

REPUBLIC OF TURKEY

EU INTEGRATED ENVIRONMENTAL APPROXIMATION STRATEGY

(2007 - 2023)

Ministry of Environment and Forestry

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ABBREVIATIONS

EU	European Union
EUSG	Secretariat General for EU Affairs
EEA	European Environmental Agency
EC	European Commission
CC	Candidate Country (For EU Membership)
EIB	European Investment Bank
BAT	Best Available Techniques
REC	Regional Environmental Center
MoPWS	Ministry of Public Works and Settlement
LCP	Large Combustion Plant
CITES	Convention on International Trade in Endangered Species of Wild Flora and Fauna
EIA	Environmental Impact Assessment
MoEF	Ministry of Environment and Forestry
MoLSS	Ministry of Labor and Social Security
DHKD	Association for the Protection of Nature
GDoNPNP	General Directorate of Nature Protection and National Parks
UoMA	Undersecretariat of Maritime Affairs
SPO	Undersecretariat of State Planning Organization
SHW	General Directorate of State Hydrolic Works
DTM	Undersecretariat of Foreign Trade
EEC	European Economic Commission
IPPC	Integrated Pollution Prevention and Control
MoENR	Ministry of Energy and Natural Resources
EG Co. Inc.	Electricity Generation Co. Inc.
FEASIBLE Model	An Infrastructure Investment Modelling Software used by OECD
GMO	Genetically Modified Organism
GNP	Gross National Product
GDP	Gross Domestic Product
AQFD	Air Quality Framework Directive: (Directive 96/62/EEC)
BAQC	By-law on Air Quality Control
IMF	International Monetary Fund
ISPA	Instrument for Structural Policies for Pre-Accession
GLP	Good Laboratory Practice
KfW	German Investment and Development Bank
SMEs	Small and Medium Size Enterprises
MoCT	Ministry of Culture and Tourism
MATRA	Funding Program of the Government of the Netherlands for Candidate Countries
OECD	Organization for Economic Cooperation and Development
PCB/PCT	Polychlorinated Biphenyl / Polychlorinated Terphenyl
RoHS	Directive on the restriction of the use of certain hazardous substances in electrical and electronic equipment (2002/95/EC)
Seveso II (COMAH)	Council Directive on the control of major-accident hazards (96/82/EC)
MoIT	Ministry of Industry and Trade
NGO	Non-Governmental Organization
TEMA	The Turkish Foundation for Combating Soil Erosion, for Reforestation and the Protection of Natural Habitats
TEP	Ton Equivalent Petroleum
TSI	Turkish Standards Institute
TDFT	Technology Development Foundation of Turkey
TÜBİTAK	The Scientific and Technological Research Council of Turkey
TURKSTAT	Turkish Statistical Institute
TÜPRAŞ	Turkish Petroleum Refineries Corporation
UÇES	EU Integrated Environmental Approximation Strategy
VOC	Volatile Organic Compounds

Definitions	
Recommendation	Recommendations are tTools that provide guidance and they have no legal binding power on EU Member States (For Example Recommendation on Environmental ControlInspection)
Acquis Communautaire	The Entire EU Legislation: Acquis Communautaire consists of the Directives, By-laws, Decisions and Recommendations
Implementation	The process where obligations undertaken as a result of the transfer of EU Legislation to Domestic law are implemented
Harmonisation	The full harmonisation process with Acquis Communautaire that includes ReflectionTransposition, Implementation, and Investment (Enforcement)
Investment	To carry out the infrastructure investments that are required for full harmonisation with Acquis Communautaire (public and/or private) – the third and the final step of the Harmonisation process.

1. INTRODUCTION

A short time after the foundation of European Economic Union in 1958, Turkey had applied for being a member of Union in July in 1959 and was accepted as candidate country unanimously in the summit of EU State and Government Heads held in Helsinki on 10th and 11th of December in 1999. Accession Partnership, which was accepted officially by EU Council on 8 March 2001, is a roadmap in which priorities for Turkey were determined for purpose of making development in order to meet accession criteria of EU. The purpose of Accession Partnership, is to gather the priority areas which were defined Progress Report of year 2000 concerned with the progress made by Turkey in EU membership way and financial resources provided for Turkey in order to implement these priorities and principles to be complied with in one framework. Turkish Government prepared the National Programme of year 2003 for Adoption of Acquis on 19th of March in 2001 in light of Accession Partnership.

National Programme of year 2003 displays a large-scale political and economical reformer agenda. In the European Council meeting that was held in Gothenburg on the dates 15th-16th of June in 2001, National Programme of year 2003 was defined as a “positive progress” and Turkey was encouraged for concrete steps in order to implement the priorities of Accession Partnership, which is the focus point of pre-accession strategy.

In Copenhagen Summit held in 2002, the following decisions were taken with regards to Turkey; to prepare the reviewed Accession Partnership, to intensify the Acquis harmonization works, to develop and deepen the Customs Union, to increase the financial cooperation significantly and to add financial aids to be given to Turkey into budget item titled as Accession. In the light of these developments, the short and long term targets were clearly defined in the National Programme for the Adoption of Acquis of year 2003 that was updated according to the Accession Partnership published by the European Commission on 25 March 2003, the updated version of the National Programme was published in Official Gazette dated 24 July 2003.

In summit of the Council of Europe held in Brussels in December 2004, it was accepted unanimously that negotiations with Turkey would be started on 3rd of December in 2005. As a result of this decision and in the direction of report and recommendation decision prepared by the Council of Europe on 6 October 2004, Turkey having “Accession Country” status was required to put forth the short, medium and long term targets in environmental strategy document to adjust to Accession Partnership and to put Environment Acquis into practice.

EU Integrated Environmental Approximation Strategy (UÇES) contains the information pertaining to the technical and institutional infrastructure, and the environmental improvements that are required to be performed as well as the mandatory arrangements which are necessary to establish complete harmonization for compliance with EU Environmental Acquis Communautaire and the effective implementation of the legislation which are the two pre-conditions for Turkey to join European Community. In order to be able to provide the necessary information, determinations pertaining to the following issues has been made; the present situation of the country with respect to the environmental issues, the legislative and organizational structure, the policy that was followed until recently with respect to the issues of environment, the expenses incurred as well as the difficulties and the bottlenecks faced. Following this stage the priority areas that Turkey must concentrate in terms of the environment and the targets and objectives related with these areas as well as the strategies and the activities to be conducted were established.

While preparing UÇES, outputs from “National Environmental Strategy and Action Plan” prepared previously and “Integrated Harmonization Strategy Project” implemented with EU resources and “Environmental Heavy Cost Investment Planning Project”. In addition, it was taken into consideration

that prepared strategy is coincided with the strategies and policies of the Development Plan, Annual Programs and National Programme of year 2003.

UÇES document was prepared by the Ministry of Environment and Forestry due to its comprehensive coordination role in implementation and development of environmental policies with a lot of related institutions and organizations which have important roles and responsibilities in environmental issues, also by taking the targets of harmonization of Environment Acquis into consideration.

While the components of UÇES were formed, an approach that requires taking responsibilities of all sides, especially private sector and non-governmental organizations apart from public institutions in formation of a viable environment. Participation of related sides was achieved for preparation of document, a comprehensive and coordinated policy making process was followed, precautions for being result-focused, determining investments that were needed and following the facilities were taken.

2. PRESENT SITUATION

2.1 The General Appearance of the Environment in Turkey

Together with air, water, sea and soil pollution due to excess utilization of nature and natural resources, noise concerning people's psychological structure closely are negative elements arising because of industrialization and urbanization. Urbanization rate which was 51,2% as of year 1990 reached to 61,3% in year 2000. If urbanization rate continues to increase like this, urban population in Turkey will reach to average of that of EU members in 2015.

Despite the rapid increase of population, urbanization and industrialization, it is an unavoidable fact that problems related water trouble will increase if necessary precautions are not taken in near future due to being limited of water resources meeting the demand. At present, water amount per capita is estimated as 1500 m³ approximately, and when population reaches to 87 million within 20 years, annual water amount per capita will be 1042 m³. Being close of this number to 1000 m³, which is defined amount for water problem according to international criteria, is an important point. It is understood that to keep annual water amount per capita around 1000 m³ is very difficult when we consider the approximately 100 million population prediction of TÜİK about Turkey. An increase around 32.9% in water amount drawn from surface and groundwater resources between the years 1995 and 2002 shows that there will be a pressure on resources in order to meet water demand. Removing of existing deficiencies in order to decrease unbilled water due to leakage and losses is another important issue.

Illegal and excess drawing of groundwater, insufficiencies in sanctions and inspections, water pollution originated from pesticides and fertilizers make protection of groundwater resources necessary.

In recent years, there have been important developments in disposal of wastewater in big cities especially, since taken precautions cannot match up the rate of industrialization and urbanization, problems continue to become more important. It is worthwhile to say that legal arrangements related to domestic wastewater are in compliance with Urban Wastewater Treatment Directive of EU dated 1991. Discharging of sewage and wastewater of industrial facilities into surface water without treatment causes various problems. Total 87 Organized Industrial District is active, and in 41 of them wastewater problem is solved. 17 of these Organized Industrial District made a connection to sewage system of related municipalities.

When the infrastructure construction services of water and sewage in Turkey used to be conducted under the leadership of the Bank of Provinces until 1980s, a new trend in water management is that private sector takes role in offering these services apart from local administrations. Foundation of special-purpose water and sewage administrations can be given as an example to localization in this area.

Although average population density is 73 people per km² in Turkey, this density is 127 people per km² periodically in the cities located by the seaside. In addition, 70-80% of all industrial products are provided from these cities. Turkey is one of the countries that have the longest shoreline of Europe with its 8333 km shoreline. The seas surrounding Turkey on three sides are faced with pollution problem. Some of the pollution in seas is land originated but other than that the pollution originating from the land, marine vehicles also play a role.

Shores of Turkey is under the threat of pollution problems originated from discharging of domestic and industrial solid and liquid wastes, sea transportation, filling of shores with various purposes, disasters like earthquake and flood.

The most used method to solve solid waste problem in Turkey is random storage of wastes on a suitable area. Land filling, composting, incineration or recycling methods are not widespread. Site selection for landfill areas also proves to be one of the important problems. Furthermore, hazardous wastes, medical wastes and special solid wastes also constitute another important dimension of the problem. Directive on Medical Waste Control and Directive on Hazardous Waste Control are not put into practice as required, sometimes medical wastes are collected with domestic wastes. In the scope of special waste management, necessary institutional structuring for collection, recycling and disposal of waste mineral oils along with waste battery and accumulators in line with the "Producer's responsibility" has been completed. For this purpose, four associations that were vested with the authority are active. On the other hand, there is need for legal arrangements, which will be in response to directives relative to disposal of end-of-life vehicles, waste electrical and electronic equipment, PCB/PCT taking place in the list of EU's special wastes.

Studies about the recycling of packaging wastes were initially started in 1991. With Directive on Packaging and Packaging Wastes, a new era has started and all packaging were included in this scope. The implementation is based on the responsibility of the brand owner and the collection of the packaging waste separately at the source.

The fact that there are numerous local administration units in the same region makes the cooperation and coordination among these units with respect to providing the solid waste service imperative as it is in infrastructure related services. The local administration union model encouraged with new legal arrangements attracts attention as a structure that makes implementation of environmental services at local level easier. Practices of corporations founded by municipalities that are faced with similar environmental problems are important in terms of using time and financial resources more efficiently. In this framework, an increase has been observed in the number of solid waste projects performed by local administration units. In addition, within the scope of the regional development policies, it is recommended that local administration union model is used in resolving the environmental problems on regional scale. Not being conscious of local administrators and public about recycling of solid wastes originated from industrial facilities or settlement areas means that an important economic resource cannot be used. First directive related to control of medical wastes came into force in 1993 and some deficiencies, which are especially emanated from municipalities, about implementation of directive are points of issue. Despite important developments about transportation, temporary storage and collection of medical wastes at their sources and separately from other wastes in health organizations, similar developments have not been occurred in municipalities that are responsible from properly disposal of medical wastes and until now treatment plant in sufficient number and technical capacity have not been established yet.,

Intensive urbanization, rapid increase in population, false settlement of cities according to topographical and metrological conditions and usage of poor quality fuels cause formation of air pollution. Basic reasons of air pollution emanated from heating in winter months can be classified as usage of poor quality fuels without recovery process, appliance of wrong incineration techniques and not being made of operation maintenance of furnaces regularly. While designing an industrial plant, to consider only incentive factors for economic convenience increases negative effects of air pollution.

Exhaust gases emanated from increased motor vehicles are also an important problem for which necessary precautions must be taken for air pollution in cities. Generally, 70-90 % of carbon monoxide (CO) emissions, 40-70 % of nitrous oxide (NO) emissions, about 50 % of hydrocarbon (HC) emissions and 100 % of lead emissions in cities are emanated from motor vehicles. The air quality in the country is measured generally by using the semi-automatic measurement devices that belong to the Ministry of Health and it is observed in 31 fully automated measurement stations that were established in 2005 by Ministry of Environment and Forestry, the fully automated air quality measurement stations are planned to be used widely in 81 provinces in year 2006.

Noise emanated from transportation vehicles, and equipment of domestic lignite used in coal-based thermal centrals are important problems.

When current situation of chemical industry is investigated, if necessary precautions are not taken during the process from production of hazardous chemicals whose usage is inevitable in chemistry sector to disposal of them, chemicals will have negative influence on environment and people health.

Important components threatening soil resources in Turkey can be classified as erosion decrease in organic material, soil pollution, hydro geological risks, salinity, biodiversity, and land loss.

Turkey has a rich biodiversity due to its geographical situation. Climate difference, topographical variation, geological and geomorphologic differences, diversity in water medium like sea, lake and river, elevation differences between 0 m and 5000 m and existence of three different geographical vegetation regions have a role in this abundance.

120 mammal species, more than 400 bird species, about 130 reptile and 400 fish species exist in Turkey. There are also 1787 animal species in the seas surrounding Turkey. From present 250 wetlands, 81 of them have international importance and 18 of these 81 places were accepted as class "A" wetland, 76 of them were defined as important bird areas. In all there are 256 different grain types as 95 wheat, 91 corn, 22 barley, 19 rice, 16 sorghum and 2 rye types. Turkey has an important place in respect of abundance of endemic species. It was defined that there are more than 3000 endemic plant species. This number is equal to one third of all plant species in Turkey. 75 % of all plant types available in Europe are grown in Turkey.

Although Turkey is rich in respect of species diversity, it is impossible to say same things for amount of these species. Industrial and domestic pollution, drying and improvement works, excessive and illegal fishing, unconscious hunting, uncontrolled cutting and burning of rush, pressure originated from tourism activities give considerable damage to biological diversity. Sea pollution emanated from residential areas and industrial plants also constitutes one of the important problem fields. Accidents in our seas, petroleum leakage, tourism facilities, and road works are other factors which threaten biological diversity. Agricultural and stockbreeding activities like installation of irrigation systems, clearing a piece of land, utilization of pesticides for harmful species, excessive grazing place important pressure on biological worthy.

2.2 Current Legislative Framework

In our country there are numerous directives and laws that are based on the Constitution of Republic of Turkey, oriented towards prevention of environmental pollution and protection of human health and natural resources and arranging social life in a clean environment with a peaceful and confident way. The legal arrangements that ensure preservation of environmental quality by preventing environmental pollution as well as international agreements, which we are a party to, are given in Annex-1.

The purpose of legal arrangements in environmental area is to determine necessary standards and behavioural patterns of authorized agencies and citizens in order to live in a healthy and a balanced environment. Directives, circulars, notifications etc. that were issued on the basis of these laws determining basic principles include the details related to procedures and methods to be complied with.

2.3 Responsible Institutions and Organizations

According to the Constitution of Republic of Turkey; development of the environment, prevention of environmental pollution and protection of environment is duty of all public institutions and organizations with the citizens. According to this provision of the Constitution, any person or

organization can not claim that it is irrelevant to environment. When we approach the issue from the point of view of public institutions and agencies of the State, legislation creation, adjudication and execution carrying out basic functions of the State are responsible and authorized in environmental issues.

The general administration taking place in execution is divided into two categories as central and local administration, and central administration is separated to provinces, districts and other graded regions. On the other hand, local administrations are structures responding to common needs of public of provinces, municipalities and villages. These organizations provide services on local level. Central administration organized for carrying out public services on country level works in a hierarchy as dependent on Prime Ministry and various ministries. Institutions and organizations related to environment directly in respect to its function areas are given in Annex-2.

2.4 The Bottlenecks and Risks in Protection of Environment

Especially due to duplication of the activities related to permissions, monitoring, controlling and sanctions by different institutions in general of the country an effective environmental management plan cannot be applied. Institutional infrastructure and especially permitting, monitoring, controlling, reporting and implementing capacity of Ministry of Environment and Forestry must be developed. The overlaps in the legislation cause loss of labour, time and cost and decrease efficiency.

Insufficiency of small and medium scaled municipalities in financial and institutional capacity makes the solution difficult in respect of water and waste sector. Insufficient level of tariff levels, lack of usage of collected income for same purposes and inadequacy in institutional capacity show that local administration must be supported and strengthened with proper legal and technical means.

Solution demand only related to facility outputs in environmental permissions does not coincide with clean production approach. However, applications about determination and utilization of proper technologies besides inspection and sanctions by Ministry of Environment and Forestry are popular in recent years. Important developments have been seen by applying approaches about reduction of pollution at its source, recycling, clean production and system solutions by using economics of scale in wastewater and waste management subject.

The penalties to be applied in all illegal situations in all applicable legislative arrangements related to environment were defined. However, required emphasis was not given to economical means like encouragements for the purpose of prevention of environmental pollution.

Insufficiency of network to monitor the pollution, not being able to provide necessary means for standard establishments and accreditation, the failure in compiling with the data in a manner that will reflect environmental indicators and insufficiency of numerical environment to access environmental data make it more difficult for solution recommendations to be formed and also cause problems in implementation.

Becoming of engineering-consultancy firms which give services in environmental area more active by giving them more responsibility will be beneficial.

To strengthen the legislation and implementation rotation, to develop organizational framework, to constitute necessary capacity and to provide qualified personnel employment and equipment will increase implementation success of UÇES.

3. THE FUNDAMENTAL PRINCIPLES OF THE STRATEGY

In the preparation of UCES the following principles were taken into consideration:

The right to live in a healthy and balanced environment: According to the Constitution of the Republic of Turkey everybody has a right to live in a healthy and balanced environment. It is the governments and the citizens' duty to develop the environment, protect the environmental health and to prevent the pollution of the environment. This principle will be obeyed in all the activities related to environment.

The integration between the sectors: Protection of the environment is recognized as an indispensable part of economic and social development. With this principle, subjects related to environmental protection will be taken into consideration in the sectoral policies like industry, agriculture, energy, transportation, training, etc. In order to associate all the sectoral policies with the policies for improvement and protection of environment, all the public institutions, private sector, non-governmental organizations and the academic circles must be in close cooperation.

The user-polluter shall pay: The polluter pays principle is one of the fundamental principles taken into consideration in the preparation of the National Environmental Strategy. Investment is required in order to reduce the amount of the substances that harm the environment or to be disposed of in a manner that will not harm the environment. It is crucial to develop and use the economic instruments in preventing and reducing the environmental pollution. Furthermore, payments for the services provided in order to supply resources for investments oriented to environmental protection services must be collected.

Taking pollution prevention measures: Prevention of environmental pollution can be achieved in a more economical way by taking preventive measures. Preventing pollution at the source is a much more economic and effective method than removing after pollution take place. For this reason, care must be taken to ensure that the activities will cause least amount of changes at the environment, create minimum risk on human health and environment, pollute air the least amount and make used products reusable.

Protection of natural resources: The resources extracted from underground such as water, petroleum and mines are not unlimited resources. One of the fundamental provisions of sustainable development is to utilize the resources in a sustainable manner. It is required to protect biodiversity, utilize resources in a sustainable way and not to destroy the geological structure when utilizing natural resources. Care must be taken in the utilization of energy sources that cannot be renewed as well as the groundwater resources so that they will meet the needs of our country in a long period.

Sustainable development: The sustainable development principle was first defined by the United Nations in the Environment and Development Conference that was summoned in Rio de Janeiro in 1992. Sustainable development is maintaining economic, social and technological activities in an environment protecting and coordinated way in order to improve and preserve environmental quality for present and future generations. The National Environmental Strategy will be a guidance map for resolving the national environmental problems of our country in accordance with economic and social development.

Cooperation between private and public sector: The cooperation between private and public sectors will be developed to overcome the technical and financial difficulties in financing, construction and operating of the environmental infrastructure facilities and to offer economic and high quality service to the public. The technical, administrative and inspection capacity of the municipalities will be increased to guard the benefits of the public sector in privatization as well as to ensure the affordability of the service cost.

Increasing the environmental consciousness and the public participation: Environmental protection consciousness must be ensured in the public in order to provide environmental protection in an effective manner. It is not possible to achieve environmental protection without the active participation of the whole society. Within this framework, importance will be given on informing public as well as ensuring public participation in decision making mechanism.

4. THE ENVIRONMENTAL VISION AND FUNDAMENTAL PURPOSE OF TURKEY

Turkey is a country that is trying to increase its development level more and more with its important natural sources, socio-cultural potential, young and dynamic population. Even though sustainable development policies are tried to be reflected on the general policies, they are not at a desired level.

4.1. Vision

With the realization of National Environmental Strategy Turkey will be “A country where the fundamental needs of present and future generations will be met, quality of life will be increased, biological diversity will be protected, natural resources will be managed in a rational manner with an approach of sustainable development and the right to live in a healthy and balanced environment will be protected”.

4.2. Fundamental Purpose

The fundamental purpose of UCES is to establish a healthy and viable environment by taking into consideration the economic and social conditions of our country and to provide the implementation of our national environmental legislation by harmonizing it with EU Environmental Acquis and monitoring and controlling of this implementation.

4.3. Sub-Purposes

To accomplish the general purpose of UCES, priorities are given to fields such as water, waste water, solid waste, air, industry, nature and chemicals and the sub-purposes stated below will be accomplished by the accomplishment of the mentioned purposes.

- The laws and by-laws related to environment will be reviewed and their harmonization with EU Environmental Acquis will be ensured by progressive stages.
- On the basis of common but differentiated responsibilities, the obligations and responsibilities that we undertake within the framework of the international agreements that we are a party to will be integrated to the national environmental strategy and will be implemented as a whole.
- The protection/utilization conditions of the natural resources will be determined by considering the requirements of the future generations and the environmental management that will provide fair and equal access for everyone to these resources will be ensured.
- The environmental organization plans that will be prepared throughout the country will be in conformity with the national, regional and lower scale plans.
- Integration of the environmental policies to economic and social policies will be ensured, the necessary incentives will be provided and the economic tools related to protection of environment will be utilized.
- For an effective environmental management, the experience gained in institutional structures will be used in the most effective manner, also these experiences will be developed according to present conditions and capacities will be strengthened.
- Environmental information and monitoring systems will be established for the implementation of the environmental norms and standards and for the monitoring of the implementation.
- Controlling, assessment and reporting system that is required for monitoring of implementation of EU Directives will be established.
- Coordination between the institutions in environmental management will be ensured and the cooperation between the stakeholders will be developed.

- Financing opportunities of the environmental sector will be developed, the investments required for the infrastructure and other sectors will be realized and environmental protection will be of importance in all the processes from production to consumption.
- Cooperation between the private and the public sector will be developed in meeting, financing and operating of the infrastructure needs.
- In order to minimize the waste water, solid waste and air pollution under economical conditions, technologies that are best suitable for the conditions of the country will be preferred in the construction, maintenance, repairing, renewal and operating of the environmental infrastructure facilities. Also, these facilities will be generalized in a way that will encourage local administrations where possible and ensured to be operated effectively.
- Controlled utilization will be provided in management of the chemicals and wastes that may cause risks for human health and environment in the period beginning from production until disposal.
- The natural flora and fauna and their ecosystems will be developed by taking sustainable development and the balance of protection and utilization as the basis and the loss of biodiversity will be prevented.
- Environmental informing activities and training studies will be emphasized in order to increase and by means of press

Realization of the following points oriented to the achievement of harmonization to the EU acquis will be provided in process of membership to EU by the implementation of UCES.

- **Harmonization of Legislation:** The nonconforming points between the current environmental policies, legislation and applications in Turkey and the requirements of EU Acquis will be eliminated.
- **Implementation:** Following the harmonization with the acquis, steps oriented to full harmonization will be taken through the utilization of environmentally sensitive modern technologies in the environmental infrastructure and industrial production. Besides the reflection of all related EU requirements to the national legislations that are in force, it will be made sure that management of national laws, establishment of appropriate institutional structures which have adequate budgets for effective or practical applications and putting into force of necessary control and punitive sanctions in order to provide full harmonization to the laws will be provided.
- **Investment:** Necessary measures related to environmental harmonization, including the financing of investments, will be taken.

The experience acquired from other member states shows us that there are several prerequisites for the harmonization of the environmental acquis to the national legislation in an effective manner. In the planning and coordination stage, it was considered that the appointment of a single authority, that is in national level and that will take over the responsibility and the general coordination of harmonization of EU environmental acquis is important. This task was given to the Ministry of Environment and Forestry in Turkey. In line with this assignment the institutional infrastructure of the Ministry of Environment and Forestry will be developed in terms of monitoring, permitting, controlling, reporting and implementation capacities.

Investment Plans Specific for Directive for each of eighteen directives has been prepared within the context of "Project for Planning of High Cost Environmental Investments" which was financed by EU and Which was coordinated and completed by the Ministry of Environment and Forestry. Besides the subject matter plans will be updated in the preparation process for the negotiations, the main purpose of the plans are to focus on the investment plans to make possible for competent authorities to work in harmonization with the related directives and to provide a tool that will define the investment projects to be ready for negotiations with EU.

5. SECTORAL PRIORITIES AND POLICIES

5.1. Water Sector

5.1.1. Present Situation

Turkey is a country that has population of approximately 70 millions. In the country there are 16 metropolitan municipalities with higher population than 500.000, 3.200 municipalities with lower population than 500.000 and over 37.000 village with lower population than 2.000. The social and economical conditions of the residential units demonstrate differences.

According to the results of the Survey of Sewage System Statistics of Municipalities exercised in 2004 by TSI; it was determined that 1421 of 1911 municipalities are furnished services of sewage systems. In the year 2004, 47% of 2,77 billion m³ of waste water was discharged into the rivers, 39,3% to the seas, 4,2% to the dams, 1,9% to the lakes and ponds, 1,3% to the fields and 6,3% to other receiving environment by the municipalities which provide a sewage system service. 1,68 billion m³ of 2,77 billion m³ of waste water discharged from a sewage system was treated in the treatment plants. Biological treatment was applied to 58,2% of the wastewater treated, physical treatment to 28,3% and advanced treatment to 13,2%.

According to the results of the Survey of Drinking and Potable Water Statistics of Municipalities carried out in 2004, it was determined that 1910 of 1911 municipalities are furnished services of drinking and potable water supply systems. By the year 2004, 4,73 billion m³ of water was pumped by the municipalities that provides services of drinking and potable water supply systems in order to be distributed through the water supply systems. 42% of the water was pumped from the dams, 27,1% from the wells, 26,2% from the water sources, 2,9% from the rivers and 1,8 % from the lakes and ponds. In the year 2004, 2,08 billion m³ of the 4,73 billion m³ of water supplied in order to be distributed through the drinking and potable water supply systems was treated in the drinking and potable water treatment plants. 4,7% of the water treated was applied physical and 95,3% was applied conventional treatment.

In order to be able to decide on the technology of a wastewater treatment plant, the characteristics of the receiving media is need to be known. Besides, biological or advanced treatment may be needed for the residential units with a equivalent population more than 10.000. Furthermore, in the wards with more than 2.000 habitants, a wastewater treatment plant shall be installed.

Table 5.1.1: Number of the wastewater treatment plants according to the By-law of Urban

Population intervals	Number of the Municipalities *	Population of the municipalities	Number of municipalities with sewage system	Population served through sewage system	The ratio of population served through sewage system	Number of treatment plants (secondary + advanced)	Population obtains treatment services	The ratio of population obtains treatment services
>100,000	58	29 772 881	58	28.563.084	96	46	20.554.995	69
100,000-50,000	77	5 344 259	74	4.806.972	90	15	1.073.804	20
50,000-10,000	450	9 309 091	403	7.546.575	81	43	1.770.561	19
10,000-2000	2 206	8 929 928	1 396	4.923.454	55	33	449.956	5
<2000	345	578 891	208	309.395	53	1	27.114	5
TOTAL	3 136	53 935 050	2 139	46 149 480	87	138	23.876.430	44

* : the districts and sub-level municipalities which obtains services from the metropolitan municipalities are evaluated within the population of the metropolitan municipality that is obtained services. Because of this reason, the number of districts and sub-level municipalities is not shown in the table.

** : Data from TSI, 2004.

Wastewater Treatment

In Turkey, there are 138 treatment plants in which secondary and advanced treatment are applied according to the data of the year 2004. 2.942 In order to fulfill the requirements of Urban Wastewater Treatment Directive, approximately 2,942 new treatment plants with various capacities are required to be established for residential units with a population more than 2000. Similarly taking into account the fact that the sewage system in Turkey has 65,535 km longitude, according to the current situation this number needs to be increased to 85.200 km. by the year 2022. And in the small municipalities and villages with population less than 2000, appropriate treatment and disposal methods will be used.

In Turkey there is 8.5 million hectares area which is economically irritable. As of January 2005, agricultural irrigation was conducted on an area of 4, 9 million hectares. The most important problem with regard to agricultural irrigation in Turkey is deficiency of water and lack of the drainage systems. The infiltration of the fertilizers and the plant protection chemicals through the soil through surface irrigation systems may be reduced by optimization of the water drained to the fields, installation of the covered drainage systems or by utilization of pressurized irrigation techniques. Water use efficiency for agricultural irrigation is approximately 40%.

The investment priorities with regard to domestic and industrial sectors are determined focusing on the years 2010 and 2025 in the "National Action Plan Regarding Land Based Pollutants" which is prepared according to the Barcelona and Bucharest Conventions and the annex protocols of these conventions of which Turkey is a contracting party so as to control sea and coastal pollution in our country. Measurement, monitoring, research and reporting activities are carried out in order to determine current pollution level in our seas and the implementation effectiveness of such National Action Plan.

Our country is a part of Emergency Response Protocols which are from the annex protocols of Barcelona and Bucharest Conventions and MARPOL 73/78 Convention and its annexes, OPRC, CLC and FUND Conventions as well. Besides prevention of land sourced pollution, studies with regard to prevention of the pollution sourced from marine transportation, preparedness for possible accidents, response and indemnity of the damages are being carried out.

5.1.2. Legislative Approximation

Table 5.1.2. Timetable for Approximation

Name of the EU Legislation	Number	Foreseen Transposition Date	Foreseen Implementation/ Enforcement Date
Urban Waste Water Treatment Directive	91/271/EEC	“By-law on Urban Waste Water Treatment” (08.01.2006)	08.01.2006 (enforcement date)
Directive on protection of waters against pollution caused by nitrates from agricultural sources	91/676/EEC	“By-law on Protection of Waters Against Pollution Caused by Nitrate from Agricultural Sources” (18.02.2004)	18.02.2004 (enforcement date)
Water Framework Directive	2000/60/ECC	The development of the capacity project submitted in 2006 financial year is estimated to be completed in the year 2009. the outcomes of this project will support the harmonization studies.	Technical studies are being conducted.
Council Directive on the Quality of the Water Intended for Human Consumption	98/83/EC	“By-law on Water Intended for Human Consumption” (17.02. 2005)	17.02. 2005 (enforcement date)
Directive Concerning the Quality Required for Surface Water Intended for the Abstraction of Drinking Water in the Member States	75/440/EEC	“By-law on Quality of Surface Water Obtained Drinking Water or Intended for the Abstraction of Drinking Water” 20.11. 2005)	20.11. 2005 (enforcement date)
Directive Concerning the Methods of Measurement and Frequencies of Sampling and Analysis of Surface Water Intended for the Abstraction of Drinking Water in the Member States	79/859/EEC	“By-law on Quality of Surface Water Obtained Drinking Water or Intended for the Abstraction of Drinking Water” (20.11. 2005)	20.11. 2005 (enforcement date)
Directive Concerning Water Pollution by Discharges of Certain Dangerous Substances and Auxiliary Directives	76/464/EEC	“By-law on control of Water Pollution by Discharges of Certain Dangerous Substances” (26.11.2005)	26.11.2005 (enforcement date)
Bathing Water Quality Directive	76/160 EEC	Transposed with “By-law on Bathing Water Quality” (09.01.2006)	09.01.2006 (enforcement date)
Directive on the protection of the environment, and in particular of the soil, when sewage sludge is used in agriculture	86/278/EEC	“By-law on Control of Soil Pollution” (31.05.2005)	31.05.2005 (enforcement date)
Directive on the Protection of Groundwater Against Pollution Caused by Certain Dangerous Substances	80/68/EEC	2008*	Technical studies are being carried out
Directive on the Quality of Fresh Waters Needing Protection or Improvement in order to Support Fish Life	78/659/EEC	2008* Transposition studies of this legislation is being carried out by Ministry of Agriculture and Rural Affairs	Technical studies are being carried out
Directive on Quality Required of Shellfish Waters	79/923/EEC	Transposing studies of this legislation is being carried out by Ministry of Agriculture and Rural Affairs	Technical studies are being carried out

* those dates might be changed according to completion of legislative compliance studies

With respect to the water sector, the EU legislation that was prioritized in the National Program for the Adoption of the EU Acquis of 2003 under the heading 22.1“Improvement of the Water Quality” including “Council Directive 75/440/EEC of 16 June 1975 concerning the quality required of surface

water intended for the abstraction of drinking water in the Member States”, “Council Directive 79/869/EEC of 9 October 1979 concerning the methods of measurement and frequencies of sampling and analysis of surface water intended for the abstraction of drinking water in the Member States”, “Council Directive 91/271/EEC of 21 May 1991 concerning urban waste-water treatment”, “Council Directive 76/464/EEC of 4 May 1976 on pollution caused by certain dangerous substances discharged into the aquatic environment of the Community”, “Council Directive 76/160/EEC of 8 December 1975 concerning the quality of bathing water”, “Council Directive 91/676/EEC of 12 December 1991 concerning the protection of waters against pollution caused by nitrates from agricultural sources”, “Council Directive 98/83/EC of 3 November 1998 on the quality of water intended for human consumption” are studied within the framework of the harmonization of the Turkish Legislation with that of EU. Accordingly, the By-law on the waters from which drinking water is obtained or planned to be obtained, the By-law on Urban Wastewater Treatment, the By-law on Control of Pollution by Dangerous Substances in Water and its Environment, the By-law on Protection of Waters Against Nitrate Pollution from Agricultural Sources, the By-law on Water Intended to Human Consumption, the By-law on Bathing Water Quality are prepared and entered into force in the Official Gazette.

Harmonization studies with regard to Council Directive 80/68/EEC of 17 December 1979 on the protection of groundwater against pollution caused by certain dangerous substances, 78/659/EEC numbered Directive on the Quality of Fresh Waters Needing Protection or Improvement in order to Support Fish Life and 79/923/EEC numbered Directive on Quality Required of Shellfish Waters are being carried out.

With regard to the Directive on the Protection of Groundwater Against Pollution Caused by Certain Dangerous Substances, the project of “Capacity Building with regard to Sustainable Groundwater Management in Turkey” which is supported by Turkish Government and the Government of Netherlands has been started up in Kanuary 2006 and is planned to be completed in 2008. The outputs of this project will provide support with respect to implementation and provision of the legal compliance of the groundwater related clauses of “Groundwater Directive (80/68/EEC)” and “Water Framework Directive (8000/60/EC)”.

In addition to the studies concerning preparation of a law which takes into account the requirements of Water Framework Directive, the capacitu building project for water sector is submitted to the Financial Cooperation Programme of 2006 and found acceptance. For the three project proposals which are submitted in the frame of EU Financial Cooperation Programme; studies which fullfil the requirements of Directive Concerning Water Pollution by Discharges of Certain Dangerous Substances, Urban Waste Water Directive and Water Framework Directive, and will comprise the matters such as strengthening the institutional capacity in order to provide the compliance of Water Framework Directive to EU. Also this will support our project activities planned to be completed in 2009.

Despite of not being included in environment section of the National Programme of 2003, in order to reduce sea pollution and its environment and to provide marine safety, some studies are conducted within the coordination of MoEF with contribution of concerning organizations and institutions under the frame of international conventions and European Union Directives. Within this context, the studies with regard to the marine and marine environment is being conducted in compliance with the “Thematic Strategy on the Protection and conservation of the Marine Environment” that has been prepared by the European Commission.

5.1.3. Goals, Targets Objectives and Strategies

Within the scope of the Water Framework Directive, the objectives and targets have been determined and the strategies to be implemented to achieve the objectives have been established with respect to all EC Directives especially for irrigation systems, re-injection systems, Nitrate Directive, Directive

concerning the quality required of surface water intended for the abstraction of drinking water in the Member States, and Urban Waste Water Treatment Directive. During implementation of these directives an integrated approach should be followed considering the interaction between them. Within this frame, the priorities with respect to investment are indicated in Urban Wastewater Treatment Directive, Drinking Water Directive, Water Framework Directive, Dangerous Substances Directive, Nitrate Directive and Bathing Water Directive.

1. Goal: The pollution level of the ground, surface and coastal waters will be monitored, pollution level will be reduced to minimum and their further pollution will be prevented.

Objective : In accordance with By-law on Urban Waste Water Treatment sensitive and less sensitive areas will be determined until year 2009.

Strategy 1: To establish a monitoring network for national water sources regarding ground, surface and coastal waters.

2: To inform the public about water pollution

2. Goal: Sewage systems and treatment plants will be installed according to the By-law on Urban Waste Water Treatment.

Objective: until the year 2020 the population that benefit from the treatment plants in the provinces that has more than 50 thousand population.

Strategy 1: To consider the criteria of sensitive and less sensitive areas, when deciding on the technology of the treatment plant.

3. Goal: The pollution sourced by agricultural nitrate in the water and the soil will be monitored, minimized and pollution will be prevented.

Objective: The sensitive areas according to By-law of prevention of the waters against the pollution caused by nitrates from agricultural sources will be defined until 2007.

Strategy 1: Implementation of good agricultural practices at the defined sensitive areas.

2: Monitoring in the areas that are defined as sensitive and improvement of the soil and water quality in terms of nitrates.

4. Goal: Sustainable utilization from natural water sources and water ecosystems will be ensured. Boron pollution of the surface waters caused by discharge of geo-thermal waters will be prevented and the pollution caused by drainage waters from irrigation will be prevented. (certain transposition date will be determined after Precautions Programme.)

Objective: Action plan for prevention of the pollution caused by drainage waters from irrigation will be prepared until 2010.

Strategy 1: Promotion of private and public institutions as well as the other users for the efficient use of water

2: Drainage water disposal by re-injection system.

3: Improvement of irrigation systems and development of spraying system.

4: Building up a sustainable water sources management system.

5: Preparing a water framework law considering fundamental principles of the Water Framework Directive.

5. Goal: Drinking water will be provided to be reached by more people in sanitary conditions.

Objective 1: The laboratory capacity with respect to monitoring the parameters included in the EU Drinking Water Directive will be increased until 2010.

2: The quality standards in accordance with the By-law on Quality of Surface Water Obtained Drinking Water or Intended for the Abstraction of Drinking Water will be started to be monitored in 2007 and data records will be prepared until 2013.

3: Classification of the waters and determination of the conformity of the present treatment plants in accordance with the By-law on Quality of Surface Water Obtained Drinking Water or Intended for the Abstraction of Drinking Water will be started in the year 2009.

4: The improvements to be carried out in the treatment plants and construction of new treatment plants in accordance with By-law on Quality of Surface Water Obtained Drinking Water or Intended for the Abstraction of Drinking Water will be started in the year 2011.

5: A systematic drinking water basin protection plan that covers activities related to improvement of all surface waters that are used or planned to be used for drinking water purposes and especially the surface waters in A3 category in accordance with By-law on Quality of Surface Water Obtained Drinking Water or Intended for the Abstraction of Drinking Water will be prepared until year 2011.

Strategy 1: Providing of sanitary drinking water for more people.

2: In order to supply sanitary and sufficient water within the areas in which water quality and quantity is insufficient, reducing the losses and leakages in the water supply systems.

3: Preparing drinking water basin protection plans.

6. Goal: Pollution arising from the discharge of dangerous substances in waters will be determined, prevented and gradually reduced.

Objective 1: Inventory studies for discharge of dangerous substances will be completed until year 2009.

2: Establishment of national monitoring network for dangerous substances will be completed until year 2011.

3: National pollution reduction programs will be prepared until year 2012 in order to reduce the pollution arising from the discharge of dangerous substances in the water

Strategy: Use of cleaner production technologies and advanced treatment technologies.

7. Goal : Bathing waters and the waters utilized for recreational purposes will be prevented to be polluted by any types of pollutant -before all else by microbiological pollutants- and the pollution on these areas will be monitored, controlled and reported.

Objective 1: Laboratory capacity for monitoring and reporting with respect to bathing waters and the waters utilized for recreational purposes will be developed until year 2015.

2: Appropriate treatment plants, waste water discharge and disinfection systems will be installed in order to provide the wastewater treatment plants to discharge not in a negative manner in order not to discharge from wastewater treatment plants into bathing waters and the waters utilized for recreational purposes in a way not to negatively affect these waters until year 2015.

Strategy Strategy 1: Monitoring, protecting, auditing and reporting regularly the recreation and bathing areas in certain intervals.

2: To define the bathing areas and announce them to public.

8. Goal: Treatment and controlled usage in the soil and final disposal of the sludge from treatment plants through appropriate technologies will be provided.

Objective: The analysis of the treatment sludge and the soil in which the sludge would be used will be carried out in the accredited laboratories after the year 2007.

Strategy: Defining the fundamentals of using the sludge in the soil and appropriate usage.

5.1.4. Strengthening the Institutional Capacity

There is a need for strengthening of the institutional structure to ensure the full and effective implementation, monitoring and inspection of the existing legislation as well as the related EC Directives. In the water sector, it is considered that approximately 9000 additional personnel is required at central and local level. The cost of this personnel for the year 2020 is estimated approximately 1.000.000.000 Euros and it is planned to be provided by the MoEF and especially municipalities.

A healthy environmental management plan cannot be applied in the country especially due to the duplications in functions of the different institutions on inspection, permit and enforcement activities.

Although the permit, monitoring, inspection, enforcement and reporting activities are carried out in Turkey, the results are not integrated.

The institutional structure will be strengthened through development of a new “Water Framework Law” which will prevent the duplications and split up structure that does not present an integrated body.

Emergency response centers are required to be established within the scope of the law on the principles for Interventions and Compensation of Losses In Cases Where the Sea and Its Environment are Polluted with Petroleum and Other Substances. On the other hand, it is required to develop technical, administrative, legal structure with respect to especially prevention of illegal discharge, management of ballast waters, transportation of dangerous freight via sea for the prevention of vessel based pollution and protection marine environment.

5.1.5. Investment Needs

The Directives that require the high amounts of investments are the Urban Waste Water Treatment Directive, Drinking Water Directive, Quality of Surface Water Intended for the Abstraction of Drinking Water Directive, Water Framework Directive, Directive on Dangerous Substances Discharged into Water, Nitrate Directive and Bathing Water Directive.

The highest and the lowest investment amounts for the implementation of the Directives related with the water sector were determined within the context of the “Environmental Heavy-Cost Investment Planning in Turkey” project. The Urban Wastewater Treatment Directive requires different treatment types for wastewater that is discharged into sensitive and less sensitive water sources.

The high, medium and low cost scenarios were developed in case of implementation of the Directives and the total of the costs associated with the above mentioned 7 directives were determined to be as follows: according to the lowest cost scenario 33.969 million Euros, according to the medium cost scenario 35.874 million Euros and the highest cost scenario revealed to be 37.867 million Euros. According to this, investment difference between the highest and the lowest costing scenarios was approximately 4 billion Euros. It is a known fact that this difference will also exist on the operating costs however the amount of that difference cannot be estimated yet. This ambiguity led to the selection of the lowest cost scenario.

With respect to transposition of the Urban Wastewater Treatment Directive, the lowest cost scenario was chosen. According to this scenario, the Marmara and Aegean Sea coastal areas, Antalya and Iskenderun Gulf as well as the drinking water basins that are less than 100 km close to the drinking water source were classified as sensitive areas, other surface waters were classified as normal, and all of the region where discharge is made under Bosphorus and the Black Sea and the waters flow into Black Sea were classified as less sensitive areas. In the highest cost scenario, all waters of the country were classified as sensitive area and advanced waste water treatment was recommended for all waste water collection areas with equivalent population of more than 10,000. When the economic condition of Turkey is taken into consideration, it can be seen that the costs related with the type of the treatment systems, their number, the operating and maintenance costs and the disposal of the treatment sludge bring a significant financial burden. Within this context it is recommended to conduct the construction of the treatment plants as well as the sewage systems in stages.

Starting with these estimations, the lowest cost scenarios were chosen for the scenarios related with the Urban Waste Water Treatment Directive, Water Framework Directive, Directive on Dangerous Substances Discharged into Water, Nitrate Directive. The scenarios with the highest costs were chosen for the Drinking Water Directive, and Quality of Surface Water Intended for the Abstraction of Drinking Water Directive, as well as the Bathing Water Directive by taking into account the fact that

they are directly related with human health and they have direct relations with the tourism potential of the country. In the Water Sector Monitoring Table, the defined investment costs are given according to the scenarios chosen (Table 5.1).

In Table 5.1.3 it is foreseen that the initial investment and rehabilitation costs of the drinking water treatment plants and networks between years 2007 – 2023 will be 23 Billion 680 million YTL (12 billion 743 million Euros) and furthermore the rehabilitation operations are estimated to need 3 times more financing than the initial investment costs. From this point of view, it can be deducted that a considerable amount of plant in Turkey are old.

In Table 5.1.4 it is foreseen that the initial investment and rehabilitation costs of the wastewater treatment plants and networks between years 2007 – 2023 will be 33 billion 604 million YTL (18 billion 083 million Euros) and furthermore the rehabilitation works are estimated to be at the same level as the initial investment costs. If it is taken into consideration that approximately 45% of the wastewater produced by the population in Turkey can be treated, it can be seen that most of the investment will be made for construction of new treatment plants and rehabilitation of existing systems.

15 Directives starting with the urban waste water, nitrate, drinking water for human consumption, quality of surface water intended for the abstraction of drinking water directive, treatment sludge, dangerous substances in water and its sub-directives (8 directives) and irrigation systems as well as the re-injection systems within the scope of Water Framework Directive, out of the 24 Directives that are identified in the National Programme for the Adoption of Acquis in 2003 were studied within the framework of “Environmental Heavy-Cost Investment Planning in Turkey” Project. The investment cost for these directives are around 33 billion 969 million Euros. With respect to the other directives, any other study have not been carried out.

On the other hand, required investment cost for harmonization of the EU legislation with the Turkish legislation concerning protection of marine and marine environment and its implementation -before all else marine strategy- is needed to be determined.

Table 5.1.2 Investment Needs in the basis of Directives of Water Sector (2007 – 2023)

	Total	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017	2018	2019	2020	2021	2022	2023	TOPLAM
Urban Waste Water Treatment	18.083	687	717	770	798	833	859	880	957	1.112	1.179	1.227	1.260	1.303	1.332	1.303	1.443	1.423	18.083
Agricultural Nitrate	270	15	15	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	270
Water Framework Directive	1.550	91	91	91	91	91	91	91	91	91	91	91	91	91	91	92	92	92	1.550
Quality of Water for Human Consumption																			
Quality of Surface Water Intended For Drinking Water*	12.743	462	517	572	620	642	660	692	713	756	817	869	896	921	949	877	891	889	12.743
Medhods of Surface Water Quality Measure and Analysis																			0
Dangerous Substances in Water Media	1.300	76	76	76	76	76	76	76	76	76	77	77	77	77	77	77	77	77	1.300
Bathing Water Directive	23	1	1	1	1	1	1	1	1	1	1	1	2	2	2	2	2	2	23
Treatment Sludge**																			0
Dangerous Substances in Ground Water																			0
Pprotection of Fish Life																			0
Pprotection of Shellfish Life Medias																			0
TOTAL	33.969	1.332	1.417	1.526	1.602	1.659	1.703	1.756	1.854	2.052	2.181	2.281	2.342	2.410	2.467	2.367	2.521	2.499	33.969

*12.743 EURO that is stated here shows the total costs for the implementation of the Directive on the quality of the waters for human consumption as well as the Directive on the quality of the surface waters that drinking water intended for abstraction, as an indicator.

** The costs are indicated in the Urban Wastewater Treatment Directive

Table 5.1.3 Investment Needs for Drinking Water (2007 – 2023)

	Total	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017	2018	2019	2020	2021	2022	2023
Treatment Plant Investments	1.510	74	87	91	109	87	89	90	89	106	122	77	115	94	93	91	72	24
Network Investments	1.147	26	41	62	63	77	64	66	59	55	72	141	101	118	118	19	24	41
Treatment Plant Renovation Investments	3.822	136	147	158	170	181	192	203	214	225	236	247	258	269	280	291	302	313
Network Renovation Investments	6.264	224	242	260	278	296	314	332	350	368	387	405	423	441	459	477	495	513
Total	12.743	461	516	571	619	641	659	691	712	755	817	869	897	922	950	879	893	891

Table 5.1.4 Investment Needs for Wastewater (2007 – 2023)

	Total	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017	2018	2019	2020	2021	2022	2023
Waste Water Treatment Plant Investments	4.983	229	230	230	232	191	219	277	278	373	335	356	372	273	278	260	450	400
Network Investments	3.838	149	150	171	168	214	183	117	163	194	269	268	255	368	362	322	242	243
Waste Water Treatment Plant Renovation Investments	1.539	50	56	61	66	71	76	81	86	91	96	100	105	110	115	120	125	130
Network Renovation Investments	7.723	259	281	308	332	357	381	405	430	454	479	503	528	552	577	601	626	650
Total	18.083	687	717	770	798	833	859	880	957	1.112	1.179	1.227	1.260	1.303	1.332	1.303	1.443	1.423

5.2. Waste Sector

5.2.1. Present Situation

According to the results of Municipality Solid Waste Statistics Questionnaire of the year 2004 which was administered by TÜİK (Turkish Statistical Institute, TURKSTAT) , the amount of solid waste collected was 12,3 million tons in the summer of 2004 and 11,9 million tons in the winter of 2004, with an annual amount of 24,2 million tons. According to these results, the average daily solid waste quantity per capita was 1,34 kg in average. Among the total amount of 24,2 million tons of solid waste collected in 2004 from the municipalities which give solid waste service, 46,7 % of the disposal was to the municipal dump sites, 28,9% was to landfills, 15,6% was to metropolitan municipality dump sites, 3% to other municipal dump sites, in addition, 1,6% was buried, 1,4% was composted, 0,3% was incinerated outdoors, 0,4% was dumped to streams and lakes. According to these data, approximately 30% of domestic solid waste is disposed to landfills.

Observing Table 5.2.1 which shows the present situation in solid waste services, although the figures given do not span a long time period, it is possible to recognize the increasing trend in this sector.

Table 5.2.1 Municipal Solid Waste Indicators for 2001-2003

Municipal Solid Waste Indicators	2001	2002	2003
Total number of municipalities	3.215	3.215	3.215
Municipalities which give solid waste service	2.915	2.984	3.018
Percentage of the population receiving solid waste service	77	76	77
Percentage of the municipal population receiving solid waste service	98	97	97
Quantity of the solid waste collected (10 ³ tons/yr)	25.134	25.373	26.118
Average solid waste quantity per capita (kg/cap-d)	1,31	1,34	1,38
Average solid waste quantity per capita in summer (kg/cap-d)	1,28	1,32	1,37
Average solid waste quantity per capita in winter (kg/cap-d)	1,32	1,34	1,38
Solid Waste Disposal Facility Indicators			
Number of landfills	12	12	15
Capacity (10 ³ tons)	261.282	277.195	278.015
Amount of the solid waste disposed to these facilities (10 ³ tons/yr)	8.304	7.047	7.432
Number of composting facilities	3	4	5
Capacity (10 ³ tons)	299	664	667
Amount of the solid waste disposed to these facilities (10 ³ tons/yr)	218	383	326
Number of incineration facilities	3	3	3
Capacity (10 ³ tons)	43,9	43,9	44
Amount of the medical waste disposed to these facilities (10 ³ tons/yr)	11	9	14

Source: State Institute of Statistics, Turkey Statistics Almanac, 2004; DİE, News Bulletin, 29.06.2005 (DİE, Türkiye İstatistik Yıllığı, 2004; DİE, Haber Bülteni, 29.06.2005)

According to the results of Municipality Solid Waste Statistics Questionnaire of TÜİK, 70.000 tons of medical waste was collected in 2004. Among the total medical waste collected, 16% of the disposal was to dump sites of metropolitan municipalities, 27% to municipal dump sites, 23% to landfills, in addition, 20% of this total amount was incinerated at incineration facilities, 10% was buried and 4% was incinerated outdoors.

Data regarding hazardous waste production in Turkey is very limited. The source of data in this field is the Manufacturing Industry Questionnaire administered by TÜİK. According to the last Manufacturing Industry Questionnaire that was administered by TÜİK in 2004, 1.196.000 tons of hazardous waste was produced annually. Among the total hazardous waste produced, 8% (71.000 tons) was recycled, 45% (248.000 tons) was sold or granted and 47% (877.000 tons) was disposed.

5.2.2. Legislative Approximation

Table 5.2.2 : Timetable for Approximation

Name of the EU Legislation	Number	Foreseen Transposition Date	Foreseen Implementation/ Enforcement Date
Directive on Hazardous Waste	91/689/EEC	2005	2005
Directive on Packaging and Packaging Wastes	94/62/EC	2004	30.07. 2004 Issued. 01.01.2005 In force.
Directive on Disposal of Waste Oils	75/439/EEC	2004	2004
Directive on Batteries and Accumulators Containing Certain Dangerous Substances	91/157/EEC	2004	2004
Directive on Waste (Waste Framework Directive)	75/442	2006	2006
European Waste Catalogue	2000/532	2006	2006
Directive on the Landfill of Waste	99/31/EC	2006	2006
Waste Shipment Regulation	259/93/EEC	2008	Upon Membership
Directive on the Incineration of Waste	2000/76/EC	2006	2006
Directive on the Disposal of Polychlorinated Biphenyls and Polychlorinated Terphenyls (PCB/PCT)	96/59/EC	2007	2008
Directive on the End-of-Life Vehicles	2000/53/EC	2007	2008
Directive on the Management of Waste from the Extractive Industries (Mining Waste Directive)	2006/21/EC	2008	2008
Directive on the Waste from the Titanium Dioxide Industry	78/176/EEC	2010	2010
Directive on the Restriction of the Use of Certain Hazardous Substances in Electrical and Electronic Equipment (RoHS)	2002/95/EC	2007	2008
Directive on Waste Electrical and Electronic Equipment (WEEE)	2002/96/EC	2007	2008

The by-laws named By-law on Packaging and Packaging Waste Control (BLPPWC), By-law on Control of Waste Oils, By-law on Control of Used Batteries and Accumulators, which were mentioned in the National Program of the year 2003 and stipulated to be completed in 2004, and in addition, although not mentioned in the National Program 2003, aiming at the implementation of the Directive on the Landfill of Waste, the By-Law on Excavated Soil, Construction and Demolition Waste were issued and put into effect in 2004.

By-law on Hazardous Waste Control which was mentioned in the National Program 2003 and stipulated to be completed in 2005 and, although not mentioned in the National Program 2003, aiming at the implementation of the Directive on the Landfill of Waste, the by-laws named By-law on Medical Waste Control and By-law on Waste Vegetable Oil Control were issued and put into effect in 2005.

By-law issuance studies for harmonization with the directives concerning “Waste Framework”, “Waste Catalogue”, “Landfill of Waste”, “Waste Shipment”, “Incineration of Waste”, “PCB/PCT” and “End-of-Life Vehicles” which were mentioned in the National Program 2003 and anticipated to be completed in 2005 are going to be completed at the end of 2006.

Although not mentioned in the National Program 2003, continuing by-law studies exist regarding the Directive on Waste Electrical and Electronic Equipment (WEEE) and Directive on the Restriction of the Use of Certain Hazardous Substances in Electrical and Electronic Equipment (RoHS) among the waste sector EC directives.

5.2.3. Goals, Objectives and Strategies

1.Goal: Solid waste production is going to be decreased.

Objective 1: Solid waste production is going to be recorded.

2: Volume and weight of the solid wastes are going to be minimized.

Strategy 1: Building the necessary capacity for monitoring, inspection and assessment of solid waste disposal facilities.

2: Establishing the necessary mechanisms to reach public awareness.

2. Goal: By using the appropriate methods, necessary measures are going to be taken to ensure the recycling and the landfill disposal of solid waste.

Objective 1: Necessary measures are going to be taken for decreasing the biodegradable solid waste quantity going to landfills.

2: Solid waste production is going to be recorded.

3: Solid waste recycling and disposal facilities are going to be installed.

4: Solid wastes are going to be inspected from production until disposal.

Strategy 1: Forming the “National Strategy” regarding the reduction of biodegradable waste.

2: Building the necessary capacity for monitoring, inspection and assessment of solid waste disposal facilities.

3: Forming the financing scheme for waste management, taking the principle of “Polluter Pays” into account.

4: Establishing a licensing system for solid waste recycling and disposal facilities .

5: Establishing the necessary mechanisms to reach public awareness.

3. Goal: Measures concerning packaging and packaging waste management are going to be taken, considering the conditions of competition within the community and the requirements of internal market.

Objective 1: Hazardous substance utilization in packaging materials, batteries, end-of-life vehicles and electrical and electronic equipments is going to be minimized.

2: Packages are going to be produced in a way that will make reuse and recycling possible and will minimize the negative impacts on environmental quality.

Strategy 1: Forming the financing scheme for waste management taking the principle of “Polluter Pays” into account.

2: Preparing the Solid Waste Management Plan.

4. Goal : Hazardous wastes are going to be managed.

Objective 1: Solid waste production is going to be recorded.

2: Solid waste recycling and disposal facilities are going to be installed.

3: Solid waste recycling and disposal facilities are going to be licensed.

4: Solid wastes are going to be inspected from production until disposal.

Strategy 1: Building the necessary capacity for monitoring, inspection and assessment of solid waste disposal facilities.

2:Forming the financing scheme for waste management taking the principle “Polluter Pays” into consideration.

3: Establishing a licensing system for solid waste recycling and disposal facilities.

4: Preparing the Solid Waste Management Plan.

5. Goal: Medical and exceptional wastes are going to be managed.

Objective 1: Harmonization studies regarding medical and special wastes are going to be initiated.

2: Solid waste production is going to be recorded.

3: Solid waste recycling and disposal facilities are going to be installed.

4: Solid waste recycling and disposal facilities are going to be licensed.

5: Solid wastes are going to be inspected from production until disposal.

6: Volume and weight of solid wastes are going to be minimized.

Strategy 1: Building the necessary capacity for monitoring, inspection and assessment of solid waste disposal facilities.

2: Forming the financing scheme for waste management taking the principle “Polluter Pays” into consideration.

3: Establishing a licensing system for solid waste recycling and disposal facilities.

4: Preparing the Solid Waste Management Plan.

5.2.4. Strengthening of the Institutional Capacity

Strengthening the Institutional Structure on national and local levels is significant. For this purpose, roles and responsibilities of different parties for the waste management system needs to be clearly defined and, in order that the policy, planning and project implementations regarding waste management can be controlled, the institutional capacities of the Ministry of Environment and Forestry and the local administrations must be strengthened.

It is considered that approximately 3000 additional personnel are going to be necessary for the harmonization with Acquis Communautaire in waste sector. Personnel cost is estimated as 340 million Euros for the first twenty years and this cost is planned to be afforded by Ministry of Environment and Forestry and the Municipalities.

5.2.5. Investment Needs

In the Environmental Strategy, the cost, objectives, targets and strategies for the directives necessitating heavy-cost investments (Landfill, Hazardous Waste, Packaging Waste and Waste Incineration Directives) were developed and no study was performed for the other directives which do not lie within this set of directives but necessitate investments by the private sector (Directives on Waste Shipment, Waste Oil, PCB/PCT, Batteries and Accumulators, End-of-Life Vehicles, Waste Electrical and Electronical Equipment and RoHS). Harmonization studies for the Directives on Waste Shipment, Waste Oil, PCB/PCT, Batteries and Accumulators, End-of-Life Vehicles, Waste Electrical and Electronical Equipment and RoHS have been initiated within the context of Twinning project and the probable cost calculations regarding these directives need to be performed separately.

In Table 5.2.5, calculated amounts of the costs required by implementation of these directives can be seen. However, these costs, covering only preliminary calculations, need to be revised taking the technology preferences necessitated by the conditions of country into account.

Costs regarding the waste sector consist of; closure of old dump sites, construction of new landfills (for the disposal of hazardous and domestic solid wastes), establishment of collection systems for dual collection and recyclable wastes, construction of composting facilities, construction of incineration facilities (for hazardous wastes and domestic wastes in metropolitan municipalities if necessary and where land area is limited), recovery of construction and demolition wastes, recovery of mixed waste, recovery of separately collected waste and transfer station and transportation system for hazardous waste.

Table 5.2.5 Waste Sector Investment Needs By Directives (2007 – 2023) (Million Euros)

	Total	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017	2018	2019	2020	2021	2022	2023
Landfill	7.574	200	245	345	345	345	400	425	475	500	500	500	500	550	550	550	550	594
Packaging	655		41	41	40	41	41	41	41	41	41	41	41	41	41	41	41	41
Incineration	1.257				89	89	89	90	90	90	90	90	90	90	90	90	90	90
Hazardous Waste	74				4	4	4	5	5	5	5	6	6	6	6	6	6	6
TOTAL	9.560	200	286	386	478	479	534	561	611	636	636	637	637	687	687	687	687	731

5.3. Air Sector

5.3.1. Present Situation

In Turkey especially during the months of winter air pollution makes itself felt due to the intensive urbanization, rapid population increase and industrialization, wrong placement of the cities according to the topographic and meteorological conditions. The main reasons for the pollution in winter that originates from heating is the utilization of low grade fuel without being subjected to the improvement processing, application of wrong burning techniques and the lack of maintenance on the furnaces that are used. However with the utilization of natural gas and other high grade fuel in heating, some improvement has been seen in the air pollution in the big cities compared to the 1990s. The wrong location selection by the industrial facilities in their establishment stage also contributes to the air pollution in the thermal power stations that are based on coal; the SO₂ emissions originating from high sulphur content of domestic lignite constitute a risk. With respect to the air pollution that is faced with in the cities, the harmful exhaust gases released by the ever increasing motor vehicles play an important role and precautions must be taken in this area. Generally the 70-90 percent of carbon monoxide emissions (CO), 40-70 percent of nitrogen oxide, 50 percent of hydrocarbon (HC) emission, as well as 100 percent of lead emissions in the city centers are caused by the motorized vehicles.

The air quality in the country in general is measured by using the semi-automatic measurement devices that belong to the Ministry of Health and it is observed in 31 fully automated measurement stations that were established in 2005 by Ministry of Environment and Forestry, the fully automated air quality measurement stations are planned to be used widely in 81 provinces in year 2006.

The work related with air quality is being carried out within the scope of By-law on Air Quality Control published on 02.11.1986 dated and 19269 numbered Official Gazette. However the following By-laws have been issued by the Ministry of Environment and Forestry and furthermore the air quality related provisions of By-law on Air Quality Control are still effective; By-laws on Control of Air Pollution Arising from Heating published on 13.01.2005 dated and 25699 numbered Official Gazette, By-law on Industrial Air Pollution Control published on 07.10.2004 dated and 25606 numbered Official Gazette, By-law on The Control of Air Pollution Arising from Motor Vehicles In Traffic published on 08.07.2005 dated and 25869 numbered Official Gazette, By-Law on the Quality of Petrol and Diesel Fuels published on 11 June 2004 dated and 25489 numbered Official Gazette.

About making amendments on 09.08.1983 dated and 2872 numbered Environment Law at 26.04.2006 dated and 5491 numbered Law, “methods about the determination, monitoring and measurement of air quality and air quality limit values and measures taken to prevent limit exceeding, to make the public awareness and access to information and related jobs are determined by The Ministry of Environment and Forestry.

5.3.2. Legislative Approximation

Table 5.3.2 Timetable for Approximation

Name of the EU Legislation	Number	Foreseen Transposition Date	Foreseen Implementation/ Enforcement Date
Council Directive on Ambient Air Quality Assessment and Management (Amended by Regulation EC/1882/2003)	96/62/EC		
Council Directive Relating to Limit Values for Sulphur Dioxide, Nitrogen Dioxide oxides of nitrogen particulate and Lead in Ambient Air Quality (Amended by Directive 2001/744/EC)	99/30/EC	2007	Graduated Implementation Calender
Council Directive Relating to Ozone in Ambient Air Quality	2002/3/EC		
Council Directive Relating to Limit Values for Carbon Monoxide and Benzene in Ambient Air Quality	2000/69/EC		
Council Directive Relating to Arsenic ,Cadmium Mercury ,Nickel and Polycyclic Aromatic Hydrocarbons in Ambient Air Quality	2004/107/EC		
Council Directive Relating to the Quality of Petrol and Diesel Fuels (Amended by Directive 2000/71/EC and Regulation 2003/17/EC)	98/70/EC	11 June 2004	Legislation Enforcement Date: 11.06 2004 Implementation Date: 01.01.2007 and 01.01.2009
Council Directive Relating to the Availability of Consumer Information on Fuel Economy and Carbon dioxide Emissions in Respect of Marketing of New Passenger Cars (Amended by Directive 2003/73/EC)	1999/94/EC	28.12.2003	01.01.2008
Directive on National Emission Ceilings	2001/81/EC	Infrastructural investment and technical study, in order to strengthen technical capacity ,are needed	Enforcement date will be designated by the legislation prepared according to the result of the technical studies
Emission Trading Directive (Amended by Directive 2004/101/EC)	2003/87/EC	Infrastructural investment and technical study, in order to strengthen technical capacity ,are needed	Enforcement date will be designated by the legislation prepared according to the result of the technical studies
Directive on Sulphur Content of Certain Liquid Fuel(Amended by Regulation 1882/2003/EC and Directive 2005/33/EC)	99/32/EC	Technical studies need to be conducted	Implementation date will be designated by the legislation prepared according to the result of the technical studies

The main subjects where the responsibilities lie with respect to air pollution are the Air Quality Framework Directive and its daughter directives, Fuel Quality Directive, and Climate Change and Informing the Consumer Directive. With the purpose of harmonizing the legislation of EC on air quality to a framework legislation a Project named "Support to Turkey in the field of Air Quality, Chemicals and Waste Management" was started in year 2004, and with the first component of this Project, Air Quality, it is aimed to reflect the contents of EC Framework Air Quality Directive on our National Air Quality Act and to the activities for measuring the air quality along with the reflection of the provisions of The Directive of Large Combustion Plants Directive on our domestic legislation. New draft regulations were prepared for limiting emissions arising from The Large Combustion Plants and to ensure air quality and these were submitted for the approval of the related institutions.

The Draft By-law on Air Quality Assessment and Management were prepared such that it covers four daughter directives (99/30/EC, 2000/69/EC, 2002/3/EC and 2004/107/EC) other than 96/62/EC numbered Air Quality Framework Directive. The new draft by-law sets the implementation calendar for implementation and harmonization for 13 pollutants that are defined under the framework directive and the daughter directives. By-law also aims to strengthen the monitoring, sanctioning and institutionalization in the area of controlling the pollution and air quality. Furthermore, one of the requirements of the directive that is air quality preliminary assessment study has started, and this study has already been completed in the provinces of Ankara, Karabük and Kütahya.

The Ministry of Environment and Forestry is determined as the responsible institution for the 98/70/EC numbered EU Directive under the heading of Turkish National Program Adoption of the Acquis. On this purpose, in the scope of harmonizing the Directive about the quality of fuel and diesel used at motor vehicles due to the 2/95 numbered Customs Union Agreement signed with EU, the 98/70/EC numbered EU Directive which came into force in 2000 in Europe, is prepared by The Ministry of Environment and Forestry by receiving approvals of related institutions and organizations, especially by taking the approval of TÜPRAŞ and it is transferred in Turkish laws as By-law on The Quality of Petrol and Diesel Fuels by being published on 11.06.2004 dated and 25489 numbered Official Gazette.

Also, the duty to audit petroleum market is given to The Institution of Energy Market Regulatory Authority (EMRA) with the 04.12.2003 dated and 5015 numbered Petroleum Market Law. In this purpose EMRA has prepared the following By-laws: "Published on 30.12.2005 dated and 26039 numbered Official Gazette: Communiqué on The Production of Diesel Types, Obtaining Them In Or Out of The Country and Presenting Them to The Market which was approved by the 08.12.2005 dated and 590/177 numbered Committee Decision of TS 3082 EN 590 Automotive Fuels-Diesel- Necessities and Testing Methods Standards." "TS 228 EN 590 Automotive Fuels-unleaded gasoline- Necessities and Testing Methods Standards published on 05.01.2006 dated and 26044 numbered Official Newspaper as technical arrangement with Arrangement Notice on The Production of Gasoline Types, Obtaining Them In Or Out of The Country and Presenting Them to The Market approved by 29.12.2005 dated and 623/2 numbered Committee Decision

The adaptation with respect to the Directive on the Sulphur Content in the fuel oil used in the Industry and Residents that takes place under the Air Sector Title (99/32/EC) will be commenced by considering TÜPRAŞ investments. The harmonization work on the Directive for Volatile Organic Compounds Emissions arising from Petrol Storage and its distribution from Terminals to Service Stations (94/63/EC) has not been started yet and furthermore the Directive on National Emission Ceiling Limits has not been reflected on our legislation yet. The work pertaining to carbon dioxide is still in progress.

5.3.3. Goals, Objectives and Strategies

The fundamental purpose is to define, and establish the air quality targets and evaluate the air quality in order to avoid, prevent and reduce the harmful effects that air pollution may have on human health as well as the environment.

1.Goal : The Air Quality targets will be defined and established.

Objective 1: With a by-law that will be issued the Air Quality targets will be defined and established.

- 2: Air Quality preliminary assessment studies will be completed until year 2012.
- 3: The air quality monitoring and measurement stations will be established until year 2012.
- 4: In relation with the air quality sector, the present institutional structure will be reviewed so that a more effective system can be established and the authority confusion among the institutions will be eliminated.

Strategy 1: Completion of Air Quality preliminary assessment studies will be completed.

2: Starting to the air quality monitoring and measurement stations will be established, and regular and reliable data acquisition at this level that can be reported to EC will be started.

2.Goal: By taking the defined criteria and methods as the basis the air quality will be decided on.

Objective 1: Air Quality preliminary assessment studies will be completed until year 2012.

2: The air quality monitoring and measurement stations will be established until year 2012.

Strategy 1: Completion of Air Quality preliminary assessment studies will be completed.

2: Starting to the air quality monitoring and measurement stations will be established, and regular and reliable data acquisition at third level that can be reported to EC will be started.

3: Establishment of Air Quality Monitoring Network Management Center.

4: Establishment of the National Data Center and forming of the reporting system.

5: Establishment of the regional calibration laboratories.

6: Establishment of the National Calibration Center.

7: Preparation of the emission inventory.

3.Goal: Sufficient information will be collected on the air quality and in case the thresholds are exceeded the public will be informed.

Objective 1: Air Quality preliminary assessment studies will be completed until year 2012.

2: The air quality monitoring and measurement stations will be established until year 2012.

3: In relation with the air quality sector, the present institutional structure will be reviewed so that a more effective system can be established and the conflict of competence among the institutions will be eliminated.

4: Clean air plans and action plans will be prepared to prevent the air pollution.

Strategy 1: Completion of Air Quality preliminary assessment studies will be completed.

2: The air quality monitoring and measurement stations will be established, and regular and reliable data acquisition at this level that can be reported to EC will be started.

3: Establishment of Air Quality Monitoring Network Management Center.

4: Establishment of the National Data Center and forming of the reporting system.

5: Establishment of the regional calibration laboratories.

6: Establishment of the National Calibration Center.

7: Preparation of the emission inventory.

8: Preparation and implementation of "Clean Air" plans for the improvement of the air quality.

9: Preparation of action plans for the prevention of the air pollution.

10: Informing the public on the causes and results of air pollution.

4.Goal: Living beings and the environment will be protected from the air pollution caused by the exhaust gases originating from the motor vehicles as well as the dangers associated with it.

Objective 1: Air Quality preliminary assessment studies will be completed until year 2012.

2: The air quality monitoring and measurement stations will be established until year 2012.

3: Clean Air Plans and action plans for the prevention of air pollution will be drawn up.

4: To establish the policies that give incentives in the reduction of the pollution will be achieved.

5: For the improvement of air quality the work to improve the fuel quality will be carried on.

Strategy 1: Air Quality preliminary assessment studies will be completed.

2: The air quality monitoring and measurement stations will be established, and regular and reliable data acquisition at this level that can be reported to EC will be started.

3: Preparation of the emission inventory.

4: Drawing up and implementation of "Clean Air" plans for the improvement of the air quality.

5: Drawing up action plans for the prevention of the air pollution.

6: Informing the public on the causes and results of air pollution.

7: The coordinated working of the sectors such as energy, industry and transportation in ensuring the limit values are achieved.

5.Goal: The fuel quality will be improved.

Objective: For the improvement of air quality the work to improve the fuel quality will be carried on

Strategy 1: The coordinated working of the sectors such as energy, industry and transportation in ensuring the limit values are achieved.

2: In the implementation of the requirements of air quality sector, utilization of the best techniques in the industrial facilities and changing of the manufacturing processes.

6.Goal: The implementation of action plans for improving air quality and the usage of environment friendly clean technologies will be ensured.

Objective 1: Drawing up “Clean Air” plans and action plans for the prevention of air pollution.

2: The creation and implementation of encouraging policies to decrease pollution will be ensured.

3: For the improvement of air quality the work to improve the fuel quality will be carried on.

4: The plans will be prepared for the implementation of the changes in the fuel quality and for the reduction of carbon dioxide (CO₂) and other greenhouse gas emissions.

Strategy 1: Air Quality preliminary assessment studies will be completed.

2: Starting to receive proper and secure data at a level to be reported to EU by establishing air quality monitoring and measurement stations.

3: Establishment of Air Quality Monitoring Network Management Center.

4: Establishment of the National Data Center and forming of the reporting system.

5: Establishment of the regional calibration laboratories.

6: Establishment of the National Calibration Center

7: Preparation of the emission inventory

8: Drawing up and implementation of Clean Air Plans for the improvement of the air quality

9: Drawing up action plans for the prevention of the air pollution.

10: The coordinated working of the sectors such as energy, industry and transportation in ensuring the limit values are achieved.

11: In the implementation of the requirements of air quality sector, utilization of the best techniques in the industrial facilities and changing of the manufacturing processes.

5.3.4. Strengthening the Institutional Capacity

It is necessary to strengthen institutional capacity for the implementation of other directives about air quality, by taking The Directive of Air Quality Framework as first. Within this context, the establishment of the necessary technical infrastructure, its operation and inspection and the training of the personnel to be employed in these areas carry great importance for the effective implementation of the directives generally in the country.

Measurement devices are required for both effective monitoring of the air quality and for reaching the necessary standards. The establishment of the monitoring systems is considered important for full implementation of Air Quality Framework Directive and the other directives such as the Fuel Quality, and the Emissions Arising from the Vehicles.

5.3.5. Investment Needs

From the investments to be made in the public sector the costs necessary for the implementation and sanction of the directives is understood. The monitoring equipment, measurement systems and quality assurance systems must be installed for the implementation. In the investment stage Air Quality Framework Directive and its daughter directives have priority in this sector. The responsible institutions on this subject are the Ministry of Environment and Forestry and the Ministry of Health. To ensure approximation of the limit values, costs related for changing production periods by using all available best techniques to be implemented especially in industrial plants will be covered by the industrialists.

In accordance with the project for the planning on the Environmental Heavy Cost Investment Planning for Turkey, it is foreseen that in total 206 air quality measurement stations have to be installed in Turkey in general. From these stations 123 of them will be in intensive residential areas, 40 will be in the areas where the industry is intensive, 12 will be in the areas where the traffic is intense and 31 will be located in the rural areas. This number will be finalized as a result of the preliminary assessment studies to be conducted. Until year 2012 it is required for the preliminary assessment” studies for the whole of Turkey must be concluded and the monitoring system must be established. The total cost forecasted for the establishment of the monitoring system is 11 million Euro

The maintenance and operating costs of all the stations will come up to 1.5 million Euros. On the other hand the maintenance and operating costs related with the measurement stations will continue after the establishment of the monitoring systems (2012) and the related cost for this will be an additional 1.5 million Euros every year. The total cost of the preliminary assessment studies for air quality is 6 million Euros. Furthermore under **Table 5.3** and **Table 5.3.5** cost calculations for the following elements were made and these will be considered as additional costs; establishment of the calibration laboratories, establishment of the national calibration center, establishment of the monitoring network management center, national data center, formation of the emission inventories, drawing up the clean air plans, drawing up the action plans, implementation of the plans and programs for the improvement of the air quality, informing the public, reporting and the related personnel costs. Also it is necessary to employ totally 243 personnel at the national center and 8 regional centers for the evaluation system and air quality monitoring system in the scope of the “Support to Turkey in the Field of Air Quality, Chemicals and Waste Management” project, first component air quality. The cost of the personnel will be nearly 3 million euros/year. These costs are not reflected in Table 6.1.1

The implementation of the regulation about gasoline and diesel type fuels prepared as adapted with EU legislation and fuel specifications will be performed gradually in the years of 2007 and 2009. The implementation date for the Directive on the reduction of sulphur rate in some of the liquid fuel that is used in heating and industry (99/32/EC) will be determined due to the investments of TÜPRAŞ. The implementation date for Carbon dioxide emissions and Fuel consumption directive is determined as 2008. The implementation date of the Directive on Volatile Organic Components originating from petroleum stations (94/63/EC) is not known yet.

TUPRAS has completed the majority of the investments in relation with the implementation of the Directive on the quality of gasoline and diesel, and it is known that TÜPRAŞ is targeting the rest of its investments in the year of 2007.

The implementation cost for 99/32/EC numbered Council Directive on the reduction of sulphur rate in some of the liquid fuel is related with TUPRAS which is the manufacturer of the fuel and the investments to be made in the large calcination plants. The investment cost related with the de-sulphurization that is defined in large calcination plants directive has been evaluated in the industrial pollution sector. However, according to the study results conducted to determine the feasibility of a reduction of sulphur rates in fuel oil, the investment needed to be made in four refineries of TUPRAS to be made is between 885 million – 1.135 million Euros. As TUPRAS is being privatized, there are no evaluations on **Table 5.3.5** about fuel quality.

In the Project for planning on the Environmental Heavy Cost Investment Planning for Turkey, the investment costs related with air quality framework directive and the daughter directives as well as the fuel quality directive were worked out partially. Work on other directives has not been conducted.

Table 5.3.5 Air Sector Investment Needs (2007 – 2023)

(Million Euros)

	Total	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017	2018	2019	2020	2021	2022	2023	
Air quality Framework	37	3	3	3	3	3	2	2	2	2	2	2	2	2	2	2	2	1	1
Fuel Quality (98/70/EC)*	391	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Total(**)	428	3	3	3	3	3	2	2	2	2	2	2	2	2	2	2	2	1	1

* : The implementation related to fuel quality is targeted to be completed due to the investments of Tüpraş.

** : Tüpraş's 391 millions Euros investment cost related to the fuel quality has not been included.

due to the investments of Tüpraş

5.4. Industrial Pollution Control Sector

5.4.1. Present Situation

In Turkey at the end of 2005 there were 1,890,785 establishments of which 277,502 were active in the manufacturing sector. According to the results of the Manufacturing Industry Waste Inventory of 1996, it was determined that 18 percent of the establishments had wastewater discharge permits. The evaluation conducted based on receiving water bodies is given in Table 5.4.2. According to the results of a survey conducted in 1996, while 10.3 percent of the establishments had air emission permits, the remaining 90 percent did not. Although there is no comprehensive inventory related to emissions released to air from facilities, the sectoral distribution is given in Table 5.4.1.

Table 5.4.1 Industrial Pollutant Emissions based on Sectors (Gg)

	SO ₂	CH ₄	NO _x	N ₂ O	NMVOC	CO	CO ₂
Energy	793,70	174,48	1.117,47	4,78	509,10	3.407,55	222.283,61
Industrial Processes	13,92	2,46	8,28	12,46	476,63	12,31	18.874,33
Total	807,62	176,94	1.125,75	17,24	985,73	3.419,86	241.157,94

Source: Turkish Statistical Institute (TURKSTAT) 2004 Data

The energy is utilized in an inefficient manner in the households and industry. Research indicates that industry can make energy savings between 2.7 and 4.8 million tons of petroleum equivalent (TEP) and ensuingly air quality can be improved. Industrial Air Pollution is the result of low grade fuel and insufficient management of manufacturing.

The industrial wastewater that makes up less than 1 percent of the total wastewater discharged contains highly poisonous substances such as mercury, lead, chromium and zinc. 4030 establishments within the scope of the Manufacturing Industry Waste Inventory survey of 2004 discharged 1.145 billion m³ of wastewater. 2112 of those establishments discharged 760 million m³/year wastewater to receiving bodies, without treatment. 1918 of the industrial facilities discharged 385 million m³ wastewater to receiving bodies following treatment. It is concluded that approximately 66 percent of total wastewater originating from the manufacturing industry was discharged without any treatment.

Table 5.4.2 Classification of Manufacturing Industry Waste Water Based on Receiving Bodies (2004) (%)

	Sea	City Sewage	River	Septic Tanks	Lake, Land, Dam etc.
Untreated wastewater discharge	82,01	6,85	8,67	0,17	2,21
Total Wastewater Discharge	62,20	8,21	23,98	0,07	5,54

Source: Turkish Statistical Institute (TURKSTAT) 2004 Data

According to the latest manufacturing industry survey that was conducted by TURKSTAT in year 2004, 17.5 million tons of industrial solid waste was produced. 8 percent of the industrial solid waste produced was recycled, 45 percent was sold or donated and 47 percent was disposed of.

Table 5.4.3 The Classification of Industrial Solid Waste Disposed of by Manufacturing Industry Based on the Method of Disposal (%)

	Discharge into the sea, lake or river	By accumulating in the factory site	Dumping in the Municipality's Landfill	Dumping	Utilised as filler	Landfill	Combustion Facility	Other
Method of Disposal for Solid Waste	47	9	20	0,12	8	11	2,5	2,38

Turkish Statistical Institute (TURKSTAT) 2004 Data

Emissions originated from industrial and energy production facilities are under by-law control on Industrial Air Pollution Control, which is in force with an aim to protect persons and environment from potential air pollution hazards, and sets limit values for emissions of industrial facilities and Large Combustion Plants.

5.4.2. Legislative Approximation

Table 5.4.2. Timetable for Approximation

Name of the EU Legislation	Number	Foreseen Transposition Date	Foreseen Implementation/ Enforcement Date
Integrated Pollution Prevention Control (IPPC)	(96/61/EC)	2007	Even though 31.12.2008 is foreseen, this time frame may change for existing installations depending on investments.
Large Combustion Plants (LCP)	(2001/80/EC)	2006 (*)	In the draft by-law, implementation date for new installations is foreseen as 2007, and 2017 for the existing installations. This time frame may change depending on negotiations and investments for existing installations.
Emissions of Volatile Organic Compounds Due To the Use of Organic Solvents	(1999/13 EC Directive)	2008	2012 Foreseen
Volatile organic compound (VOC) emissions resulting from the storage of petrol and its distribution from terminals to service stations	(1994/63/EC)	Regarding this Directive, there are more than one competent entities (Ministry of Transportation, Energy Market Regulatory Authority, Ministry of Industry and Trade , Undersecretariat for Maritime Affairs and MoEF) Consequently detailed technical studies are required , No date is foreseen.	Implementation date will be determined with the legislation prepared according to results of Technical Studies.
Regulation Allowing Voluntary Participation by Organisations in a Community	761/2001	Evaluation will be carried out according to results of Technical Studies	Evaluation will be carried out according to results of Technical Studies

Eco-Management and Audit Scheme (EMAS)			
Regulation on Community Eco-Label Award Scheme	1980/2000	Evaluation will be carried out according to results of Technical Studies	Evaluation will be carried out according to results of Technical Studies
Directive on the control of major-accident hazards involving dangerous substances (COMAH)	(SEVESOII 96/82/EC)	2007	
Directive Sulphur Content of Liquid Fuels (99/32/EC), amended by the Regulation 1882/2003/EC and Directive 2005/33/EC			

(*Based on 'National Program' Implementation of year 2003 LCP draft by-law was prepared in 2006. It is foreseen to be implemented in the third quarter of 2007

Within the scope of Industrial Pollution Control, directives to be harmonized with domestic legislation are as follows : Integrated Pollution Prevention and Control Directive (IPPC 96/61/EC), Large Combustion Plants Directive (LCP-2001/80/EC), the Directive on limitation of emissions of volatile organic compounds due to the use of organic solvents in certain activities and installations (1999/13/EC), Directive on Volatile organic compound (VOC) emissions resulting from the storage of petrol and its distribution from terminals to service stations (1994/63/EC) , Directive on the control of major-accident hazards involving dangerous substances (SEVESO II-96/82/EC), Regulation on Community Eco-Label Award Scheme (1980/2000) and Regulation Allowing Voluntary Participation by Organisations in a Community Eco-Management and Audit Scheme (EMAS) (761/2001) . Of all directives mentioned above, only the works in regard to Integrated Pollution Prevention and Control Directive (IPPC 96/61/EC) and Large Combustion Plants Directive (LCP-2001/80/EC) have been initiated.

Integrated Pollution Prevention Control Directive (IPPC 96/61/EC), constitutes the foundation of the European Union's Industrial legislation, concerning the environment. replacing the previous EU legislation based on the principle of receiving environment, and introduces a permit procedure that evaluates all receiving media in a comprehensive manner.

There is still no integrated permit system pertaining to the environment in Turkey. Different permit procedures are applied for different receiving environment. Legislative arrangements, that will allow environmental permits to be granted and co-ordinated by a single competent entity, ensuring technical and administrative structure building , need to be undertaken during the EU harmonisation period. "Capacity Building Regarding Human Resources on Transposition of Integrated Pollution Prevention and Control Directive (IPPC-96/61/EC) into the Domestic Legislation Project", which was implemented by the Ministry of Environment and Forestry and completed in 2004, is one of the projects in regard to this subject. Within the framework of transposition of this directive into domestic legislation, "Project for IPPC Implementation in Turkey" is still ongoing. The implementation strategy for the Directive and constituting the draft legislation is targeted within the framework of this project.

Directive on the limitation of emissions of certain pollutants into the air from large combustion plants (LCP-2001/80/EC) sets limit values for dust, sulphur dioxide and nitric oxide emissions originating from combustion plants whose rated thermal input is equal to or greater than 50 MW, without any regard to the type of fuel (solid, liquid or gas) used. A draft by-law has been prepared oriented towards the harmonisation of this directive with the internal legislation and this has been submitted to related establishments and

institutions so as to take their opinion. The formation of implementation strategy together with the draft by-law is targeted for the end of 2006.

Although facilities within the scope of by-law on Industrial Air Pollution Control are obliged to procure emission permits according to their capacities, complete harmonisation with the Directive On The Limitation of Emissions of volatile organic compounds due to the use of organic solvents in certain activities and installations (1999/13/EC) has not been achieved, especially in areas such as reduction plans for usage of VOC.

Within the scope of the by-law on Industrial Air Pollution, limit values have been set for organic gas and vapour emissions (VOC emissions included) to control air quality. However, since the existing by-law does not fully comply with the requirements of the Directive, a new arrangement is required. In order for the Directive to be implemented, studies need to be performed for each sector on limit values, measurement and monitoring methods. The present capacity needs to be strengthened to determine locations, numbers, capacities and current status of installations and harmonisation of internal legislation with this Directive.

Within the harmonisation context of The Directive on the control of Volatile Organic Compound (VOC) emissions resulting from the storage of petrol and its distribution from terminals to Service Stations (1994/63/EC), competent organisations need to be appointed as co-ordinators for air quality control, fuel quality and licensing work. Even though the establishments are obliged to procure emission permits according to their capacities within the scope of the by-law on Industrial Air Pollution Control, complete harmonisation with the Directive has not been achieved.

Directive on the control of major-accident hazards involving dangerous substances (SEVESO II-96/82/EC) aims to control damages resulting from major accidents involving dangerous substances and reduce damages on persons and environment. This Directive applies to establishments where specific dangerous substances are present. Draft by-law has been prepared for harmonisation with the above-mentioned Directive.

Regulation on Community Eco-Label Award Scheme (1980/2000) is designed to encourage businesses to market products and services that are more customer and environment friendly and identifiable. For the requirements of this Regulation to be fulfilled, which is based on voluntary act, studies need to be conducted with the co-ordination of competent bodies. In our country, harmonisation of legislation pertaining to Eco-Labeling has not been started.

The EU Eco-Management and Audit Scheme (EMAS) (761/2001), is a management tool for companies and other organisations to evaluate, report and improve their environmental performance. Participation to EMAS, which has been implemented to all economic sectors including manufacturing sector, public and private services since 2001, is voluntary. Harmonisation studies pertaining to EMAS legislation, which extends to public and private organisations operating in the European Union and the European Economic Area (EEA) - Iceland, Liechtenstein, and Norway- have not started in Turkey.

5.4.3. Goals, Objectives and Strategies

The main objective is to minimize all kinds of polluting emissions originating from industrial and combustion plants, by taking into consideration the principles of sustainable development.

1.Goal: Related directives will be adopted and implemented in an effective manner, by taking into account the investment needs and commissioning periods of establishments.

Objective : Minimisation of all kinds of polluting emissions originating from industrial and combustion facilities is targeted, by taking into consideration the principles of sustainable development.

Strategy: Monitoring all kinds of industrial discharge, prevention of pollution and evaluation of waste management with an integrated approach.

2. Goal: In order for environmental permits to be given by a single competent entity and to establish an effective monitoring system, required capacity will be built.

Objective: Within the framework of permit procedure, redefining powers and responsibilities of authorities in our country, who are responsible for issuing environmental permits is targeted to establish a single competent entity coordinating activities and issuing permits for industrial facilities.

Strategy: Strengthening of the institutional structures of public and private sectors so that the directives can be implemented.

3. Goal: Studies, which will enable the Best Available Techniques to be applied in industrial and big combustion plants, will be conducted in cooperation with all related parties.

Objective: The Best Available Techniques will be introduced to the sectors of manufacturing industry and the studies will be initiated to determine the costs of implementations for each sector.

Strategy: Monitoring all kinds of industrial discharge, prevention of pollution and evaluation of waste management with an integrated approach.

4. Goal: The institutional building and infrastructure which will provide collection, reporting and evaluation of data pertaining to industrial plants and emissions and ensure public access to information, will be established.

Objective: Monitoring, reporting of all kinds of emissions originating from industrial facilities and sharing this information with the public in an appropriate format is targeted.

Strategy: Determining the stages of institutional infrastructure building that will provide collection, reporting and evaluation of data pertaining to industrial facilities and emissions and ensure public access to information.

5. Goal: Implementation plans consisting of detailed cost analyses will be prepared for harmonisation of Integrated Pollution Prevention and Control Directive, Large Combustion Plants Directive and Seveso II Directive with the domestic legislation.

Objective 1: Drawing up programmes for investments, concerning development of manufacturing techniques, application of advanced technologies, and efficient utilisation of energy, will be conducted.

2: The Best Available Techniques will be introduced to the sectors of manufacturing industry and the studies will be initiated to determine the costs of implementations for each sector.

Strategy: Determination and implementation of The Best Available Techniques on sectoral basis, and to achieve this, strengthening of institutional infrastructure.

6. Goal: Detailed work plans will be prepared, taking accounts of duties, responsibilities and powers of institutions and organisations for adoption and implementation of Integrated Pollution Prevention and Control Directive and Large Combustion Facilities Directive, in harmony with each other.

ObjectiveTarget: Monitoring all kinds of industrial discharge, prevention of pollution and evaluation of waste management with an integrated approach.

Strategy: 1: Determination and implementation of The Best Available Techniques on sectoral basis, and to achieve this, strengthening of institutional infrastructure.

2: Determination of investments for large combustion plants for each facility and preparation studies.

7. Goal: Within the framework of Seveso II Directive, Emergency plans will be prepared by the operators of facilities and the local authorities.

Objective: By 2015, a Record System and Emergency Plans regarding prevention of major industrial accidents will be prepared.

Strategy: Determination of facilities which pose major accident risks and preparation of external emergency plans for these plants.

8. Goal : Works aiming to reduce solvent usage in solvent utilising industries, restriction of Volatile Organic Compound (VOC) emissions resulting from the storage of petrol and preparing implementation plans to determine the standards for storage.

Objective: By 2016, Volatile Organic Compound emissions will be reduced in industrial plants and petrol storage facilities, by applying techniques reducing solvent release.

Strategy 1: Improving production processes to reduce solvent release, replacing solvents or using applications that utilize fewer amounts of solvents and minimisation of loss and leakage.

2: Carrying out designs to reduce Volatile Organic Compound emissions and taking operational measures for petroleum storage facilities, loading equipment at terminals, mobile containers and storage facilities at service stations.

9. Goal: In order to determine number and capacities, an inventory of industrial facilities will be prepared in a manner that will include all the information required by the EU legislation.

Objective: The cost of harmonisation with Acquis Communautaire with respect to the Industrial sector will be mainly covered by the private sector, and to be able to determine the actual cost, the detailed statistics pertaining to facilities and information based on facilities will be established and a comprehensive inventory study will be conducted.

Strategy 1: Determination of investments within the framework of related directives, on a sectoral basis.

2: Knowledge building with respect to the application of the Best Available Techniques and strengthening institutional capacity in the public and private sector.

3: Strengthening institutional and technical infrastructure in the areas of monitoring and reporting industrial emissions, including Large Combustion Plants, and inventory preparations within the framework of concerning directives.

5.4.4. Strengthening the Institutional Capacity

Strengthening institutional structure for all directives related with this sector and complying with the requirements of Integrated Pollution Prevention and Control Directive are needed.

It is required to adopt an integrated approach that will cover all receiving environments together. Due to the fact that the directive requires a single competent entity to grant or coordinate permissions to industrial facilities, Powers and responsibilities of institutions in our country, who are responsible for granting environmental permits, need to be redefined within the context of this permit procedure.

Within the framework of Integrated Pollution Prevention and Control Directive, defining investments to be made on sectoral basis, knowledge building regarding the Best Available Techniques and strengthening the institutional capacity of private sector are needed.

Strengthening instructional and technical infrastructure in the areas of monitoring and reporting industrial emissions, including Large Combustion Plants, and inventory preparations within the framework of concerning directives are required.

Especially The Directives concerning Industrial Pollution and Risk Management, require high investment needs to strengthen the institutional and technical infrastructure in both public and private sectors The costs of harmonization and implementation (personnel need...etc.) are given as estimates as the existing environment management structure needs to be updated and the studies continue. Presently, to implement the Directives regarding Industrial Pollution and Risk Management, it is estimated that approximately 700 personnel and 9 million euros/ year will be needed. Since our country is developing and industrializing rapidly, taking account of the information above these figures need to be updated regularly.

5.4.5. Investment Needs

In industrial facilities, investments made for improving production techniques, application of advanced technologies, energy efficiency usually serve for the purposes of environmental protection.

The cost of harmonisation with Acquis Communautaire with respect to the Industrial sector will be mainly covered by the private sector, and the cost was determined in the discussions held with the sector representatives. The limited statistical data on the industrial facilities, the limited information available for each facility and lack of a comprehensive inventory contributes even more ambiguity in the cost forecasting. On the other hand, due to the lack of inventory with respect to the facilities within the scope of IPPC, the costs calculated mainly covers the establishments that are the members of the sectoral associations. With this approach, the investment need pertaining to the IPPC Directive was calculated to be 14.1 billion Euros. However it is assumed that this cost will increase when a more detailed further study is conducted.

In determining implementation costs of large combustion plants (LCP) Directive, the large plants were considered and the assessment was conducted on the basis of the facilities. The cost of LCP Directive, which is foreseen to be covered mostly by the public sector, was estimated to be 1.884 million Euros. According to the application strategy to be determined by the energy producers, the investment costs and the

implementation calendar may change for the new and prospective facilities, taking into account of the size of investments.

Investments regarding implementation of the directive on Volatile organic compound (VOC) emissions resulting from the storage of petrol and its distribution from terminals to service stations (1994/63/EC) are foreseen to be covered mostly by the private sector and the cost is estimated as 100 million Euros

Investments regarding implementation of the directive on emissions of volatile organic compounds due to the use of organic solvents in certain activities and installations (1999/13/EC) are foreseen to be covered mostly by the private sector and the cost is estimated as 700 million Euros. However, cost of investments is expected to increase due to the presence of small and medium size enterprises, as well as big sized industries in our country, within the scope of this directive.

As the actual data cannot be obtained for the cost analysis for harmonisation with Seveso II Directive, the highest estimates of the sector specialists are taken as bases. The cost that has to be covered by the private sector is estimated as 160 millions Euros.

In the Table 5.4.4 concerning Industrial Pollution, while determining the “Cost of Investment Needs’ the worse case scenarios with the highest costs were chosen, taking into account the uncertainties and lack of information mentioned above.

Integrated Pollution Prevention and Control (IPPC) Directive requires high investment costs both for private and public organisations; therefore the calendar for legislative compliance and implementation needs to be updated regularly, taking accounts of investments to be made and date of accession.

Harmonisation and implementation of Integrated Pollution Prevention and Control (IPPC) and Large Combustion Plants (LCP) Directives will have high cost implications on our country’s economy.

Investments in this sector need to be prioritised to establish the objectives of IPPC and LCP Directives firstly.

Table 5.4.5 Investment Needs for Industrial Pollution Control Sector (2007 – 2023) (Million Euros)

	Total	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017	2018	2019	2020	2021	2022	2023
VOC	700		87	87	87	87	88	88	88	88								
VOC emissions resulting from the storage of petrol	100		12	12	12	12	13	13	13	13								
IPPC (*)	12.638			370	406	445	485	520	570	620	665	1050	1.100	1.159	1.216	1.278	1.343	1.411
Large Combustion Plants (**)	1.187	32	34	38	46	57	62	66	69	72	74	78	82	86	91	95	100	105
Seveso	160	20	20	20	15	12	12	10	8	8	5							
TOTAL	14.785	52	153	527	566	613	660	697	748	801	744	1.128	1.182	1.245	1.307	1.373	1.443	1.516

(*) This evaluation is based on values within the scope of High Cost Environmental Projects. From 2023 on 1.462,00 million Euros/year additional investment is required. Within the scope of the harmonisation studies with the EU, investment period will be re-evaluated.

(**) This evaluation is based on values within the scope of High Cost Environmental Projects .From 2023 on, 696,63 million Euros/year additional investment is required. Within the scope of the harmonisation studies with the EU, investment period will be re-evaluated.

5.5. Noise Sector

5.5.1. Present Situation

The current situation of the noise pollution in our country cannot be evaluated in a comprehensive manner due to the specificity of the limited amount of field studies that are conducted by different institutions and because of the differences between the measurement tools and the methods.

The noise pollution in our country originates from road, air, sea and railway traffic; from the fields of construction, industry and recreation; and from the entertainment places.

5.5.2. Legislative Approximation

Table 5.5.2 Timetable for Approximation

Name of the EU Legislation	Number	Foreseen Transposition Date	Foreseen Implementation/ Enforcement Date
Directive of the Council of 25.06.2002 relating to the Assessment and Management of Environmental Noise	2002/49/EC	Harmonized by the date 01.07.2005	<p>Assessment and Management of Environmental Noise Regulation which is prepared as conformed to the EU Noise Directive was put into effect by being published at the official journal of 01.07.2005 and no 25862. Provided implementation dates are placed below.</p> <p>It is necessary to prepare strategic noise maps until 30/06/2013 and action plans related to the map results until 2014 for</p> <ul style="list-style-type: none"> • residential areas that has a settled population more than 250000, • Main roads that is passed by more than 6 million vehicles annually, • Airports that has more than fifty thousand moves annually. <p>It is necessary to prepare strategic noise maps until 30/06/2018 and action plans related to the map results until 2019 for</p> <ul style="list-style-type: none"> • residential areas that has a settled population more than 100000, • Main roads that is passed by more than 3 million vehicles annually, • Railroads that more than 30 thousand trains pass annually.

By the regulation that is put into effect in 2005, full harmonization was established with the Directive of the Council relating to the Assessment and Management of Environmental Noise (2002/49/EC). The Directive has the purpose of combating noise, informing the public, preparation of the noise maps and converting the mapping effort into action plan.

For the effective implementation of the strategies and plans for the implementation of the directive, the units that are responsible of implementation are required to establish the noise management plans.

5.5.3. Goals, Objectives and Strategies

The main purpose is to take the necessary precautions to prevent noise and secure the silent areas, in order to protect people's rest and peace, physical and mental health.

1. Goal: Noise maps will be prepared and exposure to environmental noise will be determined.

Objective 1: The strategic noise maps for residential areas of more than 250 thousand settled population, the highways on which more than 6 million vehicles pass every year, railway points through which more than 60 thousand trains pass through annually and airports where more than 50 thousand movements take place in a year will be prepared until 2013; the strategic noise maps for residential areas of more than 100 thousand settled population, the highways on which more than 3 million vehicles pass every year, railway points through which more than 30 thousand trains pass through annually, will be prepared until 2018 and these will be updated every 5 years.

Strategy 1: The institutional structure of the authorized institutions for preparing the noise maps will be strengthened.

2: The number of areas with more than 250 thousand residential population, the highways on which more than 6 million vehicles pass every year, railway points through which more than 60 thousand trains pass through annually, airports where more than 50 thousand movements take place in a year will be determined until year 2011; and the number of areas with more than 100 thousand residential population, the highways on which more than 3 million vehicles pass every year, railway points through which more than 30 thousand trains pass through annually will be determined until year 2014.

3: Necessary data will be collected on the basis of the noise sources (highways, railways, airports and industry) in order to prepare strategic noise maps.

4: In order to determine the noise levels, measurement and calculation standards and manuals for preparation of the noise maps will be prepared.

2. Goal: Action plans will be prepared to combat noise pollution.

Objective 1: The noise limit values will be determined until the end of 2007 by using dose-effect relationship.

2: The action plans for areas with more than 250 thousand residential population, the highways on which more than 6 million vehicles pass every year, railway points through which more than 60 thousand trains pass through annually, airports where more than 50 thousand movements take place in a year will be determined until year 2014; the action plans for areas with more than 100 thousand residential population, the highways on which more than 3 million vehicles pass every year, railway points through which more than 30 thousand trains pass through annually will be determined until year 2019; by taking the strategic map results into consideration and these will be updated every 5 years.

Strategy 1: The institutional structure will be strengthened.

2: The institutional structure of the authorized institutions for preparing the action plans will be strengthened.

3: The national noise limit values will be determined by using dose-effect relationship.

4: Manuals will be prepared related to noise control precautions.

5: Action plans will be formed for land use planning, for traffic planning, for technical precautions at the noise source, for selection of less noise generating sources and for regulating and economic precautions for decreasing the noise dispersion.

3. Goal: The public will be informed about environmental noise and its effects.

Objective : Informing of the public and its participation in the decisions will be provided during the preparation of strategic noise maps and action plans.

Strategy 1: The institutional structure of the authorized institutions on the subjects of preparation of noise maps and action plans and informing of the public will be strengthened.

2: The national noise limit values will be determined by using dose-effect relationship.

3: Measurement and calculation standards and manuals for preparation of the noise maps will be prepared for determining the noise levels.

4: During the preparation of the strategic noise maps and action plans the public will be informed and their participation will be ensured.

5.5.4. Strengthening the Institutional Capacity

In order to prepare and approve the maps and action plans provided in the directive for the Assessment and Management of the Environmental Noise and in order to control noise, it is necessary that the technical administrative infrastructure of the Ministry of Environment and Forestry, municipalities and governorships, Ministry of Transportation and the Ministry of Public Works and Settlement (General Directorate of Highways) must be strengthened. In this content, it is necessary to establish noise units under the structure of institutions which are responsible for the preparation of the action plans and noise maps and to employ and train sufficient amount of personnel. With respect to the implementation; the implementation plans to reduce the noise on central and local level must be developed, the noise measurement quality system must be established and the permission and inspection capacity must be improved.

The legislation, which was which was complied with the project of “Strengthening The Capacity Of The Ministry Of Environment And Forestry in The Field Of Noise Management” which was started at March 2006 in the scope of EU Financial Cooperation Program of 2004, will be reviewed, institutional and administrative capacity will be improved for implementation.

It is considered that an addition of approximately 900 personnel will be needed for complete harmony of noise sector. The personnel cost is estimated as 12 million Euros/year. This cost will be covered by The Ministry of Environment and Forestry, The Municipalities, The Ministry of Transportation, The Ministry of Public Works and Settlements (The General Directorate of Highways) depending on their duties and responsibilities. However, no detailed study is made on the cost determination recently. By considering the project results mentioned above, it is necessary to re-evaluate the personnel amount and cost.

5.5.5. Investment Needs

In the noise sector, the priority rests with the preparation of the noise maps and action plans. The costs restated with the preparation of the subject matter maps and action plans will be determined in line with “The Project of Strengthening The Capacity Of The Ministry Of Environment And Forests in The Field Of Noise Management.”

After the preparation of the action plans, the action plans for the protection of silent areas as well as the reduction of noise in the areas with noise will be put into action. Within this context, some regulatory and economic measures will have to be taken such as land utilization planning, traffic planning, technical measures at the sources of noise, selection of less noise generating sources, reduction of noise dispersion. However the costs of these measures have not been calculated yet.

Within the scope of the Directive of the Assessment and Management of Environmental Noise (2002/49/EC), investment needs will arise primarily in the industry and transportation sectors (replacement of the current machinery or noise control measures to be taken for current equipment, isolation measures to be implemented on the buildings or noise barriers). These investments will be paid for by the polluters in line with “who ever pollutes will pay” principle.

In accordance with the EU legislation, the control of environmental noise must be handled as a whole, including the source, receiver and environment. However in this document, only the directive on environmental noise was examined.

5.6. Chemicals and Genetically Modified Organisms Sector

5.6.1. Present Situation

The chemical Industry consists of 20.515 active companies for 2004. Small and Medium Size Enterprises (1- 24 labors) which constitute approximately 90 percent of the industry, evince the basic structure of the chemical industry.

The chemical industry is one of the most affected sectors from the harmonisation procedure.

The chemicals sector includes all parts of the manufacturing industry that produce, use , import the chemicals and preparations. For the present, there is no complete information and systematic supervision about the chemicals in the Turkish market. The registration system including manufactured, import / export chemicals is insufficient.

Despite the analysis laboratories relating to both public and private sector, we do not have test laboratories accredited to the principles of Good Laboratory Practice (GLP).

There is no clear information about the Genetically Modified Organisms (GMO) in Turkish market. The Law on Biosafety draft which aims the risk assessment of GMOs before introducing into the market, ratification of utilizations and safe usage of GMOs, has been prepared. The Law on Biosafety draft ratification and a secondary regulation arrangement are required for harmonisation of the directives on GMOs.

Due to the deficiency of staff and experience about the chemicals , inadequacy of the institutional framework , lack of the resources on monitoring and controlling authorities, inconvenient laboratories and the legislation vacancy concerning chemicals, EU Chemicals Directive has not been completely harmonised yet.

As a general perspective , the harmonisation with the EU rules involves a powerful infrastructure. Moreover, establishment of an inventory, registration system and data bank for the chemicals in Turkish market, arrangements for effective supervision and control , establishment of test laboratories accredited to principles of GLP are required.

5.6.2. Legislative Approximation

Table 5.6.2 Timetable for Approximation

Name of the EU Legislation	Number	Foreseen Transposition Date	Foreseen Implementation/ Enforcement Date
Regulation draft on Control of Major Industrial Accidents.	COUNCIL DIRECTIVE 96/82/EC of 9 December 1996 on the control of major-accident hazards involving dangerous substances	12.31.2007	12.31.2007

The chemical sector includes totally 15 directives, with three sub-groups according to their scopes. (Chemicals, Good Laboratory Practice (GLP) , Genetically Modified Organisms (GMO) . The legislation on chemicals and GMOs contains very comprehensive precautions. These are ; pre-declarations and permissions from competent authority, risk assesment procedures, classification, packaging and labelling , restrictions on utilization and supply, control and market supervision / check of the chemical substances that are under management.

There are many arrangements based on environment in EU regulation for the chemical industry. The REACH (Registration, Evaluation and Authorisation of Chemicals) regulation is most important of them

that foresees new strategy implementations on chemical management and accepted by the European Assembly on 17 November 2005, planned become effective in 2007. This statute which will mainly affect the chemical industry in the country, will evaluate in terms of “ Technical Assistance for Chemicals Project (TeACH) ” within the context of EU 2003 financial aid programme.

For the chemicals subsector, only the Safety Data Sheet Directive (91/155/EEC) is precisely completed the legislation harmonisation. The directives on Dangerous Substances (67/548/EEC), Dangerous Preparations (99/45/EC), Restrictions on Marketing and Use are partially complemented. A Turkish legislation in exchange of the Commission Directive laying down the Principles for Assessment of Risks to Man and the Environment of Substances has not existed yet. With a view to construct the necessary systems, institutional structure and capacity, development of the legal framework in order to implement 67/548/EEC, 99/45/EC, 91/155/EEC, 93/67/EEC Directives, the TeACH project is executed by the Ministry of Environment and Forestry (MoEF).

There is no harmonised Turkish regulation in conformity with the Council regulation on the Evaluation and the Control of the Environmental Risks of Existing Substances (793/93/EC) and regulation for Import and Export of Dangerous Chemicals (304/2003).

Turkish Regulatory compliance with the Council Directive on the Placing on the Market of Biocidal Products (98/ 8/ EC) does not exist. On the other hand, “Twinnig of Biocidal Products”, the first component of “Water and Biocidal Products Project” has started, also the Regulation on Biocidal Products will be arranged in consideration of this project. The harmonisation is expected to complete in the end of 2007.

The Directive on Asbestos (87/217/EEC) is partially complied with the legislation.

For the subsector of Good Laboratory Practice , the directives 88/320/EEC and 87/18/EEC regarding GLP was mainly harmonised. Other operations are required for exactly harmonisation of the GLP directives.

The directive on the protection of animals used for experimental and other scientific purposes (86/609/EEC) is partially complied with the legislation. The harmonisation is expected to complete in the end of 2006.

For the subsector of Genetically Modified Organisms, the compliance implementations has not been integrated yet. The technical operations for Law on Biosafety is near completion which considers the Cartagena Protocol on Biosafety.

5.6.3.Goals, Objectives and Strategies

In this sector, with the council directives, the determination of identities that includes all features of Chemicals / Preparations, the risk assessments regarding danger characteristic, establishment of safety measures and implementation of policies and programmes for controlled use from production to disposal are the main purposes.

1 .Goal: The inconvenient utilization of the dangerous substances will be prevented and the negative effects on health and environment because of the accidents will be reduced.

Objective 1 the harmonisation with the Directives on Dangerous substances, Dangerous Preparations, Risk Assessment and Safety Data Sheet, will be completed and the necessary institutional infrastructure will be performed until the end of 2007.

2 The necessary harmonisation on risk assessment will be established and the implementation calendar will be determined within the scope of the project.

3 The harmonisation of marketing and use of dangerous chemicals will be realized.

Strategy 1 Establishment of an inventory, registration and declaration system for the chemicals in Turkish market.

2 Establishment of the National Chemicals Data Bank in order to implement the directives.

3 Determination of competent authorities in order to implement EU Chemicals Directive.

4 Capacity building of the national competent authorities by education.

5 Determination of dangerous chemicals

6 Establishment of a calendar in order to take restricted products off the market.

2.Goal An associated declaration and information system will be established for some specific dangerous chemicals and safe products will be put on the market.

Objective 1 The required institutional structure will be established by the harmonisation of directives on dangerous substances, dangerous preparations, risk assessment and Safety Data Sheet until the end of 2007.

2 The required harmonisation about risk assessment will be realized, the implementation calendar will be determined within the scope of the Project.

Strategy 1 Establishment of an inventory, registration and declaration system for the chemicals in Turkish market.

2 Establishment of the National Chemicals Data Bank in order to implement the directives.

3 Determination of competent authorities in order to implement EU Chemicals Directive.

4 Capacity building of the national competent authorities by education.

5 Determination of dangerous chemicals

3.Goal Environment and Human Health will be protected by international information exchange about the risks resulting from chemicals.

Objective 1 the harmonisation with the Directives on Dangerous substances, Dangerous Preparations, Risk Assessment and Safety Data Sheet, will be completed and the necessary institutional infrastructure will be performed until the end of 2007.

2 The necessary harmonisation on risk assessment will be established and the implementation calendar will be determined within the scope of the project.

Strategy 1 Establishment of an inventory, registration and declaration system for the chemicals in Turkish market.

2 Establishment of the National Chemicals Data Bank in order to implement the directives.

3 Determination of competent authorities in order to implement EU Chemicals Directive.

4 Capacity building of the national competent authorities by education.

5 Determination of dangerous chemicals

4.Goal As a result of directive implementations, the dangerous wastes will be reduced by restrictions on production or use of dangerous chemicals.

Objective: The harmonisation of marketing and use of dangerous chemicals will be realized.

Strategy 1 Establishment of an inventory, registration and declaration system for the chemicals in Turkish market.

2 Establishment of the National Chemicals Data Bank in order to implement the directives.

3 Capacity building of the national competent authorities by education.

4 Determination of dangerous chemicals

5 Establishment of a calendar in order to take restricted products off the market.

6 Arrangement of strategies in order to assess demolition or disassembling asbestos including constructions.

5.Goal The negative effects of biocidal products on environment and human health will be reduced.

Objective: Harmonisation of the biocidal products and the implementation calendar will be determined.

Strategy 1 Capacity building of the national competent authorities by education.

2 Establishment of a calendar in order to take restricted products off the market.

6.Goal As a result of GLP applications, better and more reliable information could be accessed about risks of chemicals.

Objective: The required institutional structure will be established by the harmonisation of directives on GLPs.

Strategy 1 : Education supply for obeying the laboratory principles.

2 Development of accreditation system to ensure the harmonisation of GLP principles.

7.Goal Use of animals for experimental purposes will be reduced and acceptable experiment conditions will be ensured for them.

Objective 1 The harmonisation with the Directives on Dangerous substances, Dangerous Preparations, Risk Assessment and Safety Data Sheet, will be completed and the necessary institutional infrastructure will be performed until the end of 2007.

- 2 The required institutional structure will be established by the harmonisation of directives on the Animal Experiments.

Strategy 1 Capacity building of the national competent authorities by education.

- 2 Establishment of the ratification, information network and data collection system for animal experiments.

8.Goal: By the implementation of GMO legislation, accidental discharge risk of GMOs will be reduced and their production will be under control.

Objective: The required institutional structure will be established by the harmonisation of directives on GMOs.

Strategy 1 : Capacity building of the national competent authorities by education.

- 2 : Taking potentially dangerous GMOs off the market, development of strategies in order to get GMOs emissions under control.

- 3 : Arrangement and implementation of the legislation for Law on Biosafety draft and its application.

5.6.4. Strengthening the Institutional Capacity

In the chemicals and GMOs sector, beginning from policy development; important arrangements and strengthening practices are required for implementation rotations including monitoring and sanctions, also establishment of more consistent institutional structure. In order to implement legislation on this sector, administrative arrangements and qualified manpower are needed.

Resource insufficiency of institutional structure and competent authorities for monitoring and control, deficiency of the staff experience, equipment, some systems/mechanisms and safe data /information will be removed.

In GLP subsector, laboratories accredited to the enhanced principles of GLP are required.

5.6.5. Investment Needs

In the chemicals sector, Dangerous Substances Directive, Dangerous Preparations Directive, Risk Assessment Directive , Marketing and Use of Dangerous Chemicals Directive , Import and Export of Dangerous Chemicals Directive, Biocide Directive, GLP Directives (88/320/EEC and 87/18/EEC) and GMO Directives (90/219/EEC, 91/155/EEC, 93/67/EEC) have high priorities.

In the chemicals subsector, the first priority is given to the main directives on dangerous chemicals (67/548/EEC, 99/45/EC, 91/155/EEC and 93/67/EEC). The directive on Biocidal products (98/8/EC) follows them.

The investment requirements for chemicals and genetically Modified Organisms (GMO) sector have not been determined yet. As a component of strengthening the institutional structure, infrastructure investments are needed so as to improve laboratories for Good Laboratory Practice applications. A study intended to determinate requirements and necessary investment of these laboratories has not started yet. The private or public sector could establish this kind of laboratories.

In the chemicals and GMO sector, in order to import legislation to domestic law, after that following and update cases, 80 additional technical personnels are needed within MoEF, Ministry of Agriculture and Rural Affairs, Ministry of Health, Ministry of Labour and Social Security, Undersecretariat for Foreign Trade.

In order to harmonise the legislation, besides the harmonisation applications, 9 technical assistance projects are also required for the purpose of strengthening the institutional machine-equipment infrastructure, establishing laboratories, preparation of strategies and action plans to direct implementations and education

of the inspector staff. The total cost of the projects is estimated 13.5 million Euros; the demands for additional personel, equipment and technical assistance projects will be revised after the applications.

5.7.Nature Protection Sector

5.7.1. Present Situation

Located at the junction of the three continents, Asia, Europe and Africa, Turkey shelters a rich biological entity due to its geographical position. The source of this richness results from the climate differences, topographical diversities, geological and geomorphologic diversities, three different plant geographical regions and altitude differences in a relatively small area.

The number of plant species is about 11.000 in Turkey, one third of which is known to be belonging to the endemic species specific to Turkey. The number of fauna species is predicted as 60-80.000 in Turkey. Turkey is known as the native country for many flora and fauna species.

There exist 132 mammals, 457 birds and around 105 reptile species in Turkey. The two of the four important bird immigration routes in Palearctic region (between West Palearctic and Africa) pass over Turkey. 200 of the wetlands in Turkey have international importance, and 12 of these are included in the Ramsar Convention List.

Although Turkey is rich in biodiversity, a decrease in population of existing species is observed because of the deterioration of their habitat. From the 450 fish species existing in our seas, 50 of them are under the threat of extinction. Throughout the country, there are 15 mammals, 46 birds, 18 reptiles and 5 frog species that are under the threat of extinction in Turkey. The endemic plant and animal groups in Turkey are given in Table 5.7.1.

Table 5.7.1 The general view of Turkish Flora and Fauna

	Identified Species	Endemic Species
Plants		
Ferns	90	2
Gymnospermae	23	3
Monocotyledoneae	1.771	300
Bicotyledoneae	7.593	2.589
Invertebrate (animals)	60.000-80.000	
Vertebrate (animals)		
Mammals	132	
Birds	454	
Amphibians	28	
Reptiles	105	
Fish (Inland waters)	127	
Fish (Seas)	450	

The number and the size of the protected areas determined and declared according to national legislation and international agreements in order to protect our biodiversity and resources are given in Table 5.7.2.

The ratio of the protected areas to the total country area is 6 %, and among different international approaches, it is aimed to raise this ratio to 10 %. Concerning area protection, there are different protection statues under the responsibility of different institutions. Effective site management becomes difficult since this situation results in authority confusion between institutions.

Table 5.7.2 The number and size of the protected areas

Type of Areas Under Protection	Number	Area Hectare	Type of Areas Protected	Number	Area Hectare
National Park	37	853.222	Preservation Forests	56	316.125
Nature Park	18	72.315	Gene Conservation Forests	188	25.703
Nature Reserve Area	33	64.663	Seed Stands	337	45.858
Natural Monument	102	5.285	Specially Protected Areas	14	1.200.247
Wild Fauna Development Fields	88	1.450.000	Ramsar Sites	12	198.500
			Natural Protected Sites	947	Could not be fully determined
			Natural Assets	2.370	Could not be fully determined

5.7.2. Legislative Approximation

Table 5.7.3 Timetable for Approximation

Name of the EU Legislation	Number	Foreseen Transposition Date	Foreseen Implementation/ Enforcement Date
Habitats Directive	92/43/EEC	2006-2007	2007-2009
Birds Directive	79/409/EEC	2006-2007	2007-2009
Regulation for Trading with Species of Wild Flora and Fauna (CITES)	338/97/EC	2006-2007	2007-2009

The similarities between the work and the processes and also the similarity to the basic requirements of the legislation can be examined under four different groups as shown in **Table 5.7**.

Although the requirements in the Habitats and Birds Directives may be met in general terms by the provisions of Law on National Parks No.2873, Law on Terrestrial Hunting No.4915 and other existing laws as laid down in **Table 5.7**, the requirements of these Directives are not completely satisfied. Turkish National legislation is especially insufficient in forming inventory about habitats and species; establishing a monitoring system for habitats and species; identification and classification of habitat types and animal and plant species which have special significance to these; taking into consideration of flora and fauna as well as their living environments in spatial plans; forming protected areas network and in defining management plans. In order to remedy this deficiency, the draft of Law on Biodiversity and Nature Protection has been prepared.

The requirements concerning Regulation for Trading with Species of Wild Flora and Fauna (CITES) is partially satisfied mainly within the framework of the national legislation stated in Table 5.7.3. However, in order to implement CITES legislation effectively, it is necessary to establish a new central authority of an administrative and scientific nature, establish rescue centers and infrastructure for sheltering of confiscated live specimens, simplify the bureaucratic processes in different institutions, prepare guides towards creating awareness and identification of the species, develop a general branding system for the species. There should be a structuring within the institutional structuring cited in the framework of the draft of Law on Biodiversity and Nature Protection that closes these deficiencies.

Within the context of Leghold Traps the directives 3254/91/EEC, 97/602/EC and 35/97/EC are present, and Turkish legislation harmonizes with this subject predominantly.

Directive numbered 1999/22/EC aims to protect wild animals and conserve biodiversity by means of licensing zoos and taking necessary regulatory measures.

There is no general legal arrangement concerning zoos. The absence of legislation related is attempted to be solved by the Law on Terrestrial Hunting No.4915 (2003) and By-law on Establishment and Work Principles and Procedures of Zoos in preparation within the scope of Law on Animal Protection No.5199 (2004).

Permission procedures related to keeping wild animals in the zoos and subjects regarding conservation of biodiversity are arranged within the framework of laws and by-laws given in **Table 5.7**, and compliance with Directive 1999/22/EC is not totally satisfied.

5.7.3. Goals, Objectives and Strategies

The main purpose is to conserve and provide sustainable utilization of biodiversity, prevent the loss of biodiversity by improving and conserving flora and fauna and their natural living environments.

1. Goal : In order to improve existing nature protection system, compliance with EU Acquis shall be achieved

Objective 1: In order for EU Acquis about nature protection to be effectively implemented, the administrative and institutional infrastructure requirements shall be determined and capacity shall be enhanced by providing staff training.

2: The sites which have suitable criteria via reviewing existing protected area statues shall be identified as potential Natura 2000 areas; their management and/or protection plans will be prepared and put into force.

3: Inventory with regard to species and habitats shall be completed and the system commonly used at EU related to these will be taken in principle and habitat classification and mapping work will be implemented together with the completion of the guidelines.

4: Strengthening/reorganization works correlated with the constitutions such as monitoring, scientific infrastructure, training, guidance and developing strategies etc. of the institutions and responsible parties related to nature protection shall be accomplished.

5: Biodiversity monitoring systems shall be established in order to do necessary interference by means of determining the current situation and the changes in the protected areas and the species.

6: Quotas concerning species under the framework of CITES shall be determined, the staff shall be educated by preparing guidebooks, rescue centers for captured CITES species shall be established

7: CITES office shall be established in order to implement legislation related to CITES.

8: The legal arrangement anticipates the opening, management and rehabilitation of zoos shall be formed and existing zoos shall be rehabilitated.

Research programs about wild animals in the zoos shall be achieved and public information programs will be prepared.

9: Hunting grounds systems will be established and hunting plans will be prepared according to EU directives.

10: Informing of all related groups to hunting will be achieved, effective coordination will be established and the rural organization will be strengthened. At least one wild life protection and rapid reaction teams in each province shall be set up.

11: Public awareness raising and information giving and participation effectively in decision-making mechanisms will be achieved.

Strategy 1: Completion of the preparations on the Law on Biodiversity and Nature Protection and being put into force.

2: Establishment of scientific committee that will undertake the consultancy on biological diversity

3: Review of the statutes of existing protected areas, performing the biotope/habitat classification and mapping of protected areas and assessment of potential Natura 2000 areas.

4: Establishment of a scientific authority responsible for educational and scientific assessment, orientation, strategy settlement and scientific pillar of the implementation (Including education and research center, nature museum).

5: Within the scope of strengthening the implementation oriented administrative and institutional infrastructure; employment of new personnel and improvement of technical infrastructure.

6: Organization of informative and awareness campaign oriented towards the interest groups.

7: Formation of the necessary infrastructure within the scope of establishment of biodiversity monitoring systems, determining the indicators for monitoring.

8: Determination of the way to provide communication, cooperation, and information flow/sharing and similar matters between interest groups related to the administration of protected areas, the achievement of effective coordination.

9: Making necessary actions to provide habitat approach and necessities of nature protection to be the part of educational programs (biology, urban planning, law, etc.) of universities.

10: Taking precautions on the subject of identifying and decreasing the factors which help to diminish biodiversity.

11: Developing appropriate financial mechanisms regarding the management of protected areas.

12: Developing/Integrating impact assessments related to protected areas into decision making process on the policies, plans and projects on a sector basis.

13: Determining and implementing the incentives and precautions for the protection of biodiversity.

5.7.4. Strengthening of Institutional Capacity

Institutional structure regarding implementation of legislation in harmonization process is planned to be resolved under one single institutional structure. A two phased approach has been adopted with the purpose of achieving the final solution.

The present workload and technical infrastructure of staff are not sufficient to operate the existing work and processes. Furthermore, the staff infrastructure belonging to the scientific authority planned to be formed within the scope of harmonization process should be established immediately. This is possible only by increasing the capacity of existing institutional capacity regarding qualified personnel, and establishing new units to implement these processes.

The implementation of harmonization processes by existing institutions until a new institutional structure and legislation is formed; the establishment of a new institutional structure and scientific authority following the constitution of nature protection law and related measures is planned.

It is anticipated that the stated scientific authority is responsible for the implementation by the means of the scientific content concerning Birds and Habitats Directives, legislation regarding CITES and the Directive for Zoos and also other international treaties. Moreover, it is planned that this organization is also have the responsibility of awareness raising on about biodiversity, education, planning of inventory, its implementation and evaluation, coordination of scientific research and CITES permits and licensing.

On the other hand, the development of existing central and rural organization is planned including the protection units which have the physical protection, planning and management capacities of Natura 2000 areas.

5.7.5. Investment Needs

Starting with the sites that have existing protection status, and by assessing new sites, the identification of Natura 2000 areas and the corridors related shall be accomplished within the next 20 years. Hence, the ratio of the protected areas to country's total surface area is expected to increase in parallel to EU implementations.

A total of 263,31 million Euros is required to implement Habitats and Birds Directives, and directives concerning CITES and Zoos.

A total of 254,14 million Euros is required within the framework of Habitats and Birds Directives. For personnel expenses and investments 134,52 million Euros and 120,4 million Euros are needed respectively. Personnel expenses cover 52,77 % and investments cover 47,23 % of the total expenses. 3 million Euros regarding institutional capacity building for Habitats and Birds Directives and 120 thousand Euros for scientific purposes are required. In order to keep regular inventory for the habitat and species of our country, 1,7 million Euros is needed.

8 million Euros is considered necessary so as to maintain continuing Capacity Building Project on Nature and defining potential Natura 2000 sites by collecting detailed data in 4 years.

The additional personnel employed for the mapping and classifications regarding protected areas are expected to be trained and employed in studies. Mapping studies of protected areas shall be done within the framework of these studies. It is estimated that the total cost of mapping studies will be 4 million Euros.

It is foreseen to establish a scientific authority that performs training and scientific assessment, provides guidance, outlines strategy and that is responsible for the scientific pillar of the implementation (including training center, nature museum), a related preliminary study should be commenced. The approximate cost for the project may be calculated after the feasibility study is completed.

Personnel requirements of the central and rural/area units are forecasted within the scope of the formation of administrative and institutional infrastructure for implementation. Accordingly, employment of 200 persons is required within the body of scientific authority. For the Ministry of Environment and Forestry, firstly 40 employees and an additional 100 employees for the central unit and 390 employees for rural/area units and hence 530 additional employees is required in total. Personnel requirements will be updated according to the final reports of Capacity Development Project on Nature. The final targets are constituted by increasing these numbers regularly. Once the final target is achieved, this organization will have an average annual cost of 14 million Euros. During this organizing process, visitors' centers, observation stations, etc. are needed to be built for approximately 100 areas with a total cost of 20 million Euros.

A budget of around 50.000 Euros is forecasted for the continuing education of the personnel employed within this institutional structure. A further 100.000 Euros will be needed for the public awareness raising on and education studies.

Physical protection regarding areas, expense amounts concerning precautions taken for awareness on will show variations on area basis, and needed to be estimated on the same basis. The fact that these precautions may have important financial implications should be taken into consideration.

A total of 8,4 million Euros is needed for all the studies within the context of CITES Directive. For the training of CITES implementers, towards the staff who makes custom and land audits, an annual budget of around 200.000 Euros is expected to be allocated. A total of 216.000 Euros is needed to prepare, translate and to insert the domestic species to the CITES handbook for implementers containing the species and products. Capacity Development Project on Nature will be preceded in different regions, the investment cost of each rescue center established for the appropriate preservation of animal and plant species that captured and need care is expected to be 4 million Euros and related operational cost is expected to be 30 thousand Euros annually.

A total budget of approximately 730.000 Euros will be needed for the training of implementers at Zoos.

The directives which have priority in the nature protection sector are Habitats and Birds Directives and CITES legislation. In this context, it is required in the first run to finalize the preparation of the Draft Law on Biodiversity and Nature Protection, to prepare an inventory regarding species and habitats of areas, to begin the preliminary studies for establishing the scientific authority and to employ and educate the personnel anticipated in the transition period.

Table 5.7.3 The Investment Needs For The Protection Of Nature Sector. (2007 – 2023) (Million Euros)

	Total	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017	2018	2019	2020	2021	2022	2023
Habitats and Birds Directives	254	3	5	8	10	11	13	14	15	16	17	18	20	21	18	19	22	24
Cites Directive	8	1	1	1	1	1	1	1	1									
Zoos	2		1	1														
TOTAL	264	4	7	10	11	12	14	15	16	16	17	18	20	21	18	19	22	24

5.8. Horizontal Sector (Environmental Impact Assessment)

5.8.1. Present Situation

The by-law on Environmental Impact Assessment was revised due to the conditions of our country and EIA Directive of the EU, and came into force after being published in 16.12.2003 dated and 25318 numbered Official Gazette. Studies for strengthening and increasing the effectiveness of Environmental Impact Assessment Process are still going on in our country.

The Law on The Right to Access to Information has come into force in our country and in line with this law 19.04.2004 dated and 2004/7189 numbered By-law was published. Environmental Information System is established in the context of “Institutional Structuring and Access to Environmental Information” project, which is executed in the context of 2002 Financial Cooperation Program and by this way significant progress is realized in our country in compliance with the proactive approach of the EU Directive on Public Access to Environmental Information.

A draft By-law on Strategic Environmental Assessment in compliance with EU SEA Directive is prepared. In order to make this by-law applicable, it is necessary to carry out pilot studies and capacity enhancing studies both in and out of the Ministry. Projects related to public consciousness should be performed.

5.8.2. Legislative Approximation

Table 5.8.2. Timetable for Approximation

Name of the EU Legislation	Number	Foreseen Transposition Date	Foreseen Implementation/ Enforcement Date
<i>Environmental Impact Assessment (EIA)</i> 27 June 1985 dated and (85/337/EEC) numbered Council Directive related to impacts of particular public projects and private projects on environment and the amendment (concerning this directive) made by the 3 March 1997 dated Council Directive	85/337/EEC	31.12.2007 (*)	31.12.2007
Strategic Environmental Assessment (<i>SEA</i>) 27 June 2001 dated and 2001/42/EC numbered Directive of European Parliament and Council about assessment of particular plans and programs on environment	2001/42/EC	31.12.2007 (*)	31.12.2007
Directive on public access to environmental information	2003/4/EC	after 2007	after 2007
Council Regulation No 1210/90 of 7 May 1990	1210/90/EEC	31.12.2007	31.12.2007

<p>on the establishment of the European Environment Agency and the European Environment Information and Observation Network, which is amended by Council Regulation No 933/99</p>			
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(*) Cross boundary matters are excluded. Studies on these matters are going on.

The Law on The Right To Access to Information has come into force in our country on 09.10.2003 and the 19.04.2004 dated and 2004/7189 numbered By-law is published . This law defined frameworks on providing information to the public and generally meets the requirements of EU Directive on Public Access to Environmental Information. . In the framework of the law on Right of Access to Information and in the 2nd article of 2872 numbered Environment Law amended by 5491 numbered law, the definition of “**environmental information**” is given and due to 2nd article of 2872 numbered Environment Law amended by 5491 numbered law, The Regulation on Providing Environmental Information and The Right To Have Information must be enacted to strengthen the harmony to the EU Directive in terms of application, to make the public conscious of reaching information and to provide public with access to environmental information.

The established Environmental Information System should be tested on a pilot area and it is necessary to overcome the shortcomings of the system seen with the help of these tests. The scope of the system should be extended, to increase the use of it, the system should be disseminated over the country and the system should further be developed.

Procedurally, the By-law on EIA is in compliance with the EU Directive but there are some difficulties about transboundary issues. The draft By-Law of Strategic Environmental Assessment is prepared on 08.04.2005. The draft by-law is highly in compliance with the EU SEA Directive except transboundary issues.

As far as Environmental Liability Directive is concerned, Turkey has reached to a high level of legislative harmonization. The studies for harmonization are still going on.

5.8.3. Goals, Objectives and Strategies

1. Goal: To establish Environmental Information System and to provide access to environmental information, to establish Turkish Environmental Information Exchange Network in order to develop an environmental administrative system aiming to protect the nature at the highest level

Objective: The establishment, development, dissemination of the Environmental Information System and improvement of institutional capacity and tools for the public to be informed.

- Strategy**
- 1:** Establishing an environmental information exchange network among institutions
 - 2:** Protecting the dynamic structure of The Environmental Information System.
 - 3:** Making the public conscious about accessing to environmental information and making the public participate in decision making process of environmental subjects.
 - 4:** Producing continuous environmental information and ensuring its contribution to the system.
 - 5:** Creating a legal base for exchange of information between the institutions
 - 6:** Monitoring the environmental performance

2. Goal: To provide effective application of the EIA

Objective: To strengthen the existing institutional structure and to develop the capacity of all groups taking part in EIA process

- Strategy**
- 1:** Providing training about impact assessment techniques of target groups
 - 2:** Providing update and application of sectoral guides and organizing trainings for these guides
 - 3:** Developing the capacity of EIA Training and Information Centre
 - 4:** Developing the institutional capacity about EIA monitoring and reporting

3. Goal: To make SEA applicable

Objective: To strengthen the existing institutional structure and to develop the capacity of all groups taking part in SEA process

- Strategy 1:** Providing incentives to receive training for Strategic Environmental Assessment
- 2:** Preparing sectoral guides
- 3:** Conducting pilot projects for application of guides and implementing institutions
- 4:** Making projects to increase public consciousness and public participation in SEA Process
- 5:** Organizing trainings and seminar after implementation
- 6:** Organizing information operations and trainings in order to execute EIA and SEA studies in harmony with each other

5.8.4. Strengthening the Institutional Capacity

The application of The Environmental Impact Assessment is mostly realized. But at the accession period, complete implementation containing 2003 changes on the directive is envisioned. It is necessary to strengthen the existing institutional structure and to develop the capacity of all related groups included in EIA process. Our Ministry needs 500 personnel in the central and provincial organizations to apply the EIA Directive.

Draft by-law on Strategic Environmental Assessment is envisaged to become applicable by the end of 2007. It is necessary to strengthen the existing institutional structure and to develop the capacity of all related groups. Our Ministry needs 100 personnel in the central and provincial organizations to apply the SEA Directive.

National Environmental Information Exchange Network and the Environmental Information System is started to be established in Turkey for contributing to development of an environment protection administration system, for preparation of sustainable development plans, for a decision making process based on up-to-date and reliable information and for fastening information exchange among institutions. To meet the new data and information need caused by the changes at the national and EU legislation and also for application and improvement of the information system, regular consultancy and personnel support is needed. Our Ministry needs nearly 200 personnel to develop, disseminate and apply the system in the central and provincial organizations.

5.8.5. Investment Needs

The necessary financial need for National Environmental Information Exchange Network and Environmental Information System to be created for providing effective Access to Environmental Information is 558 million Euros. (Software, hardware, technical support, the education of the personnel and the users, cost of studies for public consciousness are included.) The capacity development necessary for the application of By-Law on Environmental Impact Assessment costs 26 million Euros (hardware and software, personnel and education costs). The financial need for SEA is 17 million Euros including hardware, training and personnel costs.

6. ENVIRONMENTAL INVESTMENT NEEDS FOR THE EU APPROXIMATION AND ITS FINANCING

6.1. Finance Needed for the Environmentally Related Investments

While determining the total investment needs for the environmental protection in Turkey, construction of new facilities and also recovery, operation and maintenance costs are considered. The FEASIBLE Model which is commonly used by OECD is used in this study.

The highest investment cost for Turkey in the adaptation period is for the environmental protection which is same for other candidate countries. The preliminary estimate of investment cost of compliance for the EU environmental acquis including industrial, agricultural and urban infrastructure is about 109,650,259 thousand YTL (59,006 million Euros). However, this is only a cost estimation and it is necessary to carry out a detailed analysis in sector base.

The 80 % of the environmental expenditure should be financed by the public sector and remaining 20 % by the private sector.

Cost of harmonization for the EU environmental acquis and implementation is estimated from 'Integrated Harmonization Strategy Project'. The cost of investment however, is estimated from 'Environmental Heavy-Cost Investment Planning Project'. In the assessment of investment cost, investment need is calculated by nominal costs. Operation and maintenance cost is calculated by considering affordability and sustainability. Also it is assumed full consistency with Acquis Communautaire. Besides, in water and waste sector studies, market prices of Turkey are integrated to the international investment models. In industry and air sectors, on the other hand, unit price approaches and results of questionnaires are used.

It is necessary to consider private sector as well as public sector in the determination of cost data. This is not true for only IPPC directives but also landfill and incineration directives which will also effect the private sector. However, it should be noted that most of the private sector expenditure is about industrial pollution prevention and control.

Public sector must participate in the planning and implementation period of private sector investment for compliance of the EU environmental acquis. The role of government will be, to give information about the changes in the regulations; to provide technical assistance; to give permission; to monitor and control; and to give information and recommendation about legal obligations.

In Table 6.1.1, the sectoral distribution of environmental investments between the years of 2007–2023 are shown. The investment cost in sector base is estimated as follows: for water sector 63,124 million YTL, for industrial pollution sector 27,475 million YTL, for solid waste sector 17,465 million YTL, for air sector 795 million YTL, for nature protection sector 491 million YTL, and the total environmental investment cost is estimated as 109,650 million YTL.

In Table 6.1.2, the percentage distribution of total environmental investments between the years of 2007–2023 is shown as, 58 % for water sector, 25 % for industrial pollution sector, 16% for solid waste sector, 0.7 % for air sector and 0.4 % for nature protection sector.

Water sector investments include the wastewater sector investments. Cost assessment of noise, chemicals and special waste sectors has not been studied yet. Cost of vehicles for the collection and transportation of packaging wastes has not been included in this cost assessment.

Water and wastewater sectors have the highest portion due to the investment costs. The most important economical tool which is unapplied in our country is having no tax obligations concerning emission and discharge in activities providing the standards. Having no tax obligations for emission and discharge, even though they cause pollution, is a sign of lack of application of the "polluter pays" principle which is one of the most important principals of Water Framework Directive.

As shown in Table 6.1.1, The sectoral distribution of environmental investments between the years of 2007 – 2023 are: for water sector 63,124 million YTL, for industrial pollution sector 27,475 million YTL, for solid waste sector 17,465 million YTL, for air sector 795 million YTL , for nature protection sector 491 million YTL, and the total of environmental investments are estimated as 109,650 million YTL.

Table 6.1.1 Finance Needed for the Environmental Investments in between 2007-2023

Million YTL

	Total	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017	2018	2019	2020	2021	2022	2023
Water sector	63.124	2.475	2.633	2.835	2.977	3.082	3.164	3.263	3.445	3.813	4.052	4.238	4.351	4.478	4.584	4.398	4.684	4.643
Solid waste sector	17.762	372	531	717	888	890	992	1.042	1.135	1.182	1.182	1.184	1.184	1.276	1.276	1.276	1.276	1.358
Air sector	69	5	5	5	5	5	4	4	4	44	4	4	4	4	4	4	2	2
Noise sector	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Chemicals sector	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
IPPC Sector (*)	27.415	97	284	979	1.052	1.139	1.226	1.295	1.390	1.488	1.382	2.096	2.196	2.313	2.428	2.551	2.681	2.817
Nature protection sector	490	7	13	19	20	22	26	28	30	30	32	33	37	39	33	35	41	45
General Total	108.851	2.956	3.467	4.556	4.942	5.139	5.412	5.632	6.003	6.516	6.652	7.555	7.772	8.110	8.326	8.264	8.684	8.865

* : The investment process for Big Incineration Plants will be re-evaluated in the adaptation period of EU. After 2023 , the investment need in the sector will be 2.160 million Euros.

** 720 million YTL within the total is belongs to the fuel quality (98/70/EC). The annual distribution has not been calculated since implementation on fuel quality will be finalized in a short time. The implementation process will be determined due to TÜPRAŞ Investments.

Table 6.1.2 Sectoral Distribution of Environmental Investments between 2007-2023

SECTORS	INVESTMENT NEEDED		
	(Million YTL)*	(Million Euros)	Rate (%)
Water sector total	63.114	33.969	58
Solid waste sector total	17.762	9.560	16
Air sector total	69	37	0
Noise sector total	0	0	0
Chemicals sector total	0	0	0
IPPC Sector total	27.415	14.755	25
Nature protection sector total	490	264	0
General Total	108.851	58.585	100

* 1 Euro=1,858 YTL

6.2. Finance Secured for the Investment Needs

At the application of environmental policies, economical tools should be used in a way that supporting environmental policies. In the amended environment law, it is stated that municipalities must get payment of water, wastewater and solid waste services and these revenues must be used again only in the same areas. Besides, it is also stated that legal punishments and incentives must be strengthened.

To collect a fee for environmental services is an important component of financing strategy. It is also essential for the polluter pays principle. However, the payments must be affordable .

In our country, the municipalities with a population of more than 150,000, can meet the standard in wastewater treatment. However the municipalities under this population are quite insufficient to meet the standards as they can not get the payment of services. It should be considered to make wastewater discharges taxable in order to support the municipalities with insufficient financial sources. Taxes which will be collected from the greater municipalities can recover first investment cost of some small scale municipalities.

The tariffs which are one of the important finance source for environmental investments, is very important for the sustainability of services. While determining the tariffs, it is important to consider affordability of consumers and rate of return of the investments.

To finance the public sector investments, national and international grants must be used for urban infrastructure projects which are selected according to the prioritization criterion. If municipality has insufficient technical capacity to implement the selected project, Bank of Provinces should implement the project.

In the financial analysis of investments for the harmonization of EU environmental acquis which is summarized at Table 6.2.2, costs are determined according to the GNDP and annual increase forecast of development rate. Besides, last five year implementation rate of projects which are in the investment program and annual allowance of projects which are in 2005-2006 investment program are taken into account in cost determination. The assumptions for the cost estimations are as follows:

- The cost estimations of harmonization for each sector and relating to this annual investment needs are derived from the results of 'Feasible Model' which is prepared within the Environmental Heavy Cost Investment Planning Project.
- The finance needed for the compliance of EU Environmental acquis, will be secured by central governmental and local administrations resources, private-public co-operation, bilateral co-operation credits, EU grants and other grant resources.
- The harmonization cost of directives related to private sector will be finance by private sector.
- 112 numbered 'Cleaning and Environmental Prevention' , 116 numbered 'Agriculture' and 119 numbered 'Water-Sewerage' revenues of functional budget are taken into account while determining the support from central governmental budget. And also the interest rate of this amount is accepted same as GNDP interest rate.
- Credits allocated from Bank of Provinces will increase with rate of GNDP
- External credits will be used in cost effective, feasible and refunding projects of municipalities.
- Annual interest rate of private-public co-operation financial sources will be 9%.
- About 40% of resources in third component of EU financial co-operation funds will be for environmental investments between 2007-2010. Thus, 67-96 million Euros will be allocated to environment annually. The amount of financial assistance is expected to increase after 2010. As a result in 2011, 500 million Euros is estimated and also assumed that the amount will increase 10% annually.
- **Drinking Water:** Local administrations are responsible to finance drinking water services. ('Use pays principle'). However, central government will continue to support the projects which have great economic use. In this respect, at least 55% financial resources derived from central budget to the environment sector will be used in drinking water projects of DSI. Besides, 30% of EU Environmental Funds will be allocated to drinking water projects between 2007-2010 but this will decrease to 20% after 2011. Local administrations will co-finance the EU funded projects. Also credits from Bank of Provinces and external institutions may be used as co-financing. 30% of credits derived from Bank of Provinces and 38% of local administrations' investments will be used in drinking water projects.

- **Wastewater:** Local administrations are responsible to finance wastewater services. Central government will only support the projects in special protection areas. 40% of EU Environmental Funds will be allocated to wastewater projects and this will increase to 50% after 2011. Local administrations will co-finance the EU funded projects. Also credits from Bank of Provinces and external institutions may be used as co-financing. 50-60% of credits derived from Bank of Provinces and 50% of external credits will be used in wastewater projects. Local administrations will allocate 40% percent of their own resources to wastewater investments.
- **Waste:** Local administrations are responsible to finance waste services. ('Polluter pays principle'). Central government will only support the projects in special protection areas. 30% of EU Environmental Funds will be allocated to waste projects. Local administrations will co-finance the EU funded projects. Also credits from Bank of Provinces and external institutions may be used as co-financing. 20% of credits derived from Bank of Provinces and 40% of external credits will be used in waste projects. Local administrations will allocate 22% percent of their own resources to waste investments.
- **Air:** The expenditures grow out of Air Quality Directive between 2007-2013 will be financed by central administrative budget and EU Funds. Local administrations will co-finance the projects. The investment needed for the harmonization of big incineration facilities directive will be derived from the budget of public economic enterprises
- **Nature Protection:** The EU funds under the third component cannot be used in nature sector for 2007-2009. However 50% of annual investments will be finance by the first component of the program which is institutional capacity development and also by other external fund and credits. The remaining 50% will be allocated from central administrative budget. After 2010, EU Funds and other funds will finance 75% of investment needed.

In Table 6.2.3 the distribution of the total environmental investments according to the finance source is shown. Due to this, the rate covered by Central Administrations (public institutions like Government Water Works, Special Environment Protection Committee, GAP Management) is 13 %. On the other hand total rate covered by local administrations is expected to be 37%. 12% of this rate is covered by the General Directorate Of Bank of Provinces, 22 % by revenue of own sources of municipalities, 2 % by external credits and 1 % by private-public partnership.

In addition to these, 22% financial contribution is expected from EU funds and other grants. Private sector will allocate the investment needed for the harmonization of IPPC directives which is 26% of total investment.

Table 6.2.2 shows the annual distribution of environmental investments due to finance resources. On the table 6.2.3 finance source of environmental investments between 2007 – 2023 are distributed as: 14,378 million YTL by Central Management, total 40,530 million YTL by local management, 28,126 million YTL by private sector, 23,611 million YTL by EU and other funds and 2,205 million YTL by State Economic Enterprises (KİT)s, and total finance needed is 108,851 million YTL.

TABLE 6.2.1 THE ENVIRONMENT INVESTMENTS INVENTORY BETWEEN 1999 - 2006

**T: Temporary E: Estimation P: Program
(Thousand
YTL)**

	1999	2000	2001	2002	2003(T)	2004(E)	2005(P)	2006(P)
Local Managements Total (a+b)	291.329	493.764	1.255.452	2.105.618	1.403.073	1.432.560	2.350.378	2.786.555
a- Municipality	136.101	224.460	315.519	405.992	598.350	551.837	832.531	921.121
b- Water and Sewage Management	155.228	269.304	523.665	787.125	804.723	880.723	1.517.847	1.865.434
2- Bank of Provinces	119.713	266.324	350.251	311.855	422.839	385.751	420.600	546.000
3- Public Investment	143.632	139.429	218.992	319.584	486.674	396.113	676.360	529.923
4- Funds and External Credit)	568	583	3.391	31.224	18.008	23.831	8.250	15.765
General Total (1+2+3+4)	555.242	900.100	1.828.086	2.768.281	2.330.594	2.238.255	3.455.588	3.878.243
GDP RATE FOR Env.Inv.	0,007	0,007	0,010	0,010	0,006	0,005	0,007	0,007
GDP (Current price)	77.415.272	124.583.458	178.412.438	277.574.058	359.762.926	430.511.477	483.481.386	538.136.629
GDP (Rate of return) (Fix price %)	-4,7	7,4	-7,5	7,9	5,8	8,9	5,0	5,0

ACCEPTANCES

1. The sample corresponding the functional distribution containing 77% of the total investments for municipalities, is developed for 100% of municipality investments.
2. The investments as the 112 coded protection of environment and pureness, the 116 coded agriculture and the 119 coded water-sewer system are considered as environmental investments.
3. The duties of The General Directorate of Abolished Rural Affairs are transferred to KÖYDES starting from 2005

Table 6.2.2 The Finance Needed for Environmental Investments (2007 – 2023)

(Thousand YTL)

	Total	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017	2018	2019	2020	2021	2022	2023
1-Central Administration	14.378	556	584	613	644	676	710	746	783	822	863	906	952	999	1.049	1.102	1.157	1.215
2-Local Administration	40.530	2.003	2.291	2.644	2.886	2.210	2.268	2.280	2.408	2.660	2.721	2.717	2.622	2.614	2.468	2.012	2.003	1.723
Municipal Resources	24.196	1.195	1.454	1.794	2.075	1.377	1.435	1.424	1.537	1.757	1.784	1.742	1.606	1.553	1.354	853	791	461
Bank of Provinces	12.970	550	579	581	600	638	650	680	701	734	768	804	842	882	923	966	1.012	1.059
External Credits	1.846	258	216	215	154	131	113	98	87	78	71	66	62	60	59	59	60	61
PPP (YİD)	1.518	0	42	55	56	63	70	77	84	91	98	105	112	119	132	133	140	141
3- Private Sector	28.126	206	390	1.079	1.137	1.204	1.282	1.343	1.433	1.525	1.418	2.124	2.217	2.326	2.432	2.547	2.668	2.794
4- Public Economic Enterprises	2.205	59	63	71	85	106	115	123	128	134	137	145	152	160	169	177	186	195
5-Funds (EU+Oth.+Fund.)	23.611	131	138	148	190	943	1.037	1.140	1.251	1.375	1.512	1.663	1.829	2.011	2.207	2.427	2.671	2.938
General Total	108.851	2.956	3.467	4.556	4.942	5.139	5.412	5.632	6.003	6.516	6.652	7.555	7.772	8.110	8.326	8.264	8.684	8.865

	Toplam	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017	2018	2019	2020	2021	2022	2023
1-Central Administration	7.738	299	314	330	347	364	382	401	421	442	465	488	512	538	565	593	623	654
2-Local Administration	21.814	1.078	1.233	1.423	1.553	1.189	1.221	1.227	1.296	1.431	1.465	1.462	1.411	1.407	1.328	1.083	1.078	927
Municipal Resources	13.023	643	783	966	1.117	741	772	767	827	946	960	938	864	836	729	459	426	248
Bank of Provinces	6.980	296	312	313	323	344	350	366	377	395	413	433	453	474	497	520	545	570
External Credits	994	139	116	115	83	71	61	53	47	42	38	35	34	32	32	32	32	33
PPP (YİD)	817	0	23	30	30	34	38	41	45	49	53	57	60	64	71	72	75	76
3- Private Sector	15.138	111	210	581	612	648	690	723	771	821	763	1.143	1.193	1.252	1.309	1.371	1.436	1.504
4- Public Economic Enterprises	1.187	32	34	38	46	57	62	66	69	72	74	78	82	86	91	95	100	105
5-Funds (EU+Oth.+Fund.)	12.708	71	75	80	102	508	558	614	674	740	814	895	984	1.082	1.188	1.306	1.438	1.581
General Total	58.585	1.591	1.866	2.452	2.660	2.766	2.913	3.031	3.231	3.507	3.580	4.066	4.183	4.365	4.481	4.448	4.674	4.771

- 726 million YTL of TÜPRAŞ fuel quality investment is not included.
- 1 Euro=1,858 YTL

Table : 6.2.3 The Rate of Support for the Finance Needed (2007 – 2023)
 (Thousand (Million
 YTL) Euros)

	TOTAL	TOTAL	RATE
1-Central Administration	14.378	7.738	13%
2-Local Administration	40.530	21.814	37%
Municipal Sources	24.196	13.023	22%
Bank of Provinces	12.970	6.980	12%
Foreign Credit	1.846	994	2%
PPP (YID)	1.518	817	1%
3- Private Sector	28.126	15.138	26%
4-Public Economic Enterprises	2.205	1.187	2%
5- Funds (EU+Oth.+Funds.)	23.611	12.708	22%
General Total	108.851	58.585	100%

*1 Euro is taken as 1.858 YTL

Table : 6.2.4 Sectoral Distribution of Financial resources

	Total	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017	2018	2019	2020	2021	2022	2023
1-Central Administration	14.378	556	584	613	644	676	710	746	783	822	863	906	952	999	1.049	1.102	1.157	1.215
Water	7.908	306	321	337	354	372	391	410	431	452	475	498	523	550	577	606	636	668
Sewerage+Treatment	4.191	163	169	176	188	197	207	218	227	239	251	264	277	291	307	322	339	356
Waste	2.096	81	85	88	94	99	104	109	114	120	126	132	138	145	153	161	169	178
Air	50	3	3	3	3	3	2	2	4	4	4	4	4	4	4	4	2	2
Nature	132	4	7	9	5	6	7	7	7	7	8	8	9	10	8	9	10	11
2-Local Administrations																		
Municipal Resources	24.196	1.195	1.454	1.794	2.075	1.377	1.435	1.424	1.537	1.757	1.784	1.742	1.606	1.553	1.354	853	791	461
Water	9.120	495	534	605	666	539	527	532	516	534	658	687	667	637	600	386	318	218
Sewerage+Treatment	9.712	660	714	803	849	504	499	469	542	745	699	682	627	580	494	289	385	170
Waste	5.364	40	206	387	561	334	409	423	478	478	428	373	312	336	260	178	89	73
Air	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Iller Bank	12.970	550	579	581	600	638	650	680	701	734	768	804	842	882	923	966	1.012	1.059
Water	3.165	165	174	174	180	192	195	204	210	220	154	161	168	176	185	193	202	212
Sewerage+Treatment	7.210	275	289	290	300	319	325	340	350	367	461	483	505	529	554	580	607	636
Waste	2.594	110	116	116	120	128	130	136	140	147	154	161	168	176	185	193	202	212
External Credits	1.846	258	216	215	154	131	113	98	87	78	71	66	62	60	59	59	60	61
Water	185	26	22	21	15	13	11	10	9	8	7	7	6	6	6	6	6	6
Sewerage+Treatment	923	129	108	107	77	66	56	49	43	39	35	33	31	30	29	29	30	31
Waste	739	103	86	86	61	52	45	39	35	31	28	26	25	24	24	24	24	25
KÖİ (PPP)	1.518	0	42	55	56	63	70	77	84	91	98	105	112	119	132	133	140	141
3-Private sector	28.126	206	390	1.079	1.137	1.204	1.282	1.343	1.433	1.525	1.418	2.124	2.217	2.326	2.432	2.547	2.668	2.794
4- Public economic enterprises	2.205	59	63	71	85	106	115	123	128	134	137	145	152	160	169	177	186	195
5-Funds (EU+Other grants)	23.611	131	138	148	190	943	1.037	1.140	1.251	1.375	1.512	1.663	1.829	2.011	2.207	2.427	2.671	2.938
Water	4.703	37	39	41	52	185	203	223	246	271	298	327	360	396	436	480	528	581
Sewerage+Treatment	11.561	50	52	54	69	462	508	559	615	676	744	819	901	991	1.091	1.200	1.320	1.452
Waste	6.971	37	39	41	52	277	305	335	369	406	446	491	540	594	655	720	792	871
Air	19	3	3	3	3	3	2	2	0	0	0	0	0	0	0	0	0	0
Nature	358	4	7	9	15	17	20	21	22	22	24	25	28	29	25	26	31	33
Public General Total	80.725	2.750	3.077	3.476	3.805	3.935	4.130	4.288	4.571	4.991	5.234	5.431	5.555	5.784	5.894	5.717	6.016	6.070
Water	26.599	1.029	1.132	1.234	1.323	1.364	1.397	1.457	1.496	1.576	1.689	1.786	1.838	1.884	1.936	1.804	1.830	1.826
Sewerage+Treatment	33.598	1.276	1.332	1.431	1.483	1.548	1.596	1.635	1.778	2.066	2.191	2.280	2.341	2.421	2.475	2.421	2.681	2.644
Waste	17.762	372	531	717	888	890	992	1.042	1.135	1.182	1.182	1.184	1.184	1.276	1.276	1.276	1.276	1.358

Air	2.274	65	69	76	91	111	119	126	132	137	141	149	156	164	173	180	188	197
Nature	491	7	13	19	20	22	26	28	30	30	32	33	37	39	33	35	41	45
General Total	108.851	2.956	3.467	4.556	4.942	5.139	5.412	5.632	6.003	6.516	6.652	7.555	7.772	8.110	8.326	8.264	8.684	8.865

Table 6.2.5 Sectoral Distribution of Financial Resources (as percentage)

	Toplam	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017	2018	2019	2020	2021	2022	2023
1-Central Administration	100%	556	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%
Water	55%	55%	55%	55%	55%	55%	55%	55%	55%	55%	55%	55%	55%	55%	55%	55%	55%	55%
Sewerage+Treatment	29%	29%	29%	29%	29%	29%	29%	29%	29%	29%	29%	29%	29%	29%	29%	29%	29%	29%
Waste	15%	15%	14%	14%	15%	15%	15%	15%	15%	15%	15%	15%	15%	15%	15%	15%	15%	15%
Air	0%	1%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%
Nature	1%	1%	1%	2%	1%	1%	1%	1%	1%	1%	1%	1%	1%	1%	1%	1%	1%	1%
2- Central Administrations																		
Municipal Resources	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%
Water	38%	41%	37%	34%	32%	39%	37%	37%	34%	30%	37%	39%	42%	41%	44%	45%	40%	47%
Sewerage+Treatment	40%	55%	49%	45%	41%	37%	35%	33%	35%	42%	39%	39%	39%	37%	36%	34%	49%	37%
Waste	22%	3%	14%	22%	27%	24%	28%	30%	31%	27%	24%	21%	19%	22%	19%	21%	11%	16%
Air	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%
İller Bankası	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%
Water	24%	30%	30%	30%	30%	30%	30%	30%	30%	30%	20%	20%	20%	20%	20%	20%	20%	20%
Sewerage+Treatment	56%	50%	50%	50%	50%	50%	50%	50%	50%	50%	60%	60%	60%	60%	60%	60%	60%	60%
Waste	20%	20%	20%	20%	20%	20%	20%	20%	20%	20%	20%	20%	20%	20%	20%	20%	20%	20%
External Credits	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%
Water	10%	10%	10%	10%	10%	10%	10%	10%	10%	10%	10%	10%	10%	10%	10%	10%	10%	10%
Sewerage+Treatment	50%	50%	50%	50%	50%	50%	50%	50%	50%	50%	50%	50%	50%	50%	50%	50%	50%	50%
Waste	40%	40%	40%	40%	40%	40%	40%	40%	40%	40%	40%	40%	40%	40%	40%	40%	40%	40%
KÖİ (PPP)	100%		100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%
Water	100%		100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%
3-Private Sector	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%
Industrial	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%
4- Public economic enterprises	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%
Air	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%
5-Funds (EU+Other grants))	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%

Water	20%	29%	28%	28%	27%	20%	20%	20%	20%	20%	20%	20%	20%	20%	20%	20%	20%	20%
Sewerage+Treatment	49%	38%	37%	37%	36%	49%	49%	49%	49%	49%	49%	49%	49%	49%	49%	49%	49%	49%
Waste	30%	29%	28%	28%	27%	29%	29%	29%	29%	30%	30%	30%	30%	30%	30%	30%	30%	30%
Air	0%	2%	2%	2%	1%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%
Nature	2%	3%	5%	6%	8%	2%	2%	2%	2%	2%	2%	2%	2%	1%	1%	1%	1%	1%

Table : 6.2.6 Distribution of Sectoral Investments according to the Financial Resources

	Toplam	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017	2018	2019	2020	2021	2022	2023
Drinking Water	26.599	1.029	1.132	1.234	1.323	1.364	1.397	1.457	1.496	1.576	1.689	1.786	1.838	1.884	1.936	1.804	1.830	1.826
Central Administration	7.908	306	321	337	354	372	391	410	431	452	475	498	523	550	577	606	636	668
Municipal Resources	9.120	495	534	605	666	539	527	532	516	534	658	687	667	637	600	386	318	218
İller Bank	3.165	165	174	174	180	192	195	204	210	220	154	161	168	176	185	193	202	212
External credit	185	26	22	21	15	13	11	10	9	8	7	7	6	6	6	6	6	6
KÖİ	1.518	0	42	55	56	63	70	77	84	91	98	105	112	119	132	133	140	141
Funds (EU+Other grants)	4.703	37	39	41	52	185	203	223	246	271	298	327	360	396	436	480	528	581
Wastewater	33.598	1.276	1.332	1.431	1.483	1.548	1.596	1.635	1.778	2.066	2.191	2.280	2.341	2.421	2.475	2.421	2.681	2.644
Central Administration	4.191	163	169	176	188	197	207	218	227	239	251	264	277	291	307	322	339	356
Municipal Resources	9.712	660	714	803	849	504	499	469	542	745	699	682	627	580	494	289	385	170
İller Bank	7.210	275	289	290	300	319	325	340	350	367	461	483	505	529	554	580	607	636
External credit	923	129	108	107	77	66	56	49	43	39	35	33	31	30	29	29	30	31
Funds (EU+Other grants)	11.561	50	52	54	69	462	508	559	615	676	744	819	901	991	1.091	1.200	1.320	1.452
Solid waste	17.762	372	531	717	888	890	992	1.042	1.135	1.182	1.182	1.184	1.184	1.276	1.276	1.276	1.276	1.358
Central Administration	2.096	81	85	88	94	99	104	109	114	120	126	132	138	145	153	161	169	178
Municipal Resources	5.364	40	206	387	561	334	409	423	478	478	428	373	312	336	260	178	89	73
İller Bank	2.594	110	116	116	120	128	130	136	140	147	154	161	168	176	185	193	202	212
External credit	739	103	86	86	61	52	45	39	35	31	28	26	25	24	24	24	24	25
Funds (EU+Other grants)	6.971	37	39	41	52	277	305	335	369	406	446	491	540	594	655	720	792	871
Air	2.274	65	69	76	91	111	119	126	132	137	141	149	156	164	173	180	188	197
Central Administration	50	3	3	3	3	3	2	2	4	4	4	4	4	4	4	4	2	2
Public economic enterprises	2.205	59	63	71	85	106	115	123	128	134	137	145	152	160	169	177	186	195
Funds (EU+Other grants)	19	3	3	3	3	3	2	2	0	0	0	0	0	0	0	0	0	0

Nature	491	7	13	19	20	22	26	28	30	30	32	33	37	39	33	35	41	45
Central Administration	132	4	7	9	5	6	7	7	7	7	8	8	9	10	8	9	10	11
Funds (EU+Other grants)	358	4	7	9	15	17	20	21	22	22	24	25	28	29	25	26	31	33
Public Total	80.725	2.750	3.077	3.476	3.805	3.935	4.130	4.288	4.571	4.991	5.234	5.431	5.555	5.784	5.894	5.717	6.016	6.070
Private sector	28.126	206	390	1.079	1.137	1.204	1.282	1.343	1.433	1.525	1.418	2.124	2.217	2.326	2.432	2.547	2.668	2.794
Total	108.851	2.956	3.467	4.556	4.942	5.139	5.412	5.632	6.003	6.516	6.652	7.555	7.772	8.110	8.326	8.264	8.684	8.865

Table : 6.2.7 Percentage Distribution of Sectoral Investments according to the Financial Resources

	Toplam	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017	2018	2019	2020	2021	2022	2023
Drinking Water	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%
Central Administration	30%	30%	28%	27%	27%	27%	28%	28%	29%	29%	28%	28%	28%	29%	30%	34%	35%	37%
Municipal Resources	34%	48%	47%	49%	50%	40%	38%	37%	35%	34%	39%	38%	36%	34%	31%	21%	17%	12%
Iller Bank	12%	16%	15%	14%	14%	14%	14%	14%	14%	14%	9%	9%	9%	9%	10%	11%	11%	12%
External credit	1%	3%	2%	2%	1%	1%	1%	1%	1%	0%	0%	0%	0%	0%	0%	0%	0%	0%
KÖİ	6%	0%	4%	4%	4%	5%	5%	5%	6%	6%	6%	6%	6%	6%	7%	7%	8%	8%
Funds (EU+Other grants)	18%	4%	3%	3%	4%	14%	15%	15%	16%	17%	18%	18%	20%	21%	23%	27%	29%	32%
Wastewater	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%
Central Administration	12%	13%	13%	12%	13%	13%	13%	13%	13%	12%	11%	12%	12%	12%	12%	13%	13%	13%
Municipal Resources	29%	52%	54%	56%	57%	33%	31%	29%	31%	36%	32%	30%	27%	24%	20%	12%	14%	6%
Iller Bank	21%	22%	22%	20%	20%	21%	20%	21%	20%	18%	21%	21%	22%	22%	22%	24%	23%	24%
External credit	3%	10%	8%	7%	5%	4%	4%	3%	2%	2%	2%	1%	1%	1%	1%	1%	1%	1%
Funds (EU+Other grants)	34%	4%	4%	4%	5%	30%	32%	34%	35%	33%	34%	36%	38%	41%	44%	50%	49%	55%
Solid waste	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%
Central Administration	12%	22%	16%	12%	11%	11%	10%	10%	10%	10%	11%	11%	12%	11%	12%	13%	13%	13%
Municipal Resources	30%	11%	39%	54%	63%	38%	41%	41%	42%	40%	36%	32%	26%	26%	20%	14%	7%	5%
Iller Bank	15%	30%	22%	16%	14%	14%	13%	13%	12%	12%	13%	14%	14%	14%	14%	15%	16%	16%
External credit	4%	28%	16%	12%	7%	6%	5%	4%	3%	3%	2%	2%	2%	2%	2%	2%	2%	2%
Funds (EU+Other grants)	39%	10%	7%	6%	6%	31%	31%	32%	32%	34%	38%	42%	46%	47%	51%	56%	62%	64%
Air	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%
Central Administration	2%	4%	4%	4%	3%	3%	2%	1%	3%	3%	3%	3%	2%	2%	2%	2%	1%	1%
Public economic enterprises	97%	91%	92%	93%	94%	95%	97%	97%	97%	97%	97%	98%	98%	98%	98%	98%	99%	99%

Funds (EU+Other grants)	1%	4%	4%	4%	3%	3%	2%	1%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%
Nature	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%
Central Administration	27%	50%	50%	50%	25%	25%	25%	25%	25%	25%	25%	25%	25%	25%	25%	25%	25%	25%
Funds (EU+Other grants)	73%	50%	50%	50%	75%	75%	75%	75%	75%	75%	75%	75%	75%	75%	75%	75%	75%	75%

In the financial analysis of Directive Specific Investment Plans different financial sources can be used. The main finance sources for the environmental investments are shown in Figure 6.2.1.

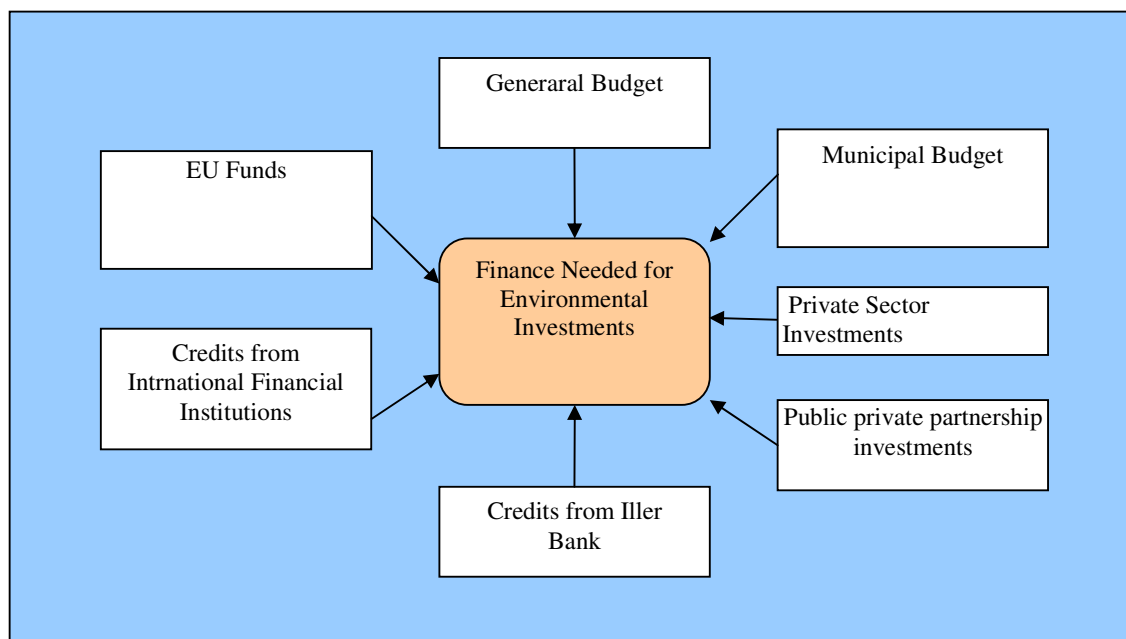


Figure 6.2.1 : Possible Finance Sources For Environmental Investments

Although the first investment cost of environmental infrastructures can be recovered in our country, plants cannot be operated after the construction. For this reason, it is important to take attention to the operation and maintenance costs of the projects.

6.2.1. Central Administrative Budget

The public budget was the main finance source for the environmental investments in the past. The user fees that are collected by the water and sewage utility Directorates consist of both the renewals and the new investment expenditures.

In Table : 6.2.1 it was estimated that the central administration can contribute to the environmental investments between the years 2007 – 2023, in an increasing amount which will be in the vicinity of 15 to 20 percent compared to the past (General Directorate of Government Water Works, Ministry of Environment and Forestry, Special Environmental Prevention Committee, GAP Administration, and similar). In Table 6.2.2 on the other hand, the share of the environmental investments within the 17 year period starting from 2007 is shown as 17 percent, in other words 18.357 million YTL.

6.2.2. Local Administration Budget

As shown on Table 6.2.3, between the years 2007 – 2023 financial contribution of local administrations (Own resources of municipalities, General Directorate of Iller Bank, External Credits, private public partnership etc.) to the environmental investments is estimated as 37.2 billion YTL.

The finance provided from the local administrations were divided into main components as follows; from Municipal Sources 20.2 billion YTL at 18 percent, from the General Directorate of Iller Bank 13.7 billion YTL at 12 percent, from External Credit 1,8 billion YTL at 2 percent and from private public partnership 1,5 billion YTL at 1 percent. Total finance secured for the year 2007-2023 makes up 33 percent of the total investment needed in order to comply with the EU environmental acquis .

Financial Resources of the municipalities derived from General Budget Tax Revenues

6% of General Budget Tax Revenues has been disbursed to municipalities according to their population by Iller Bank.

Municipal Revenue Sources

The main revenue of the municipalities is consumer fees which are collected from water and wastewater services. In addition to this, municipalities can drive revenue from the following activities according to 2464 numbered Municipal Revenues Law.

- Municipal Taxes (Announcement and advertisement tax, entertainment tax, environmental cleaning tax, fire insurance tax, electricity-gas consumption tax and communication tax etc.),
- Fee income (Natural spring water fee, registration and renewal fee, building construction fee, health certificate fee, controlling fee of measurement and weighing devices, market place occupation fee and similar fees),
- Service Revenues (water, waste water, public transportation, cold air depots, slaughterhouse and similar services),
- Levy contributions from the investment expenditures.

'Environmental Cleaning Tax' is the only financial resource of solid waste management services of municipalities. Houses, stores, business offices and factories which are in the boundary of the municipalities and benefit from the solid waste services have to pay environmental cleaning tax.

The tax is 0,1 YTL / m³ of water consumed for houses and it is paid with the water bills. The revenue derived from this tax cannot finance even the collection cost of domestic solid wastes. According to the Landfill Directive, consumers have to pay the recovery cost of the wastes.

The greater municipalities have the highest amount of payments in waste sector. The diversity in billed cost of quantities of waste services will be change in great amount in time because of different affordability rate and migration from rural areas.

The Grants derived from General Budget Resources

The municipalities have been provided with governmental funds for years so as to contribute cash for public expenses, to meet the necessities and to decrease the financial differences.

Municipalities Fund which is derived from share in 26.05.1981 dated and 2464 numbered Municipality revenue law, was a very important resource for the municipalities. However, some of the funds are eliminated within the framework of the economic stability program. After the elimination of funds, governmental support to the municipalities are proceed by transfer payments of general budget.

6.2.3. Bank of Provinces Credits

The municipalities have been used credits from Iller Bank in order to finance infrastructure projects. Urban infrastructure projects which are financed by the Iller Bank are been associated with the Investment Program.

Thus far Iller bank has financed 3,828 drinking water network projects, 73 drinking water treatment plant projects, 220 sewerage network projects, 52 wastewater treatment plant projects and 39 deep sea discharge projects for the local administrations.

Beside providing credits for the municipalities, Bank of Provinces also acts as an agent in the usage of external credits by the municipalities. It is estimated that %12 of environmental investments between 2007-2023 is financed by Bank of Provinces.

6.2.4. External Credits

International financial institutions providing credits for local administrations are as follows: World Bank, European Investment Bank, German Investment and Development Bank-Kreditanstalt für Wiederaufbau (KfW), Japan Bank for International Cooperation (JBIC) and the credits of Spain Government.

International financial institutions are very excited to provide credits for the investments in Turkey in order to comply with the EU environmental acquis. External credits are provided at the market prices.

%2 percent of environmental investments between 2007-2023 is expected to be financed by international financial institutions.

6.2.5. EU Funds

Turkey as a candidate country has been supported by Pre-accession Financial Assistance of EU. The distribution of finance secured by the annual financial agreements with EU is: 250 million Euros in 2004, 300 million Euros in 2005 and 500 million Euros in 2006.

In EU funded investment projects, no grant may exceed 75% of the total eligible costs of the project. The remaining cost is national co-financing which is covered from national budget. The grants allocated from EU funds and national co-finances have been collected in National Fund Center within the Turkish Treasury. The Central Finance and Contracts Unit is the responsible body for the tendering the construction and supervision of works of EU funded projects.

Bank of Provinces may allocate the national co-financing for the EU funded projects of municipalities.

Instrument for pre accession (IPA) program is the new instrument of financial assistance for 2007-2013. The Central Finance and Contracts Unit will take the responsibility of tendering, contracting and payments of environmental investment projects which are financed by IPA program. Because of this, personnel will be transferred from the Ministry of Environment and Forestry to the CFCU. In addition to this a unit which will take these responsibilities will be developed within the ministry in middle and long term.

In Table 6.2.1, 22% of environmental investments between 2007-2013 is expected to finance by EU Funds.

The projects which are supposed to be funded by EU Programs will be selected according to the prioritization criterion given in Annex-3.

6.2.6 Private Sector Involvement

TSI made a research by EUROSTAT PAC methodology in order to determine environmental expenditures of industries in 1997. However, the research has not included all industrial sectors. Also it shows a low expenditure rate because only one year results are not enough to make an estimation.

Turkey gets far behind of European countries in terms of environmental expenditures of industries according to the results of the research. Investment expenditures of industries in other candidate countries are between 0.3% and 0.6% of GNDP.

In Table 6.2.3, Private sector involvement in environmental investments estimated as 28,126 million Euros which is 26% of total investment.

Private sector has an important responsibility in terms of IPPC. Best Available Techniques should be implemented in production of goods in order to reach this objective. It is not only important for integrated pollution prevention but also competition in markets.

6.2.7. Public – Private Cooperation

The increase of private sector involvement in environmental investments; more effective co-operation between public and private sectors and superior usage of alternative finance resources like 'Built-Operate-Transfer' will help public expenditures.

One of the most important environmental problems in our country is the lack of operation of the treatment plants. The insufficient number of technical personnel affects the efficiency of plants negatively.

Private sector involvement in environmental infrastructure projects will be in terms of providing expertise in operation and management and also providing financial resources.

7. IMPLEMENTATION OF THE STRATEGY

The environmental sector is one of the most comprehensive parts of the EU Acquis Communautaire to be harmonized with. In addition to requiring large-scale infrastructure investment for environmental protection throughout the country, the environmental sector also necessitates the harmonization of legislation and the strengthening of institutional structure.

7.1. Legislative Approximation

In the harmonization of legislation, an important progress has been made as a result of the intensive studies performed until the end of 2005. Taking the present harmonization studies in the environmental sector as basis, the total cost of legislation harmonization is estimated as 23 million Euros. However, since the costs of legislation harmonization have not yet been determined in detail for some of the directives, this cost is expected to increase.

When and by which establishments the environmental legislation harmonization is going to be fulfilled aiming at providing Turkey's coherence with EU was determined in National Program of 2003.

Although in general the new environmental arrangements which were seen necessary have been accomplished in harmony with the time schedule stipulated in the National Program of 2003, delays have been encountered in some areas.

Ministry of Environment and Forestation is responsible for the harmonization of national environmental legislation with the EU legislation and for its implementation. The sectoral monitoring tables given in Annex-5 were produced in order to better observe the legislation harmonization on directive basis.

According to the international conventions to which Turkey is or is going to be a party, in order that Turkey fulfills its responsibilities, strengthening capacities of the institutions which are responsible for the environment is substantial.

For the purpose of overcoming the obstacles encountered in the environmental field, the studies of amendment to the Law No. 2872 on Environment have been completed and Law No. 5491 on Amendment of the Law on Environment was issued. With this law, within the framework of the principle "Polluter Pays", it has become an obligation to determine the costs of solid waste and wastewater in a way that will cover investment, operation, maintenance costs, and it has been prohibited to spend the collected money anywhere outside the relevant services. Besides, penal sanctions were updated resulting in a higher deterrent effect. Implementation of Legislation is a significant phase in the EU harmonization process. For effective implementation, satisfactory financial resources need to be provided and action plans aiming at realization of the objectives determined need to be prepared.

7.2. Implementation and Monitoring of the Strategy

Turkish institutional structures regarding monitoring, assessment and reporting need to be strengthened in order that Turkish environmental legislation is harmonized with EU. Formation of the necessary organizational structure in the establishments which have responsibilities for the implementation, monitoring, assessment and reporting of the National Environmental Strategy and the strengthening of the peripheral units regarding technical dimension, equipment, facilities, or the establishment of new units are important.

With the aim of implementation of the National Environmental Strategy "NEAP Directive Committee" is going to be established, comprising of top-level representatives from Prime Ministry, Undersecretariat of SPO (DPT), Undersecretariat of Treasury, Ministry of Foreign Affairs, Ministry of Internal Affairs, Secretariat General for EU Affairs (ABGS), Bank of Provinces Directorate General, Ministry of Health, Ministry of Transportation, Ministry of Agriculture and Rural Affairs, Ministry of Industry and Trade, Ministry of Energy and Natural Resources and the Ministry of Environment and Forestry.

Directive Committee is going to be responsible for the implementation and coordination of NEAP, monitoring its results, and its revision followed by its submission to High Planning Council (YPK) when necessary. Directive Committee is going to assemble at least once in a year and evaluate the developments regarding the implementation of NEAP.

The secretariat services of “NEAP Directive Committee” are going to be provided by the Ministry of Environment and Forestation. In this respect, the Ministry of Environment and Forestation is going to be responsible for providing coordination between the establishments involved, preparing annual action plans aiming at realization of the objectives given in NEAP, monitoring and reporting, and informing NEAP Directive Committee about the results.

Annual action plans are going to be prepared in a way which makes it possible to see when, how and by whom the actions will be realized, regarding the actions aiming at fulfilling the objectives and targets given in NEAP.

8. ANNEXES

ANNEX-1 LEGISLATION ON ENVIRONMENT

A. Laws

- Laws and by-laws on environment will be re-examined and they will be harmonized with the EU rules gradually.
- The Constitution of The Republic Of Turkey (1982).
- The Environment Law Numbered 2872 (The Official Gazette dated 11.8.1983 No. 18132).
- The Law on The Organization and Responsibilities of The Ministry Of Environment and Forestry Numbered 4852. (Adopted on 9.8.1991, The Official Gazette dated 21.8.1991 No. 20967).
- The Law On on Metropolitan Municipalities Numbered 5216 (The Official Gazette dated 23.07.2005 No. 25531).
- The Municipalities Law Numbered 5393 (The Official Gazette dated 24.12.2004 No.25680).
- The Municipality Revenues Law Numbered 2464.
- The Public Works Law Numbered 3194 (1985).
- The Decree Law On on The Organization and Responsibilities Of of The Ministry Of of Public Works and Housing. Numbered 180 (1983).
- The Public Hygiene Law Numbered 1593. (The Official Gazette dated 6.5.1930 No.1489).
- The Law On on The Organization and Responsibilities Of of The Ministry Of of Health and Social Security Numbered 3017 (1936).
- The Law On on The Organization and Responsibilities Of of The Ministry Of of Transport Numbered 3348.
- The Law On on The Organization and Responsibilities Of of The Ministry Of of Industry and Commerce Numbered 3143.
- The Decree Law On on The Organization and Responsibilities Of of The Undersecretary Of of Navigation Numbered 491.
- The Law Prohibiting Hazardous Gases and Their Production and Import Numbered 2399.
- The Tax, Tax Reduction, Finance Law and The law of Motor Vehicle Taxes.
- The Law Of of Sea Ports.
- The City Administration Law Numbered 5442.
- The Turkish Penal Code.
- The Turkish Civil Code.
- The Law on Construction Auditing Numbered. 4708.
- The Traffic Law of Highways.
- The Law Of of Pastures.
- The Law on Water Products Numbered 1380 (The Official Gazette dated 22.03.1971 No. 13799).
- The Law on National Parks Numbered 2873.
- The Law on Land Hunting Numbered 4915.
- The Forests Law Numbered 6831.
- The Law on The Emergency Intervention and Indemnification In Case Of of The Sea Pollution by Petroleum and Other Hazardous Materials Numbered 5312 (Official Gazette dated 11.03.2005 No.25752).
- The Consumer Protection Law Numbered 4077, (revised in 2003).
- The Law Approving The Cartagena Protocol On on Biosafety ,(2003).
- The Law Of of Local Government Associations.
- The Law On on Organized Industry Regions.
- The Law On on Establishing Certain Investments and Services In The Framework of Install-Operate-Transfer Model.
- The Law On on The Organization and Responsibilities of The State Hydraulic Works Numbered 6200 , (1953).
- The Law On on Underground Waters Numbered 167, (1960).
- The YAS Law.

- The Decree Law On on The Organization and Responsibilities Of of The Ministry of Health and Social Assistance Numbered 181.
- The City Administration Law Numbered 5302.
- The Law Of on Misdeeds Numbered 5326 and Dated 30.03.2005.
- The Animal Protection Law Dated 24.06.2004.
- The Law Of on The Protection Of of Cultural and Natural Entities Numbered 2863.
- The Law Of on Right toof Access to Information Numbered 4982 and Dated 09.19.2003.

B. International Agreements and Conventions*

- The Convention on the Transboundary Movement of Hazardous Wastes and Their Disposal, (The Basel Convention, Official Gazette dated 15.05.1994 No.21933).
- The Protocol on The Prevention of the Pollution in The Mediterranean Caused by the Transboundary Movement of Hazardous Wastes and Their Disposal, (Official Gazette dated 06.03.2003).
- Treaty Banning Nuclear Weapon Tests in the Atmosphere, in Outer Space and Under Water, (Moscow 1963, Official Gazette dated 13.5.1965).
- The Agreement On an International Energy Program, (Paris, 1974, Official Gazette dated 4.5.1981).
- The Convention on Long-range Transboundary Air Pollution, (Geneva, 1979, Official Gazette dated 23.3.1983) The The Additional Protocol on Long-Term Financing of the Cooperative Programme for Monitoring and Evaluation of the Long-range Transmission of Air Pollutants in Europe (EMEP, Geneva, 1984, Official Gazette dated 23.7.1985).
- The Convention for the Protection of the Ozone Layer, (Vienna, 1985, Official Gazette dated 22.9.1988).
- The Protocol on Substances That Deplete the Ozone Layer, (Montreal, 1987, Official Gazette dated 20.6.1990).
- The International Maritime Organization Agreement, (IMO, 1948, Official Gazette dated 16.07.1956), amendment in 1993, (Official Gazette dated 01.02.2001)
- The Convention for the Life Safety At Sea, (SOLAS, 1974, Official Gazette dated 25.05.1980)
- The Convention On Load Lines, (LL, 1966, Official Gazette dated 28.06.1968)
- The Convention On Tonnage Measurement Of Ships, (Tonnage, 1969, Official Gazette dated 15.11.1979)
- The Convention on the International Regulations for Preventing Collisions at Sea, (COLREG, 1972, Official Gazette dated 18.11.1984)
- The Convention on Standards of Training, Certification and Watchkeeping for Seafarers, (STCW, 1978, Official Gazette dated 29.09.2003)
- The Convention Of Maritime Search and Rescue, (SAR, 1979, Official Gazette dated 24.03.1986)
- The Convention Of The International Mobile Satellite Organization, (INMARSAT, 1976, 1994, 1998, Official Gazette dated 04.11.1999)
- The Operating Agreement on the International Maritime Satellite Organization, (OA, 1976, Official Gazette dated 04.11.1999)
- The International Convention for the Prevention of Pollution from Ships, (MARPOL, 1973/78 and ANNEXES: ANNEX I-The code of preventing the sea pollution caused by petroleum, ANNEX II-The control of sea pollution caused by poured toxic liquids, ANNEX V-The code of preventing the sea pollution caused by ship wastes, Official Gazette dated 24.06.1990)
- The International Convention on Limitation of Liability for Maritime Claims, (LLMC, 1976, Official Gazette dated 04.06.1980)
- The International Convention for the Suppression of Unlawful Acts against the Safety of Maritime Navigation and The , (SUA, 1988, Official Gazette dated 09.10.1990)
- The Barcelona Convention, (1976, ratified on 22 August 2002)and additional protocols.
- The International Convention on Protection Of The Black Sea Against Pollution and additional protocols, (Bucharest, 1992, Official Gazette dated 6 March 1994).
- International Convention on Oil Pollution Preparedness, Response and Co-operation. (OPRC, 1990, Official Gazette dated 18.09.2003).
- The International Civil Liability Convention on the Oil Pollution Damage, (CLC, 1992, Official Gazette dated 27.07.2001 No.24472).
- The International Convention on the Establishment of an International Fund for Compensation for Oil Pollution Damage, (FUND, 1992, Official Gazette dated 18.07.2001 No.24466).
- United Nations Convention to Combat Desertification, (UNCCD, 1992).
- The Convention for the Protection of Birds, (Paris Agreement, 1950)
- The Convention on Biological Diversity and the Additional Bio-safety Protocol, (Cartagena).
- The Convention on Wetlands of International Importance, (RAMSAR ,the Convention on water birds in particular, Official Gazette dated 17.05.1994 No.21937)

* In addition to these international agreements, conventions and protocols, Turkey has signed several agreements with many countries in the regard of mutual assistance and cooperation.

- The Convention on the Conservation of European Wildlife and Natural Habitats (Bern Convention)
- The Convention on International Trade in Endangered Species of Wild Fauna and Flora, (CITES, Official Gazette dated 20.06.1996 No.22672).
- The European Convention for the Protection Vertebrate Animals Use for Experimental and Other Scientific Purposes
- The European Convention for the Protection of Pet Animals, (Official Gazette dated 15.07.2003 No.4934).
- The European Landscape Convention, (Official Gazette dated 27.03.2001 No.716).

C. By-laws

- By-law of Packaging and Package Packaging Wastes, (Official Gazette dated 30.07.2004 No.25538).
- By-law on Vehicle Examination, Establishing and Operating Vehicle Examination Stations.
- By-law on The Control Of of Battery Wastes and Accumulators, (Official Gazette dated 31.08.2004 No.25569).
- By-law of The Control Of of Oil Wastes, (Official Gazette dated 21.01.2004 No.25353).
- By-law of Hunting, Wild Animals and Stock, Production and Trade Of of Their Products, (Official Gazette dated 16.06.2005 No.25847).
- By-law of Hunting and Wild Animals and Production Facilities and Stations and Rescuing Centers, (Official Gazette dated 30.11.2004 No.25656).
- By-law on the Basic principles Of of Hunting Education and Certificate, (Official Gazette dated 31.12.2004 No.25687).
- By-law on the Basic principles Of of The Establishment, Management and Inspection of Hunting Areas, (Official Gazette dated 16.05.2004 No.25464).
- By-law on the Basic Principles of the Selection, Education, Duties and Jurisdiction of Voluntary Inspectors, (Official Gazette dated 3.07.2004 No.25511).
- By-law of Gasoline and Diesel Quality.
- By-law of Heat Insulation Of of Buildings.
- By-law on the Control Of of Botanical Oil Wastes, (Official Gazette dated 19.04.2005 No.25791).
- By-law on the National Implementation of CITES.
- By-law of Environmental Inspection, (Official Gazette dated 05.01.2002 No.24631/bis).
- By-law of Environmental Health Inspection and Inspectors, (Official Gazette dated 13.9.2002 No.24875).
- By-law of The Environmental Impact Assessment, (Official Gazette dated 16.12.2003 No.25318).
- By-law of The Assessment and Management Of of Environmental Noise, (2002/49/EC).
- By-law on the Protection of Experiment Animals Used For Experiments and Other Scientific Tests and on Production Facilities of Experiment Animals and on the Basic Principles Of of The Establishment, Operation and Inspection Of of Experiment Laboratories, (Official Gazette dated 16.05.2004).
- By-law on the Basic Principles for the Practices of the Ethics Board of Animal Experiments, (Official Gazette dated 06.07.2006 No.26220).
- By-law of The Control Of of the Industrial Air Pollution.
- By-law on The Methods Of The Identification Of of The Offense and Penalty and its Receipts for Ships and Sea Vehicles, (adopted in 1987).
- By-law on the Recover and Control of the Ship Wastes, (Official Gazette dated 26.12.2004 No.25682).
- By-law of the control of excavation soil, construction wastes and wreckages, (Official Gazette dated 18.03.2004 No.25406).
- By-law of the Protection of the Air Quality, (adopted in 1986).
- By-law on the Control of Air Pollution Originated from Heat.
- By-law on the Economizing of the Fuel Consumption of Heating and Steam Plants and Reducing Air Pollution, (Official Gazette dated 3.11.1977).
- By-law on the Quality of Surface Waters providing Drinkable Water, (Official Gazette dated 20.11.2005 No.25999).
- Ratification Type By-law on Certain Spare Parts and Properties of Two or Three Wheeled Motor Vehicles, (97/24/AT).
- About By-law of on the bases principals of realizing preparation and changing amendment of physical development plans;
- By-law on the Quality of Water for Humanitarian Needs, (Official Gazette dated 17.02.2005 No.25730).
- By-law of Establishment and Operation Licenses of a Workplace, (Official Gazette dated 10.08.2005 No.25902).
- By-law on the Principals of Practices of Abundant Laboratories and Certification of Testing Laboratories, (adopted in 2002).
- By-law on the Inspection of the Abundant Laboratories and the Control of Operations, (Official Gazette dated 25.06.2002 No.24796).
- By-law of the Control of Solid Wastes, (Official Gazette dated 14.03.1991 No.20814).

- By-law on the Basic Principles of the Duties and Practices of Central Hunting Commission and Hunting Commission of Provinces.
- By-law on Heat Insulation at Buildings, Economization of Fuel and Reducing Air Pollution, (Official Gazette dated 18.11.1984).
- Ratification Type By-law on Emissions of External Noise and Exhaust Systems of Motor Vehicles, (870/157).
- Ratification Type By-law on Fuel Consumption and Carbon Monoxide Emission of Motor Vehicles.
- By-law of Organized Industry Areas, (Official Gazette dated 28.06.1997 No.23033).
- By-law of the Education of Heating System Operators, the Operation, Control and Maintenance of Heating Systems at Private or Government Buildings.
- By-law of the Monitor and Inspection of the Market, (Official Gazette dated 11.01.2002 No.24643).
- By-law on the Control of Water Pollution, (Official Gazette dated 31.12.2004 No.25687).
- By-law of Water Products, (Official Gazette dated 10.03.1995 No.22223).
- By-law of the Protection of Watery Lands.
- By-law of the Protection of the Waters against Agricultural Nitrate Pollution, (Official Gazette dated 18.02.2004 No.25337).
- By-law of the Control of Hazardous Wastes, (Official Gazette dated 14.03.2005 No.25755).
- By-law of Dangerous Chemicals, (11.07.1993 - 21634 Official Gazette).
- By-law of the Control of the Pollution in Water and the Water Environment caused by Hazardous Substances., (26.11.2005 dated and 26005 numbered Off. News).
- By-law of the control of medical wastes, (Official Gazette dated 22.07.2005 No.25883).
- By-law of Medical Wastes, (Official Gazette dated 22.07.2005 No.25883).
- By-law of Vibration.
- By-law of the Control of the Soil Pollution, (Official Gazette dated 31.05.2005 No.25831).
- By-law of the Control of Exhaust Gas Emissions by Motor Vehicles.
- By-law of the Protection of Wild Life and the Development of Wild Life Sites, (Official Gazette dated 08.11.2004 No.25637).
- By-law on the Basic Principles of the Protection of Wild Animals and Their Life Sites and Contention with the Harmful Animals, (Official Gazette dated 24.10.2005 No.25976).
- By-law on Hunting of Local or Foreign Hunters in the Extent of Hunting Tourism, (Official Gazette dated 08.01.2005 No.25694).
- By-law of the Basic Principles of the Certification of Pesticide and Similar Substances Used for Agricultural Contention, (Official Gazette dated 17.02.1999 No.23614).
- By-law of Purification of Urban Waste Water, (Official Gazette dated 08.01.2006 No.26057).
- By-law on the Quality of Bathing Water, (Official Gazette dated 09.01.2006 No.26048).
- By-law on the Election, Education, Duties and Responsibilities of Volunteer Hunting Inspectors, (Official Gazette dated 03.07.2004 No.25511).
- By-law on Clothing of Hunt Protection Officers, (Official Gazette dated 06.08.2004 No.25545).
- By-law of the Collection, Preservation and Utilization of Genetic Plant Variety, (Official Gazette/1992 No.21316).
- By-law of the Removal, Production and Foreign Trade of Natural Flower Bulbs, (Official Gazette/1995 No.22371).
- By-law of the Practices in National Parks, (Official Gazette dated 1986 No.19309).
- By-law on the Implementation of the Right to Information Law numbered 2004/7189.

ANNEX-2. INSTITUTIONS AND ORGANIZATIONS ABOUT RESPONSIBLE FOR THE ENVIRONMENT

- 1. The Prime Ministry:** It is directly related to harmonization process and /or the protection of the environment.
- 2. The State Planning Organization (DPTSP0):** It is connected to The Prime Ministry and it prepares five year development plans and yearly investment plans.. It also prepares sectoral plans by giving special importance to macro-environment policies. It is responsible for the preparation and the coordination of application of yearly investment plans for local administrations. Also public sector investments including the ones necessitates financing or external credit requires the approval of DPT
- 3. The Ministry of Environment and Forestry (ÇOBMoEF):** It is established for providing a general coordination for development and application of the environment policies in Turkey, due to The Law Of Establishment and Organization Of The Ministry of Environment and Forestry numbered 4856, with the aim of providing environment services including conformity to EU environment rules. The main duty of The Ministry of Environment and Forestry is generally protecting the environment, determining essentials on preventing and decreasing pollution, arranging and applying the necessary by-laws .
- 4. The Undersecretariat Of of Treasury:** It has an important function in financing of the projects about environment, as it has access to external resources and credits.
- 5. The Undersecretariat Of of Maritime Affairs** It is responsible for assignment and development of maritime system and services due to the interests and needs of the country. It is the duty of The Undersecretary Of of Maritime Affairs to take all precautions against the pollution and harms made to the sea, observe and inspect these precautions and to cooperate with other institutions and organizations on this issue.
- 6. Secretariat General for EU Affairs (ABGSEUSG):** It is responsible for the coordination between different governmental units about the harmonization activities within the 2003 National Program for the Adoption of the Acquis during the accession process of Turkey to the European Union
- 7. Turkish Statistical Institute (TÜİK):** Collects, operates and analyses data and information including environmental data.
- 8. The Ministry Of of Foreign Affairs,** It is responsible for the performing communication and negotiation with foreign countries and international organizations and their representatives due to the Law of the Enforcement and the Cooperation of International Relations numbered 1173. The Ministry Of Foreign Affairs has responsibilities and duties on determination of external politics about environmental and over frontier waters, together with other ministries, institutions or organizations and the defense of regional and international organizations.
- 9. The Ministry Of of Interior:** It has responsibilities on local management by city administration. The Governors are assigned by The Committee Of Ministers. Due to the 9th article of the City Administration Law numbered 5442 the governor is the representative of the government and the state in cities and also the representative of each minister and the connection of their administrative and political performance. Also The Ministry Of Interior Affairs and governors have guardianship authority on local management and the head and performance point of The City Management as the governor.
- 10. The Ministry Of of Public Works and Settlement (BİB)::** For covering the infrastructure needs of the country, it is responsible for constructing public constructions, highways, railways, harbors, coast constructions, airports, pipe lines for oil and natural gas, providing maintenance for all these and carrying out the services of disaster, construction materials and earthquake researches in the most effective, proper and fastest way.

11. **General Directorate of Bank of Provinces:** It is one of the effective institutions in providing infrastructure investments for the municipalities.. It also provides all financial needs and if required investment services for drinking water, sewer system, refinery.
12. **The Ministry Of of Health:** It is responsible for taking and making others take all precautions about environment health, preventing unhygienic institutions from harming the public health and making the necessary audits due to the Public Hygiene Law numbered 1593 and Legal Decision numbered 181. The license and permission procedures of unhygienic institutions are carried out due to the By-law Regarding the Establishment of Employment Places and Working Licenses .
13. **The Ministry Of of Transport:** It is responsible for the installation and development of transport and communication systems and services due to the needs of the country.
14. **The Ministry Of of Agriculture and Rural Affairs:** It is the responsible institution for water quality, observation, protection and applications at all seas and interior waters as these areas are announced as the production areas of water products due to the Water Products Law numbered 1380 and By-law. On the other side, it is responsible for the usage of land and the development of water resources on rural areas. The Ministry observes the pollution on the surface water caused by the nitrate and insecticides leakages in agricultural areas. The Ministry also has responsibilities concerning fisheries, water products and control of insecticides and Genetically Modified Organisms.
15. **The Ministry Of of Labor and Social Securityafety (ÇSGB):** It is responsible for operating and auditing the studies concerning air, noise and industrial accidents in interior places caused by the production of industrial plants and that threat workers' health.
16. **The Ministry Of of Industry and Commerce (STB) Trade:** It is responsible for making and managing industry policies for Turkey according to economical and technical conditions, supporting and auditing all activities concerning the establishment of big or small sized enterprises, preparation of standards for industrial products and publishing the prepared standards and auditing the quality of industrial goods.
17. **The Ministry Of of Energy and Natural Resources (ETKB):** Is responsible for the determination of the main targets containing energy policies, the environmental usage of sustainable energy, productivity of energy and renewable energy.
18. **The General Directorate Of of State Hydraulic Works (DSİ):** As the responsible institution for underground and surface waters' assignment and the management of water resources it develops projects on providing water for drinking and usage, irrigation and industrial usage and energy production. The institution also has defined duties about water quality observation due to its establishment law.
19. **Electricity Production Incorporate: (EÜAŞ),** It is responsible for the operation, maintenance of the thermal and hydraulic power plants that belong to the public and install new plants if necessary. .
20. **The Ministry Of of Culture and Tourism,:** It has important responsibilities about determining touristic regions and applications of drinking water, city waste waters, and solid waste elimination plants in these areas.
21. **Private Management Of of Environmental Protection:** It is responsible for increasing environmental consciousness , providing economical development of the regions in the framework of sustainability and protecting natural beauties, historical and cultural sources, biological diversity, all alive and other creatures in the defined Special Environmental Protection Regions.
22. **The Institute Of of Turkish Standards (TSE)::** It is responsible for creating specific technical standards embracing wastes, air quality, water quality, protection of forests, soil and erosion control.
23. **Local Administrations:** The most important duty on the protection of environment quality is given to the local administrations. The Municipalities Law numbered 5393 and the 5216 numbered Metropolitan Municipalities Law charges the municipalities to apply the above mentioned laws and by-laws inside municipality borders and to take necessary precautions for people to live in a healthy environment.

- 24. Sectoral Unions :** The unions like The Union Of Association and Stock Exchanges, The Associations Of Industry, The Associations Of Commerce, or sectoral unions like The Union Of Cement Producers, The Union Of Lime Producers, are responsible for informing, application and inspection of applications about the laws.
- 25. The Research Groups:** (TÜBİTAK) The Scientific and Technological Research Council of Turkey, TTGV, The Institute Of of High Technology, the institutes and research centers of universities and other research institutes are responsible for giving consultancy services by following the technologies and developments on environment pollution and its control.
- 26. Non Governmental Organizations on Environment:** These are non profit organizations formed by civil initiative and financed by the public. TEMA, ÇEVKO, Deniz Temiz (TURMEPA), DHKD, BÇM are examples of these institutions.

ANNEX-3. THE SELECTION CRITERIA FOR PROJECTS SUPPORTED BY EU RESOURCES

The 90% of the investments about protection of environment are formed by city infrastructure investments like water, waste waters, solid waste. The of implementation of city infrastructures is under the responsibility of municipalities due to the 5393 numbered law. But financially weak municipalities are insufficient for covering city infrastructures. That is why the donation sources of EU are necessary for environmental infrastructure projects. But the donation sources offered can not meet the needed sources. For the scope of using the EU sources for city infrastructure projects in a more effective way, the projects will be chosen due to the criterions below:

1. Project priority (drinking water, waste water, solid wastes and other projects).
 - The resource allocation of the EU funds for city infrastructure projects will be done according to the criterions criteria below. The priority in the utilization of total source will be given respectively to waste water projects, drinking water projects, solid waste projects and air quality projects.
2. The size of population (The municipalities with higher population will be given priority).

The municipalities with higher population will have priority as financing the municipalities which are under-developed and have low income by EU funds

3. Financial Situation Of of Municipalities: (the municipalities with bad financial conditions have priority). As the funds from EU are as donations, the financial situation of the citizens who will benefit from the project, will be considered. For the projects carried out between financially weak municipalities, the municipalities which can cover national addition share and operation and maintenance costs will be preferred so the continuation of the project will be provided. So it will be necessary to determine municipalities strong enough to operate the installments between less developed municipalities.

4. Environmental Priorities.

The ones who keep the below mentioned environmental factors for city infrastructure projects sourced by EU funds, will be given priority. :

- Infrastructure installments effecting the public health.
- Infrastructure installments towards the protection of sensitive regions.
- Infrastructure installments for the protection of natural and cultural resources.
- Other infrastructure investments.

ANNEX -4. USE OF FEASIBLE MODEL FOR WATER, WASTE WATER AND SOLID WASTE

The twenty high cost directives are analyzed and their application cost for Turkey is estimated. Basically two methods are used for the estimations:

The analyses are made by FEASIBLE method which is a software tool financed by Environment Protection Organization Of Denmark, developed by OECD in order to support the preparation of environmental finance strategies of providing drinking water, water refinery for city waste water, sewer system and city solid waste management .

This tool helps to make specific expenditures in specific periods of time (years) and by comparing it with the existing financing.

The main property of FEASIBLE model is that it uses general expenditure functions.. These expenditure functions help to estimate the expenditure needs for various scenarios about drinking water, waste water and solid waste services..

The model contains the international prices about investments and operation elements about drinking water, waste water and solid wastes but the model is arranged according to local price conditions and shows expenditure functions and costs that reflect the existing situation in Turkey.

The existing Turkish prices are considered at FEASIBLE model for calculating total costs of the application of the above mentioned directives inside solid waste and water sectors. The main cost resources in water, waste water and solid waste sectors, are the principal costs of quality and comparative criteria of recent tenders. The statistical information is provided from General Directorate of Provinces and private sector.

FEASIBLE model also calculates the possible financing gap between the necessary capital expenditure and existing financing, in respect of the data entries of financing.

Beside all the air management, industrial pollution control directives, some of the directives of water and hazardous waste sector are also evaluated according to the unit price approach and surveys.

The data about the application costs of industrial directives are provided by the examination of industrial institutions.

Special surveys are prepared for the industries in the embrace of Annex 1 and Annex 2 of IPPC directive. The investigations are based upon the comparisons of technical status between developed industries of the same sector inside EU and the industries in Turkey. It is provided for companies to compare their own technological condition with their rivals' in EU. This kind of comparison is the base of cost evaluation.

The investigation questions are about the total production capacity of the industrial sector, the technological level of industries, technologies of production and refinery, the comparative development levels of the existing companies with the EU companies and costs to attain the EU level and/or the costs for the application of the provisions of EU directive. It must be considered that the operation and maintenance costs are not evaluated for all directives. Mostly, some evaluations comprising of various possible technologies about industries, do not contain operation cost evaluation.

ANNEX- 5. SECTORAL MONITORING TABLE

Annex 5.Table.1 WATER SECTOR MONITORING TABLE

NATIONAL PROGRAM APPLICATION FOR 2003					APPLICATION OF NATIONAL ENVIRONMENTAL STRATEGY		
No	Name of The EU Legislation	Legislative Harmonization Approach	The Organization Responsible For Harmonization	Due Date	Condition of Legislative Harmonization and Application Area	Investment Oriented Activities (Precautions)	Investment Cost (2007-2023) Million Euros
1	Directive on Urban Waste Water Treatment (91/271/EEC)	Revision of By-law on Water Pollution Control	The Ministry Of Environment and Forestry	2005	<p>“By-law on Urban waste water treatment” (08.01.2006)</p> <p>Directive is applied to all received areas where population is more than 2000</p>	<p>Sewage systems and treatment plants will be constructed and the existing ones will be rehabilitated.</p> <p>A main plan for environmental infrastructure will be prepared to determine the needs of infrastructure.</p>	18.083
2	Directive on the protection of waters against pollution caused by nitrates from agricultural sources (91/676/EEC)	New Legislation	The Ministry Of Environment and Forestry, The Ministry of Agriculture and Rural Affairs	2005	<p>“By-law on protection of waters against nitrate pollution caused by agricultural sources” (18.02.2004)</p> <p>“Environmentally sensitive areas” defined by By-law.</p> <p>Eutrophic Areas or areas having a tendency to become eutrophic</p>	<p>New fertilizer storage will be constructed.</p> <p>Equipments will be provided for transporting and spreading of fertilizer .</p>	270

NATIONAL PROGRAM APPLICATION FOR 2003					APPLICATION OF NATIONAL ENVIRONMENTAL STRATEGY		
No	Name of The EU Legislation	Legislative Harmonization Approach	The Organization Responsible For Harmonization	Due Date	Condition of Legislative Harmonization and Application Area	Investment Oriented Activities (Precautions)	Investment Cost (2007-2023) Million Euros
3	Water Framework Directive (2000/60/ECC)	Formulation of a study about legislative compliance in accordance with MATRA Project outputs.	The Ministry Of Environment and Forestry, The General Directorate of State Hydraulic Works , The Ministry of Agriculture and Rural Affairs	-	Studies about Legislation are going on. (demand for extention)		1.550
4	The Drinking Water Directive (98/83/EC), concerns the quality of water intended for human consumption	Revision of By-law on bottled water, drinking and utility water.	The Ministry of Health	2004	“By-law on the waters intended for human consumption ” (17.02. 2005)	Water pipelines will be overhauled to supply sufficient amount of healthy water, if necessary, they will be restored and new drinking water pipelines will be laid. treatmant plants will be constructed for waters supplied from resources which don't comply with drinking water quality criteria	***

NATIONAL PROGRAM APPLICATION FOR 2003					APPLICATION OF NATIONAL ENVIRONMENTAL STRATEGY		
No	Name of The EU Legislation	Legislative Harmonization Approach	The Organization Responsible For Harmonization	Due Date	Condition of Legislative Harmonization and Application Area	Investment Oriented Activities (Precautions)	Investment Cost (2007-2023) Million Euros
5	Directive on the quality required of surface water intended for the abstraction of drinking water in the Member States 75/440/EEC	Revision of By-law on Water Pollution Control	The Ministry of Environment and Forestry, The General Directorate of State Hydraulic Works	2005	“By-law on the quality of surface water used as drinking water or intended for the abstraction of drinking water ” (20.11. 2005) All surface waters used or intended for drinking water.	Quality standards will be monitored. Determination of categories and conformity of existing treatment plants. Existing treatment plants will be overhauled and new treatment plants will be constructed.	12.743***
6	Directive on the methods of measurement; frequencies of sampling and analysis of surface water intended for the abstraction of drinking water in the Member States 79/859/EEC	By-law on Water Pollution Control - Revision of the notification on sampling and analysis methods.	The Ministry of Environment and Forestry	2005	“By-law on the quality of surface water used as drinking water or intended for the abstraction of drinking water ” (20.11. 2005) All surface waters used or intended for drinking water.	This directive is unified with the directive on the required quality of surface water intended for the abstraction of drinking water in the Member States	
7	Council Directive of on pollution caused by certain dangerous substances discharged into the aquatic	Revision of By-laws on Water Pollution Control and Fisheries	The Ministry of Environment and Forestry, The Ministry	2005	“By-law on Control of Pollution by Dangerous Substances in Water and its Environment	Institutions which construct advanced treatment systems will be encouraged. Usage of clean product technology. Need for additional treatment plant.	1.300

NATIONAL PROGRAM APPLICATION FOR 2003					APPLICATION OF NATIONAL ENVIRONMENTAL STRATEGY		
No	Name of The EU Legislation	Legislative Harmonization Approach	The Organization Responsible For Harmonization	Due Date	Condition of Legislative Harmonization and Application Area	Investment Oriented Activities (Precautions)	Investment Cost (2007-2023) Million Euros
	environment of the Community and daughter directives 76/464/EEC		Of Agriculture and Rural Affairs		” (26.11.2005)		
8	Council Directive concerning the quality of bathing water 76/160 EEC	Revision of By-laws on Water Pollution Control (The Ministry of Environment and Forestry) Notification on Bathing Water Quality (The Ministry Of Health)	The Ministry of Environment and Forestry, The Ministry Of Health	2005	By-law on Bathing Water Quality (09.01.2006) Waters, which will be used for bathing and recreational purposes	Appropriate treatment plants, wastewater discharge and disinfection systems will be constructed to enable discharges into bathing waters in a manner not to effect these water bodies negatively. The capacity of laboratories will be improved for monitoring and reporting waters used for bathing and recreational purposes	23
9	Council Directive on the protection the environment, and particular of the soil, when sewage sludge is used in agriculture 86/278/EEC	Revision Of By-law on Soil Pollution Control.	The Ministry of Environment and Forestry	2004	By-law on Soil Pollution Control (31.05.2005)	Quantity of sludge to be applied per unit area will be determined by monitoring the analyses of treatment sludge and the soil which is applied.	The costs are involved in The Council Directive on the urban waste water treatment

NATIONAL PROGRAM APPLICATION FOR 2003					APPLICATION OF NATIONAL ENVIRONMENTAL STRATEGY		
No	Name of The EU Legislation	Legislative Harmonization Approach	The Organization Responsible For Harmonization	Due Date	Condition of Legislative Harmonization and Application Area	Investment Oriented Activities (Precautions)	Investment Cost (2007-2023) Million Euros
10	Council Directive on the protection of groundwater against pollution caused by certain dangerous substances 80/68/EEC	A new by-law preparation is envisaged for compliance	The Ministry of Environment and Forestry, General Directorate of State Hydraulic Works(DSI)	2005	A draft of “By-law on the protection of the groundwaters against pollution caused by dangerous substances” is prepared.		
11	Council Directive on the quality of fresh waters needing protection or improvement in order to support fish life 78/659/EEC	Revision Of The Existing Legislation	The Ministry Of Agriculture and Rural Affairs	2005	Studies about compliance of legislation are being continued by The Ministry Of Agriculture and Rural Affairs.		
12	Council Directive on the quality required of shellfish waters 79/923/EEC	Revision Of The Existing Legislation	The Ministry Of Agriculture and Rural Affairs.	2005	Studies about compliance of legislation are being continued by The Ministry Of Agriculture and Rural Affairs.		
TOTAL COST							33.969
* On the table, in the part of the Water Frame Directive, though the subjects of “ prevention of boron pollution at surface waters caused by discharge of geothermal							

NATIONAL PROGRAM APPLICATION FOR 2003					APPLICATION OF NATIONAL ENVIRONMENTAL STRATEGY		
No	Name of The EU Legislation	Legislative Harmonization Approach	The Organization Responsible For Harmonization	Due Date	Condition of Legislative Harmonization and Application Area	Investment Oriented Activities (Precautions)	Investment Cost (2007-2023) Million Euros
<p>waters and prevention of pollution caused by drainage waters used for irrigation”, require high investment, they couldn’t be harmonized with other investment requiring directives. That’s why these two subjects are interpreted as investment cost for the application of Water Framework Directive, contextually, Directive Specific Implementation Plan is prepared on these subjects. The cost mentioned here belongs to these two subjects. Additionally, studies on preparation of a water law meeting the requirements of water frame directives, are continued.</p> <p>** According to 2003 National Program, Council Directive on the quality of fresh waters needing protection or improvement in order to support fish life and Council Directive on the quality required of shellfish waters are executed under responsibility of The Ministry Of Agriculture and Rural Affairs and they are not included in this embrace.</p> <p>*** Indicated 12.743 EUROS in the table, predicate indicative total cost necessary for implementing Council Directive on the quality of water intended for human consumption and Council Directive on concerning the quality required of surface water intended for the abstraction of drinking water in the Member States</p>							

Annex 5.Table.2 WASTE SECTOR MONITORING TABLE

NATIONAL PROGRAM APPLICATION FOR 2003					APPLICATION OF NATIONAL ENVIRONMENTAL STRATEGY		
No	Name of The EU Legislation	Legislative Harmonization Approach	The Organization Responsible For Harmonization	Due Date	Condition of Legislative Harmonization and Application Area	Investment Oriented Activities (Precautions)	Investment Cost (2007-2023) Million Euros
1	Waste Framework Directive 75/442/EEC (amended version)	New By-law	The Ministry of Environment and Forestry	2005	It is partially compatibled with By-law on Hazardous Waste Control revised on 14.03.2005. But the studies are going on for complete harmonization.	Preparation of Waste Management Plan	
2	European Waste Catalogue 2000/532	New By-law	The Ministry of Environment and Forestry	2005			
3	Council Directive on the Landfill of Waste 99/31/EC	New By-law	The Ministry of Environment and Forestry	2005	By-law on Hazardous Waste Control is compatible with By-law on Solid Waste Control by 50 . The draft of By-law is already prepared and it is being discussed by the Study Group.	<ul style="list-style-type: none"> - Preparing and implementing a national strategy reducing the amount of biodegradable municipal waste going to landfill. - Preparation of Landfill Site Operation Plan - Establishment of landfill sites, closure or rehabilitation of old landfills and foundry areas. - Establishment of dual collection system and biodegradable waste (compost) plants . 	7.574

NATIONAL PROGRAM APPLICATION FOR 2003					APPLICATION OF NATIONAL ENVIRONMENTAL STRATEGY		
No	Name of The EU Legislation	Legislative Harmonization Approach	The Organization Responsible For Harmonization	Due Date	Condition of Legislative Harmonization and Application Area	Investment Oriented Activities (Precautions)	Investment Cost (2007-2023) Million Euros
4	Council Directive on Hazardous Waste 91/689/EEC	Revision of By-law on Hazardous Waste Control	The Ministry of Environment and Forestry	2005	Revised on 14.03.2005	-Preparing Hazardous Waste Management Plan - Establishment Of Transfer Stations	74
5	Waste Shipments Regulation 259/93/EEC	New By-law	The Ministry of Environment and Forestry	2005	The draft of By-law is being prepared.		
6	Packaging and Packaging Waste Directive 94/62/EC	New By-law	The Ministry of Environment and Forestry	2004	By-law on Packaging and Packaging Waste Control (30.07.2004)	-Will be analysed in scope of Waste Management Plan -Collection of bring banks, civil amenity centres and recycables with containers; establishment of dual collecting, recovery and incineration plants.	655**
7	Council Directive on the incineration of waste 2000/76/EC	New By-law	The Ministry of Environment and Forestry	2005	The draft of By-law is being prepared	- Establishment of incineration plants for hazardous and domestic solid wastes	1257
8	Council Directive on the Disposal of Waste Oils 75/439/EEC	New By-law	The Ministry of Environment and Forestry	2004	By-law on Waste Oils Control (21.01.2004)		

NATIONAL PROGRAM APPLICATION FOR 2003					APPLICATION OF NATIONAL ENVIRONMENTAL STRATEGY		
No	Name of The EU Legislation	Legislative Harmonization Approach	The Organization Responsible For Harmonization	Due Date	Condition of Legislative Harmonization and Application Area	Investment Oriented Activities (Precautions)	Investment Cost (2007-2023) Million Euros
9	Council Directive on the disposal of polychlorinated biphenyls and polychlorinated terphenyls (PCB/PCT) 96/59/EC	New By-law	The Ministry of Environment and Forestry	2005	The draft of By-law is being prepared		
10	Council Directive on batteries and accumulators containing certain dangerous substances 91/157/EEC, Directive on the marking of Batteries 93/86/EC	New By-law	The Ministry of Environment and Forestry	2004	By-law on Control of Used Batteries and Accumulators (31.08.2004)		
11	Council Directive on end-of life vehicles 2000/53/EC	New By-law	The Ministry of Environment and Forestry and The Ministry Of Industry and Trade	2005	The draft of By-law is being prepared		

NATIONAL PROGRAM APPLICATION FOR 2003					APPLICATION OF NATIONAL ENVIRONMENTAL STRATEGY		
No	Name of The EU Legislation	Legislative Harmonization Approach	The Organization Responsible For Harmonization	Due Date	Condition of Legislative Harmonization and Application Area	Investment Oriented Activities (Precautions)	Investment Cost (2007-2023) Million Euros
TOTAL COST							9.560

Despite not being in The 2003 National Program, By-laws on Excavation Soil, Construction and Demolition Waste Control were published and came into force in 2004 with regards to implementation of The Directive on the Landfill of Waste. Despite not being in The 2003 National Program, technical studies regarding the preparation of a draft By-law on Electrical and Electronic Equipment in line with the Directives on “the Restriction of the Use of Certain Hazardous Substances in Electrical and Electronic Equipment (RoHS)” and “the Waste Electrical and Electronic Equipment” are in progress. ** The cost of vehicles for collecting and transporting packaging wastes, is not included in cost analysis.

Annex 5.Table.3 AIR SECTOR MONITORING TABLE

NATIONAL PROGRAM APPLICATION FOR 2003					APPLICATION OF NATIONAL ENVIRONMENTAL STRATEGY		
No	Name of The EU Legislation	Legislative Harmonization Approach	The Organization Responsible For Harmonization	Due Date	Condition of Legislative Harmonization and Application Area	Investment Oriented Activities (Precautions)	Investment Cost (2007-2023) Million Euros
1	Council Directive on Ambient Air Quality Assessment and Management 96/62/EC	New By-law	The Ministry of Environment and Forestry	2005	The draft By-law on Air Quality Control has been prepared under the Twinning Project and sent to the institutions and organizations for evaluation. The study on evaluation of the received opinions is in progress. Coming to an agreement with The Ministry Of Energy and Natural Resources upon implementation to reduce pollution sourced from large combustion plants which have major effects on air quality is highly crucial.	<ul style="list-style-type: none"> - Establishment and maintenance of air quality monitoring stations network and common quality assurance hardware - Preliminary Assessment of Air Quality **Establishment of regional calibration labs - Establishment of National Calibration Center - Establishment of National Data Centre - Establishment of Monitoring Network Management Centre -Preparation of emission inventory. - Drawing up of clean air plans. - Drawing up of action plans -Implementation of plans and programs for improving air quality. - public awareness - Reporting ** 	Establishment of monitoring stations network:11 million € Total maintenance and operational costs for all stations: 1.5 million € Total cost of preliminary assessment: 6 million € (air quality assessment, institutional costs) Maintenance and operational costs of measurement stations, will continue after establishment of monitoring system (2012), additional 1.5 million € for each year (11*1.5million) **Cost accounts are not completed, so these activities need additional costs. **

NATIONAL PROGRAM APPLICATION FOR 2003					APPLICATION OF NATIONAL ENVIRONMENTAL STRATEGY		
No	Name of The EU Legislation	Legislative Harmonization Approach	The Organization Responsible For Harmonization	Due Date	Condition of Legislative Harmonization and Application Area	Investment Oriented Activities (Precautions)	Investment Cost (2007-2023) Million Euros
						(**This explanation is valid for daughter directives, too..)	
2	Council Directive relating to limit values for sulfur dioxide, nitrogen dioxide and oxides of nitrogen, particulate and lead in ambient air Quality 99/30EC	New By-law	The Ministry of Environment and Forestry	2005	Explanation 1 about the condition of legislative compliance	Explanation 1 about investment oriented activities	Explanation 1 about investment cost

NATIONAL PROGRAM APPLICATION FOR 2003					APPLICATION OF NATIONAL ENVIRONMENTAL STRATEGY		
No	Name of The EU Legislation	Legislative Harmonization Approach	The Organization Responsible For Harmonization	Due Date	Condition of Legislative Harmonization and Application Area	Investment Oriented Activities (Precautions)	Investment Cost (2007-2023) Million Euros
	(2001/744/EC)						
3	Council Directive relating to ozone in ambient air 2002/3/EC	New By-law	The Ministry of Environment and Forestry	2005	Explanation 1 about the condition of legislative compliance	Explanation 1 about investment oriented activities	Explanation 1 about investment cost
4	Council Directive relating to limit values for carbon monoxide and benzene in ambient air Quality 2000/69/EC	New By-law	The Ministry of Environment and Forestry	2005	Explanation 1 about the condition of legislative compliance	Explanation 1 about investment oriented activities	Explanation 1 about investment cost
5	Council Directive relating to arsenic, cadmium, mercury nickel and polycyclical aromatic hydrocarbons in ambient air Quality 2004/107/EC	New By-law	The Ministry of Environment and Forestry		Explanation 1 about the condition of legislative compliance (The Directive No: 5 has been just published and it is not included in the list, but it is studied under the Twinning Project and implemented in the framework of draft By-law.)	Explanation 1 about investment oriented activities	
6	Council Drective on national emission	New By-law	The Ministry of		Studies are not in progress yet		This directive is related with all directives under

NATIONAL PROGRAM APPLICATION FOR 2003					APPLICATION OF NATIONAL ENVIRONMENTAL STRATEGY		
No	Name of The EU Legislation	Legislative Harmonization Approach	The Organization Responsible For Harmonization	Due Date	Condition of Legislative Harmonization and Application Area	Investment Oriented Activities (Precautions)	Investment Cost (2007-2023) Million Euros
	ceilings for certain atmospheric pollutants (2001/81/EC)		Environment and Forestry				the heading of air quality and industry. Cost accounts are not completed, yet.
7	Directive on the control of volatile organic compound (VOC) emissions resulting from the storage of petrol and its distribution from terminals to service stations (94/63/EC) is amended by Regulation 1882/2003 EC	New By-law	The Ministry of Environment and Forestry		Studies are not in progress yet		
8	Council Directive relating to reduction in the sulphur content of certain liquid fuels (1999/32/EC) amended by Regulation 1882/2003/EC and	Administrative arrangements	The Ministry of Environment and Forestry		Studies are not in progress yet		Providing the limiting values of fuels within the scope of the directive depends on investments for improving fuel quality which will be made by Turkish Oil Refineries Inc. (TÜPRAŞ). The necessary legal

NATIONAL PROGRAM APPLICATION FOR 2003					APPLICATION OF NATIONAL ENVIRONMENTAL STRATEGY		
No	Name of The EU Legislation	Legislative Harmonization Approach	The Organization Responsible For Harmonization	Due Date	Condition of Legislative Harmonization and Application Area	Investment Oriented Activities (Precautions)	Investment Cost (2007-2023) Million Euros
	Directive 2005/33/EC						arrangements will be handled parallel to the improvements on investment and/or the application dates will be determined due to investments.
9	Council Directive relating to the Quality of Petrol and diesel fuels 98/70/EC is amended by Directives 2000/71/EC, 2003/17/EC and Regulation 1882/2003 EC		The Ministry of Environment and Forestry		By-law on the quality of petrol and diesel fuels is published. (11 June 2004)	TÜPRAŞ investment for improving fuel quality	There is need of additional investment approximately 391,5 million Euros for almost fully harmonization to the Directive.
10	Council Directive relating to the availability of consumer information on fuel economy and CO2 emissions in respect of the		The Ministry Of Industry and Trade		By-law on Informing Consumers on Fuel Economy and CO2 Emissions of New Passenger Cars (28.12.2003)		

NATIONAL PROGRAM APPLICATION FOR 2003					APPLICATION OF NATIONAL ENVIRONMENTAL STRATEGY		
No	Name of The EU Legislation	Legislative Harmonization Approach	The Organization Responsible For Harmonization	Due Date	Condition of Legislative Harmonization and Application Area	Investment Oriented Activities (Precautions)	Investment Cost (2007-2023) Million Euros
	marketing of new passenger cars (1999/94/EC) as amended by Commission Directive 2003/73/EC						
11	The Directive Of Emission Trading (2003/87/EC) amended by 2004/101/EC Directive				No activities in progress, yet. .		
TOTAL COST							428

Annex 5.Table.4 INDUSTRIAL POLLUTION CONTROL MONITORING TABLE

IMPLEMENTATION OF THE NATIONAL PLAN FOR 2003					IMPLEMENTATION OF NATIONAL ENVIRONMENTAL STRATEGY		
No	Name of The EU Legislation	Legislative Harmonization Approach	The Organization Responsible For Harmonization	Due Date	Condition of Legislative Harmonization and Application Area	Investment Oriented Activities (Precautions)	Investment Cost (2007-2023) Million Euros
1	Integrated Pollution Prevention and Control (IPPC) (96/61/EC)	A new by-law on IPPC	MoEF	2007	The by-law has not been prepared.	<ul style="list-style-type: none"> - Taking precautions pertaining to controls of air and water pollution and waste management for different industrial sectors. - Strengthening the institutional structure regarding the Best Available techniques. - Introduction of the best available techniques to the sectors and in regard to that enabling specialisation on sectoral basis. - Applying required regulations regarding environmental permits to be granted by a single entity. - Defining and applications of the best available techniques. 	12.638 From 2023 on 1.462,00 million Euros/year additional investment is needed. Within the scope of the harmonisation studies with the EU, investment period will be re-evaluated.
2	Large Combustion Plants (LCP) (2001/80/EC)	A new by-law on LCP	MoEF	2006	The draft by-law on "Large Combustion Plants" has been prepared and forwarded to the attention of related organisations.	<ul style="list-style-type: none"> - Establishment of a strategic plan to govern harmonisation and to define required investments. - Application of either alternative 1 or 2 depending on the defined strategy for a facility : <ul style="list-style-type: none"> Alternative 1: FGD (Wet flue gas desulphurisation), boiler and EF Rehabilitations, NO_x reduction, fuel recovery. Alternative 2: Boiler and EF Rehabilitations, NO_x reduction, fuel reduction, transforming some of the thermoelectric power plants into the ones 	1.887 From 2023 on 696,63 million Euros/year additional investment is needed. Within the scope of the harmonisation studies with the EU, investment period will be

IMPLEMENTATION OF THE NATIONAL PLAN FOR 2003					IMPLEMENTATION OF NATIONAL ENVIRONMENTAL STRATEGY		
No	Name of The EU Legislation	Legislative Harmonization Approach	The Organization Responsible For Harmonization	Due Date	Condition of Legislative Harmonization and Application Area	Investment Oriented Activities (Precautions)	Investment Cost (2007-2023) Million Euros
						using fluidized-bed combustion technology and installation of FGD in some of them.	re-evaluated.
3	Directive on the control of major-accident hazards involving dangerous substances (COMAH) (SEVESO II-96/82/EC)	The draft by-law has been prepared.	MoEF and The Ministry Of Labour and Social Security	2006	The draft by-law has been prepared.	<ul style="list-style-type: none"> - Improving the administrative capacity and strengthening institutional capacity at company level. - Establishing a record system and emergency plans to prevent major industrial accidents. - Determination of present condition of facilities and required investments, initiating implementation. - Establishing a report system. 	130
4	Emissions of Volatile Organic Compounds Due To the Use of Organic Solvents (1999/13 EC)	A new by-law	MoEF	2007	The by-law has not been prepared	<ul style="list-style-type: none"> - Improving production processes and/or developing management applications. - Replacing solvents. - Using applications that reduce solvent release. - Reducing storage losses and leakages in tanks including internal float lids and secondary leak proofing. 	700

IMPLEMENTATION OF THE NATIONAL PLAN FOR 2003					IMPLEMENTATION OF NATIONAL ENVIRONMENTAL STRATEGY		
No	Name of The EU Legislation	Legislative Harmonization Approach	The Organization Responsible For Harmonization	Due Date	Condition of Legislative Harmonization and Application Area	Investment Oriented Activities (Precautions)	Investment Cost (2007-2023) Million Euros
5	Volatile organic compound (VOC) emissions resulting from the storage of petrol and its distribution from terminals to service stations (1994/63/EC)	A new by-law	MoEF		The by-law has not been prepared	- Defining present condition of facilities and determination of required investments and initiating implementation. -Carrying out designs to reduce Volatile Organic Compound emissions and taking operational measures for petroleum storage facilities, loading equipment at terminals, mobile containers and storage facilities at service stations.	100
6	Regulation on Community Eco-Label Award Scheme 1980/2000 (*)						
7	Regulation Allowing Voluntary Participation by Organisations in a Community Eco-Management and Audit Scheme 761/2001(EMAS) (*)						
TOTAL COST							14.785

(*) Those regulations above, do not take place in the National Plan for 2003, Approach for legislative compliance and the requirements for implementation will be defined by the studies to be carried out.

Annex 5. Table 5 NOISE SECTOR MONITORING TABLE

NATIONAL PROGRAM APPLICATION FOR 2003					APPLICATION OF NATIONAL ENVIRONMENTAL STRATEGY		
No	Name of The EU Legislation	Legislative Harmonization Approach	The Organization Responsible For Harmonization	Due Date	Condition of Legislative Harmonization and Application Area	Investment Oriented Activities (Precautions)	Investment Cost (2007-2023) Million Euros
1	Council Directive relating to the assessment and management of environmental noise (2002/49/EC)	Harmonized (New by-law)	The Ministry of Environment and Forestry	2005	The Directive (2002/49/EC) was transposed to the Turkish legislation by the By-law on Assessment and Management of Environmental Noise (Official Gazette: 1 July 2005 No. 25862)	<ul style="list-style-type: none"> -Strengthening of the institutional structure technically (providing of noise measurement equipments, software to be used for noise maps, the computer for the program to be installed and equipment. -Installation of noise measurement quality system -Preparation of noise maps, control precautions and preparation of manuals related to noise assessment. - Preparation of strategic noise maps and action plans for noise sources and residential areas. -Making necessary investments to reduce noise by application of action plans 	A detailed study has not been carried out yet. An assessment should be done by taking into consideration the results of “Strengthening The Capacity of The Ministry of Environment and Forestry on Noise Management” which was proposed to and accepted by EU Financial Co-operation Programme of 2004

Annex 5. Table 6. CHEMICALS AND GENETICALLY MODIFIED ORGANISMS SECTOR MONITORING TABLE

NATIONAL PROGRAM APPLICATION FOR 2003					APPLICATION OF NATIONAL ENVIRONMENTAL STRATEGY		
No	Name of The EU Legislation	Legislative Harmonization Approach	The Organization Responsible For Harmonization	Due Date	Condition of Legislative Harmonization and Application Area	Investment Oriented Activities (Precautions)	Investment Cost (2007-2023) Million Euros
1	Directive on Dangerous Substances 67/548/EEC	Revision of Dangerous Chemicals and other required legislation.	The Ministry of Environment and Forestry	2006*	Required practices on Project of Technical Assistance in the field of Chemicals.(TEACH)	- Establishment Of National Chemicals Data Bank. - Other activities will be determined regarding to TEACH.	Will be determined in project framework .
2	Directive on Dangerous Preparations 99/45/EC	Revision of Dangerous Chemicals and other required legislation.	The Ministry of Environment and Forestry, Ministry Of Agriculture and Rural Affairs	2006*	Required practices on Project of Technical Assistance in the field of Chemicals.(TEACH)	- Establishment Of National Chemicals Data Bank. - Other activities will be determined regarding to TEACH.	Will be determined in project framework.
3	Directive on Risk Assessment 93/67/EC	New legislation will be prepared.	The Ministry of Environment and Forestry	2006*	Required practices on Project of Technical Assistance in the field of Chemicals.(TEACH)	- Establishment Of National Chemicals Data Bank. - Other activities will be determined regarding to TEACH.	Will be determined in project framework.

* dates could change depending on TEACH.

NATIONAL PROGRAM APPLICATION FOR 2003					APPLICATION OF NATIONAL ENVIRONMENTAL STRATEGY		
No	Name of The EU Legislation	Legislative Harmonization Approach	The Organization Responsible For Harmonization	Due Date	Condition of Legislative Harmonization and Application Area	Investment Oriented Activities (Precautions)	Investment Cost (2007-2023) Million Euros
4	Directive on Safety Data Sheet (91/155/EEC)	Bu Direktif 2003 Yılı Ulusal Programında yer almamaktadır.	The Ministry of Environment and Forestry	2002	Legislation has been harmonised by the by-law on Dangerous Chemicals and the notification of procedures pertaining to establishment of Material Safety Data Sheet	Requirements for practices will be determined regarding to TEACH.	Will be determined regarding to TEACH.
5	Directive on Restriction on Utilization Marketing 76/769/EEC	New legislation will be prepared.	The Ministry of Environment and Forestry, Ministry of Health, Ministry of Agriculture and Rural Affairs	2006**	Even though the new draft legislation planning regarding the revision of the by-law on dangerous chemicals has been initiated, studies are not in progress yet.	Activites will be determined regarding to the planned project.	Will be determined regarding to the planned project.
6	By-Law on the Assesment and the Control of the Environmental Risks of Existing Substances 793/93/EC	New legislation will be prepared.	The Ministry of Environment and Forestry	2006**	Even though the new draft legislation planning has been initiated, studies are not in progress yet.	Activites will be determined regarding to the planned project.	Will be determined regarding to the planned project.
7	EC Decision 2003/304/EC	New legislation will be prepared.	The Ministry of Environment and Forestry, DTM	2006**	Even though the new draft legislation planning has been initiated, studies are not in progress yet.	Establishing declaration system. Activites will be determined regarding to the planned project..	Will be determined regarding to the planned project.

NATIONAL PROGRAM APPLICATION FOR 2003					APPLICATION OF NATIONAL ENVIRONMENTAL STRATEGY		
No	Name of The EU Legislation	Legislative Harmonization Approach	The Organization Responsible For Harmonization	Due Date	Condition of Legislative Harmonization and Application Area	Investment Oriented Activities (Precautions)	Investment Cost (2007-2023) Million Euros
8	Directive on Biocidal Products 98/8/EC	New legislation will be prepared.	Ministry of Health, Ministry of Agriculture and Rural Affairs	2005** *	By-law on Biocidal Products will be prepared regarding to The Twinning Of Biocidal Products Project which is the first compound of The Project Of Water and Biocidal Products (TR 0402.10)	Preparation of Biocidals Inventory in Turkey. Determination of monitoring and market procedures and competent authorities. - Other activities will be determined regarding to The Twinning Of Biocidal Products Project	Will be determined regarding to The Twinning Of Biocidal Products Project

** These dates may change due to the planned projects. (It will be considered after the completion of The Technical Assistance Project on Chemicals).

*** Following the completion of The Twinning Project on Biocidal Products, legislative harmonization is expected to be completed at the end of 2007.

9	Directive on prevention and reduction of environmental pollution by asbestos 87/217/EC	-New legislation will be prepared including definitions, measurements and control of demolition activities -Revision of the Regulation on precautions will be taken for work places and activities involving flammable, explosive, dangerous and hazardous materials.	The Ministry of Environment and Forestry, Ministry Of Labour and Social Security	2011	Harmonization of legislation has been performed partially with By-Laws on Air Quality Control, Hazardous Wastes Control and Health&Safety Precautions for activities with asbestos	Activites will be determined regarding the planned project.	Will be determined regarding to the planned project.
10	Directive on the inspection and verification of good laboratory practice (GLP) 88/320/EEC	A secondary legislation will be prepared for implementation of By-Law on inspection of good laboratory practices and control of the studies	The Ministry of Environment and Forestry, Ministry of Health, Ministry of Agriculture	2005	By-Law on inspection of good laboratory practices and control of the studies and By-Law on GLP principles and Certification of Test Laboratories are partially harmonized and additional legislation studies are in progress.	- Ensuring Laboratory rules to be in line with the principles - The development of a system which verifies that these principles are met. - Activites will be determined regarding the planned project..	Will be determined regarding to the project.

NATIONAL PROGRAM APPLICATION FOR 2003					APPLICATION OF NATIONAL ENVIRONMENTAL STRATEGY		
No	Name of The EU Legislation	Legislative Harmonization Approach	The Organization Responsible For Harmonization	Due Date	Condition of Legislative Harmonization and Application Area	Investment Oriented Activities (Precautions)	Investment Cost (2007-2023) Million Euros
			and Rural Affairs				
11	Directive on the harmonization of laws, regulations and administrative provisions relating to the application of the principles of good laboratory practice and the verification of their applications for tests on chemical substances 87/18/EEC	A secondary legislation will be prepared for implementation of By-Law on inspection of good laboratory practices and control of the studies	The Ministry of Environment and Forestry, Ministry of Health, Ministry of Agriculture and Rural Affairs	2005	By-Law on inspection of good laboratory practices and control of the studies and By-Law on GLP principles and Certification of Test Laboratories are partially harmonized and additional legislation studies are in progress.	Activites will be determined regarding the planned project..	Will be determined regarding to the project..
12	Directive on the approximation of laws, regulations and administrative provisions of the Member States regarding the protection of animals used for experimental and other scientific purposes 86/609/EEC	Revision of By-law on the protection of test animals used for experimental and other scientific purposes and production places of testing animals; establishment duties and inspection methods and principles of test laboratories	The Ministry of Environment and Forestry, Ministry of Agriculture and Rural Affairs	2007	The law on animal protection has been ratified; and By-law on the protection of test animals used for experimental and other scientific purposes and production places of testing animals; establishment duties and inspection methods and principles of test laboratories(2005) has been partially harmonized.	Partaining to animal experiments, establishing authorization, data network and data collection systems -Other activites will be determined regarding to the planned project	Will be determined regarding to the planned project.

NATIONAL PROGRAM APPLICATION FOR 2003					APPLICATION OF NATIONAL ENVIRONMENTAL STRATEGY		
No	Name of The EU Legislation	Legislative Harmonization Approach	The Organization Responsible For Harmonization	Due Date	Condition of Legislative Harmonization and Application Area	Investment Oriented Activities (Precautions)	Investment Cost (2007-2023) Million Euros
13	Directive on the deliberate release into the environment of genetically modified organisms 2001/18/EC	New legislation will be prepared.	Ministry of Agriculture and Rural Affairs		Even though the new draft legislation planning has been initiated, studies are not in progress yet.	-Establishing a data bank involving a reporting and registering system - Other activities will be determined regarding to the planned project.	Will be determined regarding to the planned project.
14	Directive on the contained use of genetically modified micro-organisms 90/219/EEC	New legislation will be prepared.	Ministry of Agriculture and Rural Affairs		Even though the new draft legislation planning has been initiated, studies are not in progress yet.	- Establishing a data bank involving a reporting and registering system . - Other activities will be determined regarding to the planned project.	Will be determined regarding to the planned project.
TOTAL COST							

Annex 5. Table 7. NATURAL PROTECTION SECTOR MONITORING TABLE

IMPLEMENTATION OF THE NATIONAL PLAN FOR 2003					IMPLEMENTATION OF NATIONAL ENVIRONMENTAL STRATEGY		
No	Name of The EU Legislation	Legislative Harmonization Approach	The Organization Responsible For Harmonization	Due Date	Condition of Legislative Harmonization and Application Area	Investment Oriented Activities (Precautions)	Investment Cost (2007-2023) Million Euros
1	Council Directive 92/43/EEC of 21 May 1992 on the conservation of natural habitats and of wild fauna and flora	A new Law on Natural Protection	MoEF Ministry of Culture and Tourism, Ministry of Agriculture and Rural Affairs	2006	Law No 2872 on Environment Law No 2873 on National Parks Law No 4915 on Terrestrial Hunting Law No 6831 on Forestry Law No 2863 on Protection of Cultural and Natural Heritage Law No 1380 on Fisheries	- Establishment of centres for visitors and observation stations	254 (%46 of cost is personnel expenses)
2	Commission Decision 97/266/EEC of 18 December 1996 on establishment of Natura 2000 data network	A new Law on Natural Protection	MoEF Ministry of Culture and Tourism.	2006	Statutory Decree No 383 on the establishment of the authority for the protection of special areas is not in full compliance.	- Building and laboratory requirements of the scientific authority - Establishment of centres for visitors and observation stations - Establishment of a monitoring System.	Will be determined according to the feasibility study to be made.
3	Council Directive 79/409/EEC of 2 April 1979 on the conservation of wild birds	A new Law on Natural Protection	MoEF Ministry of Culture and Tourism.	2006	Statutory Decree No 383 on the establishment of the authority for the protection of special areas is not in full compliance.	- Establishment of centres for visitors and observation stations	
4	Council Directive 83/129/EEC of 28 March 1983 concerning the importation into Member States of skins of certain seal pups and products derived there	A new Law on Natural Protection	Ministry of Agriculture and Rural Affairs	2006	The Law on the Approval of the Ratification of the Convention No 4041 on international trade of endangered species of wild fauna and flora and its annexes. By-law pertaining to the implementation of the convention on international trade of endangered	- Establishment of CITES Office - Establishment of the Scientific Authority - Establishment of Rescue Centres	8

IMPLEMENTATION OF THE NATIONAL PLAN FOR 2003					IMPLEMENTATION OF NATIONAL ENVIRONMENTAL STRATEGY		
No	Name of The EU Legislation	Legislative Harmonization Approach	The Organization Responsible For Harmonization	Due Date	Condition of Legislative Harmonization and Application Area	Investment Oriented Activities (Precautions)	Investment Cost (2007-2023) Million Euros
	from (*)				species of wild fauna and flora. Law No 4915 on Terrestrial Hunting Law No 2872 on Environment Law No 6831 on Forestry Law No 2873 on National Parks Law No 1380 on Fisheries Law No 3285 on Animal Health Law No 6968 on Plant Protection and Plant Quarantine Law No 4458 on Customs Are not in full compliance.		
5	Council Regulation 97/338/EC of 9 December 1996 on the protection of species of wild fauna and flora by regulating trade therein	A new Law on Natural Protection	MoEF, Undersecretariat of Customs, Undersecretariat of Prime Ministry for Foreign Trade, Ministry of Agriculture and Rural Affairs, The Scientific & Technological Research Council of Turkey	2006	Note 4 regarding the State of Legislative Compliance	- Establishment of CITES Office	
6	Commission Regulation 98/2473/EC of 16 November 1998 suspending the introduction into the Community of	A new Law on Natural Protection	MoEF Undersecretariat of Customs, Undersecretariat of Prime Ministry for Foreign Trade,	2006	Note 4 regarding the State of Legislative Compliance	- Establishment of CITES Office - Establishment of the Scientific Authority	

IMPLEMENTATION OF THE NATIONAL PLAN FOR 2003					IMPLEMENTATION OF NATIONAL ENVIRONMENTAL STRATEGY		
No	Name of The EU Legislation	Legislative Harmonization Approach	The Organization Responsible For Harmonization	Due Date	Condition of Legislative Harmonization and Application Area	Investment Oriented Activities (Precautions)	Investment Cost (2007-2023) Million Euros
	specimens of certain species of wild fauna and flora (*)		Ministry of Agriculture and Rural Affairs, The Scientific & Technological Research Council of Turkey				
7	Commission Regulation 2307/97/EC of 18 November 1997 replacing the Council Regulation 338/97 of 9 October 1984 on the protection of species of wild fauna and flora by regulating trade therein (*)	A new Law on Natural Protection	MoEF Undersecretariat of Customs Undersecretariat of Prime Ministry for Foreign Trade Ministry of Agriculture and Rural Affairs The Scientific & Technological Research Council of Turkey	2006	Note 4 regarding the State of Legislative Compliance	- Establishment of CITES Office - Establishment of the Scientific Authority	
8	Commission Regulation (EC) No 939/97 of 26 May 1997 laying down detailed rules concerning the implementation of Council Regulation (EC) No 338/97 on the protection of species of	A new Law on Natural Protection	MoEF Undersecretariat of Customs Undersecretariat of Prime Ministry for Foreign Trade Ministry of Agriculture and Rural Affairs,	2006	Note 4 regarding the State of Legislative Compliance	- Establishment of CITES Office - Establishment of the Scientific Authority	

IMPLEMENTATION OF THE NATIONAL PLAN FOR 2003					IMPLEMENTATION OF NATIONAL ENVIRONMENTAL STRATEGY		
No	Name of The EU Legislation	Legislative Harmonization Approach	The Organization Responsible For Harmonization	Due Date	Condition of Legislative Harmonization and Application Area	Investment Oriented Activities (Precautions)	Investment Cost (2007-2023) Million Euros
	wild fauna and flora by regulating trade therein (*)		The Scientific & Technological Research Council of Turkey				
9	Commission Regulation (EC) No 2551/97 of 15 December 1997 suspending the introduction into the Community of specimens of certain species of wild fauna and flora (*)	A new Law on Natural Protection	MoEF Undersecretariat of Customs Undersecretariat of Prime Ministry for Foreign Trade Ministry of Agriculture and Rural Affairs, The Scientific & Technological Research Council of Turkey	2006	Note 4 regarding the State of Legislative Compliance	- Establishment of CITES Office - Establishment of the Scientific Authority	
10	Commission Regulation 767/98/EC of 7 April 1998 replacing the Commission Regulation (EC) No 939/97 of 26 May 1997 laying down detailed rules concerning the implementation of Council Regulation	A new Law on Natural Protection	MoEF Undersecretariat of Customs Undersecretariat of Prime Ministry for Foreign Trade Ministry of Agriculture and Rural Affairs The Scientific & Technological	2006	Note 4 regarding the State of Legislative Compliance	- Establishment of CITES Office - Establishment of the Scientific Authority	

IMPLEMENTATION OF THE NATIONAL PLAN FOR 2003					IMPLEMENTATION OF NATIONAL ENVIRONMENTAL STRATEGY		
No	Name of The EU Legislation	Legislative Harmonization Approach	The Organization Responsible For Harmonization	Due Date	Condition of Legislative Harmonization and Application Area	Investment Oriented Activities (Precautions)	Investment Cost (2007-2023) Million Euros
	(EC) No 338/97 on the protection of species of wild fauna and flora by regulating trade therein (*)		Research Council of Turkey				
11	Council Regulation 348/81/EEC of 20 January 1981 on common rules for import of whales or other cetacean products	A new Law on Natural Protection	Ministry of Agriculture and Rural Affairs	2006	Note 4 regarding the State of Legislative Compliance	- Establishment of CITES Office - Establishment of the Scientific Authority	
12	Commission Regulation 1968/99/EC of 10 September 1999 on suspending the introduction into the Community of specimens of certain species of wild fauna and flora (*)	A new Law on Natural Protection	MoEF Undersecretariat of Customs Undersecretariat of Prime Ministry for Foreign Trade Ministry of Agriculture and Rural Affairs The Scientific & Technological Research Council of Turkey	2006	Note 4 regarding the State of Legislative Compliance	- Establishment of CITES Office - Establishment of the Scientific Authority	
13	Commission Regulation 1808/2001 of 30 August 2001 laying down detailed rules concerning the implementation of	A new Law on Natural Protection	MoEF Undersecretariat of Customs Undersecretariat of Prime Ministry for Foreign Trade	2006	Note 4 regarding the State of Legislative Compliance	- Establishment of CITES Office - Establishment of the Scientific Authority	

IMPLEMENTATION OF THE NATIONAL PLAN FOR 2003					IMPLEMENTATION OF NATIONAL ENVIRONMENTAL STRATEGY		
No	Name of The EU Legislation	Legislative Harmonization Approach	The Organization Responsible For Harmonization	Due Date	Condition of Legislative Harmonization and Application Area	Investment Oriented Activities (Precautions)	Investment Cost (2007-2023) Million Euros
	Council Regulation (EC) No 338/97.		Ministry of Agriculture and Rural Affairs The Scientific & Technological Research Council of Turkey				
14	Council Regulation (EEC) 3254/91 of 4 November 1991 prohibiting the use of leghold traps in the Community and the introduction into the Community of pelts and manufactured goods of certain wild animal species originating in countries which catch them by means of leghold traps or trapping methods which do not meet international humane trapping standards	The Law on Terrestrial Hunting	MoEF	2005	It is predominantly in compliance with the Law No 4915 on Terrestrial Hunting.		
15	Council Decision 97/602/EC of 22 July 1997 pertaining to the article 1(1)(a) of the Commission Regulation 35/97 (EC) and the second	The Law on Terrestrial Hunting	MoEF	2005	It is predominantly in compliance with the Law No 4915 on Terrestrial Hunting.		

IMPLEMENTATION OF THE NATIONAL PLAN FOR 2003					IMPLEMENTATION OF NATIONAL ENVIRONMENTAL STRATEGY		
No	Name of The EU Legislation	Legislative Harmonization Approach	The Organization Responsible For Harmonization	Due Date	Condition of Legislative Harmonization and Application Area	Investment Oriented Activities (Precautions)	Investment Cost (2007-2023) Million Euros
	paragraph in the article 3 (1) of the Regulation 3254/91 (EEC)						
16	Commission Regulation (EC) No 35/97 of 10 January 1997 laying down provisions on the certification of pelts and goods covered by Council Regulation (EEC) No 3254/91	The Law on Terrestrial Hunting	MoEF	2005	It is in full compliance with the Law No 4915 on Terrestrial Hunting.		
17	Council Directive 99/22/EC of 29 March 1999 relating to the keeping of wild animals in zoos.	By-law on establishments and duties of zoos.	Ministry of Agriculture and Rural Affairs, MoEF	2006	By-law on keeping, breeding and trade of game and wild animals and products obtained from them which was implemented as published in the Official Gazette numbered 25847 on 16 June 2005. By-law on the Procedures and Fundamental Principles on the Protection of Game and Wild Animals and Their Habitats and Struggling Vermin published in the Official Gazette numbered 25976 on 24 October 2005 is not fully in compliance.		2
TOTAL COST							264

* Relating directives do not exist in the National Plan for 2003.

Annex 5. Table 8. HORIZONTAL SECTOR MONITORING TABLE

IMPLEMENTATION OF THE NATIONAL PLAN FOR 2003					IMPLEMENTATION OF NATIONAL ENVIRONMENTAL STRATEGY		
No	Name of The EU Legislation	Legislative Harmonization Approach	The Organization Responsible For Harmonization	Due Date	Condition of Legislative Harmonization and Application Area	Investment Oriented Activities (Precautions)	Investment Cost (2007-2023) Million Euros
1	Directive 2001/42/EC of the European Parliament and of the Council of 27 June 2001 on the assessment of the effects of certain plans and programmes on the environment. (Strategical Environmental Assessment)	By-Law	MoEF	2005	The draft by-law was prepared on 08.04.2005 and forwarded to the attention of related organisations. It has been harmonised except subjects in transboundary context. -Before initiating implementation Institutional Capacity and Educational Works will be completed.		
2	The Directive on the Environmental Impact Assessment (85/337/EEC) and related amendments of (97/11/EC) (2003/35/EC)	Making the by-law on Environmental Impact Assessment (EIA) more effective by strengthening	MoEF		By-law on EIA has come into force as published in the official gazette on 16.12.2003 with the number 25318 and it is generally harmonised except the Convention on Environmental Impact Assessment in a Transboundary Context. - Membership Strategy will be followed for the Convention on Environmental Impact Assessment in a Transboundary Context - Centre for EIA Education and Information Project was completed and established on 25.04.2006. - Sectoral Manuals have been completed. - Training of personnel appointed in the EIA procedure for strengthening of the existing institutional structure		
TOTAL COST							

Prepared by:

This document has been prepared with the contribution of The General Directorate of Environmental Management of The Ministry of Environment and Forestry and the related unit under co-ordination of The Undersecretariat of the State Planning Organization, additionally institutions and establishments given in the Annex II.