at national level to support technology development alternatives.

1.35. NEAP has not been completely implemented so far. Although in the 8th Five-Year Development Plan, it is stated that NEAP shall be updated and put on the basis of a legal framework and sustainable development indicators shall be improved in order to monitor its implementations; these are not realized either.

1.36. In the National Agenda 21 paper dated March 2000, it is stated that effective and permanent measures shall be taken for the prevention of environmental pollution and the infrastructure services necessary in the fields of solid waste landfill and disposal shall be immediately fulfilled. In the National Agenda 21, the policies and objectives such as waste minimization, increasing the ratio of recycling, encouraging the producers and consumers, increasing the contributions of private sector, strengthening municipalities, creating public awareness, which are covered in NEAP as well, are focused on.

1.37. In order to begin to transpose and implement Acquis related to waste management, a short term priority in the Accession Partnership Document, and to complete the transposition of the Acquis and strengthen the institutional, administrative, and monitoring capacity to ensure environmental protection including data collection; a medium term priority, increasing the effectiveness of waste management is designated as a priority. Under the title “environment” of the document, approve of a harmonization program for the adoption of EU Acquis and development of plan for each year based on the public and private financing resources and the forecasted harmonization costs in order to finance the investments are envisaged. Within the scope of various projects, the estimated investment costs are put forward.

1.38. In the National Program for the Adoption of the EU Acquis (2003), especially the harmonization of existing legal arrangements with EU standards is underlined and in the case of integrated waste management, under the title of “The Institutional Restructuring Calendar for the Harmonization and Implementation of the Legislation”, the followings are provided for on condition that they are permanent and initiated as of 2004:

- Strengthening the local authorities (municipalities) in terms of financing,
- Strengthening the local authorities (municipalities) in terms of technical capacity,
- Establishment of a unit in charge of integrated waste management at local authorities (municipalities) and training of the personnel in this respect,
- Building a network in order to maintain access to information regarding the amount of waste, interim landfill, disposal;



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- Construction of a separate landfill system for waste minimization and strengthening recovery systems,
 - Strengthening the infrastructure of the procedures for licensing, the recovery and disposal facilities, employing personnel and training the personnel by means of training the trainers method.
- 1.39. According to the Preliminary National Development Plan, which is an appendix of National Program (204-2006); the aim of the environmental sector are economic and social development and reduction of human effect on environment, protection of natural resources in order to establish healthy living conditions, disposal of domestic and industrial wastes and increasing the effectiveness of the environmental management. The plan finds out that one of the main problems in the field of waste management is inadequate institutionalization and another one is the inadequate infrastructure in waste services and it is stated that institutionalization in the field of environment and increasing the efficiency will be given higher importance. Increasing efficiency in waste management is defined as the priority area and as a precaution. It is noted that creating public awareness among the households as waste generators shall be supported with a view to separating wastes at source and reducing its amount and making it ready for handling in order to provide better solid waste management services and supporting the municipalities in their efforts to strengthen their institutional capacity.
- 1.40. "Turkish Republic National Environmental Strategy" (NEAP) prepared in the year 2006 covering the terms between the years 2007-2023 consists of detailed objectives, and policies on what will be the technical and institutional infrastructure required for the full harmonization by means of adopting EU Environmental Acquis and effective implementation of the legislation, the obligatory environmental improvements and arrangements. The strategy mainly focuses on the activities required to be performed in the EU harmonization process and receives financial support from EU technical and financial assistance. The purpose of the strategy is "to create a healthy environment by taking the economic and social conditions in our country into account and in line with this to ensure harmonization of our environmental legislation with EU environmental legislation." (NEAP submitted to Prime Ministry State Planning Organization has not yet been adopted.)

Projects for Improving Waste Management Strategy

- 1.41. Since 1990s, various projects for development of a waste management system and strengthening the institutional and technical capacity have been implemented through external financing. These projects are mostly implemented by means of technical and financial support of World Bank and the EU, and have contributed to the efforts to determine the steps that should be taken for the compensation of the shortcomings and deficiencies found out by comparing the existing state of Turkey with the optimal one.
- 1.42. In the first part of the Turkish Solid Waste Management Project initiated in January 1995 and finalized in February 1996 financed by the World Bank METAP (Mediterranean Environmental Aid Program), the development of a national solid waste management strategy in Turkey was aimed. In the final



report, establishment of a unit called Solid Waste Control Administration under the Ministry, which would have the responsibility to make policies and objectives in the field of solid waste management, planning the implementation programs and priorities and composition of a high committee under the title of “Solid Waste Negotiation Committee” with the chairmanship of the Ministry of Environment and the representatives from the relevant central administrative units, municipalities, voluntary associations and private sector, establishment of regional waste management administrations, privatization of the waste management services and increasing the participation of the private sector were the recommendations.

- 1.43. The second part of the project comprised of the implementation study of solid waste pilot project at Trabzon-Rize Provinces shoreline. In this study initiated in October 1995 and finalized in May 1997, determination of a common waste disposal strategy for a joint waste landfill area for the provinces Trabzon and Rize and the near municipalities was ensured.
- 1.44. Although more than ten years have passed after the finalization of the first part of this project, which is mainly comprising of a situation analysis on waste management and developing recommendations for the strategy, yet Turkey does not have a “national waste management strategy”. With the effect of the objectives made to the judicial bodies regarding the proposed disposal areas, it has not been possible to implement this project and still the planning process for the proposed facility is going on.
- 1.45. “Strengthening the Institutional Capacity Project” conducted in the period July 1998-May 2000, which is a prolongation of METAP – Turkish Solid Waste Management Project is mainly composed of studies for strengthening the existing, legal, administrative and technical infrastructure in order to establish the necessary infrastructure in the field of waste management. The project focused on the development of a waste management unit under the ministry and the preparation of the technical guides. Nineteen different reports were prepared for technical guides.
- 1.46. Within the scope of “the Project of Hazardous Wastes in the Mediterranean, Aegean, and Marmara Regions” initiated on August 2000 and finalized as of the end of the year 2001; a situation analysis was made and a serial of recommendations were developed. Mainly, establishment of solid waste incineration or landfill facility in four different provinces was proposed.
- 1.47. The Project of Analysis of the Legislation on Environment in Turkey was finalized in January 2002 and financed by EU MEDA program. In the project, the environmental legislation was compared with the corresponding legislation of EU (including the waste management), and the differences were found out. Furthermore, some studies were conducted for the calculation of estimated costs of investments based on the directives, which require heavy investments.
- 1.48. The main purpose of the project on strengthening the Capacity for the Solid Waste Management in Turkey financed by the Life-Third countries program of EU is strengthening the waste management capacity in accordance with EU legislation and ensuring a better coordination among waste management strategies.
- 1.49. Within the scope of EU pre-accession programs, the Project for the Establishment of System for the Collection of the Electric Electronic



Equipment Wastes and Mobile Battery and Accumulator Wastes in Turkey was conducted with the technical support of Holland. It aimed at harmonizing EU Directives with the national legislation. The Regulation on the Control of the Waste Battery and Accumulators prepared within the scope of the project was published and put into effect on 31 August 2004; the Regulation on the Electric Electronic Equipment Wastes is still pending to be published.

- 1.50. Within the scope of the project of Capacity Building in the Field of Environment for Turkey was initiated in 2003 and carried out by the Invest Planners Consortium; investment plans were prepared for the harmonization of the EU Directives, which requires heavy investment. For these investments, the activities such as the feasibility studies, preparation of the procurement documents, introducing the project to the financing institutions were carried out.
- 1.51. Within the framework of “Integrated Harmonization Strategy in the Field of Environment Project” supported by EU Administrative Cooperation Fund; the sectoral strategy shall be developed at first. Afterwards, these strategies shall be finalized; the integrated harmonization strategy for the harmonization and implementation of the legislation and general financing strategy shall be developed. The project is at the finalization stage. Within the framework of the component of access to environmental information and development of the administrative structure, a national environmental information database shall be constructed, and within the context of the development of administrative structure, training activities shall be performed.
- 1.52. The third component of the project of Support to Turkey in the Fields of Air Quality, Chemicals and Wastes, which is a twinning project financed by EU, is related to Waste Management with a budget of 1.4 million Euro. It was a project of 24 months, which was initiated on September 8, 2004. The aim of the project is to harmonize the legislation and to prepare practical regulations or to revise the existing ones and to form strategic action plans for the implementation phase. Within the scope of the project, out of the 12 main Directives that the Waste Management Chamber must ensure harmonization; six of these are still under study. (75/442/EC Waste Framework Directive, Directive 94/62/EC on Packaging and Packaging Waste, 91/689/EC Hazardous Waste Directive, Directive 2000/76/EC on the Incineration of Waste, 99/31/EC The Landfill Directive and 93/259/EC Shipment of Waste Directive) Within the scope of this component of the project, studies are conducted with the cooperation of German Federal Ministry of Environment, Nature Conservation and Nuclear Safety.
- 1.53. This study and the similar ones are conducted with a view to rehabilitating the waste management, which ranks first in the settled environmental problems in Turkey and making it consistent with the conditions of today. Thanks to these studies, we have made progress in legal arrangements and in the development of the policies that shall form the basis for reaching the objectives and standards provided for both in the documents such as national plans, programs, legislation etc. and in the EU Acquis Communautaire.
- 1.54. Certain projects that are not directly related to the development of waste management strategy can also contribute. For instance, within the scope of the fourth component titled “Institutional Structuring and Access to Information Project” of the project “Capacity Building in the Field of



Environment for Turkey”, which is financed by EU; an environmental data system that would enable easy Access to up-to-date and reliable information was developed. This system aims at providing the decision-makers and implementers with the necessary data.

Institutional Framework of Waste Management

- 1.55. Historically, the Ministry of Health due to its nature and the Ministry of Interior in terms of its administrative structure have the authority in the field of waste management. However, the power and responsibility to develop policies concerning waste management at national level and to direct the implementations was transferred to the Ministry of Environment and Forestry as of 1990s. Since new arrangements were built on the existing structure; along with the new institutions, the existing ones preserved their duties and powers.
- 1.56. The responsibility for waste management has mostly been given to municipalities. Municipalities construct and operate the required waste management infrastructure and provide related services such as waste collection. Nevertheless, a great deal of municipalities do not have necessary financial resources for high cost investments such as waste treatment and disposal facilities.
- 1.57. Policy-making, strategy development, planning, specifying the standards, issuing license, auditing, monitoring, taking measure, coordination and training at national level in the field of waste management are under the mandate of the Ministry of Environment and Forestry. The Ministry also performs the activities of directing the implementations, project development, and monitoring, auditing, reporting, applying sanctions at local level through its Provincial Directorates.
- 1.58. In addition to the Ministry of Environment and Forestry and municipalities, a large number of ministries and public institutions in Turkey are involved in the management of waste sector. The Ministry of Health, which is rather responsible for monitoring, auditing the effects on the public health, is also authorized to issue license for waste disposal areas. The Ministry of Finance has the power to make arrangements related to the environmental clear up tax. The Ministry of Interior is responsible of directing, monitoring and controlling the local administrations. The State Planning Organization which prepares the sectoral plans and approves the projects in need of public financing and foreign credits is in charge of planning and programming waste management investments and strategic solid waste projects. İller Bank has a role in the implementation of the projects on solid waste management and providing their financing. Turkish Statistical Institute is responsible for specifying standards in this sector.



Part II: Waste Management Policies and the Rate of Success in Implementation

- 2.1. Increase in urban population and changes in consumption habits leads to a rapid increase in the amount of waste that must be managed. Waste management costs are increasing day by day due to the reasons such as urban growth, storage areas distant to city centres, increasing traffic density, etc. Continuous increase in the industrial and commercial activities whereby waste materials are produced at production, marketing and consumption stages are also increasing the pressure over environment. In order to reduce the level of this pressure and to convert wastes into economic assets, waste management principles must be realized with effective policies.
- 2.2. Waste management principles hierarchy, constitutes the basis of EU waste management policies and which has been fully adopted in the national legislation specify the basic policies of a sound and effective waste management system. These principles require firstly waste minimization at source, in other words waste prevention, use of recyclable wastes as much as possible, waste recovery through methods of recycling, composting and energy generating, safe landfilling. Moreover, the principle of “polluter pays”, being one of the universal principles of waste management, envisages that all costs related to the disposal of wastes are to be covered by producers.

Waste Prevention Policies

- 2.3. Waste prevention covers reducing both the amount of waste and the level of hazardousness. The prevention of waste production is the most effective way to prevent the loss of energy and natural resources. It is the main factor in the preservation of environment and in the sustainable usage of the natural resources. On this ground, the waste prevention or minimization is regarded as the priority principle in all the arrangements regarding waste management, especially in the Environmental Law. EU Waste Framework Directive makes it obligatory for the member countries to take measures encouraging minimization of the amount and the hazardousness level of wastes.
- 2.4. In all national arrangements on waste management, from packaging wastes



to hazardous wastes, from accumulators to excavated soil and debris wastes, all the wastes are required to be minimized at the source. However, although it is defined as the most prioritized policy, which instruments and methods should be used in the waste management is not clearly established. In the implementation-oriented arrangements, the disposal policies are focused on.

- 2.5. The amount of the wastes produced is directly related with the production processes and the quality of the technology used in production. In most cases waste minimization can be managed through making changes in the production processes with a relatively little costs. For example, instead of solvent-based materials, usage of water-based materials in the production process means a decrease in both the amount of waste generated and the level of hazardousness. Through this implementation, an increase in the efficiency of production is also obtained. Thus, through a number of methods and techniques from re-preparation of the project on product and packaging in the production stage to the selection of the technologies producing fewer wastes; the objective of waste prevention or minimization can be achieved.
- 2.6. Increasing the awareness of public and the consumers has a very important role in the success of waste prevention policies. For example, in the field of shipment, encouraging the public to use bicycles shall contribute to the money saved in the fields such as the costs of road construction, the costs of car parks, oil consumption, etc. At the same time, the harm made to environment through the production, usage and disposal of wastes from autos shall be eradicated. Likewise, usage of the methods such as selecting the more resistant products with less waste and less toxicity level, preserving the products in such a way that they will not produce waste and reuse, etc and the method such as maximum utilization from these products can only be realized through increasing public awareness.
- 2.7. Thus, in order to minimize waste production, standards on eco-design should be developed and a comprehensive strategy should be established, which shall maintain the replacement of old technologies with environment-friendly technologies through the economic instruments such as training and awareness-raising campaigns, encouraging the usage of environment-friendly technologies, strengthened consumer sensibility, taxation and sanctions, etc.
- 2.8. Adoption of “clear production” policy, encouraging environment-friendly technologies and implementation of this policy decisively shall also have a role in Turkey’s strengthening its position in the globalizing world through fulfilling its international commitments and increasing its shares in the world trade. The private sector should be informed that in the forthcoming stages of EU negotiation process, the firms will not be able to use the opportunity of exporting to EU countries as well the opportunity to operate in the domestic market unless they keep up with this process.

Policies on Waste Recovery

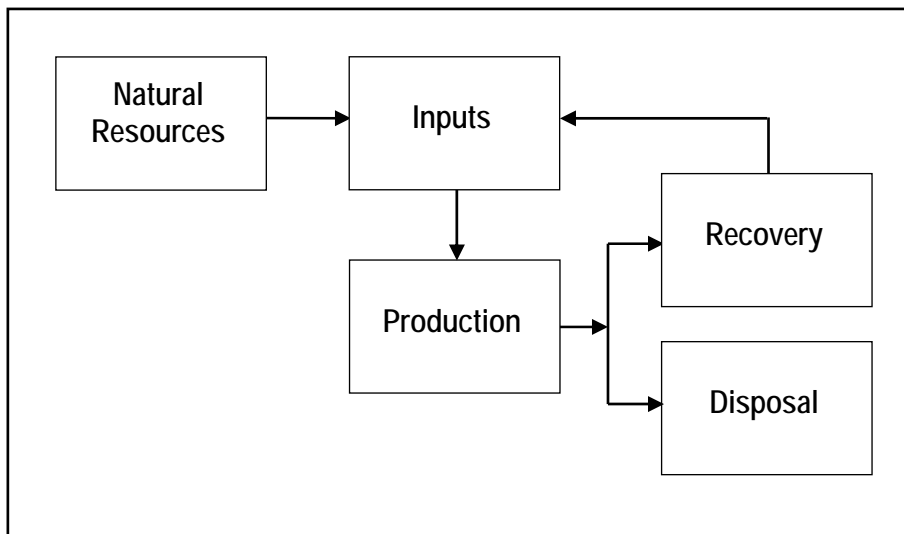
- 2.9. Recovery of wastes through the methods of reuse, recycling, composting, generating energy ensures a great deal of saving both in the costs of production through transforming the materials which have economic value to an input to economy and in the costs of waste disposal through decreasing



the amount of waste.

- 2.10. As it can be seen clearly in Figure 1; with the increase of the recovered wastes in the inputs of production, pressure of the economic activities on natural resources and pressure of wastes on environment will decrease. By this way, the need for disposal and disposal areas will decrease, disposal costs will be saved, and the costs of inputs and production through the change in the component of the inputs will decrease dramatically. It is clear that each of these gaining have significant effects on human health and environment (besides its economic effect).

Figure 2: Waste Flow Diagram



- 2.11. An effective recycling ensures separation at source. Separation at source;
- Increases the recycling ratio of wastes by preventing the mixture of recyclable material with organic wastes and the quality of collected material,
 - Extend the life expectancy of the landfill by decreasing the amount and the density of the waste to be disposed,
 - Play a constructive role in the increase of public awareness,
 - Add higher value to economy,
 - Minimize the costs of shipments and the problems stemming from shipment activities such as noise, air pollution and traffic jams.
- 2.12. Waste recycling shall contribute to the money saved not only in the natural but also in the energy resources. For example, the energy spent for recycling of metallic and plastic packages is 5% of the energy used for the first production of these materials. In other words, a saving with a ratio of 95% can be achieved by means of recycling. Likewise, 7600 kWh energy used for the production of 1 tone paper decreases to 2800 kWh for 1 tone recycled paper. Moreover, the contribution of the forests, which are protected thanks to the recycled paper, to nature and to our common future is so clear. Briefly, each recycling activity has important effects on the future of the nature and the life of the living creatures.



- 2.13. However, maintaining the positivity of these effects and basing the recycling activities on a legal safeguard and standards without giving harm to nature and health can only be achieved through the establishment of an effective monitoring and control mechanism.
- 2.14. Thus, in the environmental legislation the recycling activities are encouraged and framed with specific standards. In order to safeguard recycling of packages, quota application has been introduced to producers (See Table 3). With this practice, the manufacturers and sellers of plastic, metallic, glass and carton paper packages are liable to recollect and recycle a certain percent of these materials. The practice of quota is applied to some special kinds of wastes such as batteries, accumulators, mineral oil, etc. The sectors producing wastes subject to quota application are encouraged to establish associations and organizations for the fight against waste and recycling. In this way, these activities are tried to be safeguarded and kept under record.

Table 3: The Rates of the Package Aimed to Be Recovered According to Years (%)

Type of package	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014
Glass	32	35	37	40	43	45	48	52	56	60
Plastic	32	35	37	40	43	45	48	52	56	60
Metal	30	33	35	38	42	45	48	52	56	60
Paper, Carton paper	20	30	35	38	42	45	48	52	56	60

Source: The Ministry of Environment and Forestry

- 2.15. Within this framework, production and distribution firms especially in the field of packaging wastes (paper, glass etc) established foundations and associations. Recycling of wastes such as used batteries and accumulators, waste oils in the “Special Wastes” category is done either by the organizations established by the facilities operating in the related sector or the companies with special recycling license. In recent years, there has been an increase in the number of such organizations and special-licensed companies.
- 2.16. In fact, the legislation in effect introduces liability of separation at source to production, distribution and sale units including the households and the final consumers and provides for criminal sanction to the contradictory actions. Besides, it makes recycling obligatory by prohibiting disposal of wastes excluding organic wastes.
- 2.17. In Turkey, since 1950s waste recycling, especially glass and paper, has become a major commercial activity. However, the individual collectors generally separate recyclable matters. These persons buy used package from sellers or collect them in the streets or from garbage containers. This method is the most common one in Turkey and 25-30% of all recyclable waste is estimated to be collected in this way (excluding inorganic materials) according to researches made by the Ministry.



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- 2.18. Apart from this, municipalities recycle at a very limited level. A limited number of municipalities are ensuring the separation of recyclable waste at source at the selected pilot area by cooperating with the institutions that are authorized in the field of waste recycling.
- 2.19. Although in the implementation a significant progress in the separation of wastes resulted from industrial and commercial activities has been achieved; household waste is directly transferred to landfills without any process of separation by the municipalities. The main reason that the wastes are not separated at the source in houses in spite of the fact that it is a legal obligation is that the infrastructure for the collection and shipment of separated wastes has not been formed. There is no temporary landfill space such as containers to separate and store the recyclable wastes and the municipalities have no instruments to collect recyclable wastes separately and transfer them to the recycling facilities.
- 2.20. Another problem stemming from implementation is that the associations and foundations established by the production and distribution firms pay certain amount of money to street collectors for wastes that they collect and sell to facilities in the relevant sector in order to fulfil their liability of recycling instead of establishing a system that is to enable separation at source, transfer to proper facilities and transforming them to an economic asset by processing at these facilities. These establishments are regarded to have fulfilled their recycling liability solely by presenting their documents with regard to their payments to street-collectors to the Ministry. In other words, such type of organizations established for recycling serve for production and distribution firms to release from their recycling liability with the documents they obtained through financing unhealthy and primitive street-collecting system rather than ensuring recycling.
- 2.21. During the interviews made with the authorities from the Ministry and the examinations on the personnel structure of provincial directorates, it is seen that at most of the provincial directorates personnel having expertise in the field of environment is either the directors or there is only one technical personnel apart from the director. Since it is not possible for them to cope with all environmental issues, they in general carry out routine works. Due to the fact that both the central and rural units of the Ministry do not have adequate capacity, no control and monitoring activity is conducted, and it is identified that whether the firms fulfil their recycling liability or not is checked on the basis of the notifications of those firms or the organizations established by them. It is clear that this practice is untrustworthy and does not provide any mechanism that is to solve recycling issue.
- 2.22. One of the methods in the recovery of the wastes is composting the organic wastes. Since the wastes of Turkey contain a high level of organic material, they are suitable for composting. Nowadays, organic substances constituting 65% of waste materials can be converted to topsoil and through this practice, not only the life expectancy of landfills are extended but also, the soil used for the agricultural production is enriched and the erosion is prevented through composting. Compost, which enriches the organic component of the soil, is a substance that can be widely used in the organic agriculture. However, the number of the composting facilities is restricted and the expected success cannot be obtained from the practices. When we take into consideration that the decrease in the collected organic wastes is aimed in the EU Directives and heavy penalties are envisaged for the members that



cannot reach the specified goals; it can be clearly understood that Turkey, which is on the way to EU, must immediately increase its composting ratio, which is 1% as yet.

- 2.23. It is estimated that the ratio of the household waste containing organic and recyclable materials is approximately at 80%. However, the recycling rates are very low. Through not separating at source and disposing the wastes without caution, we are landfilling a tremendous wealth and significant opportunities together with wastes. By this way, the economy is deprived of a very important input, the self-renewing capacity of the environment is put under pressure, and we are falling ahead of our objective to create a liveable world.
- 2.24. One of the main problems with regard to recovery is that recycling sector is not under register. Hence, there are no established standards. The sector cannot even fill the quota of 12% in the mineral oils. And the sector's complaints about illegal and unhealthy recycling show us how big the problem is. In order to prevent illegal, unhealthy and unsafe activities, necessary auto-control mechanisms should be established, and the audit and monitoring activities should become widespread.
- 2.25. In order to meet the requirements of EC directives on waste minimization; both prevention at source and recovery mechanisms should be activated. However, this cannot be managed within the existing system. Fulfilling the requirements of EU Acquis requires first the establishment of the necessary infrastructure. Moreover, this requires an important amount of investment such as the construction of modern landfills, rehabilitation or closure of existing ones, separating wastes at source and shipping separately, establishment of recycling facilities, etc. Secondly, apart from the Ministry and other relevant institutions of the central administration, the local administrations, households, the waste industry, voluntary organizations, the manufacturers and the marketers should assume responsibility within a very close cooperation. Strengthening the audit and monitoring capacity will play an important role in adapting the recycling system with the modern norms.
- 2.26. Achieving the objectives in the waste recovery also depends on the creation of a market for recycled products. Thus, with an Article inserted to the Regulation on Solid Waste Management in 1998, the Ministry, the highest civilian authority and the municipalities are given the responsibility to encourage the usage of the materials that can be recycled or disposed without giving harm to nature as well as the recycled materials and products. However, this policy has no instruments for implementation. As it can be seen in the examples from developed countries, the selection of such kind of products should be encouraged by amending the procurement legislation and the public interest should be increased through campaigns.

Waste Shipment and Landfill Policies

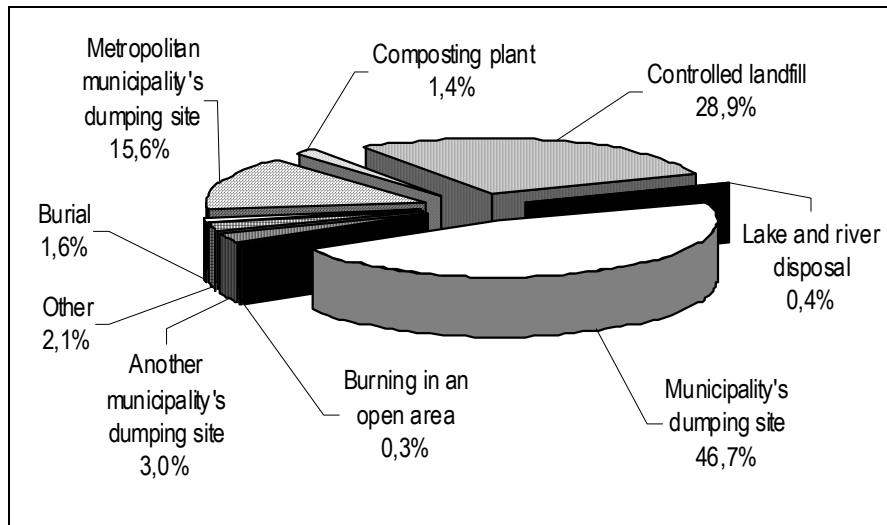
- 2.27. Handling of domestic and medical wastes and construction debris and rubbles is in general under the responsibility of municipalities; however, in general, it is done by the private companies based on the tender opened by the municipality. It is a well-known fact that within the scope of such services, municipalities, which are allocating a significant part of their budget for cleaning services, attach more importance to waste collection and transfer;



and focus more on waste handling at urbanized areas.

- 2.28. The hazardous and special wastes must be handled via vehicles that comply with the standards specified by the Ministry and have the relevant license for handling. Despite the fact that a significant progress was achieved due to the studies towards giving licenses to the vehicles during the year 2005; it is not possible to measure the success obtained, since the acts that do not comply with the system are not monitored and no sanctions is imposed.
- 2.29. The municipalities are also responsible for landfilling. However, it cannot be said that the sensitivity shown by the municipalities for waste collection and handling is also shown for waste disposal. According to the results of the survey on Municipal Solid Waste Statistics conducted by TURKSTAT (Turkish Statistical Institute) for the year 2003, among 3215 municipalities, 3018 of them are not delivering solid waste services. According to these data, only 28.5% of 26.1 tons of solid waste collected by municipalities delivering solid waste services is disposed at regular storage areas. According to TURKSTAT survey of 2004, out of 1911 municipalities, 1889 of them provided solid waste service and 24.24 million tons of waste was collected. Only 28.9% of waste was disposed to regular landfilling areas. (See Figure 4).

Figure 4: Disposal Methods in Turkey



Source: Turkish Statistical Institute

- 2.30. It is clear that method of irregular disposal is not sustainable. Because, the life of the landfilling area is limited and irregular waste storage makes it even shorter. This leads to undesirable expansion of the landfilling areas and an increase in their numbers. The landfilling areas the life of which expires in a very short time are left within the boundaries of urban areas after a certain period and thus, can constitute a serious threat directly to the human life. A dramatic example of this situation is Ümraniye waste disposal area that was left inside the settlement area and had led to death of 28 citizens after exploding and collapsing over them.
- 2.31. The greenhouse gas (methane) released from waste landfilling areas is a gas 25 folds stronger than carbon dioxide gas and has a very significant



effect on climate due to its pressure over the ozone layer apart from its effect on air pollution. In the Waste Management Strategy of Britain, it is remarkable to see that 25% of the greenhouse gas produced in this country is due to the methane gas at the waste landfilling areas. It is a well-known fact that the leachate resulted by the irregular landfilling is leaching into and polluting ground water and thus, threatening the potable water resources. Moreover, due to methane gas that the landfilling areas contain, the irregular landfilling system can lead to even fires and explosions and is deforming the natural beauty in its vicinity.

Figure 5: Relation of wastes disposed irregularly to nature with the food resources



- 2.32. Despite all these above-mentioned issues, the most frequent method for the disposal of wastes in Turkey is the irregular landfilling and the methods of regular landfilling, composting, incineration or recycling are not common. As stated by Osman Pepe, the Minister of Environment and Forestry in his various speeches and press releases; the significant part of wastes, namely 70%, is disposed to seas through rivers or disposed to nature.
- 2.33. Although different disposal methods should be applied for different types of wastes, there is an unsystematic approach applied widespread. While the radioactive materials are disposed duly by the Turkish Atomic Energy Authority, the wastes of construction debris and rubbles are stored at separate storage areas designated by municipalities. However, it is a well-known fact that significant part of construction debris and rubbles waste are either disposed to nature haphazardly or stored after mixed with household wastes. A significant part of waste oil is burned through illegal ways and converted to energy. There are serious legal gaps and illegal practices in treatment, shipment and landfilling of waste materials such as batteries, accumulators, rubber, end-of-life vehicles, and electronic products. Besides, another problematic area is that dangerous, medical and special types of wastes are disposed together with household wastes. Moreover, it is stated in the National Program that the most important problem of Turkey in waste management is the disposal of hazardous wastes produced by industrial



activities, industrial wastes of domestic nature, household wastes, special wastes and construction wastes without handling them separately.

- 2.34. The selection of place for landfilling to be used for waste disposal is one of the significant problems. The mistakes in the selection and the problems in the operational conditions lead to growing problems. Faulty investments made in this field are other examples of extravagance. For instance, a waste incineration facility that necessitates high investment costs and operating expenses was established in Menemen (İzmir) where there is not adequate waste material. Thus, this facility cannot be operated. However, the issue of selection of place for landfilling has been solved at a rate of 70-80% thanks to the studies carried out within the framework of the circular No: 2003/8 issued by the Ministry of Environment and Forestry. It is expected that these studies by the Ministry shall largely solve the issue of landfilling in the medium-term.

Hazardous and Medical Waste Policies

- 2.35. Waste materials have an increasing pressure on environment and this is due to the rapid growth in the industry and energy sectors. Disposal of hazardous and special wastes produced by these sectors without giving harm to nature and to human health is the main question of waste management. Pollution both on land and at seas resulted from the industrial activities have been on the agenda for a very long time and an environmental sensitivity has been created in this regard.
- 2.36. The disposal of the hazardous wastes often requires the usage of special technologies; however, due to high costs of such technologies and that in some cases, the legal sanctions fail; hazardous wastes are mostly disposed to environment or to landfills together with other types of wastes. Also in the document titled National Agenda 21; it is stated that 50-70% of hazardous wastes is disposed haphazardly and radioactive wastes are disposed to seas.
- 2.37. According to the data obtained from Turkish Statistical Institute; approximately 40% of hazardous wastes generated is recycled (including incineration). A certain part of hazardous wastes produced by industry is recycled on site by the industrial facilities themselves.
- 2.38. İzmit Waste and Purifying Wastes, Incineration and Valuation Inc. (İZAYDAŞ) established in 1996 by İzmit Metropolitan Municipality is the only Hazardous Waste Incineration Facility of Turkey. The facility, which has an incineration capacity of 35,000 tons and 65,000 tons storage capacity, can dispose only 5% of 2 million tons of hazardous wastes produced annually. When the recycled amount of hazardous wastes (40%) is taken into consideration, it is seen that more than half of waste remained is either disposed with household wastes to landfills or directly disposed to nature, which threatens environment and human health. Moreover, in the "Investment Plan Specific to Directive" prepared for harmonizing with EU Acquis; the total amount of hazardous wastes is envisaged to be approximately 1,060,000 tons (approximately 650,000 tons for landfilling and 410,000 tons for incineration). These data shows clearly, how insufficient the existing capacity is and how haphazardly hazardous wastes that constitute the most sensitive issue in terms of environment and human health are



disposed to nature.

- 2.39. According to Environment Situation Report of 2005 prepared by İstanbul Provincial Directorate of the Ministry of Environment and Forestry; only 7763 tons (1% of) of the 750 000 tons of hazardous wastes produced annually in İstanbul is sent to İZAYDAŞ, the sole facility to which this type of wastes can be sent. The remaining part is either disposed to nature without any control or used in reproduction or at the best figure, disposed to landfills with household wastes. This, in turn, creates a serious threat to environment and human health through contaminating of underground waters, agricultural production or direct contact.

Figure 6: Part of poisonous waste barrels buried underground in Tuzla



- 2.40. Especially in recent years, increase in the number of environmental disasters has become inevitable when the capacity problem with regard to hazardous wastes disposal combines with the inadequacy in the control and monitoring mechanisms. Over 500 hazardous waste barrels found out in İstanbul, Tuzla at the beginning of April (2006) show to what extend the environment is under threat. With a view to eradicating the negative effects of this disaster, studies were conducted intensively by the Ministry and several technical personnel and equipment were sent to the region.
- 2.41. In the field of hazardous wastes, one of the most important problems of Turkey, three sides of which is surrounded by seas, is the threat on environment and human health posed by the poisonous barrels left on the coasts by other countries and hazardous chemicals released to seas from shipwrecks. Such disasters lead to the devastation of Turkey's unique nature as well as significant amount of financial loss. It would be of use that the Ministry focuses on long-term strategies through establishing coordination with other concerned institutions with regard to struggling against such disasters.

- 2.42. Recently, there has been a number of shipwrecks at Turkish Straits and



Marmara Sea and the loads of these ships, which were generally composed of oil products and other hazardous materials caused dense pollution at coasts and seas, and coping with such pollutions has taken long years. For instance, it has not been possible to eradicate the environmental threat caused by poisonous waste barrels originating from Italy, which were released to sea near Samsun and Sinop coasts, in spite of 18 years that have passed and the intense studies conducted by the Ministry.

- 2.43. The Basel Agreement of which Turkey is a party aims to decrease the cross border movements of hazardous and other types of waste, ensure the disposal of them at source and to minimize waste production. After the enactment of this agreement, the pollution resulted from external factors has decreased and now, Turkey has tools that are more effective in the fight against pollution.
- 2.44. Medical wastes are the infectious, pathological, sharp, and penetrative wastes produced during the activities of hospitals and other medical institutes. Since the medical wastes are the sources of infection on their own and contagious diseases especially the Hepatitis and AIDS have high risk of infection; the need for special methods come to the fore in the separation, temporary storage, shipment and final disposal of such wastes. If these methods are applied without due care, the risk of spread of these contagious diseases to humans, animals and food cannot be prevented.
- 2.45. Despite the fact that the medical wastes are not collected separately, and even if they so, they are mixed with other types of wastes and disposed to landfills or nature like other hazardous wastes. They are in fact different from other types of wastes in that there is a separate pricing system for them and Local Environment Councils determine the prices for their provinces annually. In spite of this, it is known that very small number of municipalities have shipment vehicles for medical wastes and only these municipalities collect and handle medical wastes separately. In other places, these wastes are either disposed directly by the medical institutes, or mixed with household wastes and disposed by municipalities.
- 2.46. A more acute picture is seen in the disposal of medical wastes. Because, the number of those municipalities having a proper incineration or storage facility for medical wastes is at present nine. According to the data of the Ministry of Environment and Forestry, medical wastes are landfilled in Ankara, Bursa, İzmir, Gaziantep, Denizli, Malatya and Erzincan provinces and incinerated in İstanbul and Kocaeli (29% of medical waste is produced at these provinces). According to data of 2004 obtained from TURKSTAT, out of seventy thousand tons of medical wastes collected annually, 14 thousand ton (20%) was disposed at incineration facilities. The most common method applied in the disposal of medical wastes is dumping of such wastes to existing municipal irregular storage areas with other type of wastes without any treatment.
- 2.47. The hazardous and medical wastes that are disposed to nature unconsciously contaminate underground waters and threat human health. Such kind of pollutants penetrates to human and animal bodies through various means; pass to human organism, which is the last food chain and threatens human health.



Financing Policies of Waste Handling

- 2.48. Since municipalities are responsibility in terms of waste management at first hand; its financing must be provided from municipal budget. Municipalities are using 40% of their budget for cleaning services including waste handling and landfilling. However, the tax and other revenues they receive in return of these services are at a very low level.
- 2.49. The only area in which the principle of polluter pays can be applied is medical wastes. Medical wastes are generally collected by municipalities and pricing of these wastes are generally determined by the Local Environment Councils of every province. Prices differ from one province to another according to the criteria considered. Annual price is given according to the weight of collected waste, bed capacity of medical institutes, the number of expeditions or the type of medical institute. It is clear that each of these criteria has pros and cons, it is understood from the complaints reflected to media, and cases brought to courts that different practices cause controversies in the sector. The criteria to be used in pricing should be designated by the Ministry and a standard application should be maintained in the whole country. Only in this way, the system would operate more transparently and the number of complaints would decrease. In order to compensate disadvantages of the system to be established; it is important to develop a data bank by municipalities with regard to the waste production capacities of relevant facilities, to prepare action plans in order to manage risks and to carry out controls more frequently.
- 2.50. Due to inadequacy of municipal resources, environmental clean up tax was introduced with an arrangement dated 1993 for the users of domiciles, offices and other buildings benefiting from waste collection services of the municipality. Today the amount of this tax is far from covering the cost of this service. With an arrangement made lately in order to solve the problems during collection of this tax, which is based on the amount of water consumed, the amount of this tax is no longer based on the nature of the service delivered and the amount of the waste collected. In addition, there is not any obligation for this tax to be used for the services it is related to.
- 2.51. According to the calculation made by the Ministry of Environment and Forestry by utilizing from various data sources; the cost per unit for the collection and disposal of household wastes in medium-term is 40 \$/tone. On the other hand, the tax accrued per household is 15 \$. When one household is supposed to produce 1.5 tons of wastes annually; 10 \$ is collected per tone. It is known that this ratio is much lower at small provinces. Thus, with these taxes which can cover only very small part of operational costs in most of the municipalities, it is not possible to finance waste investments.
- 2.52. It will be more rational if the prices proportioned to the amount and nature of the waste are fixed by municipal councils or Provincial Environmental Councils as in the case of medical wastes and the collection is made on the basis of this tariff. Moreover, with the amendment made in the Environmental Law in April 2006, an arrangement to this effect was introduced. After stating that the municipalities are responsible to establish, have established, operate or have operated the domestic solid waste facilities; it is expressed that ones who are utilizing or will utilize from this service are obliged to share in the investment, operation, maintenance, repair and restitution expenses to be



made by the responsible authority. It is decided that from the ones utilizing from this service, a charge for solid waste collection, shipment and disposal according to the tariff to be determined by the municipal councils shall be collected. However, it is thought that the applicability of this system is critical and the ones utilizing or shall utilize from this service and the measures for the charge should be clarified with a separate arrangement. Besides, parallel arrangements shall be necessary to be made in the legislation on municipal revenues.

- 2.53. In the financing of waste disposal facilities that require high costs, the resources of İller Bank should be used effectively and an international strategy should be developed for the best use of domestic and foreign resources of finance. During construction and operation of these facilities, private sector should be encouraged by means of built-operate and built-operate-transfer methods. Especially for hazardous and special wastes, the industrial companies should be encouraged to build incineration and disposal facilities jointly in line with their responsibilities as producers.
- 2.54. In the financing of disposal facilities, the support given by international organizations is of great importance. World Bank, which comes first among the international organizations supporting the infrastructure studies in Turkey, supported the "Implementation Study in Solid Waste Management" within the scope of METAP Project. Likewise, JICA (Japan International Cooperation Agency) supported the studies towards the establishment of regular storage areas in the provinces Diyarbakır, Mardin, Şanlıurfa, Adana and Mersin. Projects should be developed systematically so as to utilize from such funds.
- 2.55. During the process of accession to EU; strategies should be formulated in order to utilize effectively from EU funds. Actually, an investment plan was prepared by the Ministry in order to implement EU Directives. Moreover, it has been observed that several studies have been conducted by the Ministry in this direction. For instance, an investment plan was prepared for the implementation of EU directives. In the examination made on this plan, it was indicated that the capacity needed for the disposal of hazardous wastes was tried to be determined considering various indicators. In this plan, it is envisaged that the quality and capacity of İZAYDAŞ shall be increased and four new incineration and landfilling facility shall be established by 2023. These shall be established at Thrace, Middle Anatolia (Ankara), Aegean (İzmir) and Mediterranean (Adana/Mersin) Regions. At less industrial areas, shipment station network shall be established for each.
- 2.56. The necessary total amount of investment for the establishment of hazardous waste facilities is calculated to be 853 million Euros on the basis of 2004 prices and for the establishment of landfilling areas is 11 million Euros. 74 million Euros is envisaged for constructions of shipment stations. An investment plan of more than 1 billion Euros in total is prepared. For the solid waste incineration; the investment cost of 35 facilities, 16 of which are planned to be established in İstanbul, Ankara and İzmir, is calculated to be 2.8 billion Euros. The total amount of the investment required for the harmonization to the EU environment Directives is 60 billion Euros.
- 2.57. Despite the fact that the public and private shares of the investment funds have been determined; by taking further steps, within the framework of an action plan, the steps to be taken by each and every responsible person,



institution or organization, the funds to be allocated and the action timetable should be concretely set.

- 2.58. In order to encourage private sector to make investments in this field, the pricing should be made by a commission, which ensures the participation and representation of the relevant sector and while doing this, the market prices should be taken into account. Because, setting low prices shall discourage private sector from making investment in this field; likewise due to high prices, the waste producers may want to get out of the system.
- 2.59. It is also important to introduce incentives such as tax relief in order to encourage private sector to make investments and to decrease the cost of waste disposal. Arrangements to this effect should be made immediately.

“Polluter Pays” Principle and Sanction Policies

- 2.60. The universal principle of “polluter pays” is one of the fundamental elements of the national legislation as well as of the EU Acquis Communautaire. This principle embodies firstly prevention of waste production within the scope of producer’s responsibility, ensuring recycling of waste not prevented, disposal of non-recyclable wastes and in cases where these activities can not be directly conducted by producers; assuming the financial burden of waste disposal activities to be conducted by other agencies or companies.
- 2.61. Another dimension of the principle of “polluter pays” is to impose criminal sanction with a view to ensuring the compensation of the harm done to environment and preventing its re-occurrence. Namely, claiming the cost of the pollution prevention from the polluters is encouraging them to decrease pollution and to find out technologies and products causing less pollution. As a matter of fact, the cost of fight with pollution is much higher than the cost of the measures that are to prevent pollution.
- 2.62. This practice of claiming cost from the ones causing pollution for the compensation of the harm done to environment is provided for clearly in the legal arrangements and the criminal sanctions to be imposed with a view to discouraging people from polluting are regulated by various laws.
- 2.63. According to Turkish Penal Code effective as of 1.4.2005 the execution of those provisions related to the environmental penalties are delayed for two years; persons causing by imprudent the disposal of wastes or leftover to land, water or air in a way that can cause harm to environment are given pecuniary punishment. In cases where such wastes or leftover give permanent damage to land, water or air; penalty of imprisonment from 2 months to one year shall be imposed. If this action is executed on purpose, the relevant persons are given sentence of imprisonment from six months to two years. Where the action brings about permanent and devastating effects on environment and health, these penalties are aggravated.



Figure 7: A scene of a disaster created by hazardous wastes. Can polluter pay?



- 2.64. The Law on Misdemeanours put into effect on the same date also provides for penalties to the actions polluting environment. According to this law, a 20 YTL administrative fine is given to those disposing household wastes and leftover to places other than places where they are collected or landfilled. Administrative fine from 100 YTL to 3,000 YTL is given to ones who dispose construction wastes and leftover materials to places other than ones they are collected to or landfilled. In cases where a real person carries out the construction activities; the ceiling of administrative fine to be imposed to that person is 5,000 YTL. The cost related to the disposal of these wastes and leftover materials is separately collected from that person. The municipal police impose this administrative fine due to these misdemeanours.
- 2.65. The Law on Environment is the main legislation regulating the environmental fines. With the amendment made in 04.26.2006, fancy prices provided for in this law for the actions causing environmental pollution are extremely high. For instance, for those who do not establish facilities for purchasing, purification, disposal of wastes, the fine to be imposed is 60,000 YTL. For those who landfill hazardous wastes without taking precaution or not in compliance with the standards, fine to be imposed is 24,000 YTL (at domiciles, 600 YTL for each domicile). Those who do not abide by the rules regarding hazardous wastes shall be given fine from 100,000 YTL to 1,000,000 YTL (three folds for institutions, organizations and facilities). Those who import or export hazardous wastes without notification are envisaged to be given a fine of 2,000,000 YTL. If these criminal acts are repeated, the fine is envisaged to be increased one fold at the first; two folds at the second repetition of the contradictory action. The Council of the Ministers is authorized to increase this fine up to ten folds.
- 2.66. According to this law, the authority for the execution of these penalties is the Ministry of Environment and Forestry. When necessary; the Ministry can delegate this power (together with its control power) to provincial special



administrations, mayoralities which form the environment audit teams, Undersecretariat of Maritime Affairs, Coast Guard Commandership, control officers designated according to Highway Traffic Law, other institutions and organizations deemed appropriate by the Ministry. 50% of the administrative fines imposed by the institutions and authorities to whom control power is delegated are registered as revenue to budgets of these institutions in order to cover the expenses of the controls to be carried out in accordance with this law and to be used for other environmental services. The remaining 50% is registered as revenue to General Budget.

- 2.67. So far, the power to impose fines has been vested solely in the Ministry of Environment and Forestry. The success of the implementations changes from one province to another and from one year to another depending on the implementers. Despite the high level of environmental problems and environmental disasters happening within the framework of these problems, it is observed that the amounts of the fines accrued has remained to be low; even in most of the provinces, no fine is imposed at all. For instance, in 2004, the amount of fine imposed due to violation of the Law on Environment was 6,305,000 YTL. 968,000 YTL of it from İstanbul, 621,000 YTL of it from Kocaeli, and 615,000 YTL of it from Ankara. First five provinces paid more than 50% of the fines along with the provinces of Kayseri (489,000 YTL) and Çorum (482,000 YTL), while some of the provinces that are growing fast and have big environmental problems fell behind. It is considerable that there are big provinces among those which were not imposed any penalties such as Van. For instance, while the amount of fine imposed to Çorum is 482,000 YTL and 29,000 YTL for Şırnak, Konya which comes first in environmental pollution among the provinces was imposed a fine of 12,000 YTL.
- 2.68. It is understood that ensuring widespread implementation of environmental fines depends relatively on the adequacy of the technical personnel assigned duty at the provincial organizations of the Ministry in terms of number and qualification, the number of the vehicles being adequate, encouraging or discouraging attitudes of the administrations of districts and provinces including the head of civilian administrations. Thus, adequate number of personnel and equipment must be provided to provinces and necessary provisions should be taken in order to eradicate the external effects and subjective approaches during the imposition of fines.
- 2.69. Even if the control capacity of the Ministry and Provincial Directorates is increased, their control teams cannot be expected to carry out controls and monitoring activities at the places other than the central ones. Thus, the punitive power should also be vested especially to municipalities and civilian administration; even to real persons at villages.



Part III: Functions of the Ministry of Environment and Results of Implementation

Inventory and Planning Activities

- 3.1. Establishment of a sound waste inventory has vital importance in the development of the policies regarding waste management and shaping the waste management policies. The lack of data on the amount and composition of wastes, rate of increase in the waste production and its effects on environment is one of the main constraints on the development of a sound waste management strategy. Despite the fact that there is data on domestic and manufacturing industry wastes collected by Turkish Statistical Institute (TURKSTAT); there is no data bank for other types of waste.
- 3.2. Under the Ministry, with a view to developing an inventory, two separate units were established, one for environment in general and other for waste management. Besides, other directorates affiliated to the Department of Waste Management assumed responsibility in this regard. De facto, every unit tries mostly to collect data on their field of work; however, there is no integrity in the data collected due to the fact that the implementing organizations (public-private) do not show necessary sensitivity and that all the relevant actors can not be reached. Besides, due to inadequacy of technical infrastructure and personnel, apart from analyzing and reporting these data even it is not possible to record them at a database.
- 3.3. For instance according to the Regulation on Hazardous Waste Control; establishments producing hazardous wastes are obliged to notify the Ministry annually about the amount of the waste they produce by means of filling "Hazardous Waste Notification Form". However, neither the waste producers have the necessary sensitivity to send these forms to the ministry nor the ministry itself has imposed any sanctions so far to the firms that do not fulfil their liabilities. As of April 2006, the number of the firms registered by means of waste notification forms they sent to the Ministry is approximately 1000. Another important factor for the waste producers being unaware of their



liabilities and not fulfilling them is that they do not have sufficient information about the concept of hazardous waste. For this reason, the waste management guides to be prepared by the Ministry and the training activities are of great importance for the inventory and planning facilities.

- 3.4. Establishing a sound database for waste is at the same time Turkey's liability to EU and other international organizations of which we are a member. Within this context, the European Environment Agency organized various activities with a view to supporting the development of a data system in the field of waste and the decision-makers in the preparation of plan and programs by means of increasing the data quality. Within the scope of the "Project on Institutional Structuring and Access to Information" supported by EU; a software was got prepared in order to establish a data bank for the hazardous wastes and test use of this software program which is aimed to be used for sending the waste notification forms in electronic environment to the waste producers was initiated. In order to develop a waste inventory; a protocol was signed with TURKSTAT. Through the cooperation established with TURKSTAT, more comprehensive and reliable data on wastes is aimed.
- 3.5. Cooperating with TURKSTAT shall cover the need of waste data to a certain level. Besides this constitutes an example in terms of inter-institutional cooperation and information sharing. This protocol is at the same time a tool which enriches the data sources that the Ministry shall benefit in making analysis and planning; however this does not necessarily eradicates the importance of the inventory preparation studies being conducted under the Ministry. In order to functionalize the data collected in the development of waste management strategy and specific waste policies; the Ministry must have expert knowledge in the field of waste. For this reason, the existing disorganized structure in terms of inventory studies under the Ministry should be removed, an expert unit should takeover the inventory preparation studies and submit the databases to be prepared to other policy developing and implementing units for their use. In this way, not only the effectiveness and efficiency during the process of inventory development would be ensured but also other units would be able to save time they spend for the preparation of inventories.

Strengthening Technological Infrastructure and Developing Standards and Guides

- 3.6. Both the delays in the adaptation of the technology used in industry to the current conditions and the limited utilization of the processes and technologies used to decrease the direct waste production, are among the fundamental reasons for why a sound waste management strategy has not yet been materialized.
- 3.7. Strengthening the technological infrastructures to a great extent requires financial resources and the primary obstacle of both the public and private sector is the problem of financing. Especially when the competitive requirements of the private sector firms are taken into account; making investment to the new technologies shall apparently affect their financial situation adversely at least for a certain period. For this reason, if it is to be ensured that the investments to environmental friendly technologies do not constrict the competition capacity of the relevant establishment; these



investments must be made obligatory to all these establishments. In other words; renewal of the technological infrastructure should be transformed into a national policy and step by step the usage of the technologies of a certain standard by all the establishments should be made obligatory.

- 3.8. In order to standardize the technologies used by waste producing establishments; firstly the minimum standards for each sector must be determined. As a matter of fact, according to the Law on the Organization and Functions of the Ministry of Environment and Forestry No: 4856 dated 05.01.2003; “together with the Turkish Statistical Institute the Ministry is responsible to determine the environmental standards in compliance with the country’s conditions, implement them and ensure their implementation”. However, so far the Ministry has not fulfilled this duty.
- 3.9. With a view to developing the performance indicators in the waste management and transferring the international standards to internal arrangements; cooperation with relevant institutions, especially the Turkish Statistical Institute should be attached importance. Besides, the continuity of this cooperation should be ensured in order to monitor whether the implementations are in compliance with the determined standards and to impose sanctions to the violations.
- 3.10. Besides standards, the preparation of an implementation guide should be among the priorities of the Ministry. However, except from those prepared for municipalities, the Ministry has not prepared any other guide both for the sector and for itself to arrange its activities.
- 3.11. The guides, without any doubt, shall contribute both in the training of the implementers, and in the development and standardization of the implementation. For this reason, in order to direct the implementations and to increase its quality, the Ministry should prepare detailed and user-centred guides in terms of types of wastes (chemical wastes, waste oils, medical wastes, etc) and activities (discharge, emission, shipment, etc.) and should send them to the relevant establishments.
- 3.12. The Ministry should also prepare guides for their own activities and ensure that the implementation is standardized, transparent and has quality assurance. For instance; the environmental control activities should be supported by guides in order to secure that the controls are carried out in each province by each unit within an integrated approach. Likewise, the issues such as licensing and permit procedures, collection, record, control of data and sharing data with the relevant unit or institution should be arranged in detail by means of a guide and this shall, in turn, provide integrity and standardization both in the training of the personnel and directing the implementation.
- 3.13. The duty entrusted to the Department of Waste Management in accordance with the Law of Organizations of the Ministry is to follow up the international studies relating to waste and ensure their implementation at the national level. This duty can be realized with the help of guides (by means of presenting both the research and observations during the preparatory periods and the results and the best practices identified to the information of the implementers).



Strengthening Local Governments

- 3.14. The Ministry is responsible to support the activities related to reducing waste at source, waste separation, collection, shipment, temporary storage, recycling, disposal, reuse, purification, converting wastes to energy and landfilling; to establish, have established and control systems which shall increase recycling and to determine appropriate technologies according to the Law on the Organization and Functions of the Ministry. The principle addressees of the actions envisaged to be supported by means of this arrangement are naturally municipalities.
- 3.15. In the National Program, under the title “Institutional Structuring Calendar for Harmonization of the Legislation and Its Implementation” which is among the commitments to EU, some objectives are provided for on condition that they shall be initiated by 2004 and be permanent such as;
- Strengthening local governments (municipalities) in terms of financing,
 - Strengthening local governments (municipalities) in terms of techniques,
 - Establishing a unit under municipalities which shall be responsible for integrated waste management and providing trainings to their personnel,
- 3.16. However; despite the fact that relatively a very long time has passed after that date and that the topic cannot be delayed due to its nature as being vital in terms of environment and human health and the common future of humanity; it is observed that there has not been a significant progress so far. This is because the Ministry is not sufficiently effective due to reasons such as limited resources and municipalities are not open to cooperation.
- 3.17. The fundamental problem in the field of waste management is that so many small municipalities are trying to operate on their own in this field. This structure is neither economic nor effective and it is not sustainable since there is not adequate resource, appropriate disposal land cannot be found at every city and inappropriate technologies are selected. Thus, large-scale initiatives for waste disposal are needed. Despite this fact; so far, search for solution at regional level has proved to be insufficient and every municipality has tried to manage waste problem with its own resources.
- 3.18. However with its circular No: 2003/8 issued in 2003, the Ministry established a new policy in order to institutionalize the regional cooperation in the field of waste management and encouraged municipalities to cooperate. With the mentioned circular, municipalities at each province, which can cooperate in waste management and alternative solid waste landfilling areas, are required to be specified. It was notified to all governorships that wild waste storage areas were closed down and the rehabilitation studies should be started.
- 3.19. The activities carried out within this circular issued by the Ministry with a view to closing and rehabilitating the wild waste storage areas and to create alternative storage areas has vital importance in terms of strengthening the waste management infrastructure. Within this context; at many provinces studies towards the establishment of solid waste storage facilities was initiated; at 30 provinces significant progress has been achieved and at 10 provinces, the construction of 10 solid waste disposal facilities to be benefited by 182 municipalities was launched on 29 November, 2005. Some of them are projected to be finalized in 2006. At 42 provinces, the



environmental impact assessment and procurement process are still going on for place selection. Two hundred more landfilling areas are planned to be constructed throughout the country and, finalization of these process by the end of the year 2007 is expected.

- 3.20. That the Ministry is encouraging the municipalities to take joint steps with a view to economizing in the activities concerning the construction and operation of the waste disposal facilities and to decreasing their environmental effects and attaching importance to the municipal unions are very effective and beneficial methods. This policy of the Ministry, which is also reflected in its strategy documents, shall make vital contributions especially to the small-scaled actors in their efforts to establish sustainable waste management mechanisms. Otherwise, they shall not be able to develop a sound waste management system due to the high number of municipality and their bottlenecks in terms of financing and number of personnel, etc.
- 3.21. Another significant step taken by the Ministry in terms of its contribution to local administrations is that it prepared 16 guides and published them on web in order to assist them in their works. Such kind of contributions should be systematic and constant.
- 3.22. The Ministry does not also limit its contribution to local administrations with its own resources and facilities. At the same time, it takes an active role in ensuring research, allocation and effective utilization of resources to be allocated by other Ministries and institutions (including international organizations) to the local administrations and this shall in turn facilitate the process of reaching the outcomes. The Ministry should also make a move in order to strengthen the organizational structure and implementing capacity of municipalities.
- 3.23. Despite the fact that they have gained an increasing impetus lately; it can not be said that the Ministry has fulfilled completely the activities set in its Law on Organization; especially the ones related to giving support to the activities such as reducing waste at source, separation, recycling, reuse and converting wastes into energy and establishing, having established and controlling the systems which increase the recycling and determining appropriate technologies. When it is considered that most of the municipalities are deprived of adequate economic tools, education, interest and knowledge; it is of vital importance for the Ministry to strengthen its contribution to the municipalities in every field, specifically in the field of financing.

Training and Guidance Activities

- 3.24. One of the main reasons for the deficiencies in implementations is that the responsible institutions do not have the adequate level of knowledge about the protection of environment and especially, the waste management. Among the municipalities that responded to the questionnaire prepared by TURKSTAT in the year 2001, 974 of them stated that they did not have knowledge about the legal arrangements on waste management and this clearly shows how important the training and informing activities to be conducted by the Ministry is.
- 3.25. The Ministry is trying to meet the information and guidance needs of the



responsible sectors through organizing activities such as seminars, training programs, meetings etc with a view to directing the implementation of the newly enacted regulations. At the same time the training demands from the establishments concerned, especially the industrial and commercial unions are tried to be met.

- 3.26. Some other activities are also being carried out in order to raise public awareness. For instance; a circular was sent by the Ministry to the Governorships on August 1st, 2002. Via this circular, governorships were demanded to encourage the usage of alternative products instead of plastic bags in the big shopping centres due to the negative effects of plastic bags to nature and to make campaigns on the importance of the issue and making them widespread through the support of NGOs in order to raise awareness among consumers. However, such activities have remained relatively limited.
- 3.27. If the policies of waste reduction (prevention at the source, reuse, recycling) are to be successful; public awareness should be raised and their voluntary support should be ensured. Because; several simple but effective methods easy to implement by all citizens from shopping when necessary (wise shopping) to keeping the foods in the reusable jugs, from using reusable products such as rechargeable batteries, changeable brush heads instead of disposables to dispensing old clothes and furniture to social assistance stores can be realized through campaigns made by the Ministry with the support and contribution of the organizations and institutions such as NGOs, local authorities, education institutions.
- 3.28. Utilizing from the information technologies is of great use at public awareness campaigns. When the practices of developed countries are examined; it is seen that internet is used as a very effective tool in directing the public to this effect. The web site www.atikyonetimi.gov.tr constructed by the Ministry has provided a suitable infrastructure for such activities. This web site should be improved and ensured to be operational in order to communicate the necessary messages to more people.
- 3.29. Training activities to be carried out at schools, government offices, industrial, commercial sites and settlements shall play a significant role in solving the problems. Nowadays; although the central and branch units of the Ministry and some municipalities have such kind of facilities; it is known that these are far from being systematic and adequate. In order to make these activities widespread; giving priority to the training of persons and parts of the society, especially the teachers that can direct society would be a more effective method, when the low number of expert personnel and the lack of resources are taken into account.
- 3.30. Training of the relevant sectors should be regarded as a must. Because; the implementers do not know the legal obligations and technical standards adequately and this unawareness constitutes one of the important reasons of the problems occurred during the implementation.
- 3.31. The industrial establishments should be convinced that the environment-friendly technologies do not only decrease the costs; but also have an effect of creating positive impression on the consumers and clients. For this aim; the projects carried out in order to increase productivity by the National Productivity Centre at provincial and regional level and similar projects carried out by other Ministries and public/private establishments may be utilized. While increasing the productivity, its environmental dimension should also be considered and in order to do this, an active role should be



assumed in these projects within the framework of the protocols that are to be signed.

Monitoring and Leading Activities

- 3.32. One of the facilities carried out by the Ministry in order to establish a sound waste management infrastructure is that it has been registering the waste producers and is demanding from them to send report on the amount and composition of the waste they produce periodically. In order to carry out the monitoring facilities; it is of great importance to register all the actors of the sector.
- 3.33. With the Environmental Audit Regulation, the liability to fill in the “Activity-Facility Information Form” and send it to the Ministry and to keep one copy at the facility in order to present it during the audits is introduced to the facilities that fall under the scope of this regulation. Those who do not fill in the form and do give incorrect and misleading information shall be given an imprisonment of 6 months to one year in accordance with the Law on Environment.
- 3.34. However, during implementation, it was discovered that, very small numbers of facilities are sending this form and that the facilities prefer not to be registered in order to escape from audits and controls. Since a sound and comprehensive inventory has not yet been developed, it cannot be possible to find out and punish those who have not sent this form or made false statement in it.
- 3.35. After the notification by the waste producers by means of waste information forms; approximately 1000 firms of packaging waste producers and 1000 hazardous waste producing firm were registered and in this way, it is ensured that they give regular information. However, the ratio of the number of the registered firms to the number of the firms in this sector is relatively low. For instance, the number of hazardous waste producing firms is estimated to be more than 100,000. Correspondences are still going on with the professional unions in order to register wholly the relevant sectors.
- 3.36. The operability of the monitoring facilities can only be ensured mainly through developing a sound data bank o the basis of the relevant sectors. Monitoring is important in terms of preventing the possible problems in due time and taking precautions against the environmental threats. Thus, infrastructure of an effective monitoring must be established without delay.
- 3.37. One of the most important functions of the Ministry is that it informs both the waste producers and the waste sector about their legal obligations and the requirements of the modern waste management and direct and ensure them to have the necessary trainings. In fact, in the Law of Establishment of the Ministry, one of the functions of the Department of Waste Management is stated as “to follow the international studies in the field of waste management and ensure their implementation at national level”. However, it cannot be said that the Ministry assumes much responsibility in this regard.
- 3.38. Guides in the field of waste reduction which also include the case studies should be prepared for the industrial establishments by the Ministry within the framework of these duties. Best practices, both local and international, should be made widespread and the establishments who have shown high performance in terms of environmental impact and new environment friendly



inventions should be given award.

Audit Activities

- 3.39. Despite the fact that the implementation-oriented activities are shared among several institutions in accordance with the Law on Environment and other relevant legislations; the power of environmental audit was exclusively entrusted to the Ministry until 2006 and this power was not shared among other institutions. With the Environmental Audit Regulation, the inspection board, relevant general directorates, the provincial directorates of the Ministry and the Directorate of Special Environmental Protection Agency at the special environmental protection sites were held responsible for audit. Through the arrangements made in the Law on Environment in 2006; the power of auditing whether the provisions of this law are abided by or not is given to the Ministry. However, the Ministry can delegate this power to Special Provincial Administrations, Mayoralties that have established environmental audit units, Undersecretariat for Maritime Affairs, Commandership of Coastal Guard, the audit officers specified in the Road Traffic Law or other institutions and organizations deemed appropriate by the Ministry when necessary.
- 3.40. According to the Environmental Audit Regulation; the units authorized to conduct audits prepare their annual audit programs in cooperation in December of the previous year. In this document, the establishments and the facilities that are to be audited on site or at centre, the time period of the audit in that specific year, the personnel to be assigned during the audits and if the audit is to be carried out by a team, the duties of the members are specified. In case of accidents, denunciations, complaints or when the Ministry deems it necessary; unplanned audits may be carried out. It is envisaged in this program that the establishments within the scope of the audit program are informed beforehand.
- 3.41. In practice; the Directorate of Inspection Board handles the administrative inspection activities and does not include the environmental audits in their programs. The audits conducted at centre are carried out by Directorates of Audit affiliated to the General Directorate of Environmental Management and each year approximately 25 facilities are included in the audit program. It is observed at provinces that the annual programs are not prepared in general and the audits are determined and carried out without planning according to the current conditions. The cooperation provided by in the legislation cannot be realized in practice.
- 3.42. Auditing is a career and must be conducted by persons educated in this field. However, the Ministry does not regard auditing as a career and the persons who are doing this profession are not provided with necessary trainings. Fulfilment of this duty as its requirements by those who do not have any professional training is not possible. Thus, those who shall carry out the audits should be given practical and theoretical audit trainings. The audits should not be limited with a very small number of facilities at 1 to 2 provinces in one year and should be extended to the whole year and to all provinces as much as possible. In addition, it is clear that informing facilities beforehand about the audit shall undermine the effectiveness of the audit. Thus, this practice must be abandoned.
- 3.43. The audit capacity of the regional institutions is shaped with the number of



their technical personnel and the importance attached to audit by their high administrators. While in some provinces, the audits are being carried out systematically and regularly; in others almost no audit is conducted. This situation can also be seen in the amounts of the fines imposed at each province. Audits are not carried out with a unified approach. Approaches differ in one province to another and this shall in turn lead to unequal practices and unfair competition among the firms. Because of this reason; the audit capacity of all provinces should be balanced in accordance with the potential of that province; the principles of objectivity and equity must be fully implemented without being affected by persons and establishment including the higher administration of the province.

Licensing

- 3.44. The unregistered recycling sector which has grown rapidly in recent years; but operating inappropriately makes it impossible to audit this sector and to bring it into consonance with the standards. In order to register waste sector; giving license to the firms and facilities by the Ministry is important. According to its Law on Establishment, the duties of issuing license, monitoring and auditing the licenses issued is given to the Ministry. Within this context, so far for collection and recycling of vegetable waste oil; 12 firms until June 2006 and for waste mineral oil, 11 firms have been licensed. For the recycling of used batteries, 13 facilities are granted interim license. Sixteen cement factories are licensed for using the hazardous and special wastes as additional fuel oil. The Ministry also issue “collection-separation facility license” and “recycling license” to the facilities that collect and recycle packaging wastes and the number of such firms having temporary work permit and license is 110. When the number of provinces, being 81 and size of the sector are considered, this number is certainly inadequate.
- 3.45. However, it is not possible to say that the sector is standardized via licensing since the auditing and monitoring functions, which must be effectively carried out along with licensing are next to nothing. The establishments that are authorized and licensed are trying to gain the packaging wastes that are collected illegally and unhealthily by persons called as street collectors or garbage collectors as an input to the economy.
- 3.46. Through licensing; not only the sector is registered but also the sector registered is organized. In this way, the sector is ensured to fight with the recycling activities which are both unregistered and do not comply with the standards and the prevention of illicit disposals which are not conducted within the requirements of the system is ensured through auto-control mechanism. Registering the firms operating within the sector shall in turn ensure the detection of the illicit acts through cross controls by the Ministry.
- 3.47. However, the firms and the facilities that are registered through issuing license or interim work permit still constitute the very small part of the firms actively operating in the field of recycling. Thus, firstly, the increase in the number of the firms having license during the last 1-2 years should be accelerated and the studies should be continued in order to make this act widespread. Besides, the monitoring, auditing and licensing activity, which is effective and serves its own ends, should be ensured; in other words the recycling activities should be standardized.



Cooperation with Other Institutions and Information Sharing

- 3.48. In general, environment and waste management in particular have a nature of affecting all the field of social life and whole people and institutions. Due to its feature, the high number of the institutions and organizations authorized and responsible in this field necessitates communication, coordination, and close cooperation among them. However, the cooperation among the institutions is generally under desired levels and nearly all relevant institutions are complaining about this problem.
- 3.49. Generally the official correspondences sent to other institutions by the Ministry have not been replied or the information demanded has not been sent in due time with the required quality and this situation has always been the problem and reflected in various reports of the Ministry. For instance; in the Final Report dated 2001 of the "Hazardous Waste Management Project"; it is stated that despite the fact that various Ministries, other public institutions and private establishments were requested to send the data they have for the establishment of a data bank; there was not a direct information flow from this institutions. Thus, visits were made to the provincial centres, the necessary information was tried to be collected from relevant institutions and organizations through direct contact; but still some of the Commercial and Industrial Unions preferred to conceal information about their members.
- 3.50. Likewise, it is observed that the municipalities do not abide by their liability of notification and this practice is so common. For the preparation of the waste management plan, which is also a legal obligation; very small number of municipality prepared and sent its report after many correspondences made with them. Same situation applies for the notification liabilities in the field of inventory, etc.
- 3.51. However, it is seen lately that the cooperation among the institutions has progressed, but still not at a sufficient level and some good practices have been realized. The protocols signed in 2005 with the Turkish Statistical Institute for inventory studies and in 2002 with the General Commander of Gendarmerie in the field of environmental protection and audit can be given as examples. (According to this protocol, the Ministry shall give training to the personnel of the relevant commandership, the illegal acts detected during the audits, and examinations made by the personnel of commandership shall be notified to the Ministry.)
- 3.52. Certainly, the studies of strengthening the waste management shall gain impetus when the Ministry adapts it as a strategy to develop examples of best practices and make them widespread and attaches special importance to coordination among all the relevant institutions and organizations. The heads of the relevant institutions, relevant parties and NGOs should come together regularly and in this way a platform on which they can contribute to the process of taking decisions of strategic importance and shaping plans, programs, policies, etc at national level. This shall contribute to the establishment of a modern, democratic and functional waste management.
- 3.53. The Ministry should work as leader in order to encourage all the public institutions, especially those which has higher waste production potential to apply waste management hierarchy; in other words it should endeavour in order to increase the rate of recycling and decomposition at the source and the public institutions should be taken as model in this regard.



Part IV: Results of Performance in Ankara Metropolitan Area

General Framework of Waste Management in Ankara Metropolitan

- 4.1. In Ankara, concerning the waste management, the Greater Municipality is in charge of landfilling and disposal of wastes, while the county municipalities are responsible for the collection and shipment of household solid wastes. The collection, shipment and disposal of medical and industrial wastes legally fall under the responsibility of Metropolitan Municipality.
- 4.2. In Ankara with a population of 4 million, the amount of waste produced annually (except the wastes of manufacturing industry) is 2.2 million tons and these wastes are disposed to Mamak Landfill, which has become a chronic environmental problem of Ankara. Although Ankara is the capital city and the second largest city of Turkey; a regular system of storage has not yet been initiated and still an old and unhealthy storage method is being applied.
- 4.3. The solid wastes disposed to metropolitan contiguous area were landfilling at Tuzluçayır irregular storage area until 1980s; then started to be landfilling to Mamak irregular storage area and since that time, this landfilling area has been used. Sincan Çadırtepe Regular Storage area, which was constructed by Greater Municipality, started to be used on August 3, 1998 and used for a period of time; but after a short time on September 14, 1998 landfilling to this area was stopped due to some shortcomings that were detected later. Mamak Storage area was started to be used again. Today, only the medical wastes can be disposed safely to Çadırtepe Landfill.
- 4.4. Regular storage cannot be made at the regions falling outside the contiguous area borders and generally, wastes are disposed to riverbeds and open spaces irregularly and without control. This leads to serious environmental problems.
- 4.5. While the municipalities are responsible for the implementation in waste management, the responsibilities of monitoring, leading, auditing and imposing sanctions to illegal acts are entrusted to Provincial Directorate of



Environment and Forestry. Other duties of the provincial directorate are detecting the relevant facilities, issuing permit or license for the facilities and vehicles, ensuring coordination and cooperation among institutions, conducting studies of inventory and information provision. In order for the provincial directorate to carry out these duties effectively, its institutional capacity should be strengthened.

Activities of Provincial Directorate of Environment and Forestry on Waste Management

- 4.6. Among the activities of the Provincial Directorate in terms of waste management are the activities such as the rehabilitation of the Mamak solid waste landfill within the scope of the Ankara Solid Waste Management Project carried out by Ankara Metropolitan Municipality and monitoring the construction studies of the Sincan Çadırtepe and Mamak Solid Waste Disposal Facilities, monitoring the responsible persons and institutions in the field of waste and providing necessary information and training in this field, ensuring that the municipalities collect and landfill wastes regularly, evaluating the complaints concerning the acts giving harm to environment and conducting necessary audits, warning and if necessary, imposing sanctions to those responsible, conducting inventory studies.

Institutional Capacity Problem

- 4.7. The activities on waste management of the central administration at provincial level are carried out by Environmental Management Branch Directorates affiliated to Provincial Directorate of Environment and Forestry. Under the Environmental Management Branch Directorate of Ankara Provincial Directorate of Environment and Forestry; there is a separate unit and the activities concerning wastes are carried out together with other activities about waste management (noise, water, air pollution, etc). At the branch directorate, which has totally 21 personnel, five personnel predominantly carry out the activities with regard to waste management and audit.
- 4.8. Ankara, which has a vast geographical area, is one of the cities that have dense population and widespread industrial and commercial activities. In parallel to this, there is an intensive waste production. However, since a sound waste management system has not been established so far; Ankara comes first among the cities that have chronic environmental problems. Under these circumstances, the institutional capacity and activities of the Provincial Directorate prove to be inadequate against the potential and accumulated problems of Ankara.
- 4.9. Despite this, it is observed that importance attached to waste management and the number of experts employed in this field have increased lately. In parallel to this, the implementation capacity rises and significant progress has been achieved in terms of auditing, monitoring of waste producing facilities and provision of training activities to those responsible. This progress should be further speeded up and both the number of the personnel and the institutional capacities of the provincial directorates should be increased. Because, with the existing capacity, it is not possible to carry



out an effective monitoring and auditing activity at many industrial facilities operating at the region as well as in the whole country and healthcare institutions and organizations with high capacity throughout Turkey. Apart from these wastes, the Provincial Directorate is obliged to act at a very broad field; from construction wastes to special wastes such as tire, waste oil and from wastes produced by commercial activities such as packaging wastes to household wastes. Thus, (in parallel with other greater municipalities) under the provincial directorate, a separate waste unit (for instance, waste management branch directorate) should be established and the existing capacity should be strengthened through supporting with additional employment. While doing this, the thing that can be done at first is to appoint the technical personnel who have cadre at the provincial directorate but actually assigned duty at other departments of the Ministry to their original duty in order to partly cover this need.

- 4.10. Likewise, although it would be a rational choice that the technical personnel employed at Branch Directorate of Environmental Management have expertise in certain fields (waste, air, water); cooperation must be ensured in practice. Especially, during the audits, acting within coordination, in other words, carrying out environmental audits jointly by waste, air and water units shall make resource saving and increase the effectiveness of audit. In this way, also the productivity of the works of experts would increase.
- 4.11. On the other hand, the correspondences and the follow up of the case records brought to administrative courts concerning the complaints of environmental violations are made by the technical staff and this increase the workload of the personnel the number of whom is already. Moreover, dealing with issues falling outside their sphere of duties and field of expertise decreases productivity and effectiveness of their work. A law office should be established within the directorate for such procedures. By doing so; both the work productivity of the personnel would increase through ensuring them to concentrate on their own works and the effectiveness of the legal procedures would be maintained since the follow up of the case records which requires legal attainment and expertise would be done by persons expert in this field.

Audit and Sanction Practices

- 4.12. It is observed that the Provincial Directorates are increasingly attaching importance to monitoring and auditing activities. In the year 2005, 73 medical waste producing facilities, 168 industrial facility and their licensing procedures were audited. A number of 38 audits were conducted based on complaints and seven solid waste dumping areas were audited. Following these audits, with regard to solid waste, 76 legal actions were taken and an amount of 40,088 YTL fine was imposed in the year 2005.
- 4.13. In terms of total amount of administrative fines imposed as of 2004 for environmental violations, with an amount of 615,557 YTL, Ankara is the third city that has imposed the highest fine. Despite the fact that the number of the fines imposed for environmental violations has increased two folds; the amount of the fines has decreased by half. The reason for this situation is that the Council of State annulled the decree of Board of Ministers, which increases the amount of environmental fines. However; with the amendment made to the Law on Environment in April 2006, the amounts were increased and in this way, their deterrence effect was ensured.



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- 4.14. It is stated that the vouchers issued for the fines are approved by the governorships and sent to the department of revenues to be collected; however, concerning the collection of these fines no feedback is given. Ensuring feedback shall be beneficial both for the monitoring of the implementation results and for the development of a sounder inventory.
- 4.15. The Provincial Directorate drew up the hazardous waste inventory of Ankara and Ankara Hazardous Wastes Management Plan was prepared. Licenses were issue for various firms, facilities and vehicles operating in waste sector. Various training activities were organized upon demand, the municipalities were warned about their various liabilities especially those concerning their waste management plans, and they were given instruction to collect the packaging wastes at their source separately. Besides, within the scope of the inventory studies, the detection and registry of waste producing and marketing firms and facilities are still going on.
- 4.16. With regard to medical wastes, audits are being carried out concerning the temporary landfilling, shipment and disposal of medical wastes produced by 73 big healthcare institutions by a technical commission, which is composed of the personnel of Provincial Directorate of Environment and Forestry, Provincial Directorate of Health and Metropolitan Municipality. After these audits, those institutions that have incompatibilities to the provisions of the regulation are warned in order to make them eradicate these shortcomings and to protect the environment. In case of violations, penalties are imposed. For instance, three hospitals were imposed penalty in 2005. However, since the commission's audit covers only the large-scale hospitals and is conducted once a year; its effectiveness is limited. Due to the gap in the audit of medical wastes and the high number of the institutions that are to be audited; this commission should be permanent and should carry out audits throughout the year at every institution.
- 4.17. The relevant unit of the metropolitan municipality can best evaluate the shortcomings of the system and its parts that should be developed, since it is in charge of collecting and disposing medical wastes. Moreover, this unit can better monitor illegal acts of waste producing healthcare institutions. Where the audit commission of medical waste cannot be made permanent, the advantages of the municipalities should be regarded as a significant opportunity in order to carry out much sound and continuous audits. In order to achieve this; the existing lack of communication between the Provincial Directorate and the Municipality must be eradicated and cooperation between these two institutions must be ensured for a healthier and more sustainable environment. Such cooperation would certainly increase the number and the effectiveness of the audits. Moreover, cooperation with other provincial directorates, especially the provincial directorate of health shall bring important benefits.

Leading and Guidance Activities

- 4.18. The Metropolitan Municipality has initiated a study in coordination with the Provincial Directorate in order to construct regular landfills for the Municipalities falling outside the borders of contiguous area of Metropolitan municipality. Within the scope of this study, the Municipalities, which can cooperate during the construction of regular landfills, are detected and an "Examination-Evaluation Commission" has been established for the



detection of alternative solid waste landfill areas. The studies on this issue are still going on.

- 4.19. The Provincial Directorate gave information especially to industrial sector about their liabilities and the necessity to strengthen their infrastructure through various training activities and carried out leading and awareness-raising studies for the relevant actors through auditing and monitoring activities.
- 4.20. The Medical Waste Price Fixing Commission formed by Provincial Directorate determines separately for each year the shipment and disposal prices of the medical wastes decided upon by the Province Local Environmental Board. The price for the years 2005 and 2006 is 0.4 YTL/kg for hospitals and dialysis centres and 4 YTL/kg expedition for policlinics, village clinics and special clinics.
- 4.21. That the provincial directorate is acting in cooperation with the audit units of the Ministry, other relevant (Health, Industry, etc.) provincial directorates and the Municipalities shall improve the effectiveness and scope of the leading and guidance activities.

Liabilities and Activities of Ankara Metropolitan Municipality

- 4.22. The Metropolitan Municipalities assume greater responsibilities and duties in the field of waste management in order to protect the environment and human health within the scope of the principle of sustainable development. According to the Law on Metropolitan Municipality; the duties of these Municipalities are the protection of environment in compliance with the principle of sustainable development, preparing/getting prepared of metropolitan waste management plan, carrying out services such as recycling, landfilling and disposing of solid wastes and excavations except from their collection at the source and shipment to the transshipping station; building, having built, operating facilities for this purpose; collecting, getting collected, refining the wastes of naval vehicles and making necessary arrangements regarding this. In line with the metropolitan city solid waste management plan, the duty to collect and to ship the solid waste to the transshipping station is assigned to district and first grade Municipalities.
- 4.23. Household wastes are collected by district Municipalities in accordance with this task distribution. Sincan and Yenikent Municipalities are disposing household wastes to Çadırtepe Landfill while all the other Municipalities are disposing to the irregular landfill at Mamak. Medical wastes are collected by a firm, which was awarded tender by the Metropolitan Municipality and lanfilled at Çadırtepe via appropriate methods. The construction wastes are transferred to the landfills designated by the municipalities by the contracting firm and they are recycled.

Organizational Capacity Problem of Metropolitan Municipality

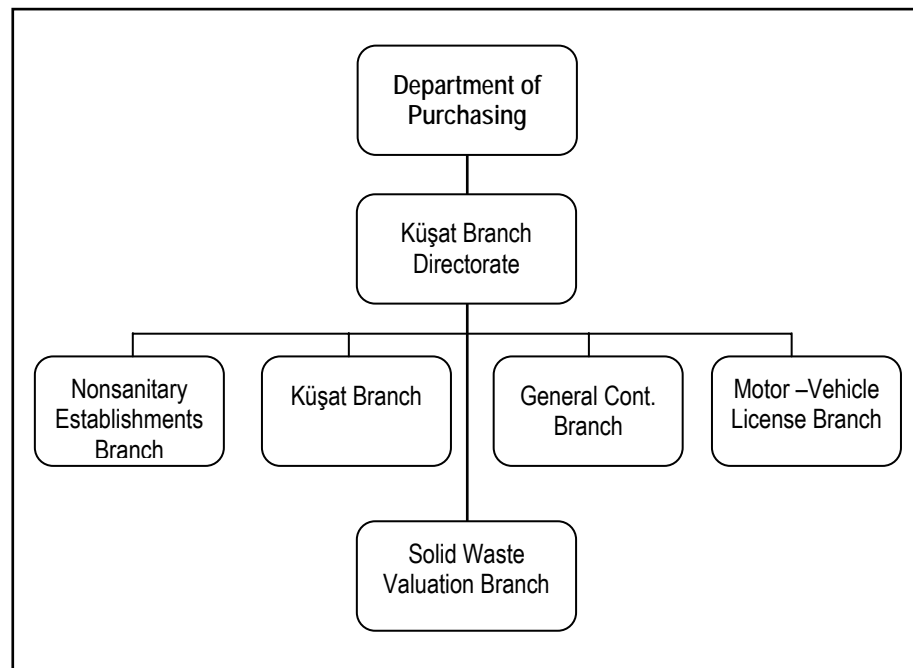
- 4.24. In various strategy documents, especially the development plans; establishment of a waste management unit within all Municipalities is



envisaged and this is transformed into a commitment in the Turkey's National Plan for Adoption of EU Acquis dated 2003.

- 4.25. When the organizational structure of other Metropolitan Municipalities are examined; in general, it is seen that there is a waste management unit affiliated to Department of Environmental Protection or Department of Environment and Health at each of them. For instance, there is a Branch Directorate of Solid Waste Management under the Department of Environmental Protection and Development at İstanbul Metropolitan Municipality. Besides, within the solid waste management project of the İstanbul Metropolitan Municipality; a separate firm was established within the Municipality in order to carry out the operations of shipment, recycling, composting, and disposing by means of regular landfilling, production of electrical energy at landfills and the shipment and disposal of medical wastes through incineration.
- 4.26. Similarly; the Metropolitan Municipalities of İzmir, Kocaeli and Bursa have formed a special unit titled "Branch Directorate of Solid Waste Management" under the Departments of Environmental Protection or Environment and Health Affairs.
- 4.27. Despite the commitments made in the Strategic Documents and the National Plan and the examples seen at other Metropolitan Municipalities, a separate waste management unit has not been established within Ankara Metropolitan Municipality. The waste management services, as seen at Figure 3, are carried out by a chieftaincy that is affiliated to Küşat Branch Directorate under the Department of Purchasing and only one permanent staff (chief) is employed there. Moreover, Department of Environmental Protection, which must also carry out waste services, conducts park and gardening services instead of those for environmental protection.

Figure 8: Organizational Chart for the Waste Management of Ankara Metropolitan Municipality



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- 4.28. Waste management services which were previously carried out by the Department of Health Affairs and for a short term by the Department of Environmental Protection are now carried out by Kūşat Branch Directorate after the appointment of one personnel expert in this field to this directorate due to some personal reasons at the end of 2005. In other words, instead of a structuring that shall ensure the best service delivery, the duty to carry out such services is assigned to irrelevant units for personal reasons. Ankara which is the capital and second largest city of Turkey and which has chronic big problems in the field of waste management can not cope with mentioned problems with its existing uninstitutionalized structure. Thus, in order to develop an institutional structure for waste management, the organizational structure and the functions of the Departments of Purchasing, Health Affairs and Environmental Protection must be determined according to their relevance and field of expertise instead of persons and it is important to ensure their institutionalization in this direction.
- 4.29. Delivery of waste management services under the auspicious of the Department of Purchasing is a problematic practice in terms of analytical budget implementation. Moreover; in the separation of analytical budget, the service of “waste management” is the first on the list of “05-Environmental Protection Services”. It would not be possible to reach the results targeted with analytical budget implementation through executing such services by irrelevant units.
- 4.30. In Ankara that has progressed on the way to become a world capital city befitting 21. Century; certainly this intricate weakness in the institutional structure has effect on the ongoing existing poor waste management structure. Moreover; in a capital city where regular storage has still not been realized; there is no activity for several types of wastes such as battery, accumulators, tire, lube oil and other oils as in the case of industrial wastes and the firms granted tender for construction wastes by the Participations Department has no working license. It is clear that waste management activities cannot be executed in accordance with laws, EU Acquis and good practices principles within this weak and unsteady structure based on persons. Thus, it must be a priority for the Municipality to handle waste management activities with an environmental approach and restructure its organizational structure in line with this direction. Besides, another important necessity is that sufficient number of personnel who have expertise in this field should be employed in the unit to be established.

Policies of Metropolitan Municipality for Combating Waste

- 4.31. As it can be understood from its existing organizational structure, one cannot say that the Metropolitan Municipality is combating systematically against wastes. The services of medical waste collection, shipment and landfilling carried out by a private firm under the above-mentioned chieftaincy are monitored and not much activity is carried out for the disposal of other types of wastes. As long as a strong administrative mechanism is not established, it cannot be expected from the Municipality to develop an integrated waste management system and combat waste problem collectively and effectively.

Combating Medical Waste

- 4.32. The sole effective activity carried out by the Municipality is combating



medical wastes. A private firm was awarded tender for the collection; shipment and landfilling of medical wastes and the charges for these services are collected by the Metropolitan Municipality from waste producers based on the tariff designated by Ankara Local Environmental Board. In order to ensure that the wastes are delivered to the personnel of the relevant firm without mixing with household wastes; a contract is signed with facilities producing wastes and those who are in violation are detected and warned during the audits.

- 4.33. The firm collects, transfer and landfill the medical wastes through its capacity of 93 personnel having various qualifications, eight special and other types of vehicles. Medical wastes are transferred to regular landfills at Sincan-Çadırtepe. These wastes are disposed to pools that have the necessary insulation in order to prevent contamination with earth, air and water and following the disinfection process; they are covered with earth to end the disposal processes.
- 4.34. At the same time the firm also carries out control and monitor activities against illegal practices. In the contract signed with the firm, it is decided that the firm shall audit 10 different places daily. Within the framework of this, the firm audits whether the temporary waste storages of the healthcare institutions are in compliance with the provisions of relevant legislation, whether the storage is appropriate and whether the medical wastes are mixed with household wastes or not. The audits are conducted directly by health technicians of the firm or with the chief of waste unit and the results are drawn up in a minute. In general, the facilities are given time to take the necessary precautions and at the end of this time, the audits are repeated and revision is made.
- 4.35. The minutes issued by the Municipality after such audits have a deterrent function, but no criminal sanction can be imposed. The main reason for this is that the Municipality has no authority to impose sanction in this field. However, even if the Municipality had this power; it would not be able to do so since it has no capacity to audit with its existing structure. Moreover, only one personnel (chief) is working at waste management unit and this unit functions under Kūşat Directorate, which is affiliated to the Department of Purchasing. Hence, a mechanism that can carry out sound audits and impose sanctions following these audits does not exist. The minutes prepared after the audits carried out by the personnel of the private firm are also signed by an officer from the Municipality. Still, the document has no legal nature.
- 4.36. No action de facto is taken with regard to the minutes. It is stated that two minutes were sent to governorship as the authority to impose penalty; however, no information was received concerning their outcomes. Since no feedback was given; it was concluded that this procedure was not implemented and the implementation was terminated. Establishing cooperation with the Governorship and Provincial Directorate of Environment and Forestry by the Metropolitan Municipality which has close communication with the medical waste producers due to its responsibility for the collection of medical wastes and which knows best the operation of the system shall increase the success of both the audit activities and the sanctions.
- 4.37. The arrangement dated April 2006 in the Environmental Law makes it



possible for the Ministry to delegate its audit power to the Municipalities that have environmental audit units. However, the organizational structure of the Municipalities mentioned above may cause several problems when the Ministry delegates this power. Moreover, although there is an environmental unit within the Municipality; it has no capacity to carry out environmental audit since it does not work on the environmental problems de facto. With the current structure, such an audit activity cannot be carried out on a legal ground and effectively. Thus; correction of the current poor structure of the Municipality shall contribute to the efforts of reaching the aim of a more liveable Ankara by using the very important potential of the Municipality as well as strengthening the audit capacity of the Ministry and the Provincial Directorate, which is very limited.

Combating Household Waste

- 4.38. Concerning the collection and disposal of household solid wastes; the Metropolitan Municipality awarded a tender for the restitution of Mamak solid waste dumping area and the construction of Sincan Çadırtepe and Mamak Solid Waste Disposal Facilities and their operation to a private firm in order to ensure the regular collection and landfilling within the scope of Ankara Solid Waste Management Project prepared in 2002 by the Municipality. The construction of the solid waste disposal facilities which is to be finalized in 2003 as required by the contract has not yet been finalized due to the fact that the Municipality did not conduct the expropriation operations and the relevant firm did not fulfil its liabilities on due time. Besides, Çadırtepe Regular Landfill, which was opened in 1998; but closed later due to some deficiencies, has not been activated for 8 years. Although Ankara has a regular landfill, the solid wastes of the city are still disposed to Mamak irregular dumping area, which is a very big environment and health problem.
- 4.39. Deficiencies of Çadırtepe regular landfill, which shall have great contributions to the solution of the solid waste problem of Ankara, should be eradicated and it should be activated. On the other hand; Sincan Çadırtepe and Mamak Solid Waste Disposal Facilities the construction of which are provided for in the Ankara Solid Waste Management Project, but cannot be finalized due to some reasons should be finalized and regular storage and separation of solid wastes should be initiated. Besides, necessary measures should be taken in order to prevent unhealthy separation practices both at streets and in Mamak irregular landfill.

Construction Waste

- 4.40. The operation of the dumping areas determined by the Municipality for the disposal of construction wastes is rented to Ankaraspor AŞ for 10 years through a procurement made by the Department of Enterprises and Participations. Neither the Department of Environmental Protection nor the waste unit under the Department of Purchasing takes action in the field of construction waste management. The Department of Enterprises and Participations naturally considers issue within the framework of the contract and does not interested in its environmental dimension. Thus, there is no control and monitoring activity concerning the operation of the process for the construction wastes and it can not be possible to monitor the illegal acts causing environmental pollution and to impose sanctions. Only the municipal police detect illegal dumping upon denunciations and can impose sanctions.
- 4.41. It is clear that existing structure is not sound and this issue should be



handled by a separate directorate which must be established under the Department of Environmental Protection so that it can consider this issue with its environmental dimensions and this type of waste can be managed with other types. A separate unit under the mentioned directorate should be formed for construction wastes and control and monitoring activities should be focused on in order to prevent illegal dumping. Actions with regard to this issue should be taken in cooperation with the Directorate of Municipal Police and even with other security forces. Especially coordination and cooperation with central district and lower grade Municipalities should be attached importance.

Hazardous Waste

- 4.42. In spite of the fact that the duty to carry out the services for industrial wastes, to establish, have established, operate or have operated the necessary facilities for this service is assigned to Municipalities; Ankara Metropolitan Municipality does not have any activity in this field. Since Ankara has a high number of industrial facilities and the disposal of the industrial wastes is one of the biggest problems facing Turkey; Ankara Metropolitan Municipality should fulfil requirements stemming from its powers and duties. Moreover, in Ankara, which is the second largest city of Turkey, there are a high number of industrial facilities and the amount of the hazardous waste produced by these facilities is so high. Due to the fact that the capacity of İZAYDAŞ which is the only hazardous wastes disposal facility of Turkey is not adequate to dispose the hazardous wastes produced at the region it is located; it is a must to construct another similar facility in Ankara.
- 4.43. While the pressure of hazardous wastes on environment and human health is increasing day by day; both the local administrations and the industrialists of Ankara, relevant professional institutions and non-governmental organizations should be more sensitive and produce constructive solutions. The Municipality should take action immediately in order to solve the problem of hazardous wastes either in cooperation with the industrialist or with its own resources.

Packaging Waste

- 4.44. In parallel with the general conditions in Turkey, the separation of packaging wastes at source is not possible in Ankara except from big shopping centres. In 2006, Çevko (Environmental Protection and Packaging Wastes Recovery & Recycling Trust) initiated separation at source operation within a protocol signed with Çankaya Municipality and a pilot project; however, this study is conducted only at certain parts of the district. The packaging wastes are put on the pavements or waysides together with household wastes and other types of wastes at the hours designated by the Municipalities and among them, the wastes that have economical value are collected by the street collectors and sent to recycling facilities. The big shopping centres are collecting packaging wastes, which have high economical value and sell them to the recycling market.
- 4.45. The illegal separation activities on the streets, which is a source of income for thousands of people; but carried out under unhealthy conditions have negative effects both on the health of the collectors as well as to environment and human health, because wastes are scattered around. That is the reason why this practice is harshly criticized. On the other hand, it cannot be underestimated that some consider waste collectors as “voluntary



environmentalists”. Because; these persons carry out the practice of separation at source which can not be realized by the responsible and authorized persons and institutions due to inadequate infrastructure and resources, despite the fact that it is a legal obligation. The packaging waste that lose its economical value when handled with other types of waste, are converted to an economic asset by these persons; thus they contribute considerably to the protection of the environment and its sustainability.

- 4.46. The Metropolitan Municipality prepared a parallel regulation to the Regulation on Packaging and Packaging Wastes issued by the Ministry of Environment and Forestry and put into effect with the decree of the Municipal Council dated 10 August 2005. According to the provisions of this regulation, all selling points and the collection and recycling facilities are required to make contract with the contracting firm that shall be authorized by three municipality and shall establish and operate the Mamak and Sincan Çadırtepe Solid Wastes Disposal Facilities for 49 years and to deliver the packaging wastes to the personnel of the firm free of charge. Although it is considered that the collection of packaging wastes having economical value by hand shall make it possible for the recycling activities to be conducted more systematically and soundly; the social results which shall be caused by the eradication of the existing system, which is the income source of thousands of people and the environmental risks, should be assessed. Because; if this practice which is limited with packaging wastes with high economical value and big shopping centres at the beginning does not become widespread and replace the existing system with an alternative sound and comprehensive structure; this shall lead to irrevocable negative results in the field of recycling activities.

The Chronic Environmental Problem of Ankara: Mamak Landfill

- 4.47. The leading environmental problem of Capital city Ankara is the problems encountered during the regular storage and disposal of solid wastes especially household wastes. The disputes over the closure and rehabilitation of Mamak solid waste landfill, which has been used since the beginning of 1980s has been going on for many years.
- 4.48. It is estimated that 20 million tons of wastes has been accumulated so far at Mamak solid wastes landfill of 30 ha and these wastes are composed of organic material with a ratio of 50.8%.
- 4.49. This area located at the centre of Ankara has a bad reputation due to its potential risks and bad view. Ankara Solid Wastes Management Project which is contracted out to a private firm by the Metropolitan Municipality and which is a comprehensive and long-term project aims at solving the solid waste problem of Ankara to a greater extend including the rehabilitation of this area.

Ankara Solid Waste Management Project

- 4.50. In order to solve the solid waste problem of Ankara; in 2002, the Metropolitan Municipality of Ankara prepared “Ankara Solid Waste Management Project-May 2002” and opened a tender on 6 August 2002. The tender was granted to a firm with a foreign partner with zero cost and the contract was signed on 17 September 2002. The operating term of this project is 49 years; its



investment term is 18 months and the total amount of investment is 260 USD.

- 4.51. In this project, the aim is to solve the solid waste problem of Ankara. This shall be realized through constructing and operating Mamak Recycling and Solid Waste Disposal Facilities, constructing and operating Sincan Çadırtepe New Recycling Regular Waste Disposal Facilities, transporting waste remained after processing at Mamak to the Sincan Çadırtepe Solid Wastes Regular Landfill and the places designated by the Municipality, rehabilitating old Mamak irregular landfill and rearranging it as a green land and generating electricity, biogas and compost from the wastes that are to be disposed during the term of procurement.
- 4.52. Besides, it was envisaged that the Municipality's electricity, biogas and compost needs are to be covered from the firm that would produce electricity, biogas and compost during its activities.
- 4.53. From time to time, it was discussed whether to cancel the mentioned work or not due to the delays in the fulfilment of the commitments both by the firm and the Municipality or to transfer it to another firm. However, after compromising; the place was delivered on 04.04.2005 and the procurement process started on the same date. It was decided that the work would be carried out by the same firm. Investments required to be made within the scope of the project are aimed to be finalized in the year 2006.

Figure 9: Packaging Waste Separation Facility in Ankara



- 4.54. During this process, the packaging wastes collection-separation facility constructed at Mamak Landfill was given a preliminary license of packaging wastes collection-separation on the date of 10 May, 2005 by the Ministry of Environment and Forestry upon the demand of the mentioned facility. Besides the firm established a new partnership in order to generate electricity from depony gas of Mamak and applied to EPDK (Energy Market

Regulation Agency) to get a license for generating electricity. The works for the construction of the facility to generate electricity and other activities has progressed to a certain extent.

- 4.55. It is understood that contrary to the commitment and the expectations towards the rehabilitation and closure of the Mamak Landfill; the transfer of the wastes that cannot be recycled at the waste decomposition facility to the Çadırtepe Regular Landfill is not aimed and this area shall not be used solely as a transshipping station. This shows that there is not a consensus between the Ministry and the Municipality on the closure of Mamak Dumping Area.
- 4.56. This uncertainty concerning the future of Mamak Dumping Area has not only negative effects on the environment and the expectations of sensitive citizens, but also constitutes a cost item during the waste shipment tenders of many municipalities at Ankara.
- 4.57. The Municipalities do not know that the wastes are to be landfilled at Mamak or Sincan Çadırtepe Landfills; thus, this is reflected negatively on the costs of the services purchased from private sector for waste collection and shipment. As it is known; the most important part of the costs of waste collection and shipment is the shipment part and the distance between Mamak and Sincan is so far for most of the Municipalities. On the other hand; the municipalities consider two alternatives during signing contracts; in other words, it is decided with the contract that the wastes shipment either to Mamak or to Sincan shall be carried out at the same conditions. When the big distance between the two points taken into account; it would not be difficult to estimate how much the unit costs are affected from this uncertainty.
- 4.58. Hence, it is understood from the statements of the Ministry and the Municipality that a certain decision has been taken towards the closure of this area. However, the firm which was granted the operation for 49 years and is constructing a facility for the separation of packaging wastes from other types of wastes does not have an investment plan, despite the fact that in the contract it is stated that the parts of wastes that can not be recycled after being processed at this facility shall be transferred to the area located at Sincan which shall require huge amount of investment. This is an indication of the continuation of uncertainties in this field for long times. Under these circumstances; the Ministry and the Municipality should have a common strategy concerning whether the mentioned landfilling area shall be rehabilitated and closed down or shall be used as regular landfilling area and transshipping station.



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Part V: Need for Improving Strategy and Strengthening Capacity for Implementation

- 5.1. There has been progress in the establishment of Turkey's waste management thanks to the surge of interest and sensitivity at national and international level and the process of Turkey's EU accession. The fundamental problem today is the development of a national strategy that is to comply wholly with international standards and framing it with a strategic document; more importantly; strengthening the institutional and technical capacity that are necessary for its implementation. Increase in the participation in waste management and raising public awareness should be among the strategic priorities.

Strengthening Legal Infrastructure and Will Power to Implement Laws

- 5.2. Comprehensive arrangements made lately in order to harmonize waste management with EU Acquis and the international standards have considerably strengthened the legal infrastructure that is necessitated for the establishment of a sustainable waste management system, which ensures environment and human health in Turkey. Although there are gaps in certain fields (Life-expired vehicles, unused electric and electronic household appliances); these gaps shall be eradicated as the studies towards harmonizing the national legislation with the EU Acquis progress. If the studies within the scope of the twinning project are made comprehensive and have a longer-term perspective and if continuous development is assumed as a principle; a sound ground can be established for improving implementation, which does not comply with the legal framework, and increasing its level as deserved by the people.
- 5.3. The arrangements that shall secure the implementation of hierarchy of principles should be given priority while developing legislation since all legal arrangements and other strategic documents are in general underlining the



hierarchy of principles. However, in spite of this, it is seen that instead of waste prevention and recycling, priority is given to the third principle, which is disposal. Besides, the method of composting which is one of the recovery methods and has an important role in waste reduction is not mentioned.

- 5.4. However as underlined earlier; the main question in the field of waste management is not the legal arrangement itself; but the deficiencies in implementing them. With the effect of some factors such as insufficient institutional capacity, weak technical infrastructure etc, the ability of related legislation to direct the implementation remains very limited.
- 5.5. Basic way to solve this problem is to attach the necessary importance to the development of a waste management as a national policy objective. In other words, combating waste, a problem that has a high potential of environmental destruction, should be adopted as a state policy of highest level. Otherwise, the legal arrangements whose implementation capacity is so limited shall lead to increase in the number of illegal acts and these acts becoming the only way to escape instead of solving the problems.
- 5.6. The duplications, incompatible parts and the issues that are not mentioned in the current legislation should be examined and necessary additions and simplifications should be made. This shall eradicate one of the obstacles in the implementation. Because, “these duplications in the legislation cause work, time and cost loses and decreases efficiency.” as mentioned in the draft National Environment Strategy (2007-2023).

Strengthening the Current Institutional Capacity

- 5.7. According to the Constitution, improving environment, preventing environmental pollution and protecting environment are the duties of all the public institutions and organizations as well as the citizens. In line with this; every person, institution or organization is responsible for the improvement and protection of environment. However, in practice, the actors in both the public and the private sector are not sufficiently effective in this field and cannot fulfil their duties and responsibilities as its requirements.
- 5.8. A sound and effective waste management can be realized with central administration approach. Thus, the main priority in the development of the institutional capacity should be given to the county branches of the Ministry and especially to the local administrations as main implementers. The authority to detect illegal acts, punish, issue license and permit, monitor and audit and other powers and duties should be delegated to local actors. The central administration of the Ministry should be the authority that determines waste management policies and strategies and develops these continuously, ensures the coordination and cooperation among the relevant institutions and organizations, guides and leads them when necessary and audits not directly the waste management activities themselves but the institutions responsible for managing and leading these activities.
- 5.9. The local administrations should be structured with an institutional, technical and financial capacity in proportion to their authorities and responsibilities in this field. As stated in the eighth development plan, National Agenda 21 document and National Program; through establishing waste management units at every Municipality, especially Metropolitan Municipalities, the activities in this field should be planned and carried out by one single unit



having expertise in this field. The commitment stated in the eighth development plan that “Necessary amendments shall be made in the Metropolitan Municipality Law in order to ensure that the solid waste management service is planned and carried out by one single authority” cannot be realized despite the amendment made in the mentioned law. Cooperation with the Ministry of Interior should be established in order to create a model structuring with a view to realizing this aim and ensuring the Municipalities to have an effective organizational capacity in the field of waste management.

- 5.10. Another priority should be the employment of sufficient number of personnel who have expertise in this field both at the Ministry provincial directorates and at the local administrations. Because, these units that have key role in the implementation of the waste management strategy cannot be successful with their current personnel capacity.
- 5.11. It is known that local administrations do not have financial resources in parallel with their responsibilities in this field. It is of great importance to realize the objective stated in the Eighth Development Plan as “the Environmental Clear up Tax” shall be calculated in accordance with the real cost of the services and necessary sensitivity shall be shown during the collection of the tax.” Local administrations can plan costly projects at regional level and can combine their resources. This would be a useful method both in the eradication of weaknesses and in making effective, efficient and economic investments. It is of great importance that the Ministry continues to encourage such initiatives and the relevant institutions give support.
- 5.12. Systemic policies should be developed for the private sector to assume an effective role in this field. Because, only with the investment opportunities of the public sector it would be difficult to get result within a short-term. In EU member countries and other developed countries, the private sector assumes important roles in many categories of waste. In Turkey, the organizations similar to associations established by private sector in order to fulfil their quota liabilities regarding packaging wastes and some special wastes should be encouraged to be turned into professional establishments and it should be ensured that these establishments take active role at all the stages from waste minimization to final disposal. They should be encouraged to invest especially in the field of hazardous wastes. The Chambers of Commerce and Industry and other unions representing the world of business should act more sensitively in the issue of waste problem and lead the collective initiatives in order to find out solutions.

Increasing Coordination and Cooperation among Institutions

- 5.13. During the implementation phase, the success of the national waste management whose legal infrastructure is strengthening day by day depends on whether the relevant institutions can work in coordination and cooperation or not. In other words; the implementation of the waste management strategy can only be realized when the central administration, local administrations and other regional institutions and organization act together with an understanding of effective cooperation.



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- 5.14. As a matter of fact, both in the five-year development plans and in other strategy documents such as plans, programs, reports, etc, it is stated that the powers and responsibilities are distributed among many institutions and organizations; however since the coordination and cooperation among them are so weak; it becomes difficult to achieve success. It is seen in these documents that the need for establishment of effective mechanisms in order to increase cooperation and coordination is frequently underlined.
- 5.15. Despite these findings and evaluations; in practice, the level of coordination and cooperation among the institutions that have power and responsibility in waste management is not at the desired levels. However, the efforts and decisiveness of the Ministry of Environment and Forestry in this field in the last two years have shown that this problem can be solved to a certain extend.
- 5.16. For a stronger coordination and cooperation; the powers and duties should be distributed among fewer institutions and organizations and the duplications arising from previous arrangements should be eradicated. Otherwise; even if coordination and cooperation was established among the current multiple actors; this would only be an inefficient effort leading to waste of resources. For instance; healthcare institutions are responsible for the collection of medical wastes and their temporary storage; Municipalities for the collection from the storages and disposal of wastes and the Ministry of Environment and Forestry and Ministry of Health for the audit. However, since coordination and cooperation cannot be established among these institutions; there are serious neglects in the collection, shipment and disposal of wastes. The medical waste commissions composed of representatives from Provincial Directorates of Health and Environment and Forestry for maintaining coordination in audits at some cities such as Ankara; cannot work effectively and their activities remain very limited and periodic.
- 5.17. In order to eradicate the excessive disorganization in the delegation of powers and overlapping authorities; the Ministry of Environment and Forestry should prepare the ideal necessary work flow chart and apply to Turkish Grand National Assembly in order to eradicate authority delegations that are in contradiction with this chart.

Strengthening the Implementation Capacity and Rehabilitation of the Existing System

- 5.18. Strengthening the implementation capacity requires big-scaled investments. Today, Turkey must finalize the environmental investment not done at previous years on one hand; on the other hand, it must make investments in order to meet newly arising needs in parallel with its rapid development and growth. However, the cost of doing nothing shall be higher than the cost of the investment to be made for the improvement of waste management, namely waste minimization, reuse and recycling. Because, while the capacity of the existing landfilling areas is being exhausted rapidly at the towns which are expanding and becoming crowded; the construction of new landfills becomes a must and the construction of new areas which are far from the city centres require high costs, and their operational costs and shipment costs are rapidly increasing. Thus; if the realization of permanent and precise solutions is delayed and the existing system is still used; resources shall



inevitably be wasted. In other words; investments with high costs, which are necessary for permanent solutions can only be delayed for a short period and besides, solving the problems caused by the existing system shall require high costs as well.

- 5.19. The Ministry of Environment and Forestry acting with this approach has made the necessary arrangements for the rehabilitation of wild landfilling system, which has become insolvable since its establishment and initiated the necessary studies in order to ensure that Municipalities take action.

Figure 10: An example of a wild storage area overlooking sea, which needs rehabilitation



- 5.20. After the Solid Waste Control Regulation came into effect, the Ministry issued a circular dated 08.11.1992 in order to remind the Municipalities their liabilities in terms of regular land filling areas introduced with this Regulation (nearly 15 years ago). In the circular, it is stated that irregular storage conducted so far throughout the country is a potential danger for environment and human health and it is demanded from the Municipalities that they should make the necessary preparations for the rehabilitation of the existing landfills and construction of the new ones and should apply to the Ministry for these studies. A handbook regarding the construction and operation of these areas was published and sent to Municipalities. New circulars were issued during the years 1993 and 1995 as well.
- 5.21. However; since the facilities of the Ministry are limited and the Municipalities do not have sufficient resources and not show the necessary sensitivity for this issue; the existing poor structure has remained so far. The rehabilitation activities were limited with a very small number of old garbage areas and the construction of new landfills has been very unstable and slow.
- 5.22. Hence, strengthening the implementation capacity and the rehabilitation of the current system are the prioritized issues of today's waste management system. It is of great importance that the responsible institutions completely and immediately take necessary measures in order to reflect the requirements of the legal arrangements, EU Acquis and internally standards



during the stage of implementation. It is also vital that the Ministry assumes leadership in this field develops monitoring and auditing activities and imposes the necessary sanction without making any concession.

- 5.23. In the project papers, which are shaping the future waste management strategy, the way to develop the waste management is to make investments, which require high costs. This may be a realistic approach, which shall help finding solution to this problem. However, the solution to this problem shall take long periods if we are to be pessimistic; since alternatives to these projects are not produced and the interim solutions are being neglected. Because even if the programs are applicable which require approximately 60 billion Euro a significant part of which is envisaged to be financed through the EU funds; it seems that they are not likely to be finalized in medium or short term.
- 5.24. Likewise; it is known that in some EU countries, there is not an ideal structure and the new member countries are given additional time after the membership to complete the harmonization in this field. Thus; establishment of the ideal system should be planned as a long-term objective and besides, interim policies should be developed in order to improve the system in the medium and short term and to prevent the harm made to environment as much as possible in addition to such attempts to find the ideal solution. For instance; river, lake and sea dumping and those that threaten drinkable water resources and the agricultural lands can be prevented without realizing the alternative of regular storage area. Thus; such kind of acts that cannot be underestimated must be ended and emergent measures should be taken in order to direct dumping to more secure landfills.
- 5.25. Necessary researches should be made in order to prepare more concrete projects for long-term studies and to support them with alternative resources. Especially, the studies towards encouraging the private sector should be focused on. Because; as a compulsory result of the principle of “polluters pay”; the private sector has more responsibility in assuming the costs of investments.

Preparation of Strategy, Plan and Implementation Guidelines

- 5.26. Although the legal arrangements and other documents such as national plan, program, etc has constituted a strong ground for the waste management strategy; it is clear that the short, medium and long term objectives, principles and policies of the waste management, the necessary structures and processes should be indicated in a strategy document. Both the national legislation (especially the Environmental Law) and the EU Directives whose requirements we must fulfil during the harmonization process require the preparation and implementation of strategy and plans at national, regional and local levels. In the 2005 EU Progress Report of Turkey and 2006 Accession Partnership Document, the preparation of a national waste management plan is underlined.
- 5.27. Despite the fact that the objective of Turkey Solid Waste Management Project carried out in 1995 was the preparation of a national waste management strategy and this objective was also reflected in some other



projects later; this liability has not yet been realized today. Moreover; in the harmonization strategy developed by the Ministry of Environment and Forestry in order to harmonize with EU; the preparation of a national waste management system was depended on the EU's financial and technical support of 10 million Euros and this shows that such a strategy document can not be realized in the short-term.

- 5.28. In fact, Turkey has shown progress in strengthening its waste management in the last few years. The environmental policies have been reviewed; the pillars necessary to establish a more sound strategy have been developed; comprehensive studies have been conducted and serious steps have been taken in order to establish a strong implementation infrastructure. The thing that has to be done after this stage is to ensure the sustainability of such actions and to implement them decisively. This should be framed with a national strategy document, which is to be approved and put into effect by the Council of Ministers.
- 5.29. For the successful implementation of the strategy document to be prepared, it is clear that it must be supported with an action plan. Besides a strategy, monitoring group should be composed with a view to monitoring the implementation of the strategy and to reporting its results.
- 5.30. Another fundamental instrument, which shall strengthen the implementation and ensure its standardization, is the development of implementation guides. The ministry prepared a number of 16 guides for local administrations in order to show them how to implement the waste management and this constitutes a very good start. However; the number and variety of these guides should be increased and their content should be enriched by means of research activities and the feedbacks received from the implementers.
- 5.31. The waste management implementation guides should be prepared according to each type of waste producing facilities and based on topics. For instance, waste management guides can be prepared for hospitals, industrial facilities, public institutions, commerce centres, big settlements/apartments, big shopping centres, etc. Likewise; for the industrial establishments, guidebooks that are including case studies should be prepared in the field of waste minimization. Handbooks on the environmental-friendly processes and technologies should be published.

Revising and Improving Waste Minimization Strategies

- 5.32. Both in the environmental legislation and in other arrangements such as Turkish Criminal Code and Law on Misdemeanours, the activities endangering environment are defined and the punishments that are to be applied to such acts are stated. However, the economic incentives for the firms that take all the measures and make investments to the environment are not stated. Nevertheless, for the realization of a sustainable development, the incentives do have a more important function than increasing the liabilities or penalties.
- 5.33. Due to high costs of the investments made for environmental protection and when the fact that the monitoring and auditing activities are not carried out properly is considered; the competitive power of the firms that are taking



measures for environmental protection shall be inevitably lesser than the others. Thus; environmental investments incentives should be given.

- 5.34. Incentives that can be given to the firms sensitive to environment are tax rebate, investment incentives, etc. The environment label (eco-labelling) has been used in EU in order to encourage the production and usage of environment-friendly products since 1992. The adaptation of this practice shall encourage the design, production, marketing and usage of environment-friendly products. In this system, the products whose harmful effects over the environment from production to disappearance phase are reduced are granted with "environment label". Another similar practice is EMAS (Environmental Management and Audit System) whereby information about the performance of the facilities in terms of environmental protection is announced to public following the audits of the programs and management systems for environmental policies of these facilities. (To a certain extent, this system is parallel to ISO 14000.) The Ministry can develop original mechanisms similar to EU practices and by means of these mechanisms, environmental awareness can be raised and kept alive among the public, while environmental sensitive firms are encouraged through several activities such as annual award ceremonies, etc.
- 5.35. Although introducing quota practice for the recycling of packaging wastes is such a very important step; this practice does not serve to its final objective. First, quota practice does not have a function towards waste minimization. However, the primary element of waste management is waste minimization. Secondly, a mechanism that shall secure the sound implementation of quota practice does not exist. In practice, the firms themselves give information concerning the amount of the packages they produce and their recycling rate and to what extent these information reflects the reality cannot be tested. Besides, it should not be expected that the quota practice that does not give any responsibility to consumers provide high rates of recycling. Thus; instead of the practice of quota; especially for the reusable packages, the practice of deposit, which is also an increasing trend in developed countries shall bring more success.
- 5.36. This practice of depositing shall encourage directly the consumers for recycling and the consumer who has used the product shall give back its package in return of money. In this way, this product may be reused or used as a production input. Hence, it is not a sound approach to impose the depositing practice as a penalty to the firms that do not fulfil their liabilities for quota practice in the field of packaging. Previously the practice of depositing was more common in Turkey; however later in order to increase their sales, the firms introduced the campaigns without depositing and now; nearly no firm use the practice of deposit. However; this process can be easily reversed and through this way; in a very short time, the recycling rates of many products can be increased over 60% which is aimed for the year 2014.
- 5.37. Another improper practice is that in the packaging wastes, only the firms which cannot fill their quota are imposed the penalty of depositing in accordance with the relevant regulation. It does not seem possible that the practice of depositing is regarded as a rational policy in the field of recycling and the recycling liability which is now at a rate of 30% is increased to 60% within the coming 7-8 years without introducing the practice of depositing, in other words giving responsibility to consumer.



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- 5.38. For the products to which the depositing system cannot be applied; tax may be imposed for each product item offered for sale similar to the best practices of the developed countries (for instance Belgium). For the products that the consumer cannot assume responsibility due to their long usage periods or other features (such as cameras, shaving machine, etc); environmental tax can be imposed for each product (as in the case of Germany).
- 5.39. Increasing the compost production and making its usage widespread should be among the national strategy objectives. Because; Turkey needs this resource and since the organic substance are sent to landfilling areas; compost can be used, the life of the landfilling areas shortens, and the shipment costs increase.
- 5.40. In the financing of the waste management; although the waste producers must cover all the costs as required by the principle of “polluter pays”, there is not any arrangement in this regard. As known, the main objective of this principle is encouraging the producers to use clean technologies and decreasing the amount of the waste. Thus; there is need for arrangements in order to make the waste producers assume all the costs of wastes. Instead of fight against pollution after polluting, there is need for deterrents preventing pollution. Thus, especially the hazardous waste producers should be made to assume all the disposal costs of the waste they produce. The most rational way to do is first to take the amount of hazardous waste under control and secondly to construct waste disposal facilities the number of which is not adequate now with the help of the producers. In other words; in order to reflect the costs required for the proper disposal of the waste produced to waste producers, firstly, sound mechanisms that ensure the proper disposal of these wastes must be developed.
- 5.41. Except the environmental clean up tax; another tax titled “waste tax” should be collected and this tax should be regulated on the basis of the type, amount of the waste and its rate of hazard, etc. It should also include the tools that shall encourage the initiatives of waste prevention or minimization and discourage the acts with a high potential of producing pollution.
- 5.42. In brief, the arrangements and policies regulating waste management must be reviewed with an approach aiming to minimize the quantity of waste that is to be managed.

Strengthening Public Awareness and Participation

- 5.43. Solving waste management problem, which is growing rapidly and constituting a threat on environment and human health and development of a sustainable waste management system can only be realized when the education institutions, civil society and individuals as well as central administration, local administrations, industrial and commercial establishments and waste sector are aware of their responsibilities and fulfil them. Thus, participatory governing approach is of vital importance in this field.
- 5.44. In the waste management as in other environmental issues, participatory governing at local, national and global level has become a must.



Strengthening participation shall bring great benefits in solving these problems and in realizing a sustainable waste management. Thus; cooperation with several non-governmental organizations acting with a view to strengthening environmental consciousness and improving the environment should be developed; and facilities of these establishments should be used and when necessary, their activities should be supported.

- 5.45. It is stated in various strategy documents (plans, programs, etc.) and reports that the education and awareness raising activities are inadequate and among the objectives, the activities in this field shall be focused on. For instance; in the National Agenda 21 Document, it is stated that “In order to ensure the participation of the social groups, especially the women and youth to waste management; the lessons on waste minimization and waste management shall be included in the curriculums appropriately and consumers shall be trained by means of various training programs as well as frequently organized campaigns.” In the same document, encouraging the consumers for recycling and raising awareness in this regard, ensuring the participation of social groups in recycling activities actively are stated as objectives. Despite such clear commitments and the importance given to participation and awareness raising activities, it is observed that no activity is carried out at the Ministerial level towards this objective except from pilot activities carried out by several Municipalities.
- 5.46. First, the important roles of individual consumers and household in development of a sustainable waste management should not be underestimated. Because; for purchasing of recyclable products producing less waste, separation of wastes at the source, management of wastes especially at local level in the best way; the participation and contribution of each individual is of great importance for obtaining success. Thus organizing campaigns and preparing materials for raising awareness and training, supporting the initiatives of the establishments operating in this field and increasing access of big masses to these through benefiting from all the facilities, especially from internet should be adapted as main policy and put into practice without delay.
- 5.47. With an Article added to Environmental Law in April 2006, it is stated that with a view to protecting the environment and creating public awareness; in the curriculums of the schools affiliated to the Ministry of Education, lessons on environment shall be included. For the general education, it is stated that the programs concerning the importance of environment in order to raise an environmental consciousness should be broadcasted via televisions and radios. For television channels at least 2 hours and for radios at least one hour; it is obligatory to broadcast such educational programs monthly. If this arrangement was applied effectively, it would contribute to the public awareness raising activities and to solve the problems.
- 5.48. It is clear that the problem cannot be solved with the existing structure and policies in the desired way due to its urgency and high cost. Thus, in order to make progress and establish a strong infrastructure needed; first, the participation of the establishments such as the central and local administration, private sector, civil society, academia, etc should be increased to maximum levels. Considering the devastating effect of delaying the problem, it should be ensured that all the individuals and parts of the society make the required sacrifices. Briefly, a collective national struggle is necessary for the solution of this problem and highest level of participation to this struggle should be ensured.



Annexes

Annex 1: Working Methodology

1. In this audit study, mainly the waste management strategy of Turkey and its success in the implementation were evaluated. The strengths and weaknesses of Turkey's national waste management strategy, the framework of which was established with several documents such as legal arrangements, international agreements, national plans and programs, etc were assessed through benchmarking with EU Acquis and best practices in terms of its scope, instruments and objectives, and those areas that need further development were identified. Furthermore, recommendations with regard to required structure and processes were tried to be developed through assessing the sufficiency of existing institutional and technical capacity, and the efficiency of activities in this field.
2. In order to be able to assess the waste management strategy of Turkey, legal arrangements, international agreements and other legal documents were examined at first hand. By scanning the wide literature with regard to waste management strategy and press releases; good practices were determined, and other country implementations, especially UK and the studies conducted by relevant international organizations were examined for benchmarking.
3. In the second phase of audit process, the organizational structure, powers and responsibilities, control, monitoring and audit activities, institutional and technical capacity, studies for strengthening implementation capacity and other activities regarding waste management of the Ministry of Environment and Forestry were examined. Interviews were made with relevant managers and key personnel. Activity reports, documents related to the projects, communications, various types of written and electronic information, document and records were analyzed.
4. With a view to assessing the practices of Ankara Metropolitan Municipality, interviews were made with authorized personnel from the Municipality in the first place. Files for the last five years and the documents for current practices were analyzed. Examinations were made at Tuzluçayır, Mamak and Çadırtepe waste storage areas. Sample case study with regard to medical waste management process was conducted at Bayındır and Güven Hospitals. Moreover, on site examinations were made in order to assess the waste management activities of Ankara Provincial Directorate of Environment and Forestry. Related files and document were analyzed; and interviews were conducted with the directors and technical personnel.
5. Approaches adopted by Non-governmental Organizations were tried to be assessed via internet. A meeting with Waste Management Foundation was realized.
6. Prof. Dr. Ülkü Yetiş from Middle East Technical University, Department of Environmental Engineering, whom is renown in the field of waste



management theory and implementation, carried out the external quality assurance of the audit process and the final report. Prof. Yetiř made invaluable contributions by analyzing the outputs of different phases of the study.

7. The audit was completed within four months during the period of February-May, 2006. The Draft Report was finalized and sent to the auditees for their opinions in October 2006. Following the assessments made on the auditee opinions, the final report was drafted by the end of 2006.



Annex 2: Implementing Regulations and Communiqué Regulating Waste Management

Implementing Regulation / Communiqué	Official Journal Date and Number
Implementing Regulation on the Control of Solid Wastes	14.03.1991 / 20814
Implementing Regulation on the Control of Waste Oils	21.01.2004 / 25353
Implementing Regulation on the control of Excavated Soil, Construction and Debris Waste	18.03.2004 / 25406
Implementing Regulation on the Control of Packaging and Packaging Wastes	30.07.2004 / 25538
Implementing Regulation on the Control of Used Batteries and Accumulators	31.08.2004 / 25569
Implementing Regulation on the Control of Hazardous Wastes	14.03.2005 / 25755
Implementing Regulation on the Control of Waste Vegetable Oil	19.04.2005 / 25791
Implementing Regulation on the Control of Medical Wastes	22.07.2005 / 25883
Regulation for Control of the Tyres Which Have Completed their Life-Cycle	25.11.2006 / 26357
Communiqué on the General Rules for the Use of Wastes as Additional Fuel	22.06.2005 / 25853



Annex 3: Opinions of Auditees

1. The Draft Report was sent to the Ministry of Environment and Forestry and Ankara Metropolitan Municipality as auditees on the date 15.11.2006 for their opinions.

Opinion of the Ministry of Environment and Forestry

2. In the reply letter sent by the Ministry of Environment and Forestry with the signature of Undersecretary Prof. Dr. Hasan Z. SARIKAYA, it is stated that "After examination of the draft report by the Ministry, it is understood that the detections and analysis made with regard to waste management strategy, legislation, current situation analysis, institutional capacity and infrastructure as well as the implementation capacity and its deficiencies reflect in general the current situation clearly and objectively. However, inclusion of the following information to the report is considered to be useful for the unity of the report." Accordingly, this information is given under 10 items.
3. In the letter, it is also stated that the Environmental Law No: 2872 amended by the Law No:5491 dated 26.4.2006 specifies the fundamental principles, policies and strategies with regard to waste management; these strategies and principles are mentioned in the implementing regulations regarding waste management the list of which is given above. At the same time, it is added that studies towards harmonizing the national legislation with the Waste Framework Directive No:75/442/EC that covers the principles regarding this issue and compilation of the strategy in one single policy paper and the draft Waste Framework Regulation prepared for this aim are planned to be enacted by the end of this year.
4. Other matters mentioned in the letter, most of which cover additional and up-to-date information, were largely included to the report as well.

Opinion of Ankara Metropolitan Municipality

5. In the reply letter sent by Ankara Metropolitan Municipality with the signature of Assistant Secretary General Arif YILMAZ, it is stated that the draft report is deemed appropriate.



Annex 4: Definitions

Waste Minimization: Reduction of both the quantity and the level of hazardousness of wastes. Aims at minimizing the quantity of wastes disposed to nature through reducing wastes at source (waste prevention) and transforming wastes to economic asset via recycling, reuse and incineration.

Incineration: Disposal of wastes through burning in order to reduce in volume and/or generate electricity at specially designed facilities and a method of energy recovery. Through incineration, the principle of which is to reduce the volume of waste that must be landfilled; solid wastes can be reduced by as much as 80-90% in volume and 75-80% in weight.

Irregular Storage: Haphazard dumping of wastes without taking any measures to open spaces, seas or rivers in a way that leads to irritating scenes and odour, water, soil and air pollution.

Integrated waste management: Refers to the necessity of handling solid waste management methods such as waste minimization, prevention at source, recycling, reuse, composting, energy recovery, etc. within a unified approach that is to reflect minimum effect on environment and human health with a view to ensuring effectiveness and security in waste management.

Open Burning: Uncontrolled burning of wastes at irregular storage areas to reduce the volume of wastes

Recycling: Feeding discarded wastes into the production process as raw material after being treated physically and/or chemically. Aims at reprocessing of used materials such as paper, glass, plastic, etc. and adding value to economy.

Recovery: Converting the components of wastes in terms of their features to different products or energy through physical, chemical and biochemical methods. In other words, a waste management operation whereby a discarded waste is converted to a new product through reuse, recycling and energy generation.

Composting: Process of obtaining high-quality soil conditioner (a type of fertilizer) through decomposing organic-based solid wastes in oxygenated-environment. Composting is composed of such operations: separation of organic materials from wastes, downsizing, moisturizing, stabilizing and preparation for use.

Radioactive Waste: Wastes that are produced as a result of nuclear reactor processes or medical researches, military or industrial activities.

Sustainable Waste Management: It can be defined as minimization of resources wasted in storage areas and incineration facilities, reaching maximum levels in recycling, replacing materials that cannot be recycled and reused with reusable and recyclable materials. Main objective is to prevent excessive use of natural resources and to minimize environmental, economic and social costs of wastes produced.

Sustainable Development: Economic growth policies ensuring that the needs of present generation are met without compromising the ability of future generations to meet their own needs. Main purpose is to create a balance between the development initiatives and protection of environment.



Hazardous Wastes: Waste materials that are biologically, chemically and physically flammable-torrid, toxic, destructive or can be hazardous and harmful after interacting with another material, which require special treatment during disposal process for the prevention of potential negative effects on environment and human health.

Reuse: Use of wastes more than once without any treatment, excluding cleaning

Wild Storage: See Irregular Storage

