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## Glossary of Terms, Acronyms and Abbreviations

CEE	Central and Eastern Europe
DG	General Directorate
DPT	State Planning Organization
DSI	State Hydraulic Works
DSIP	Directive Specific Implementation Plan
DST	Decision Support Tool
EC	European Commission
EEA	European Environment Agency
EIA	Environmental Impact Assessment
EU	European Union
GAP	South Eastern Anatolia Project
GDP	Gross Domestic Product
IAOIZ	Izmir Atatürk Organized Industrial Zone
IPPC	Integrated Pollution Prevention and Control
IULA-EMME	International Union of Local Authorities, Section for the Eastern Mediterranean and Middle East Region
LCP	Large Combustion Plant
MoEF	Ministry of Environment and Forest
NEAP	National Environmental Action Plan
NPAA	National Programme for the Adoption of the Acquis
OECD	Organization for Economic Cooperation and Development
pNDP	Preliminary National Development Plan
REC	Regional Environmental Centre
SOE	State Owned Enterprises
SWM	Solid Waste Management
SWOT	Strengths-Weaknesses-Opportunities-Threats
TUPRAS	Turkish Petroleum Refineries Co.
VOC	Volatile Organic Compounds

# 1 Introduction

In this Report has been prepared as a Working Document to identify and brief a set of completed and /or on-going projects, which are relevant to Technical Assistance for Environmental Heavy-Cost Investment Planning Project. The Report is for internal use of ENVEST Planners as well as for submission to the Client and the Beneficiary on request as it is mentioned in the Inception Report of the Project.

This working paper is the first component of the Output “Institutional assessment of Turkish institutions involved in environmental investment planning in relation to the procedures used for identification and prioritization of environmental projects, which are required for Turkey to comply with the acquis.” referred in TOR Clause 2.2 (1). This working paper will be followed by the working papers “Review of Existing Studies”, “Project Management Guideline” and “Training Needs Assessment”. Furthermore the specific components of the task shall be available in the related versions of the directive specific implementation plans to be produced as an output of the project.

The Report covers some development policy documents, which impact environmental issues in Turkey, and environment-specific policy documents. EU accession strategy documents are also included among the policy documents.

Some completed and/or on-going relevant projects, which are funded by EU or by other donors, as well as national budget, are also briefed in the Report. These projects are either carried out by the Ministry of Environment and Forest or by other government institutions and NGOs.

## 2 Policy documents

### 2.1 Development Policy Documents

#### 2.1.1 VIIIth Five Year Development Plan<sup>1</sup>

The VIIIth Five-Year Development Plan covers economic, social, cultural and environmental policies of Turkey between 2001 and 2005. It is very rare that targets are quantified or made time specific.

Cost of implementation and financial resources are not estimated in the Plan. There is a specific chapter on environment. In chapters like water supply and sanitation, forestry, agriculture, transport, etc. there are also some policies regarding environmental issues.

It is recognized in the Plan that “It is a necessity to construct the lacking wastewater infrastructure for the supply of sufficient and healthy drinking water”.

Protection of water resources is linked with the regional policies in the Plan: “Para. 541. Regional development policy defined with these objectives consists of five components which are the strengthening of transport and communications infrastructure, improving and management of multi purpose water resources, improving land ownership and land use, reinforcing local administrations and improving human resources”<sup>2</sup>.

Other policies regarding water resources and waste water treatment are as follows:

“Para. 1660. The underground and surface water resources shall be protected against pollution, and use of treated wastewater in agriculture and industry shall be encouraged”<sup>3</sup>.

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<sup>1</sup> VIIIth Five-year Development Plan, DPT, Ankara, 2000.

<sup>2</sup> VIIIth Five-year Development Plan, pp 73, DPT, Ankara, 2000.

<sup>3</sup> VIIIth Five-year Development Plan, pp 197, DPT, Ankara, 2000.

“Para. 1664. As regards infrastructure facilities, suitable technology for settlement conditions shall be sought and used effectively, and the material and equipment requirements shall be met primarily from the domestic market”<sup>4</sup>

Para. 1787. Drinking water shall be provided for the villages without sufficient and healthy drinking water. Rural sewage systems shall be expanded in regions having environmental risks and in tourism sites”<sup>5</sup>.

These policies draw the attention to the reuse of treated wastewater and priority of tourism sites.

Financial mechanisms to support the water supply and sanitation activities are roughly foreseen in the Plan:

“Para 1662. Continuous and sufficient provision of municipal water services on the condition that its cost is paid regularly shall be ensured and emphasis shall be given for the protection of consumers.

Para 1668. Implementation of a tariff system complying with contemporary management principles shall be ensured.

Para.1669. In line with urbanization and improving living quality, resources allocated to the urban infrastructure investments shall be increased. Introduction of Build-Operate or Build-Operate-Transfer models in new investments shall be encouraged with a view to ensure rational distribution of available resources to the facilities which already exist or under construction continues.

Para. 1670. Privatization of water and sewerage facilities shall be encouraged and the municipalities shall be restructured as supervisory mechanisms”<sup>6</sup>.

These policies may support the financial strategy to be produced in our project, but needs quite deal of elaboration. For example, contemporary management principles are not defined - leaving tariff system prone to interpretation. In other words conformity with the Water Framework Directive is not clear. The public-private partnership (PPP) and the full cost recovery principle are not explicitly spelled out.

The provision (No 1674) regarding restructuring of General Directorate of Bank of Provinces has been gradually implemented starting from the beginning of 2004. On the other hand, provision (No. 1675) related to establishment of water and sewerage administrations in the municipalities with population over 100 thousand has not been realized yet. However, it should be noted that there is a process of drafting new Local Administrations Act. These policies points at the priorities of the urban environmental infrastructure projects to be started at the municipalities, which have population greater than 100.000.

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4 VIIIth Five-year Development Plan, pp 198, DPT, Ankara, 2000.

5 VIIIth Five-year Development Plan, pp 210, DPT, Ankara, 2000.

6 VIIIth Five-year Development Plan, pp 198, DPT, Ankara, 2000.

Solid waste management policies stated in the Plan are in conformity with the EU Waste Framework Directive:

“Para. 1681. Concerning the disposal of domestic wastes, the most appropriate method shall be preferred taking into account the investment and management costs.

Para. 1683. The stages of sorting on the spot, collection, transport, recycling and disposal of domestic solid waste management shall be assessed as a whole with respect to technical and financial aspects.

Para. 1687. Medical and hazardous wastes and special wastes such as used grease, tires and batteries shall be collected, transported, disposed and supervised safely”<sup>7</sup>.

Institutional and financial (particularly cleansing tax and waste charges) aspects of waste management are also considered in the Plan:

“Para. 1684. In the metropolitan municipalities, solid waste management services shall be planned and implemented by a single authority.

Para. 1685. Waste Collection Tax shall be determined according to the real cost of the service and necessary attention will be paid to its collection.

Para. 1686. Financial support provided for solid waste projects by the General Directorate of Bank of Provinces shall be increased”.

No study has been recorded on Cleansing Tax, and its revision in legislation to allow correlation with the real costs of service. The policies need further elaboration and studies to specify the real costs of services and translate them into user charges.

Regarding fuel quality improvement, the following provision is included in the Plan:

“Para. 1150. Necessary investments for gasoline and diesel fuel production, in accordance with the EU norms, shall be further pursued within the plan period”<sup>8</sup>.

#### Availability of the Report:

- Electronic copy in pdf format in Turkish and in English in the e-library of ENVEST Planners

<sup>7</sup>VIIIth Five-year Development Plan, pp 199, DPT, Ankara, 2000

<sup>8</sup> VIIIth Five-year Development Plan, pp 136, DPT, Ankara, 2000

### 2.1.2 Preliminary National Development Plan (2004-2006)

Preliminary National Development Plan is a strategic plan with long, medium and short term objectives and priorities. There is SWOT analysis, cost estimations for the policies set together with the financial resources as well as time-frame.

The general framework of the Turkey's development strategy is given under three headings<sup>9</sup>:

1. Long-term Strategy,
2. Five main objectives and priorities of the medium-term strategy,
3. The development axes of the pNDP towards economic and social cohesion with the EU.

“Improving infrastructure services and environmental protection” is one of five medium-term strategies.

There are four development axes of the Preliminary National Development Plan Strategy for Economic and Social Cohesion with EU:

- i. **Development Axis 1:** Enhancing the competitiveness of enterprises
- ii. **Development Axis 2:** Developing the Human Resources and Increasing the Employment
- iii. **Development Axis 3:** Improvement of Infrastructure Services and Environmental Protection
- iv. **Development Axis 4:** Increasing the Economic Power of Regions, Reducing the Interregional Development Disparities, and Accelerating Rural Development

Environmental protection is stated as a priority under Development axis-4.

“The competitiveness of the agricultural and industrial enterprises will be enhanced through improving technology and quality level and EU norms will be considered in environmental issues” is stated as one of the priorities under development axis-1 with a cost estimation of 55 million Euros in total. The following measure is suggested regarding industry and environmental issues:

“**Measure 1:** Measure Quality and efficiency awareness will be enhanced and quality infrastructure of the enterprises will be improved<sup>10</sup>”.

<sup>9</sup> Preliminary National Development Plan, pp 74, DPT, Ankara December 2003.

“Preservation of the water resources, increase in productivity of drinking water and sewerage services and of solid waste management” is stated as a priority under development axis-3 with a cost estimation of 27 million Euros between 2004 and 2006. The following measures are suggested to accomplish this priority:

**Measure 1:** For the preservation of the water sources, rendering water supply and sewerage services efficiently, necessary planning and monitoring infrastructure will be supported and the institutional capacity of central and local authorities responsible for these activities will be strengthened.

**Measure 2:** To increase effectiveness of solid waste management services, informing the households with a view to decreasing the amount of waste and to have it segregated before collection, and increasing the institutional capacity of local authorities will be supported<sup>11</sup>.

There are indicators defined for monitoring and evaluation of the implementation of each priority. Followings are among them:

- Work towards the preparation of the projects and programmes relating to resources to be used in environmental infrastructure investments will be carried out.
- The number of the educated staff will be increased and improvement of institutional infrastructure will be started in order to provide efficiency in operation of environmental infrastructure investments.
- Reviewing and assessment reports will be prepared.
- Decision support systems regarding water services will be improved.
- The change in the amount of solid waste per capita and the amount recycled per capita in Turkey will be monitored.
- Households will be informed about segregation at the very source.
- The environmental awareness of the enterprises will increase.

Availability of Report:

- Electronic copy both in English and Turkish in the e-library of ENVEST Planners

10 Preliminary National Development Plan, pp 107, DPT, Ankara December 2003.

11 Preliminary National Development Plan, pp122, DPT, Ankara December 2003.

## 2.2 Environmental Policy Documents

### 2.2.1 National Environmental Strategy and Action Plan of Turkey (NEAP)<sup>12</sup>

The National Environmental Action Plan (NEAP) for Turkey was prepared by a participatory process under the coordination of the State Planning Organization and funded by the World Bank starting from 1995 for setting appropriate economic and social policies, and essential steps including the development of an environment strategy; for identification of priorities in relation to the environmental investments, creation of the basis of collaboration between relevant organizations; and collection of information on environmental investment programs to mobilize the support of the international organizations.

Within the scope of the project, nineteen thematic “working groups” were formed. The National Environmental Action Plan was assembled within this framework, basing on the reports prepared by the working groups. Most of the working group reports were printed by the State Planning Organization, and some of them are available in Turkish at the web site of the DPT (<http://ekutup.dpt.gov.tr/cevre>).

NEAP published both in Turkish and in English in 1998 covers economic, social and physical profile of Turkey, environmental management aspects and environmental profile of Turkey under the subtitles of “The Urban Environment, Natural Resource Management, Marine and Coastal Resources, Cultural and Natural Heritage Sites, Natural and Man-made Hazards, Priority Geographical Areas”. The priority list for environmental investments, and sector specific action plans are also available in the NEAP.

NEAP is not implemented in a systematic way due to weak commitment of the Government.

Integration of water resources management and sanitation is detailed in the NEAP with the following options:

- “Shift to resource management in water basins (institutional reforms, legal changes, data collection);
- Ensure that water use charges are linked to the sustainability of the resource base and are used to operate and maintain the supply;
- Set wastewater charges to account for the quantities generated and nature of the receiving body, and use the revenues to protect water resources;
- Assess the impact of development activities on water quality through effective application of the EIAs<sup>13</sup> ”.

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<sup>12</sup> Turkey National Environmental Strategy and Action Plan, DPT, Ankara, 1998.

NEAP suggests policies regarding urban environmental infrastructure as well:

- “Increase the supply of potable water in low-income urban neighborhoods and villages;
- Expand the quantity and quality of wastewater treatment facilities, and encourage more private sector involvement/corporatization of water and wastewater utilities, in provision and management; and
- Enforce industrial wastewater treatment standards and measures, especially in state enterprises<sup>14</sup>”.

NEAP also suggests some policies which are very much in line with the EU fuel quality directives and LCP directives:

- “Accelerate the program to promote wider use of lead-free gasoline (through fuel pricing, domestic production of suitable vehicles, import controls, public awareness);
- Encourage and enforce pollution control and environmental management measures for energy producers, especially power plants and the mining sector<sup>15</sup>”.

Solid waste management policies suggested in the NEAP are in conformity with the EU Framework Waste Management Directive: “Develop technology for recycling, resource recovery and waste minimization”.

In order to support this policy, it is proposed that municipal institutions should be strengthened (to generate revenue, coordinate efforts, measure performance, etc.)<sup>16</sup>.

Since tourism sector is growing considerably in the country and gets considerable share in the GDP, while it puts growing pressure on natural resources especially in the coastal zones, it is highlighted “Internalize tourism’s impact on pollution by covering the cost of solid and liquid waste disposal, water supply and protection of historical, cultural and natural assets<sup>17</sup>”.

Priority geographic areas, in other words hotspots are identified as

- Urban slums
- Çanakkale - İçel coastal zone

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13 Turkey National Environmental Strategy and Action Plan, pp 40, DPT, Ankara, 1998.

14 Turkey National Environmental Strategy and Action Plan, pp 34, DPT, Ankara, 1998.

15 Turkey National Environmental Strategy and Action Plan, pp 32, DPT, Ankara, 1998.

16 Turkey National Environmental Strategy and Action Plan, pp 36, DPT, Ankara, 1998.

17 Turkey National Environmental Strategy and Action Plan, pp 52, DPT, Ankara, 1998.

- Sea of Marmara and its hinterland
- Izmir Bay and environs
- Istanbul Province
- GAP region

where may be considered as a criterion in prioritization of the investment projects.

Some priority projects are proposed in the NEAP as well<sup>18</sup>. To tackle Turkey's key problems of the **urban environment**, which is the most relevant to our project, some projects are proposed to: improve waste management; encourage clean technologies and energy sources; and upgrade urban slums.

#### Availability of Report:

- Hard copy in Turkish in ENVEST Planners library
- Electronic copy in English in the e-library of ENVEST Planners

### 2.2.2 Environmental Performance Reviews: Turkey<sup>19</sup>

OECD review of Turkey's environmental performance examines results until May 1999 in the light of domestic objectives and international commitments.

The report is organized in three parts according to the strategic goals identified by OECD Environment Ministers:

- Part I is entitled "Pollution control and management of Resources" and focuses on water, air, and biodiversity and nature conservation;
- Part II is entitled "Integration of Policies" and focuses on institutional aspects and on how policies concerning economics and tourism are integrated with environmental policies;
- Part III is entitled "Co-operation with the International Community" and focuses on international environmental topics concerning Turkey.

The Report gives a clear picture of water quantity, water quality (surface waters, ground water, drinking water, and bathing water), wastewater and air quality issues together with institutional, regulatory and economic responses of the country. It is a very clear and brief analytical picture of Turkey regarding her environmental performance in these issues and it can be used as an information source for our Project.

<sup>18</sup> Turkey National Environmental Strategy and Action Plan, pp 64, DPT, Ankara, 1998.

<sup>19</sup> Environmental Performance Reviews: Turkey, OECD, Paris, 1999.

Availability of the Report:

- Hard copy both in Turkish and English in ENVEST Planners Library

### 2.2.3 Turkey's Environment by REC

Turkey's Environment and its Stakeholders was written by some REC staff and its Turkish consultant Merkat Inc. as part of the REC Extension to Turkey project and supported by the European Commission, DG Environment. The Report was published in 2002 by The Regional Environmental Center for Central and Eastern Europe (REC), which is a non-partisan, non-advocacy, not-for-profit organization with a mission to assist in solving environmental problems in Central and Eastern Europe (CEE). It gives background information about Turkey's demographic situation and an introduction to the Turkish environmental sector; the current state of the environment in Turkey; the European Union, Turkey and the environment; national and international environmental institutions and donor organizations; and the main challenges of environmental management in Turkey. With respect to EU accession, this report deals with broad concepts. However, it deals more precisely with accession priorities whereby the REC could assist Turkey in this process.

Availability of the Report:

- Electronic copy in the e-library of ENVEST Planners
- Hard copy in the library of ENVEST Planners

## 2.3 Policy Documents for Accession to the EU

### 2.3.1 The National Program of Turkey for Accession to the EU (2001)<sup>20</sup>

The National Program includes, in the first place, legislative arrangements that need to be effected in the process of adaptation to the EU standards. These arrangements, however, entail some policy changes, institutional rearrangements, changes in some practices and capacity enhancement. It is, in a sense, a project for a full-fledged structural change. Compared to the Development Plan, the National Program therefore plans for more concrete actions together with their timing and financial burden. It is an important document of national commitment since its implementation is closely followed by the EU and documented through periodic progress reports. It has a specific chapter on Environment. Some background information are summarized, relevant national legislation, responsible institutions, capacity development needs are listed in subsections of the Environment chapter on different sectors of environment.

<sup>20</sup> The National Program of Turkey for Accession to the EU, Secretariat General for EU Affairs, Ankara 2001.

The National Programme for the Adoption of the Acquis (NPAA) has been revised in July 2003.

Availability of the Report:

- Electronic copy in English in the e-library of ENVEST Planners

### 2.3.2 2003 Turkish National Program for the Adoption of the Acquis (2003)<sup>21</sup>

The recent NPAA is more concrete in targets and action plan, which covers a time schedule, costs and financing strategy, when it is compared with NPAA-2001.

Transposed legislation regarding both for Water Pollution Caused by Nitrates from Agricultural Sources and Discharge of Dangerous Substances into Aquatic Environments is estimated to enter into force by fourth quarter of 2005. Training of personnel both at the central level and at the provincial level for implementation of these directives is programmed for 2004-2006 period. Identification of the equipment requirements of the laboratories required for water pollution analysis, and strengthening of the infrastructure is also programmed for the same period. Although the transposition of the Directive on The Water Pollution Caused by Nitrates from Agricultural Sources was programmed for fourth quarter of 2005, the Regulation was issued and put into effect on 18 February 2004. It is referred again to the Project on Integrated Environmental Harmonization Strategy and our project in the 2003 Turkish National Programme for the Adoption of the Acquis for cost of implementation of the Directive.

Regarding Sewage Sludge Directive, it is said that “The Implementing Regulation on Soil Pollution Control published in the Official Gazette No. 24609 dated 10 December 2001 is largely compatible with corresponding EU legislation. However, there are difficulties with respect to implementation. Alignment with EU legislation on treatment plant sludge is under the responsibility of the Ministry of Environment and Forestry, and the Refik Saydam Hygiene Centre of the Ministry of Health carries out analyses on treatment plant sludge, subject to the Implementing Regulation for Soil Pollution Control. Studies with respect to treatment plant sludge in Turkey are carried out by only a few local administrations, including the Ankara Metropolitan Municipality. One of the most important problems associated with this issue is the elimination of treatment plant sludge. A limited number of analysis have been carried out, the results of which display typical domestic waste properties”<sup>22</sup>.

It is noted that “Discharge parameters for urban wastewater in the Implementing Regulation on Water Pollution Control are not fully compatible with EU legislation and alignment of legislation as well as additional investment to ex-

<sup>21</sup> 2003 Turkish National Programme for the Adoption of the Acquis.

<sup>22</sup> 2003 Turkish National Programme for the Adoption of the Acquis, pp 601.

isting waste treatment plants is necessary. A transition period is necessary for full implementation, since this directive is one of the heavy cost investment directives”<sup>23</sup>.

Regarding the Directive on Quality of Water Intended for Human Consumption, “The Implementing Regulation on Water Pollution Control and the Implementing Regulation on Production, Packaging, Sale and Inspection of Water for Human Consumption, published in the Official Gazette No. 24759 dated 25 July 2001, are Turkish legislation corresponding to EU directives related to water management and listed under this priority. Studies are underway for a draft Implementing Regulation on Bottled Waters, and Water for Human Consumption and Use, which will repeal the Implementing Regulation on Production, Packaging, Sale and Inspection of Water for Human Consumption. Directives on quality of water for human consumption fall under the responsibility of various different organizations and institutions. Turkish legislation corresponding to EU Directives is partially aligned”. It is added that a project had been prepared to be submitted to the 2004 Pre-accession Financial Assistance Programme for the purpose of harmonizing with Directive 98/83/EC on quality of water intended for human consumption.

It is expressed that, although existing Turkish legislation is to a large extent harmonized with relevant EU legislation, studies have been initiated to prepare draft regulations and proposals for amendments in order to fully complete alignment with the EU waste directives. Turkey’s major problems related to waste management are depicted as the elimination of hazardous waste from industry, and the combination of industrial and domestic waste, domestic waste, specific waste, and construction waste all together, without separate collection. However, in the framework of regulations prepared by the Ministry of Environment and Forest, the metropolitan cities in particular have initiated integrated solid waste management studies, and collection and elimination of waste following categorization is being realized to a certain extent. It is also mentioned that, in Turkey, there are plants for the elimination of hazardous and domestic waste, albeit few in number. The Implementing Regulation on Solid Waste Control also contains certain provisions regarding management of packaging wastes. Waste oils, disposal of PCB (polychlorinated biphenyls) and PCT (polychlorinated triphenyls), spent batteries and accumulators are within the scope of the Implementing Regulation on Hazardous Waste Control. However, there is no corresponding Turkish legislation reflecting the provisions of the Directive on end-of-life vehicles.

With respect to the hazardous wastes, it is indicated that “Implementing Regulation on Hazardous Waste Control published in the Official Gazette No. 22387 dated 27 August 1995 corresponds to a large extent to definitions and provisions of Council Directive 75/442/EEC on waste. However, provisions relating to waste management principles are not clear and there is a need to strengthen provisions regarding record keeping, monitoring and enforcing”. The Project on Hazardous Waste Management (see Section 4.1.1) financed out of the national budget is referred and its outcomes is expected to be used in harmonization

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23 2003 Turkish National Programme for the Adoption of the Acquis, pp 601.

strategies which have been being prepared. It is also added that, “Turkey has been a party to the Basel Convention since 1994. Provisions of the convention are strictly implemented within the scope of the Implementing Regulation on Hazardous Waste Control. In the accession process, preparation of separate implementing regulation concerning the shipment of waste is envisaged”.

Air quality has been designated as a priority, considering that beginning to transpose and implement the *acquis* is a short term priority, and completing the transposition of the *acquis* and strengthening institutional, administrative, and monitoring capacity, including data collection, to ensure environmental protection are medium term priorities in the 2003 Accession Partnership Document.

It is recorded that “The Seveso I Directive was translated into Turkish in 1996 and The Circular on Local Emergency Plans for Major Industrial Accidents was prepared and has been communicated to all provinces. In the frame of the Seveso II Directive (96/82/EC), the Draft Implementing Regulation on Functions of Environment Emergency Centers and Principles of Emergency Intervention is being prepared”. It is underlined that, “since implementation of the Seveso II Directive requires heavy cost investment for both public and private sector, the Seveso II Directive could not be elaborated in this National Programme. For the harmonization and implementation of Directives on industrial pollution and risk management, particularly integrated pollution prevention control and the limitation of emissions of certain pollutants into the air from large combustion plants, heavy cost investments and strengthening of technical capacity are required”.

It is noted in the National Programme that, for environmental heavy-cost investment directives, “the investment requirement will be determined once the Project on Integrated Environmental Harmonization Strategy (2002-31739) is finalized. In addition, studies on priority environmental projects for accession and supporting the development of an efficient financial mechanism for financing EU environmental heavy-cost directives will be carried out in the context of the environmental heavy cost investments component of the Capacity Development in The Field of Environment Project (TR-362.03) under the 2002 Pre-accession Financial Assistance Programme”.

Availability of the Report:

- Electronic copy in English in the e-library of ENVEST Planners
- Hard copy of Environment Chapter in the library of ENVEST Planners

### 2.3.3 2003 Regular Report on Turkey's Progress towards Accession<sup>24</sup>

As part of the pre-accession strategy, the Commission reports regularly to the European Council on progress made by each of the candidate countries in preparing for membership. Consequently, the Commission has published a series of yearly Regular Reports on Turkey, covering the years 1998 to 2002. This Report takes into consideration progress since the 2002 Regular Report. It covers the period until 30 September 2003.

Under the Environment Chapter in the Report, takes note of “as regards **waste management**, a law was adopted on the ratification of the changes made to the Basel Convention on the control of transboundary movements of hazardous wastes and their disposal in June 2003; no progress can be reported with regard to **water quality**; in the field of **air quality**, in January 2003 Turkey adopted legislation relating to emissions from non-road mobile machinery; no progress can be reported on transposition of the *acquis* on **industrial pollution and risk management**; further efforts are needed particularly in the areas of horizontal legislation, air quality, waste management, water quality, nature protection, industrial pollution and risk management, and the fulfillment of the membership requirements of the European Environment Agency, including its data collection system”.

#### Availability of the Report:

- Electronic copy in English in the e-library of ENVEST Planners

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<sup>24</sup> 2003 Regular Report on Turkey's Progress towards Accession, pp106.

## 3 EU Projects

### 3.1 Pre-accession Assistance Projects

#### 3.1.1 Analysis of Environmental Legislation for Turkey<sup>25</sup>

A legislative gap analysis of Turkish legislation (including draft legislation) in comparison to EU legislation was conducted by the Project, and the key findings of this analysis are presented on a directive by directive basis. The current status of implementation of EU legislation in Turkey was reviewed and the key findings are given on a sectoral basis. The results of the investment analysis are reported and some recommendations for further actions and projects are suggested. The Report has five annexes: Institutional aspects, Turkish legislation, legislative gap analysis, implementation analysis, investment analysis. Implementation Analysis covers sectoral chapters including air, waste management, water quality and industrial pollution control. Under each sectoral chapter, present situation, competent authorities and stakeholders, present status of implementation, and implementation impacts are described. There are also implementation tables specific to the sector; which can be used as first inputs to the DSIPs to be prepared in our project.

The Report addresses the Ambient Air Quality Monitoring Project executed by the MoEF during 2002 (see section 4.1.2.) and expresses “Based on the findings of this assessment, zones and agglomerations will be identified and the required location of air monitoring stations determined and the pollutants to be monitored. The results of the findings will also be used as a basis for determining financial costs of implementation and the development of a financing plan. There are also likely to be required significant investments for improvements to emissions from LCPS”<sup>26</sup>.

“Turkey will have to reduce power station emissions by some 1.06 million tonnes/year of sulphur dioxide, 97,000 tonnes of nitrous oxides and 117,000 tonnes of particulates compared with 2000 emissions, plus build all new plants to EU LCP emission standards. With estimated costs of emissions reduction of Euro 370/tonne for sulphur dioxide, Euro 740/tonne for nitrous oxides and Euro

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<sup>25</sup> Global Framework Contract-Environment: Analysis of Environmental Legislation for Turkey, Carl Bro, August 2002.

<sup>26</sup> Global Framework Contract-Environment: Analysis of Environmental Legislation for Turkey, Annex IV, Chapter 3, pp 8, Carl Bro, August 2002

160/tonne for particulates<sup>27</sup>, the cost of reducing power station emissions as indicated is estimated to be some Euro 483 million/year<sup>28</sup>

The Report also adds “Refineries currently produce heavy fuel oil with a high sulphur content. The maximum allowed sulphur content in Turkish law is 4%. Considerable investment in these refineries (4 state owned and 1 private) will be needed to bring the sulphur content of liquid fuels down to EU levels. Similar problems are seen in the production of diesel fuels. The production of low sulphur fuels in Turkey will require significant investment in the construction of new desulphurization units – construction of which is falling behind schedule. The situation is further complicated by the on-going privatization process of state-owned refineries. The Ministry of Energy and Natural resources is responsible for the production of liquid fuels. Significant investments will be required for refineries. The Turkey Petroleum Refineries Joint-Stock Company (TUPRAS) has made an application for an investment programme to the EU via the Ministry of Foreign Affairs, although there has not yet been a response from the EU. Investment programmes should be finalized by 2005<sup>29</sup>. Details of the cost estimations are also given in a table in the Report. Since emissions information for other large combustion plants (e.g. cement producers) is not available, their specific LCP obligations cannot be estimated in the Report. Cost estimation for compliance to Air Framework Directive indicates a cost of Euro 19.6 million/year giving a present value obligation of **Euro 267 million** (falling on the public sector)<sup>30</sup>.

Deadlines for implementation of Fuel Quality Directive are set as 2007, while it is being 2010 for Framework Air Directive and VOC Directive.

Water Framework Directive, Urban Wastewater Treatment Directive (UWWTD), Drinking Water Directive and Bathing Water Directive are given the high priority for transposition of legislation while Nitrates Directive and Dangerous Substances Directive are given the medium priority<sup>31</sup>.

It is also underlined that “The implementation of integrated water management based on a river basin approach will be a major challenge for Turkey. There are a number of different institutions involved, with sometimes overlapping or conflicting duties and tasks. There are sometimes conflicts of competencies and there is a general lack of communication<sup>32</sup>”.

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27 Indicative estimates based on SO<sub>2</sub>

28 Global Framework Contract-Environment: Analysis of Environmental Legislation for Turkey, Annex V, pp 3, Carl Bro, August 2002

29 Global Framework Contract-Environment: Analysis of Environmental Legislation for Turkey, Annex IV, Chapter 3, pp 8, Carl Bro, August 2002

30 Global Framework Contract-Environment: Analysis of Environmental Legislation for Turkey, Annex V, pp 7, Carl Bro, August 2002

31 Global Framework Contract-Environment: Analysis of Environmental Legislation for Turkey, Annex IV, Chapter 3, pp 9, Carl Bro, August 2002

32 Global Framework Contract-Environment: Analysis of Environmental Legislation for Turkey, Annex IV, Chapter 3, pp 7, Carl Bro, August 2002

The Report concludes that “The implementation of the EU Urban Waste Water Treatment Directive will require the greatest investments as currently only 12 % of the population is connected to sewage treatment plants. This is probably followed in descending order by costs for the Drinking Water, Water Framework, Dangerous Substances, Bathing Water and Nitrates directives”. Considering the participation of the private sector in the provision of the required infrastructure and the need for increase in the number of the personnel currently employed for water management are also pointed at<sup>33</sup>.

The Report diagnoses “The reasons for poor (drinking water) quality are various ranging from poor quality raw water to contamination during distribution, suggesting the necessity of a range of measures being required under a wide-spread water supply rehabilitation programme”; and it estimates: “at an average rehabilitation cost of, say, 1/10 the cost of installing a new connection<sup>34</sup>, the estimated cost of this rehabilitation to meet the directive is likely to be around **Euro 1.1 billion** overall (falling on the public sector under present water industry arrangements)”<sup>35</sup>.

Based on the assumption that 22.3 million inhabitants require sewerage connection and 56 million inhabitants require secondary treatment; the total capital cost obligation is estimated to be **Euro 16.8 billion** (falling on the public sector under present water industry arrangements)<sup>36</sup>.

Monitoring and enforcing the Water Framework Directive will involve additional professional, technical and administrative staff with associated office accommodation, laboratory facilities and vehicles. It is estimated that, on the basis of 26 teams (one for each of the 26 water basins) of 10 professional plus 40 technician assistants, admin, etc, with infrastructure the estimated cost of monitoring will be some Euro 14.2 million/year<sup>37</sup> giving a 2001 present value cost obligation of **Euro 193 million**.

Regarding present nitrate pollution, four rivers and their catchments are known to be affected: the rivers Sakarya and Kizilirmak discharging into the Black Sea, and the rivers Gediz and Buyuk Menderes discharging into the Gulf of Izmir in the Aegean Sea. Reforming farming practices, initially in the four river catchments listed above, will require advice and technical assistance from Ministry of Agriculture professional staff and advisers. The cost of providing four teams of such staff (one to each of the affected catchments) is estimated to be

33 Global Framework Contract-Environment: Analysis of Environmental Legislation for Turkey, Annex IV, Chapter 5, pp 8, Carl Bro, August 2002

34 Estimated to be around Euro 213/head of population. Estimate derived from a recent (2001) Slovak rural water supply project (Euro 1,590/household capital cost of connection), using average household size in Turkey of 5 (1990 estimate from Statistical Yearbook, 2000 Tables 29 and 57) and taking urban connection costs to be 1/3 less costly than rural connection costs (consultant's estimate)

35 Global Framework Contract-Environment: Analysis of Environmental Legislation for Turkey, Annex IV, Chapter 7, pp 8, Carl Bro, August 2002

36 Global Framework Contract-Environment: Analysis of Environmental Legislation for Turkey, Annex V, pp 10, Carl Bro, August 2002

37 26 teams with costs/team as shown in Table 1.3 above

some Euro 2.2 million/year<sup>38</sup> giving a 2001 present value cost obligation of some **Euro 30 million** (falling on the public sector).

The Report recognizes that “The implementation of the industrial pollution control sector in Turkey is in its very early stages. The issue is not addressed in the NPAA. Considerable technical assistance will be required to develop an integrated implementation plan of action for the EU legislation in this sector<sup>39</sup>”. In connection to that, implementation of LCP Directive is foreseen as 2010 and for IPPC Directive as 2015, while there is not any deadline set for SEVESO Directive. Regarding cost of implementation it is stated that “The cost of administering IPPC will fall initially on Government but there should be scope to recover these costs by charges to industry under the polluter pays principle. Monitoring and enforcing IPPC will involve additional professional, technical and administrative staff with associated office accommodation, laboratory facilities and vehicles. On the basis of four teams (one for each of the four main industrial areas) of 10 professional plus 40 technician assistants, admin, etc, with infrastructure the estimated cost of monitoring is some Euro 2.2 million/year giving a 2001 present value cost obligation of Euro 30 million. The costs of complying will fall on industry, (but) at present there is no information available on the true cost to the private sector of implementing IPPC”. However, relying on Private Sector Industrial Pollution Abatement Project funded by the World Bank, the total 2001 cost of implementing the IPPC directive (including monitoring and enforcement) is estimated to be **Euro 480 million** (falling largely on the public sector as owner of the SOEs)<sup>40</sup>.

The Report refers to the *Hazardous Waste Management Project* (See Section 4.1.1.), which was funded through the national budget in 2001-2002, and expresses the expectations from the Project as “Strategies for implementation of the EU waste management requirements are being developed in the context of this Project. This project will also examine financial mechanisms, landfill site operation, closure, licensing and management strategies. A waste inventory will also be established<sup>41</sup>. The following costs are estimated for heavy cost investments regarding Waste Directives:

- phase out open dumps and develop new landfills for 10 large and 60 medium sized municipalities (average populations 1 million and 250,000 respectively), at a present value of costs for large municipalities of Euro 13.82 million each and a present value of costs for medium municipalities of Euro 3.46 million, total 2001 cost obligation Euro 346 million;

<sup>38</sup> 4 teams with costs/team as shown in Table 1.3 above, ie at similar cost/team as an environmental monitoring team

<sup>39</sup> Global Framework Contract-Environment: Analysis of Environmental Legislation for Turkey, Annex IV, Chapter 7, pp 3, Carl Bro, August 2002

<sup>40</sup> Global Framework Contract-Environment: Analysis of Environmental Legislation for Turkey, Annex V, pp 6, Carl Bro, August 2002

<sup>41</sup> Global Framework Contract-Environment: Analysis of Environmental Legislation for Turkey, Annex IV, Chapter 4, pp 10, Carl Bro, August 2002

- phase out open dumps and develop intermediate controlled landfills for 1,000 small municipalities at an average investment cost of Euro 127,000/municipality, total costs Euro 127 million;
- upgrading intermediate controlled landfills for 500 medium and small sized municipalities at an average present value of costs of Euro 565,000/municipality, total cost obligation of Euro 283 million;
- make safe and rehabilitate 1,000 old small dump sites and 50 larger dump sites including sites continuing in operation and abandoned sites (at unit costs of Euro 51,000 for the small sites and Euro 509,000 for the large sites), total cost Euro 77 million;
- install landfill gas and leachate management facilities for 200 municipalities at a unit cost of Euro 127,000 at each site, total cost Euro 26 million;
- develop regional facilities for hazardous and clinical waste comprising 3 additional hazardous waste incineration plants and 20 clinical waste plants (at unit costs of Euro 63.3 million and Euro 5.1 million respectively), total cost Euro 292 million;

Availability of the Report:

- Hard copy of main report in ENVEST Planners Library
- Electronic copy of the full report in e-library of ENVEST Planners.

### 3.1.2 Integrated Environmental Approximation Study for Turkey

Integrated Environmental approximation Study for Turkey is the second stage of the study on Analysis of Environmental Legislation for Turkey. The integrated strategy covers all nine sectors of the environment including the ones, which require heavy-cost investments. The Integrated Strategy will be based on Sectoral Strategies prepared for each of these areas. Each Sector Approximation Strategy will comprise sections on priorities for transposition, priorities for preparation of Strategies and plans, priorities for institutional strengthening, priorities for investment, and sector approximation plan including cost of implementation as well as financing strategy. Directive Specific Implementation Plans (DSIPs) will be one of the outputs of the Project. The project has been conducted during 2003 and its final report will be publicized very soon. The overall Integrated Environmental Approximation for Turkey and its DSIPs will be important inputs for our project.

### **3.1.3 Developing Capacity in Implementation and Enforcement of Environmental Legislation in Turkey through Impel Network**

The overall objective of the Project is to establish the capacity of Turkey to implement the environmental acquis. The specific objective of this project is to establish the necessary capacity within the Ministry of Environment to enable to prepare permitting, inspection and enforcement procedures in Turkey that are in accordance with IMPEL Standards, including the EC's minimum criteria for inspections. A detailed report on the legal and institutional arrangements for environmental inspection and enforcement in Turkey will be prepared at the first place in the project. Technical support will be provided for legal and institutional change in relation to the implementation and enforcement of environmental legislation in Turkey. Turkey's participation in the AC-Impel network will be facilitated by providing appropriate administrative and technical support. Training activities as well as accreditation programmes for inspectors will be carried out through technical assistance. A pilot project in enforcement will be implemented as a best practice.

The Project has been launched in February 2004.

### **3.1.4 Institutional Building and Access to Information**

The overall objective of the Project is "to enable Turkey to achieve a high level of environmental protection and compliance with the EU access to environmental information and reporting directives". The specific objective of the Project is clarified in its TOR as "to establish a tool to access to the environmental information in EU standards for the environmental decision making for sustainable development plans". The project is expected to provide technical assistance to Turkey to enable it to meet its obligations to the EEA (European Environment Agency). In particular, it will assist in; a) establishing/improving the institutional and technical framework, procedures and protocols to ensure improved data exchange between different agencies b) establishing an EIONET (European Environment Information and Observation Network) National Focal Point in Turkey c) strengthening access to national environmental information.

Since strategic planning especially by making use of FEASIBLE Model depends very much on availability of data, establishment of environmental information system will strengthen the capacity of the MoEF for revising and implementing the DSIPs.

The Project is in the tendering process and will be launched very soon and will last until about October 2005.

## **3.2 MATRA Projects**

There are some technical assistance projects supported by the bilateral cooperation with the Government of Netherlands, MATRA Programme. They are usually for transposition of environmental legislation and institutional capacity building in environment sector. They will indirectly impact our project through

capacity building in the implementing institutions and issuance of new legislation. MATRA Projects, which are relevant to heavy-cost investment directives, are listed below:

### **3.2.1 Implementation of the Water Framework Directive in Turkey**

### **3.2.2 Strengthening of the implementation Council Decision 97/101/EC on ambient air quality assessment, management and reciprocal information exchange (as part of the Air Quality Directive 96/62/EC) in the Refik Saydam Centre of Hygiene, Ministry of Health, Turkey**

### **3.2.3 Capacity Building (Human Resources Aspect) on the Adaptation of Integrated Pollution Prevention and Control Directive (IPPC-96/61/EC) (MoEF)**

### **3.2.4 Guidance for the Strengthening of the Quality Assurance System for Air Quality Monitoring Refik Saydam Centre of Hygiene (MoH)**

### **3.2.5 Establishment of a system for the management of used portable batteries and accumulators and waste electrical and electronic equipment**

### **3.2.6 Preparation of the draft regulation on Access to Environmental Information in compliance with Access to Environmental Information Directive (2003/4/EC) (MoEF)**

### **3.2.7 Protecting the water from the pollution which is caused by the nitrates of agricultural resources (Ministry of Agriculture and Rural Affairs)**

## **3.3 Twinning Projects**

### **3.3.1 Air Quality**

To establish the necessary capacity within MoEF and MoH to transpose and implement two EC Directives: the Air Quality Framework Directive (AQFD) (96/62/EC) and the Air Pollution from Large Combustion Plants Directive (2001/80/EC) (MoEF).

### **3.3.2 Waste**

To establish the necessary capacity within MoEF to transpose and implement 6 EC Directives namely; (94/62/EC) Packaging and Packaging Waste Directive, (75/442/EEC) Waste Framework Directive, (91/689/EC) Hazardous Waste Di-

rective, (2000/76/EC) Incineration Directive, (99/31/EC) Landfill Directive and (93/259/EC) Shipment of Waste Directive (MoEF).

### 3.4 LIFE Projects

Turkey has benefited from the EU LIFE Program since 1992. The following are the list of completed and/or on-going list of projects which are relevant to the implementation of the heavy-investment directives funded by Life Third Countries Program:

#### 3.4.1 Approximation of Seveso-II Directive in Turkey

The overall objective of this project is to complete the transposition of the Seveso Directive into Turkish legislation. The Beneficiary is MoEF General Directorate of Environmental Management. The Project Manager is Mr. Musa Demirbaş (312-285 10 40).

The following activities are planned within the scope of the project between 2004 and 2006:

- Data collection and review of current practices;
- Strategy development;
- Implementation Plan preparation;
- Preparation of draft Regulation transposing the provisions of the Seveso II Directive;
- Preparation of the main guidelines; and
- Establishment of an information system.

#### 3.4.2 Strengthening environmental control in Turkey, reinforcing the National Reference Laboratory of Gölbaşı

Beneficiary: Ministry of Environment and Forest

Project Manager: Ms Tülin Basa

Tel: 312-285 3882

Fax: 312-285 5875

Email: [nnyersiz@hotmail.com](mailto:nnyersiz@hotmail.com)

The Project will be conducted between 2002 and 2005.

### 3.4.3 Integrated Healthcare Waste Management in Istanbul

Beneficiary: Turkish National Committee on Solid Wastes

Bogazici University Institute of Environment Science

Project manager: Prof Gunay Kocasoy

Tel: 212-263 1540/1276

Fax: 212-257 5053

E-mail: [kocasoy@boun.edu.tr](mailto:kocasoy@boun.edu.tr)

The 2-year project has started in 2002.

### 3.4.4 Capacity Building for Solid Waste Management in Turkey

Beneficiary: Merkat Inc

Project manager: Mr. Bora Gönenç

Tel: 212-274 3828

Fax: 212-266 2341

Email: erka [grp@turk.net](mailto:grp@turk.net)

2 years long project; started in 2002, and will be finalized in April 2004.

### 3.4.5 Establishing a Sustainable Network for Lake Management in Turkey

Beneficiary: IULA-EMME, International Union of Local Authorities, Eastern Mediterranean

Project manager: Mr. Sadun Emrealp

Tel: 212-511 1010

Fax: 212-519 0060

Email: [iulaemm@ibm.net](mailto:iulaemm@ibm.net)

The project aims to set up the basis for a sustainable network of organizations related to lake activities in Turkey, to encourage partnership among local actors in order to improve the management, quality and protection of lakes and to promote the network by establishing a decentralized co-ordination body. A

Turkish non-profit organization of municipalities and associations of local authorities will be responsible for the overall management of the project, in partnership with a multidisciplinary team of experts.

Actions:

- Development of a data management system for lakes
- Development of lake management policies
- Promotion of and encouragement towards a participatory approach by local actors in lake management
- Initiation and encouragement of networking at two levels: local and national.

Anticipated Results: Improvement in the quality of lakes and lake environments. Provision of a decentralized and participatory structure to be used as a model by decision-makers.

The project was conducted between 1999 and 2002.

#### **3.4.6 Support for the Environmental Management of Organized Industrial Zones in Turkey**

Beneficiary: Merkat Inc.

Tel: 212-274 3828

Fax: 212-266 2341

Email: erka [grp@turk.net](mailto:erka_grp@turk.net)

Turkey's industrial development is advanced, with many Organized Industrial Zones located around the country. The main problems posed by these industrial zones are the management of waste and the minimization of environmental impact. The Izmir Atatürk Organized Industrial Zone (IAOIZ), one of the partners in this project, is currently exploring measures to reduce environmental pollution in this area. This project is designed to be part of these measures, by contributing EU experience to the implementation of an integrated environmental policy within the IAOIZ. The project's primary objective is to assist the Turkish authorities in implementing modern environmental management measures in the Organized Industrial Zones. This project has a demonstration action perspective, introducing a new approach to the problem in this key industrial zone, as well as an information dissemination aspect, as this methodology can be shared with other industrial zones, the state and officials from local authorities.

The following activities were carried out between 1998 and 2000:

- The institutional, legal and organizational status of the current management schemes of the industrial zones were revised, enabling the identification of barriers and gaps in implementation of efficient environmental policies.
- Using EU experience, a computerized Decision Support Tool (DST) were designed and developed. Using this tool, the zone's managers and environmental inspectors were able to identify environmentally weak spots in its industries.
- Monitoring procedures, especially in centralized waste treatment units, were established and this information will be incorporated in the DST's databases.
- The information was analyzed, enabling a technical assessment to be made indicating the actions necessary to improve the environmental situation.
- Remedial action proposals and new initiatives for the industrial zone were included in the Action Plan, which indicated priorities and measures to be taken immediately.
- The managers and inspectors from the IAOIZ and relevant engineers from industry were trained on the DST and the methodology for the application of the Action Plan.
- In addition, there was an information dissemination programme, addressed to all other industrial zones in Turkey, regional authorities, the Ministry of Environment, the Ministry of Industry and Commerce, based on the experience gained in the IAOIZ project.

The following results were achieved:

- Quantitative and qualitative assessment of the existing environmental situation in the IAOIZ;
- A management system for improving the environmental impact, based on the DST, and proper monitoring functions;
- A detailed Action Plan for the IAOIZ;
- Training and information dissemination activities for all Turkey's industrial zones, including publications and workshops.

### **3.4.7 Bodrum Solid Waste Management Project**

Beneficiary: Academia Mediterranean Halicarnassensis Foundation (AMHF)

Project manager: Prof. Gürel Tüzün

The Project, which was conducted in 1999, aimed at developing a new institutional structure for SWM services for the Union of Bodrum Municipalities (UoBM), in harmony with the Turkish legal system and benefiting from existing EU experience. The project's methodology involved developing the institutional structure, policies and management systems as well as the legal and technical components of the SWM strategy.

The following activities were carried out:

- Data collection and evaluation to establish a database for the institutional, technical and financial aspects of the municipalities;
- Review of current SWM practices, including policy and priorities, to determine the existing situation;
- Establishment of an SWM strategy in coordination with the local authorities:
  1. Identification of SWM objectives and policies
  2. Characteristics of policy implementation framework
  3. Priority items for municipalities
  4. Development of SWM policies: (creation of landfills, planning, licensing, monitoring and enforcement of waste disposal, closure of existing dumps, monitoring programmes for closed disposal sites, recycling, waste collection and relationships with other institutions);
- Selection and development of a suitable institutional model encompassing technical, legal and financial aspects, including:
  1. Establishing the organizational structure of a new SWM department
  2. Staff development
  3. Setting up of technical guidelines for SWM services.
- Development of a work plan to be implemented by the municipalities of Bodrum, indicating the specific areas of action, their scope, the timeframe and the outputs for establishing priority items;
- Investigation of SWM services, revenues and investment financing schemes, including developing models for sufficient revenue generation for SWM services and establishing formats for the appraisal of investment projects and municipality performance;
- Development of conceptual models for Solid Waste Disposal techniques. A site selection process was undertaken to establish a sanitary landfill dis-

posal facility. A conceptual plan was developed for the components of the sanitary landfill facility.

#### **3.4.8 Rehabilitation of Open Dump Sites: Towards Sustainable Land Use**

Beneficiary: IULA-EMME, International Union of Local Authorities, Eastern Mediterranean and Middle East

Project manager: Mr. Sadun Emrealp

Tel: 212-511 1010

Fax: 212-519 0060

Email: [iulaemm@ibm.net](mailto:iulaemm@ibm.net)

Objective of the Project was to develop a rehabilitation approach in relation to open dump sites, with a view towards leading to financially and technically sustainable urban land management, and to actualize this approach in three pilot cities (Adana, Van, Canakkale) with different characteristics. The project focused on three pilot municipalities, the Adana Metropolitan Municipality, situated on the fertile Cukurova plain in the southern Mediterranean region (population around 1,800,000), the Canakkale Municipality situated on the narrow bank of the Anatolian side of the Dardanelles Strait in the Marmara region (population around 70,000), and the Van Municipality located in the eastern Anatolia region (population around 350,000). The results foreseen included the development of a replicable technical approach, the preparation of detailed design and contract documents for each pilot city, the dissemination of knowledge via networking and publications, and the development of proposals on the improvement of the pertinent legislative framework. The Project was conducted between 1997 and 1998.

#### **3.4.9 Demirtas Waste Dump Gas Recovery Project**

Beneficiary: Aksa Makina Sanayii A.S. (ISTANBUL)

Project manager: Ozdag YALCIN

Tel: 212-550 5336

Fax: 212-550 5338

The project aimed at exploiting waste deposit gases and using the regenerative energy in order to contribute to the protection of natural resources. The Demirtas waste deposit site represents the first opportunity in Turkey to have an environmental demonstration project implemented, which meets the principles established in the Barcelona Convention. The initiative was intended to demonstrate in situ that, apart from minor side-effects (odors, greenhouse gases), such

techniques, routinely used in central Europe, not only contribute effectively to protecting the environment but can also be operated economically. Experience has already shown that in the costly area of waste disposal technology, practical measures are much more effective than theoretical knowledge. Because of proven economic viability, ease of control of this type of installation and potential re-utilization of the results, there is a good chance that further plants will be installed. The City of Bursa has given the rights of exploitation of the waste site to the Aksa Makina Sanayi Company (Istanbul), which enabled it to start implementing the "Demirtas waste dump gas recovery project". Aksa designed a gas-capture system which makes it possible to exploit the potential energy of the waste dump gas (4.6 KW/m<sup>3</sup> of gas) by using an internal combustion engine driving an electricity generator. The maximum output of the power plant is 1 MW. Aksa intended to employ the most recent technology in the field, including equipment (special lean-mix gas engines and controls), and using a German engineering bureau carry out the installation. The Project was conducted in 1998.

## 4 Other Studies

### 4.1 Studies of Ministry of Environment and Forest

#### 4.1.1 The Study on Appropriate Solid Waste Management Practices: Republic of Turkey<sup>42</sup>

The study has been conducted in 2005 and 2006 through the World Bank funding under the responsibility of the Ministry of Environment at that time. It comprises of two parts. Part I is aimed at the development of a national strategy for solid waste management in Turkey. In Phase 2 an Action Plan has been prepared in parallel to some pilot projects.

After analysis of the existing solid waste management systems in Turkey, a framework for reforming the system is proposed. The proposed National Solid Waste Management Strategy comprises of 19 components.

Basing on the cost analysis of Bakırköy municipality, average unit disposal cost is estimated as US\$5-10 per tonne. It is also calculated that, average rate charged for waste collection services as cleansing tax being US\$ 10 per tonne in average covers only 25% of costs. The current (in 1995) average charge of US\$ 15 per household (of five persons) represents approximately 0.1% of annual income<sup>43</sup>.

For case studies, selections have been made to be representative of different types of municipalities<sup>44</sup>:

- Greater municipalities of population greater than 1,000,000.
- Municipalities of population 100,000 to 1,000,000.
- Small towns of population less than 100,000.
- Municipalities at tourism locations

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<sup>42</sup> Study on Appropriate Solid Waste Management Practices: Republic of Turkey, ERM, London, August 1995.

<sup>43</sup> Study on Appropriate Solid Waste Management Practices: Republic of Turkey, pp 40, ERM, London, August 1995.

<sup>44</sup> Study on Appropriate Solid Waste Management Practices: Republic of Turkey, pp 5, ERM, London, August 1995

- Municipalities at the Black Sea coast

Assessment of potential locations for pilot projects is given in the Report<sup>45</sup>. Arguments used in the assessment may be used as an input for selection of investment packages in our project.

A feasibility study and a waste disposal strategy have been conducted for Trabzon and Rize solid waste management system<sup>46</sup>.

Availability of the Report: There are five reports:

1. Study on Appropriate Solid Waste Management Practices: Republic of Turkey: Interim Report, ERM, London, May 1995- hard copy in English in ENVEST Planners Library
2. Study on Appropriate Solid Waste Management Practices: Republic of Turkey, ERM, London, August 1995- hard copy in English in ENVEST Planners Library
3. Study on Appropriate Solid Waste Management Practices: Republic of Turkey, Part 2 Interim Report, ERM, London, April 1996.- hard copy in English in ENVEST Planners Library
4. Part 2 of the Study on Appropriate Solid Waste Management Practices: Republic of Turkey, Volume 1: Waste Disposal Strategy for Trabzon and Rize, ERM, London, September 1996.- hard copy in English in ENVEST Planners Library
5. Part 2 of the Study on Appropriate Solid Waste Management Practices: Republic of Turkey, Volume 2: Preliminary Environmental Assessment, ERM, London, September 1996.- hard copy in English in ENVEST Planners Library

#### 4.1.2 Hazardous Waste Management Project<sup>47</sup>

The Project was conducted in 2001 by TÇT/Istanbul and Zinerji-Koç/Istanbul. The beneficiary of the Project was the Ministry of Environment. The current hazardous waste generation, management and disposal practices as well as related legislation in force were reviewed. Sources of problems were identified. Recommendations were developed to strengthen the weak points of the legislation particularly to meet the EU standards. In addition to that, required disposal facilities were identified together with their service area in order to dispose the hazardous wastes to be produced until 2020 in the project area.

<sup>45</sup> Study on Appropriate Solid Waste Management Practices, Annex 2, Republic of Turkey, ERM, London, April 1995.

<sup>46</sup> Study on Appropriate Solid Waste Management Practices: Republic of Turkey, Part 2 Interim Report, ERM, London, April 1996 and Part 2 of the Study on Appropriate Solid Waste Management Practices: Republic of Turkey, Volume 1: Waste Disposal Strategy for Trabzon and Rize, ERM, London, September 1996.

<sup>47</sup> Hazardous Waste Management Project, Final Report, TÇT and Zinerji Koç, Ankara, December 2001.

The Consultants did not generate any new data, but made use of existing data of the Ministry of Environment at that time. It is revealed in the Final Report of the project that, data utilized were not very reliable. Despite this fact, hazardous waste generation per worker which can be incinerated per year is calculated for different branches of industry, together with their projections until 2020. Hazardous wastes which may be landfilled, as well as hazardous content of waste are calculated and projected until 2020<sup>48</sup>. Incineration plant capacities are calculated together with transportation costs basing on 7 scenarios. By employing to this model, four incineration plants are proposed: 1) in Adana (20,000 tons/year), 2) in Izmir (55,000 tons/year), 3) in Kocaeli (35,000 tons/year) and in Tekirdag (90,000 tons/year). Sanitary Landfill sites are also proposed in these cities plus in Afyon<sup>49</sup>.

The Project also includes a Database on Management of Hazardous Wastes. There is a Database Manual in Turkish.

Availability of the Report:

- Hard copy in English in ENVEST Planners Library
- Database Manual as hard copy in Turkish in ENVEST Planners Library

#### 4.1.3 Ambient Air Quality Monitoring Project<sup>50</sup>

The Project was carried out by Turkish Scientific and Technical Research Council-Marmara Research Center (TUBİTAK-MAM) in 2002 by funding of the Ministry of Environment. Within the scope of the Project the existing air quality monitoring system of Turkey is assessed based on the information gathered from the survey at provincial level, and a monitoring system was suggested based on the administrative structure of Turkey. According to the Report 519 monitoring stations and a central station are needed for the desired level of monitoring. If the existing monitoring stations are employed, it is estimated that capital investment cost for air quality monitoring system will be around 38 to 55 million US Dollars, while this figure may go up to 39 to 57 million US Dollars for installation of a completely new monitoring system. Operating cost of this system is estimated to be around 7.4 million US Dollars in total for Turkey<sup>51</sup>.

Availability report:

- Hard copy of 2 volumes in Turkish in ENVEST Planners Library.

48 Hazardous Waste Management Project, Final Report, pp 2-10, TÇT and Zinerji Koç, Ankara, December 2001.

49 Hazardous Waste Management Project, Final Report, pp 9, TÇT and Zinerji Koç, Ankara, December 2001

50 Hava Kirliliği Ölçüm ve İzleme Sistemleri Projesi Raporu, TÜBİTAK-MAM, Kocaeli, 2002 (cilt.1-2)

51 Hava Kirliliği Ölçüm ve İzleme Sistemleri Projesi Raporu, Cilt 1, s. XVII, TÜBİTAK-MAM, Kocaeli, 2002.

## 4.2 Studies of Other Organizations

### 4.2.1 Special Expert Committee Report on Water Supply, Sanitation, Wastewater Treatment, and Solid Waste Control<sup>52</sup>

The Report has been prepared by the Special Expert Committee on Water Supply, Sanitation, Wastewater Treatment, and Solid Waste Control, which was established within the preparation process of the VIIIth Five Year Development Plan of Turkey by the State Planning Organization (DPT). The reports of the subcommittees are annexed to the overall Special Expert Committee Report. There are 4 sub-committee reports: 1) Urban Water Supply Sub-Committee Report, 2) Urban Sewerage Sub-Committee Report, 3) Rural Water Supply and Sanitation Sub-Committee Report, 4) Solid Wastes Control Sub-Committee Report. It is suggested that “Storm water and wastewaters should be collected in separate systems”; and the “settlements, where water supply networks are already completed, should be given the priority for laying down sewerage network. International commitments and important zones for tourism assets should be considered and infrastructure of tourism zones should be given priority”<sup>53</sup>. These two quotations imply about design and propose coastal zones as a priority area for in ranking of infrastructure investment projects. It is also suggested that “Capacities of DSI and Iller Bank should be strengthened so that they can provide consultancy services for the municipalities”<sup>54</sup>. Regarding technology, The Report says “sewerage and wastewater treatment systems should be in consistency with the national, regional and local conditions; and appropriate technologies should be applied”; and “Effluents of wastewater treatment plants should be considered for irrigation”. There are annexes of Urban Sewerage Sub-Committee Report , which lists the title and population of municipalities having a wastewater treatment plant, the title and population of municipalities of which wastewater treatment plant is under construction, the title and population of municipalities having sea disposal, the title and population of municipalities of which sea disposal facility is under construction, the title and population of municipalities of which sewerage network is under construction<sup>55</sup>.

Availability of the report:

- Hard copy in Turkish in ENVEST Planner Library
- Electronic copy of Solid Waste Control Sub-committee Report in English in e-library of ENVEST Planners

### 4.2.2 Special Expert Committee Report on Local Administrations<sup>56</sup>

52 İçmesuyu, Kanalizasyon, Arıtma Sistemleri ve Katı Atık Denetimi Özel İhtisas Komisyonu Raporu, DPT, Ankara, 2000.

53 İçmesuyu, Kanalizasyon, Arıtma Sistemleri ve Katı Atık Denetimi Özel İhtisas Komisyonu Raporu, pp 8, DPT, Ankara, 2000.

54 İçmesuyu, Kanalizasyon, Arıtma Sistemleri ve Katı Atık Denetimi Özel İhtisas Komisyonu Raporu, pp 6, DPT, Ankara, 2000.

55 İçmesuyu, Kanalizasyon, Arıtma Sistemleri ve Katı Atık Denetimi Özel İhtisas Komisyonu Raporu, pp 44, DPT, Ankara, 2000.

56 Yerel Yönetimler Özel İhtisas Komisyonu Raporu, DPT, Ankara, 2001.

The Report has been prepared by the Special Expert Committee on Local Administrations, which was established within the preparation process of the VIIIth Five Year Development Plan of Turkey by the State Planning Organization (DPT). The Report gives an overview of local administration system in Turkey including its weaknesses and problems. Sources of revenues and expenditures of municipalities, exploitation of external funds by municipalities, charging of municipal services, and role of Iller Bank are included in the Report. 52% of the population of Turkey lives in the cities, whose population is more than 100,000 including metropolitan cities. Ratio of population living in metropolitan cities to total population is 40%<sup>57</sup>. According to 1998 data, tax revenues are about 55% of the total revenues of municipalities; and around 20% comes from borrowing both from internal and from external financial resources<sup>58</sup>.

Availability of the report:

- Hard copy in Turkish in ENVEST Planner Library
- Electronic copy of Chapters 1-5 in English in the e-library of ENVEST Planners

#### 4.2.3 Turkey Energy and Environment Review<sup>59</sup>

The Project was funded by the Japanese Trust Fund through the World Bank. The beneficiaries were The Ministry of Energy and Natural Resources and Ministry of Environment. Ten special studies were carried out by a team of six consulting firms over 1 year. The objectives of the special studies on Energy and Environment in Turkey were to provide Turkey's policy maker's with analysis of various studies.

One of the special studies is on "Coal Utilization and Environmental Control Technologies". The study examines the unit costs of flue gas desulphurization at new and existing thermal power plants for different coal and technologies<sup>60</sup>.

Availability report:

- Hard copy (2 volumes) in English in ENVEST Planners Library

57 Yerel Yönetimler Özel İhtisas Komisyonu Raporu, pp 20, DPT, Ankara, 2001.

58 Yerel Yönetimler Özel İhtisas Komisyonu Raporu, pp 45, DPT, Ankara, 2001.

59 Turkey: Energy and Environment Review: Summary of Key Findings, Chubu Electric Power Co., June 2002.

60 Turkey: Energy and Environment Review: Special Studies, Task 2: Coal Utilization and Environmental Control Technologies, Executive Summary, Chubu Electric Power Co., April 2002.

#### 4.2.4 Municipal Sector Review

The Report is prepared by a group of consultants through the World Bank funds. The objective of this review is to develop strategic directions and actions that would strengthen the operational and financial performance of the local government sector and in particular the municipalities.

The Report reviews the present situation regarding institutional responsibilities of central government, municipal responsibilities, municipal revenues and expenditures, central government oversight, central government transfers, municipal borrowing and Iller Bank. It analyses issues under each title.

This review suggests municipal sector improvements in the following two broad categories: (1) Public Sector Reform and (2) Municipal Borrowing Reform.

Reforms proposed to improve the central government's oversight functions include<sup>61</sup>:

- Technical Assistance and Training
- Increase performance monitoring
- Reduce administrative control
- Introduce a participatory budgeting process

Reforms related to improving the transfer system could include<sup>62</sup>:

- Reduce dependence on transfers
- Link transfers to service
- Review of the equalization mechanism

A number of measures to improve municipal revenues are suggested<sup>63</sup>:

- Local tax reform
- Improve financial management and collection
- Involve the private sector

It is noted that "A new Debt Law was passed in 2002 regulating public borrowing. Under this law, to apply for a Treasury guarantee, municipalities must clear

61 Municipal Sector Review, Turkey, pp 18, the World Bank, Washington, D. C., October 2002.

62 Municipal Sector Review, Turkey, pp 24, the World Bank, Washington, D. C., October 2002.

63 Municipal Sector Review, Turkey, pp 31, the World Bank, Washington, D. C., October 2002.

outstanding obligations to the central government and justification for the investments must be provided through feasibility studies”. To further support the implementation of the Debt Law, legislation related to public sector financial management and procurement, and to improve the creditworthiness of municipalities, a number of proposals are suggested in this review<sup>64</sup>:

- Increase automatic sanctions
- Benchmark performance
- Institutional Capacity Building
- Clear Overdue Payments
- Transparent and Targeted Subsidies

For reforming the system for municipal borrowing, it is suggested that “Initially, reform efforts should focus on establishing financial discipline and setting the incentives for municipal borrowing. In the medium term, reforms should ensure that the borrowing system enables municipalities to access funds including potential assistance from the EU. In the longer run, mechanisms should be developed to prepare municipalities for accessing commercial credit”.

Reforming the system for municipal borrowing covers Iller Bank Reform as well: “The quality of local investments would have to be improved by rationalizing the process by which budgetary and other funds are transferred to municipalities. Iller Bank reforms would entail setting clear objectives for the bank, establishing independent day-to-day operations, separating financial and transfer functions, separating financial and technical functions, achieving self-financing, being less reliant on direct government (or local government) support, and being transparent on the use of subsidies. At a later stage, after financial discipline is restored, Iller Bank could play a role in financial intermediation”.

Availability of the Report:

- Electronic copy in Microsoft Word format in English in the e-library of ENVEST Planners
- Hard copy in ENVEST Planners Library

<sup>64</sup> Municipal Sector Review, Turkey, pp 41, the World Bank, Washington, D. C., October 2002.