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Environmental performance of Turkey in EU accession process in comparison with Bulgaria and Romania

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ABSTRACT

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There are significant opportunities and challenges in the Black Sea area that require coordinated action at the regional level. These include key sectors such as energy, transport, movement, security, and environment. In Europe, measures to conserve environment and landscape diversity are now well founded. However, there is still a great divide between what is being achieved in Eastern and Western countries.

The purpose of this study is to review the harmonisation process for compliance with EU environmental *acquis communautaire* through the accession of Turkey. To improve this analysis, a comparison will be done with the accession process of two new members, Bulgaria and Romania, in environmental sector.

The first chapter explains the importance of environment and environmental issues, especially the threats that cause serious damages to our world. Following an historical perspective, it will show how EU allowed to enhance the quality of life through cooperation and legislative framework, not only for the present time but for the future generations as well. In the same way, the importance of enlargement process and its positive and negative consequences are also presented.

The second chapter will present a chronology of the relations between Turkey and EU, the development of the Turkish institutional capacities, and the enforcement of its national legislation. The environmental compliance of Turkey with EU environmental *acquis communautaire* during the accession process will then be analysed, for each environmental sector: Horizontal, Air quality, Waste management, Water quality, Nature protection, Industrial pollution control, Chemical and genetically modified organisms and Noise. For each sector, the present situation, the objectives and medium and long term strategies are given related to the achievement of the objectives of *acquis communautaire*. The needs (as institutional structure or investment) are also raised.

In the third chapter, firstly, the general concept of environmental issues in Romania and Bulgaria will be given, especially after their past-regime. As regards to their harmonisation process, the compliance of their national legislation to the *acquis communautaire* will be analysed sector by sector with the challenges as well, they had during their accession.

In order to conclude, a comparison of the selected directives will be given by a table which show a clear vision about the compliance level in these three countries.

In conclusion, this comparison will allow to assume the gap that Turkey have to cover from its present situation to an possible accession to EU, such as the legislative, technical and administrative infrastructures, investment levels.

1. INTRODUCTION

The Black Sea region is a distinct geographical area rich in natural resources and strategically located at the junction of Europe, Central Asia and the Middle East (Fig. 1). A series of historically unprecedented events have brought the attention of the West to the wider Black Sea region. The successful anchoring and integration of Central and Eastern European countries stretching from the Baltic to the Black Sea in the Euro-Atlantic community marks the end of the grand historical project of the 1990's, initiated in the wake of the end of the Cold War (Asmus & Jackson, 2004).

"On 25 June 1992, the Heads of State and Government of eleven countries: Albania, Armenia, Azerbaijan, Bulgaria, Georgia, Greece, Moldova, Romania, Russia, Turkey and Ukraine signed in Istanbul the Summit Declaration and the Bosphorus Statement giving birth to the Black Sea Economic Cooperation (**BSEC**). It came into existence as a unique and promising model of multilateral political and economic initiative aimed at fostering interaction and harmony among the Member States, as well as to ensure peace, stability and prosperity encouraging friendly and good-neighbourly relations in the Black Sea region" (http://www.bsec-organization.org).

BSEC covers a geography encompassing the territories of the Black Sea littoral States, the Balkans and the Caucasus with an area of nearly 20 million square kilometers. The BSEC region is located on two continents. BSEC represents a region of some 350 million people with a foreign trade capacity of over USD 300 billion annually (http://www.bsec-organization.org). After the Persian Gulf region, it is the second-largest source of oil and natural gas along with its rich proven reserves of minerals and metals. It is becoming Europe's major transport and energy transfer corridor (Fig. 2).

"In purely geographical point of view, the Black Sea region remains a missing ring in the chain of the EU initiatives and programmes for regional cooperation in neighbouring areas. Nevertheless, at a geo-political level, the Black Sea region involving three large actors on the European continent (Russia, Ukraine and Turkey) is an important segment for the policy strategy for the EU as point of interest in security, energy transit route and important transportation crossroad. Therefore, in spite of a tendency to give priority to the relations with the BSEC states at bilateral level, the enlarged EU will face the necessity for institutional relations and special regional policy towards the BSEC" (Budak, 2003).

Figure 1: The main countries of the Black Sea region (from CEC, 2007).

Source : www. grida.no

Figure 2: The oil and gas pipeline in the Black Sea region.

Despite the efforts by the BSEC to promote the BSEC-EU relations, the interaction between the BSEC and the EU remains rather weak and unexploited. In the EU circles, there is a general concern that the operational performance of BSEC is rather narrow and considerable political and institutional investments are under-exploited" (Budack, 2003).

The region now happens to be in a strategic geography that bridges the energy resources to the Euro-Atlantic zones. It is also surrounded by countries that have the economic potential to become trading partners with the Western world once they achieve political stability (Akinci, 2004). The EU has recently turned its attention to the Black Sea region. However, its most recent policy proposals make it clear that it is not going to offer membership to the whole region (Grabbe, 2004).

Turkey became a candidate for accession to EU on December 1999 at the meeting of EC State and Government Heads. On 1 January 2007, two Black Sea littoral states, Bulgaria and Romania, joined the European Union. More than ever before, the prosperity, stability and security of the countries around the Black Sea are of immediate concern to the EU (CEC, 2007).

There are significant opportunities and challenges in the Black Sea area that require coordinated action at the regional level. These include key sectors such as energy, transport, movement, security, and environment (CEC, 2007).

Security and economy are probably the two most often factors proposed to justify or to highlight the Black Sea and Europe relationships (Ritter, 2006). For many authors, as Goncharenko (2005), three groups are involved at the geopolitical scale to security and democratic control: (i) the United States, Russia, and, to a certain degree, some EU countries; (ii) regional powers as Ukraine, Turkey, Romania, and other regional countries; and (iii) international cooperation and security organizations like NATO, EU and BSEC. Exporting the neighbours security which necessarily involves prosperity and stability rather than importing insecurity from them has always been the leitmotiv of the EU (Akgül Açikmeõe, 2005).

Although environment is mentioned as one of the key sector (CEC, 2007), it has never been the main purpose to build relationships between Black Sea area countries and EU. However, as security or stability, the environment needs trans-regional cooperation.

In Europe, measures to conserve environment and landscape diversity through listing, selection, legislative measures, management strategies, research are now well founded. However, there is still a great divide between what is being achieved in some countries compared with others. Apart from network as Habitat Directive (Natura 2000), much will depend on the way in which the accession of Eastern European countries to the EU affect environmental policies (Vos & Klijn, 2000).

The purpose of this study is to review the harmonisation process for compliance with EU environmental *acquis communautaire* through the accession of Turkey. To improve this analysis, a comparison will be done with the accession process of two new members, Bulgaria and Romania, in environmental sector. These three countries are members of the Black Sea region which global and strategic importance has been mentioned above.

In this comparison, I will focus mainly on the difficulties that Romania and Bulgaria had during the harmonisation process to highlight (i) the challenges to fill, and (ii) the needs to help a candidate country to accession. As regards to the accession process, the objectives sought by the main and major environmental EU Directives will be presented for Turkey, sector by sector. However, for Romania and Bulgaria, only the main challenges and difficulties for each sector will be presented.

In conclusion, this comparison will allow to assume the gap that Turkey have to cover from its present situation to an possible accession to EU, such as the legislative, technical and administrative infrastructures, investment levels.

2. THE ENVIRONMENT IN EUROPE

2.1. General View of Environmental Issues

The term **"environment"** defines as "the condition or influence under which a person or thing lives or developed" (UNDP Belarus, 1996). Another term defines "environment" as: the **natural environment** comprises all living and non-living things that occur naturally on Earth (translated from Lévêque, 2001).

The issue of environment has been subject to our agenda in recent decades since it relates to every aspect of the world we share and depend on for our survival. Environment influences everything that we do in our lives: how we live, work and play, our health conditions, our safety and the quality of our lives. However, human alteration of the environment is inevitable. It has started on since people learned to use fire (Ramade, 1987). But only in the latest century of our short tenure on the planet has most of the serious damage to air, soil, water, plants and animals taken place and only very recently it has reached crisis proportions (*e.g.* Strong, 1993; Pimm & Lawton, 1998; Roberts & Hawkins, 1999; Sala *et al*., 2000).

Our global environment is under serious threat because of human activities such as pollution of air and water, the excessive use of natural resources, the destruction of animal and bird species and their living habitats, and increasing problems of climate change, among other problems. Natural disasters like floods, droughts and forest fires are increasing year by year and cause an important damage to the natural environment and human infrastructure. There is a big threat on nature and biodiversity by a cause of declining of lots of animal and plant species. Farming, industrialisation and tourism are destroying wilderness and natural habitats. Lots of the wetlands and river ecosystems have been lost (Chapin III *et al*., 2000; Fig. 3).

After all these critic conditions, the EU has decided to be more effective on the environmental issues mainly for Europe and also for the whole world. They created the policies and laws and introduced measures to implement them by carrying out research projects for new environmental innovations, and making people more aware about on these issues. For the worldwide level, the European Union plays a leading role in order to press the countries for implementing effective measures mainly to combat climate change.

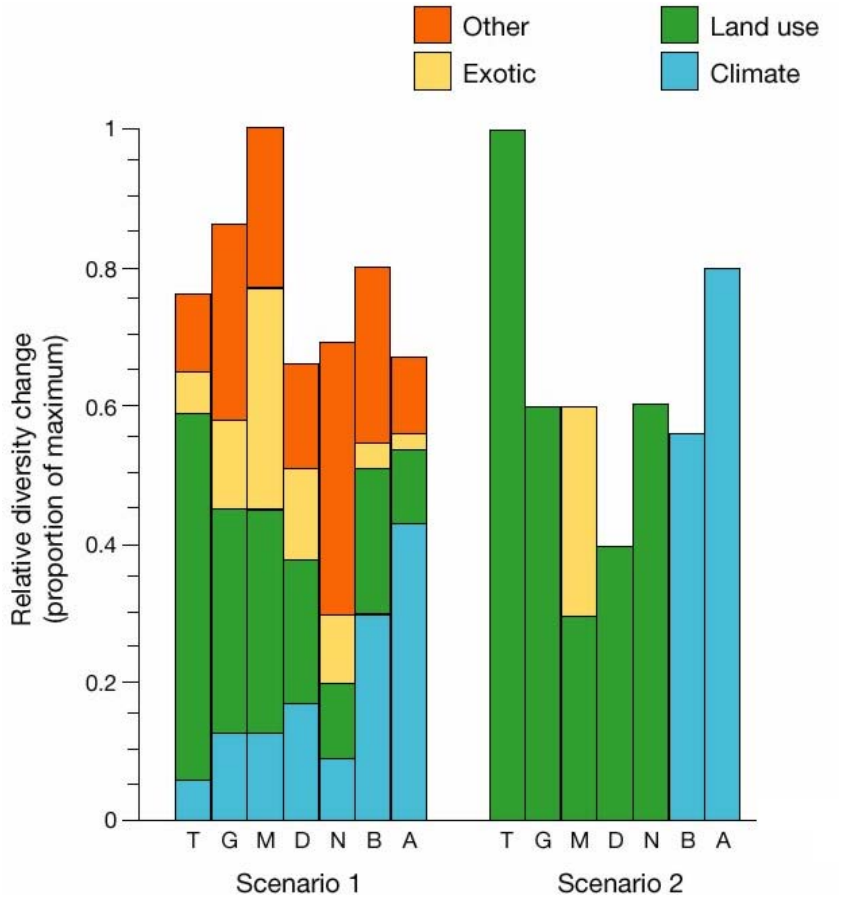

Figure 3: Scenarios of change in species diversity in selected biomes by the year 2100. The values are the projected change in diversity for each biome relative to the biome with greatest projected diversity change. Biomes are: tropical forests (T), grasslands (G), Mediterranean (M), desert (D), north temperate forests (N), boreal forests (B) and arctic (A). Projected change in species diversity is calculated assuming two alternative scenarios of interactions among the causes of diversity change. ***Scenario 1*** assumes no interaction among causes of diversity change, so that the total change in diversity is the sum of the changes caused by each driver of diversity change. ***Scenario 2*** assumes that only the factor with the greatest impact on diversity influences diversity change. For scenarios 1 and 2, we show the relative importance of the major causes of projected change in diversity. These causes are climatic change, change in land use, introduction of exotic species, and changes in atmospheric CO_2 and/or nitrogen deposition (labelled 'other'). The graph shows that all biomes are projected to experience substantial change in species diversity by 2100, that the most important causes of diversity change differ among biomes, and that the patterns of diversity change depend on assumptions about the nature of interactions among the causes of diversity change (Chapin III *et al.*, 2000).

Since the environmental issues are not restricted by the national frontiers, the countries should work together in order to improve our quality of life and to protect the environment so that future generations can develop and prosper. The European Union plays a major role having resources and capacity in promoting a better world in the new century. One of the main reason for this matter is the rich and diverse environment of Europe. With its beautiful landscapes, historical sites and cultural treasures, Europe is one of the world's attractive places to live. Moreover, Europe host a high diversity of habitats and ecosystems, both natural and semi-natural (Vos & Klijn, 2000).

"On the other hand, Europe is one of the most urbanised continents which cause an increasing fragmentation and loss of valuable landscape amenities" (European Environment Agency, 2005). At a scientific point of view, the fragmentation corresponds to a lost of connectivity within a previous continuous habitat. Habitat fragmentation is one of the most important factor contributing to the decrease of biodiversity throughout the world. (Chapin *et al*., 2000; Loreau *t al*., 2001).

Transport, agriculture, energy, industry and households are the main sectors which cause the main environmental problems and expected to continue doing so in the future. Since the pollution sources of these sectors can diffuse easily, their control is also difficult.

2.2. The History of European Environmental Action

The Environmental action started simultaneously in 1972 at European and World level with the ***Stockholm Conference*** organized by the United Nations. For the first time, national and international authorities drew attention to environmental issues. One of the main issue of this conference was the creation of the United Nations Environmental Program (UNEP).

After the Stockholm Conference, six Action Programs has been established, based on a combination of sectoral approaches to ecological problems. The first environmental programme which has been established in 1973, highlighted "**the principle of the polluter paying".** This first environmental programme was based on the economic development, prosperity and the protection of the environment

which are mutually interdependent. The main objectives of this programme were defined as: protection of the ecological balance, rational use of natural resources and reduction and prevention of environmental damage. With this first step, by the help of research activities mainly for the causes on pollution and for environmental objectives criteria, the environmental quality norms have been achieved (Hey, 2005).

At a Mediterranean level, the contracting parties of Stockholm Conference adopted in Barcelona the ***Mediterranean Action Program*** (1975) confirming several principles as the polluter paying and the precaution principle.

In 1992, with the adoption of ***Treaty on European Union*** in Maastricht, the EU leaders recognised that the environment could not be an isolated issue. So they declared that all European Union policies and activities in the future must take account of these environmental issues.

With the ***Treaty of Amsterdam*** (1999), a further step was taken and "**the principle of sustainable development**" become one of the Community's main objective and makes a high degree of environmental protection.

The Community action developed within the years in order to achieve a comprehensive system on environmental controls. The ***Fifth Community Action Programme, Towards Sustainability*** took new measures and a broader commitment to integration of environmental dimension into all areas of Community's policies especially in the main sectors of industry, energy, tourism, agriculture and transport for the period 1992-2000.

After these developments, the other four steps also merit particular consideration: the Lisbon Strategy, Sustainable Development Strategy, Sixth Environmental Action Programme and the Enlargement of the European Union to 25 Member States in May 2004.

The ***Lisbon Strategy*** which was adopted in 2000 have an objective to make the EU "the most dynamic and competitive knowledge-based economy in the world capable of sustainable economic growth with more and better jobs and greater social cohesion, and respect for the environment by 2010" (European Environment Agency, 2005)

In June 2001, at the Summit of Gothenburg, a ***European Sustainable Development Strategy*** (SDS) was adopted. The term "sustainable development" refers to the effort to ensure that economic growth takes place in a way that continues in the future without giving any harm to the natural resources and any section of the society. With this point of view, the strategy requires a long-term vision of environmental objectives which requires a careful balance between economic prosperity, social justice and a healthy environment. This means, these three goals can mutually reinforce each other in a way that the policies favouring the environment also can be good for innovation and competitiveness.

The ***Sixth Environment Action Programme*** which has been adopted in July 2002, defines the EU's environmental roadmap for the years 2002-2012. The programme is the main instrument in order to achieve the environmental goals of the sustainable development strategy. This action programme has five major objectives: (i) to improve the implementation of existing environmental concerns into other policy areas; (ii) to integrate environmental concerns into other policy areas; (iii) to work together with the business sector and consumers in a more market-driven approach for identifying solutions; (iv) to obtain better and more accessible information on the environment for citizens, and (v) to develop a more environment-conscious attitude for the land use planning. (European Environment Agency, 2005).

The programme focuses on four priority areas:

- **Climate change;** the main objective for this item is to reduce greenhouse gases to a level that will not cause harmful effects on the earth's climate. With this point of view, the long-term objective is to avoid the global temperature from rising by more than two degrees which indicates that the world has to reduce emissions of greenhouse gases by at 15% by 2050, compared to 1990 levels.
- **Protecting nature and biodiversity**; the main objective for this item is to protect and restore the structure and functioning of all natural systems and their habitats, as well as to prevent the loss of biological diversity (the loss of plant and animal species) both at European and global level.
- **Health and quality of life**; the main objective for this item is to achieve a quality of environment without a significant impact on human health since there is an increase of diseases which are caused by the environmental factors.

- **Natural resources and waste**; the main objective for this item is to keep the consumption of renewable and non-renewable resources at a constant level and not to exceed the carrying capacity of the environment and also the reduction of the wastes by 20% by 2010 and 50% by 2050 (Hey, 2005).

The Action Programme also envisages the seven thematic strategies which covers the: soil protection, protection of marine environment, sustainable use of pesticides, air pollution, urban environment, sustainable use and management of resources and waste prevention and recycling. (European Environment Agency, 2005).

Besides all these efforts, the EU has also ratified a number of important international treaties and has taken a leading role in efforts to protect the global environment. Some of these are: ***Basel Convention***- prevents rich countries from dumping their toxic waste in developing ones; ***Bonn Convention***- conservation of migratory species; ***Barcelona Convention and its Protocols***- protecting Mediterranean Sea against pollution; ***Kyoto Protocol***; ***Convention on Biological Diversity*** and its ***Biosafety Protocol*** - protection of biodiversity and creating standards for cross-border trade of genetically modified organisms.

Since 30 years, in order to achieve all these actions and strategies, there are some fundamental principles which EU environment policy decisions are based on (Hey, 2005):

- *prevention is better than clean-up*: it is better to solve the pollution problems at its source rather then to deal with its impact;
- *polluters must pay for their pollution*;
- *precautionary principle*: in case where scientific uncertainty exists but a preliminary scientific evaluation gives reasonable grounds for concern about potential adverse effects on the environment or health, the action to avert it should be considered.

In addition to these principles, there are other factors that play an important role for the EU policy or legislation such as, non-governmental organisations (NGOs), citizens' associations, experts and scientists. Almost all the policies are put forward by consulting these stakeholders.

All the EU institutions (European Parliament, the Council and the Commission) are involved in the development, adoption and implementation of these policies. Also during the process, these institutions can ask for independent information from the European Environment Agency in Copenhagen (EEA) whose objective is to support sustainable development and to help achieve significant and measurable improvement in Europe's environment through the provision of timely, targeted, relevant and reliable information to policy making agents and the public (Internet site of EEA).

The Commission's drive force to improve the EU's environmental policies is done by the Directorate General for Environment (DG Environment) who is one of the 26 Directorates of the European Commission. The main role of DG Environment is to initiate and define new environment legislation and to ensure that agreed measures are implemented effectively in the EU Member States. (Internet site of DG Environment).

The enlargement of the EU brought both **positive** and **negative** effects on environment. With this process, there is not only some new important assets such as wider and richer range of habitats and landscapes, but also more animal and plant species represents an important challenge for EU environmental policy in the area of capacity building and requirement of additional financing needs in order to support implementation of the *acquis communautaire.* (EU Internet site). The adoption and implementation of *acquis communautaire* by all member and candidate states plays an important role mainly for the countries of Central and Eastern Europe since it helps to accelerate their environmental policies and maintaining good practices. (Europan Environmental Bureau, 2004).

On the other hand, the enlargement process could have some **negative** impacts as well on the environment (Europan Environmental Bureau, 2004). The most important is that the new member states may slow-down the environmental and sustainable development policies of EU not only by their weak environmental policies but also, with the need of long-term periods in order to improve their economical conditions, institutional capacity and finalise the highly cost investments (Europan Environmental Bureau, 2004).

As it is mentioned above as well, the enlargement process of EU has also high influence for the environmental issues since the environment is one of the important areas where candidate countries should need to achieve the EU standards (EU

Internet site). These huge tasks need a qualified human resources because each member state should include around 300 different legislative acts with directives, regulations, decisions and recommendations into their national legislation and also to implement and to put them into a practice. Considering these tasks, environment *acquis* is the most difficult part for the accession countries as well as in financial terms since it costs about 80 to 120 billion euros which means 2-3% of their GDP. The EU contribution for this rate is about 10% which is not so considerable. (Europan Environmental Bureau, 2004). On the other hand, the estimated values of the benefits of EU directives implementation will range from 134 to 681 billion euros. With this context, the period of negotiations in the field of environment is not easy. As requested by the European Commission, the implementation of all EU legislation is obligatory with exception of some sectors that need high investment costs (Europan Environmental Bureau, 2004). However, the horizontal legislation sector, such as Environmental Impact Assessment and Public Access to Information, and nature protection sector are not included in this context. (Europan Environmental Bureau, 2004). Moreover, finalising to apply the norms related with these Directives is a precondition for EU pre-accession funding (DG Environment, 2002).

As regards to the environmental sector, the countries have some challenges concerning with this huge task which are give below (ECOTEC, 2001):

- ensuring the safe drinking water in all urban areas by improving and extending the water supply;
- improving the air quality;
- controlling the risks of accidents due to the dangerous substances from installations and minimising the risks of accidents;
- collecting, treating and disposing of waste from industrial plants, households and hospitals;
- protecting the natural habitats, eco-systems and the species by maintaining their sustainable development;
- reducing the emissions from large industrial plants as well as from the agricultural activities.

However, in spite of these challenges, there are also several benefits as regards to the transposition of the EU legislation such as (ECOTEC, 2001):

- to maintain a better public health, such as reduction in illnesses;
- reduction in damage to all natural resources and species;

- reduction in pollution which cause an increase in economic benefits and reduction in costs;
- promotion of tourism due to the positive increase in environmental conditions such as clean environment, increase in natural areas;
- reduction in the usage of primary materials due to the recycling system;
- increase in the costs due to the decrease in the treatment plants;
- increase in resource benefits with the sustainable use of environmental sources such as fishery, agriculture and forestry;
- increase in local and regional development as well as support in employment;
- increase in development of the society due to the increase in public participation and access to the information.

3. INTEGRATED ENVIRONMENTAL COMPLIANCE IN TURKEY

The Turkey-EU relationship started not long after the establishment of European Economic Union in 1958, with the application of Turkey to join this recently formed European Economic Community (ECC) in 1959. The EEC's response for this application was to suggest the establishment of an association until Turkey's circumstances allows for the accession. These negotiations finalised with the signature of the "**Agreement Creating an Association between the Republic of Turkey and the European Economic Community**", known as the **Ankara Agreement**, on September 12, 1963. This Agreement which entered into force on December 1964, had a purpose of securing Turkey's full membership in the ECC through establishment of a custom's union in three steps, which serves as an instrument to bring about integration between the EEC and Turkey (Okumus, 2002).

The **"Custom's Union"** between Turkey and the European Union came into force on January 1996 and created an economic and political relationship between the EU and a non-member country (Okumus, 2002).

During the European Council Meeting held on December 1999 in Helsinki, Turkey was officially recognised as a candidate country, without any precondition and on the basis of the same criteria applied to other candidate countries. Thus, Turkey became eligible, like other candidate countries for a pre-accession strategy to stimulate and support its reforms which includes an "Accession Partnership", combined with a National Program for the adoption of the *acquis communautaire*. The Accession Partnership sets out the principles, priorities, immediate objectives and conditions in the integration process decided by the European Council (NPED, 2002).

With this Accession Partnership, the priority areas on environment has been also underlined (Okumus, 2002; www.cevre.gov.tr):

- implementation and enforcement of the EU environmental *acquis*, mainly by developing a framework of sector legislation and strengthening the institutional, administrative and monitoring capacity, in order to provide environmental protection;
- implementation of *acquis communuataire* by giving a special importance to the framework legislation, horizontal legislation and also legislation on water quality and waste management, nature protection, establishment of

monitoring networks and permitting procedures, and environmental inspectorates;

- integration of sustainable development principles into the sectoral policies and also implementation and enforcement of the Environmental Impact Assessment Directive.

In response to this Accession Partnership document, Turkey submitted its *National Programme* to the European Commission on 19 March 2001 for the year 2003, which is composed of 29 chapters including the Environment' chapter. The programme establishes Turkey's priorities in the short and medium term with the purpose of harmonizing the Turkish legislation with the EU *acquis*. During the harmonization process, the realisation of the following point will take into consideration (MEF, 2006):

Legislative Compliance: the environmental policies, legislation and their implementation which are not complementary with the *acquis communautaire* will be defined and eliminated.

Implementation: the necessary steps will be taken in order to harmonize the existing legislation with *acquis communautaires* by using modern technologies in the environmental infrastructure and in the industrial sector. Also after the harmonisation, the establishment of appropriate and efficient institutional structure with a budget which leads the management of the national legislation as well as to implement necessary control and penalty mechanisms.

Investment: the necessary measures will be taken for the financing of the investments by respecting the environmental harmonisation process.

3.1. History of Environmental Issues in Turkey

The concept of environment has started in Turkey during the 1970s. In 1978, the Prime Ministry Undersecretariat for Environment was founded under the responsibility of the state ministry. The Undersecretariat was the main responsible for the coordination of national and international activities as well as to prepare regulations and environment policy and to sustain coordination between the other related governmental organisations (Okumus, 2002).

In 1991, the Undersecretariat for the Environment became the Ministry of Environment. This change allowed the increase of the responsibilities and the power of the Ministry for implementing and enforcing policies in the protection of environment (www.cevre.gov.tr). At present, during the harmonisation process on environmental issues, the responsible authority for the general coordination is the Ministry of Environment and Forestry.

In Turkey, the executive process is divided into two groups which are the central and the local administration. The central part is composed of provinces, districts and other levels and is responsible for the services on country-wide; where as the local ones are the institutions responsible for the common needs of the population in the provinces, municipal territories and villages (MEF, 2006).

The Environment Law which came into force in 1983, considers the environment as a whole; not only to prevent and eliminate environmental pollution, but also to protect the natural sources and their habitats. As stated in the Constitution, citizens are also responsible to protect the environment. Concerning all the economic activities, the law states that, in order to reduce or minimize pollution, all the necessary measures should be taken (Okumus, 2002).

In line with the Environment Law, several regulations have been implemented since 1983 such as (Okumus, 2002):

- Air Quality Control Regulation (1986)
- Noise Control Regulation (1986)
- Water Pollution Control Regulation (1988)
- Control of Solid Waste Regulation (1991)
- Environmental Impact Assessment Regulation (1992)
- Regulation on Control of Medical Waste (1993)
- Control of Toxic Chemical Substances and Products Regulation (1993)
- Control of Hazardous Wastes Regulation (1993)

In 2003, the unification of Ministry of Environment with the Ministry of Forestry, had an negative influence on policy making issues in environment. The Ministry of Forestry is, in Turkey, the older Ministry, with the larger staff and power (regional and local offices; laws; directives, *etc*.). On the other hand, a Ministry of Environment has to deal with very numerous issues, related to diversity, fishery, agriculture, health, tourism, *etc*. Even if in Turkey, this Ministry is more recent, with

less staff and technical capacities, its merging with Forestry Ministry was probably a mistake, decreasing its freedom to deal with Environment.

3.2. The General State of Environment in Turkey

Turkey as being situated between Asia and Europe has a unique and a bridge position for the two continents. The country covers an area of 779,452 square kilometres with a 8333 kilometre coastline along the Black Sea, Marmara Sea, the Aegean Sea and the Mediterranean Sea (Fig. 4).

Turkey is a developing country with its important natural sources, socio-cultural potential and dynamic population which the 68.6% live in urban centres (Okumus, 2002). There are seven geographic regions which show great difference in geological, environmental and climate issue: Black Sea, Marmara, Aegean, Mediterranean, Central Anatolia, Eastern Anatolia and South Eastern Anatolia (Fig. 4).

Air pollution is a major problem in Turkey due to rapid economic development, uncontrolled urbanisation including sulfur-dioxide, suspended particles, nitrogen oxides and carbon dioxide. Industrial exhausts, together with emissions attributable to industrial power use, is the main source of almost 40% of the total sulfur-dioxide pollution (Okumus, 2002). The motorized vehicles are the main source of carbon monoxide, hydrocarbons and nitrogen oxides especially in the large cities. Over the past decade, the expanding use of natural gas in the residential heating, the increase in the number of vehicles using unleaded gasoline equipped with catalytic converters; the increase in the use of coals with the reduced sulphur content have important improvements in the air quality and the reduction of the air pollution. (NPED, 2002).

The **chemical industry** sector causes an important problem in Turkey mainly due to the utilisation of chemical substances without taking necessary measures (NPED, 2002).

Another problem which is caused by the technological development, fast industrialisation and urbanisation is **noise** mainly originated from industrial facilities, vehicles of transportation (NPED, 2002).

Figure 4: Localisation of Turkey, Romania, and Bulgaria around the Blak Sea, between the Asia and European continents. The main seven regions of Turkey (see text) are figured.

In terms of **biodiversity** Turkey is one of the richest countries of Europe and Middle East, and ranks ninth on the European Continent due to its geological position. Difference in the climate, variety in topography, geology and geomorphology, variety found in sea, lake and river environment also play an important role for this biodiversity (NPED, 2002). More than130 species of mammals, 450 of birds, 100 of reptiles and 400 of fish have been recorded in Turkey (NPED, 2002; MEF, 2006).

3.3. The Sectors of Harmonisation Process

3.3.1. Water Sector

Present Situation

The demand for water has increased since several years due to the high population growth rates and economic developments, including increased irrigation in the agriculture sector. These factors also effect the existence and the quality of water resources (Okumus, 2002).

According to the survey of Municipality Sewage Statistical which has been carried out in 2004, it was defined that 1421 municipality out of 1911 provided services through a sewage system and by this system 47% of 2.77 billion cubic metres of waste water was discharged into the rivers, 39.3% to the seas, 4.2% to the dams, 1.9% to the lakes, 1.3% to the fields and 6.3% to other receiving environment. 1.68 billion cubic metres of water from 2.77 billion cubic metres of water which was discharged through the sewage system was treated in the treatment plants. There is 58.5% of biological treatment, 28.3% physical treatment and 13.2% advanced treatment for the wastewater (NPED, 2002).

In 1996 total water consumption was 34 billion cubic metres. 92.20% of the municipal population is served by a drinking water, 2.45% is supplied water from wells, 1.67% from public fountains and 0.65% from natural springs (Okumus, 2002) The annual drinking water consumption was almost 74 cubic metres *per capita* where as the average due to the EU standards was about 100 cubic metres (Okumus, 2002).

The surface area of fields which need irrigation is about 8.5 million hectares. The most important problems according to agricultural irrigation are the insufficient water supply and lack of drainage systems (NPED, 2002).

The pollution related with the marine environment is another important problem in Turkey. One of the main reason for this problem is the increased shipping traffic especially through the Straits. With the high volume of oil being shipped, oil tanker accidents can cause the release of large quantities of oil into the marine environment (Beatley *et al*., 2002; Istikbal, 2002). Moreover, the presence of large oil and gas carrying ships cause another problem such as the release of contaminated waters as the ships ballast their holds (Dobler, 2002). Due to this problem, there is a decline in

fish stocks. Within this context, Turkey is a Party of Barcelona (Convention on the Protection of Mediterranean Sea Against Pollution) and Bucharest (Convention on the Protection of Black Sea Against Pollution) Conventions. According to the obligations of these Conventions, a National Action Plan for Land Based Sources has been prepared. With the purpose of this Action Plan, analysis, monitoring and reporting studies will be done (NPED, 2002).

The responsible authorities for the protection and management of water quality are: Ministry of Environment and Forestry, Ministry of Energy and Natural Resources, Ministry of Agriculture and Rural Affairs, Ministry of Tourism, Ministry of Health, Undersecretariat of Maritime Affairs, the State of Hydraulic Works, Bank of Provinces, the Coast Guard, the Coastal Safety and Vessel Rescue Administration and the State Maritime Enterprise (Okumus, 2002).

The main legislation for this sector is the Regulation on the Control of Water Pollution which establishes the principles for the discharge of water into ground and surface waters. The Regulation on Water Products defines water quality standards. The Law numbered 5312 about the Emergency Interference and Indemnification in Case of the Pollution of Sea Environment by Petroleum and other Harmful Substances defines the emergency issues for the marine pollution.

Purposes and Targets

The purposes and the strategies are established within the framework of Water Directive. Within this framework; Directive on the Treatment of Urban Waste Water, Directive on the Drinking Water, Water Framework Directive, Directive on the Dangerous Substances in Water, Nitrate Directive and Swimming Water Directive have the priorities for the investment processes (Tab. I).

Table I: Strategies related to Water Directive in the EU accession process (adapted from MEF, 2006)

Objectives	Related Laws in force	Strategies
Monitoring and preventing of pollution for the underground, surface and shoreline waters	By-Law on Control of Pollution by Dangerous Substances in Water	- determination of sensitive and less sensitive areas until 2009, - public awareness to respect the water pollution
Establishment of sewage systems and treatment facilities	By-Law on Urban Waste Treatment	- choosing the appropriate technologies by respecting to the sensitive and less sensitive water area
Monitoring and preventing of pollution which is caused by nitrate originating agricultural resources	By-Law on the Protection of the Waters against Nitrate Originating from Agricultural Sources	- determination of sensitive areas until 2007, - application of best agricultural practices in these determined areas, - monitoring of these areas in terms of improving water and soil quality for the nitrates
Sustainable utilisation of natural water sources and their ecosystems by preventing the pollution from boron which comes from the discharge of geothermal waters	By-Law on Control of Pollution by Dangerous Substances in Water and its Environment Control	- preparation of an action plan until 2010, - public awareness mainly concern the public and private institutions for the efficient utilisation of water, - elimination of the drainage water by re-injection system, - preparation of Water Framework Directive
Supply of drinking water with a better sanitary conditions and make available for the utilisation of more people. For this purpose, increase of the laboratory capacity where we can follow these parameters effectively	By-Law on the Quality of the Surface Waters from which Drinking Water is Obtained or Planned to be Obtained	- monitoring of the quality standards , - establishment of new treatment facilities according to the law, - the classification and the determination of available treatment facilities, - preparation of an action plan until 2011 for a systematic drinking water catchments protection, - distribution of sanitary drinking water to a high quantity of people, - supply of water with a sufficient quantity as well as provide sanitary conditions to the regions where these circumstances are insufficient
Determination and prevention of pollution due to the discharge of the dangerous substances in the water	By-Law on Protecting the Waters from Nitrates Pollution	- Establishment of the national monitoring network until 2011, - preparation of national programmes until 2012 on pollution reduction, - encouragement of utilisation of clean production technologies

Monitoring and prevention of pollution of waters used for swimming and also recreational purposes	- By-Law on the Quality of Swimming Water - By-Law on the Quality of Water Used for Human Consumption	- development of the capacity of laboratories which are responsible for the monitoring and establishment of a reporting system for the usage of water for swimming until 2015, - establishment of suitable treatment facilities, waste water discharge and disinfection systems, - monitoring and protection of the swimming and recreational areas and report on the activities regularly, - determination of suitable swimming areas and inform public about these areas
Processing of the sludge which is coming from the treatment facilities as well as their utilisation by appropriate methodologies	By-Law on the Urban Waste Treatment	- determination and utilisation of the treatment sludge principles on the soil

According to the legislative compliance with EU Directives, the following legal framework has been done (MEF, 2006):

- By-Law on the Protection of the Groundwater Against Pollution by the Dangerous Substances
- By-Law on the Quality of Fresh Waters needing Protection or Improvement in order to Support Fish Life
- By-Law on the Quality Required of Selfish Waters.

In order to provide the requirements of Water Framework Directive, the studies are going on to establish a Law on Water but the full harmonisation could be possible with the EU membership (MEF, 2006).

3.3.2. Waste Sector

Present Situation

In 2004, a total of 24.2 million tons of solid waste was collected which shows the daily average solid waste as 1.34 kg/person. The 46.7% of this total solid waste was disposed in the municipal garbage dumps, 28.9% was disposed in regular landfill sites, 15.6% in the garbage dump of the metropolitan municipalities, 3.0% in the garbage dump of other municipalities, 1.6% by burying, 1.4% in the composting facilities, 0.3% by burning in the open area. Within these results, 30% of domestic solid waste is landfilled regularly (MEF, 2006).

The data related to the hazardous waste production is very well known in Turkey. According to the data for the year 1995, there were about 7 to 8 million tonnes of hazardous wastes (Okumus, 2002) According to another survey which was carried out in 2004, 1.196.000 tons of hazardous waste was produced annually. 8% of this hazardous waste was recycled, 45% was sold or donated and 47% was disposed (MEF, 2006).

According to the data related to the medical waste depends on the survey which was carried out in 2004, 70.000 tons of medical waste was collected in 2004. From these collected medical wastes; 16% was disposed in the garbage dump of metropolitan municipalities, 27% in the municipal garbage dumps, 23% in regular landfill sites, 20% in the combustion facilities, 10% by burying and 4% by burning in the open area. (MEF, 2006).

The responsible authorities for solid waste management in Turkey are the Ministry of Environment and Forestry, the Ministry of Industry and Trade, the Ministry of Interior Affairs, the Ministry of Public Works and Settlement, the municipalities, the Chambers of Trade and Industry, the Turkish Standard Institute, and the State Planning Organisation (MEF, 2006).

The main legislative regulation for this sector are Control of Solid Waste, Control of Medical Wastes and Hazardous Waste Control Management which is responsible for assessing any adverse impacts (Okumus, 2002).

Purposes and Targets: they are developed in the Table II.

According to the legislative compliance with EU Directives, the following legal framework has been done (MEF, 2006):

Effective in 2004

- By-Law on the Control on the Oil Waste
- By-Law on the Battery and Accumulator Waste
- By-Law on the Control of Excavation Soil, and Construction and Wreckage Waste
- By-Law on the Control of the Hazardous Waste.

The others which will be completed end of 2006:

- By-Law on Waste Framework
- By-Law on Waste Catalog
- By-Law on Shipment of Waste
- By-Law on Combustion of Waste
- By-Law on PCB/PCT
- By-Law on End of Life Vehicles.

The others which the studies still going on are:

- By-Law on Waste of Electrical and Electronic Devices
- By-Law on Limitation Restriction of the Utilisation of Hazardous Substances in the Electrical and Electronic Devices.

Table II: Strategies related to Waste sector in the EU accession process (adapted from MEF, 2006).

Objectives	Related Laws in force	Strategies
Taking of necessary measures for recycling and systematic landfill of the solid waste	- Regulation on Control of Solid Waste - By-Law on the Landfill of the Waste (planned at the end of 2006)	- establishment of a National Strategy which leads to the reduction of biodegradable waste, - establishment of the capacity for monitoring, controlling and measuring the solid waste disposal, - establishment of a licensing system for the recycling of solid waste, - public awareness on the recycling and solid waste disposal, - establishment of a financing system for waste management by giving importance to "The Polluter Pays Principle"
Reduction of solid waste	Regulation on Control of Solid Waste	- establishment of the capacity for monitoring, controlling and measuring the solid waste disposal,
Taking of necessary measures related to the packaging and management of packaging waste by giving attention to the competition at EU and national level	By-Law on the Control on the Packaging and Packaging Waste	- Reduction in utilisation of hazardous substances in the packaging materials, batteries, electrical and electronic equipment, - encouragement of the packaging in a way that re-utilisation or recycling is possible, - establishment of a financing system for waste management by giving importance to "The Polluter Pays Principle"
Management of hazardous waste	Regulation on Hazardous Waste Control Management	- establishment of the capacity for monitoring, controlling and measuring the solid waste disposal, - establishment of a financing system for waste management by giving importance to "The Polluter Pays Principle", - preparation of a solid waste management plan
Management of medical and special waste	By-Law on the Control of the Medical Waste	- establishment of the capacity for monitoring, controlling and measuring the solid waste disposal, - establishment of a financing system for waste management by giving importance to "The Polluter Pays Principle", - preparation of a solid waste management plan

3.3.3 Air Sector

Present Situation

In Turkey, the main reasons for the pollution depends on rapid increase in population and intensive migration to the big cities, industrialization, rapid and intensive urbanization, selection of wrong location places for the industrial establishments. According to the air pollution in the big cities, especially during the winter time, utilization of grade fuel in heating without having an improvement process and also the exhaust gases from motorized vehicles which are the significant source of carbon monoxide, hydrocarbons and nitrogen oxides (MEF, 2006).

However, since last 10 years, there has been a decrease in air pollution mainly in large cities due to the utilization of natural gas and other high grade fuel in heating. Utilization of natural gas takes about 10% of Turkey's total energy supply (Okumus, 2002).

The main responsible authorities for the air quality are the Ministry of Environment and Forestry, the Ministry of Energy and Natural Resources, the Ministry of Health, the Ministry of Industry and Trade, the State Planning Organisation, the municipalities, the State Institute of Statistics, and the Turkish Standards Institute (MEF, 2006).

According to the changes in the Environment Law at 26.04.2006 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 public awareness and access to information and related jobs are realized by Ministry of Environment and Forestry"* (MEF, 2006).

The main legislation for air pollution and air quality management is the Air Quality Regulation.

Purposes and Targets: they are developed in the Table III.

Table III: Strategies related to Air sector in the EU accession process (adapted from MEF, 2006).

Objectives	Related Laws in force	Strategies
Establishment of air quality targets	By-Law on Air Quality Need of a regulation that defines the targets	- finalisation of all studies on air quality preliminary assessment until 2012 - establishment of air quality monitoring and measurement stations until 2012 that provides regular data to be reported to EC, - review and improvement of present institutional structure to eliminate the authority confusion
Establishment of air quality by the methods and criteria that already defined	By-Law on Air Quality	- finalisation of all studies on air quality preliminary assessment until 2012, - establishment of air quality monitoring and measurement stations until 2012 that provides regular data to be reported to EC, - establishment of Air Quality Monitoring Network Management Center, - establishment of the National Data Center as well as a reporting system, -establishment of the regional and National Calibration Center, -preparation of the emission inventory
Collection of information about the air quality and public awareness	By-Law on Air Quality	- finalisation of all studies on air quality preliminary assessment until 2012, - establishment of air quality monitoring and measurement stations until 2012 that provides regular data to be reported to EC, - review and improvement of present institutional structure to eliminate the authority confusion, - preparation of Action Plans on clean air, - establishment of Air Quality Monitoring Network Management Center, - establishment of National Data Center as well as a reporting system, - establishment of regional and National Calibration Center, - preparation of Action Plans for clean air and to prevent pollution, - public awareness on air pollution
Protection of environment and the human beings from the air pollution due to the exhaust gases from the motorized vehicles	By-Law on Control of Air Pollution Arising from Motor Vehicles in Traffic	- finalisation of all studies on air quality preliminary assessment until 2012, - establishment of air quality monitoring and measurement stations until 2012 that provides regular data to be reported to EC, - preparation of Action Plans for clean air and to prevent pollution, - establishment of policies that motivates the reduction of air pollution, - public awareness on air pollution, - coordination between the related sectors to obtain the limit values

Improvement of fuel quality	By-Law on the Quality of Petrol and Diesel Fuel	- coordination between the related sectors to obtain limit values, - utilisation of the best techniques in the industry sector for the implementation of the air quality requirements
Utilisation of environmental friendly technologies		- preparation of Action Plans for clean air and to prevent pollution, - preparation of plans for the implementation of the changes in fuel quality as well as decrease in carbon dioxide and greenhouse gas emissions, - establishment of Air Quality Monitoring Network Management Center, - establishment of National Data Center as well as a reporting system - establishment of regional and National Calibration Center - coordination between the related sectors to obtain limit values, - utilisation of the best techniques in the industry sector for the implementation of the air quality requirements

According to the legislative compliance with EU Directives, the following legal framework has been done (MEF, 2006):

- By-Law on Air Pollution the Control from Heating
- By-Law on Industrially Air Pollution Control
- By-Law on Gasoline and Diesel Quality and 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.

Also, the EU Directive on the Petrol and Diesel Fuels used in the Motor Vehicles was transferred into Turkish legislation and the related regulation was prepared (MEF, 2006).

The process of harmonisation related to the EU Directive on the Sulphur Content in the fuel oil used in the Industry and Heating, the Directive on Volatile Organic Compounds Originating from Gas Stations and the Directive on National Emission Ceiling Limits are still in progress (MEF, 2006).

3.3.4. Industrial Pollution Control Sector

Present Situation

According to the data for the year 2005, there are 1,890,785 establishments in Turkey and through these establishments 277,502 are dealing with the manufacturing sector. The manufacturing sector is the main responsible industry by creating pollution on discharge of waste water as well as by realising emissions to the air. Even there is no comprehensive research related with emissions, according to the survey which has been carried out in 1996 showed that only 10.3% of the establishments have permits on chimney gas emission (MEF, 2006).

The main reason of the air pollution from industrial sector is due to the utilisation of low grade fuel. The other pollution problem is related to the industrial waste water which released to the environment without any treatment facilities. According to the survey which has been carried out in 2004 about the Manufacturing Industry Waste Inventory; 2112 of the 4030 establishments were discharging 760 million cubic metres of waste water without processing any treatment (MEF, 2006).Also, only 1918 of the industrial facilities were discharging 385 million cubic metres of waste water

by making treatment. So, according to these data, we can say that from the manufacturing industry, 66% of the waste water is discharged to the environment without any treatment (MEF, 2006).

The responsible public authorities for this sector are the Ministry of Environment and Forestry, the Ministry of Health, the Ministry of Industry and Trade, the State Planning Organisation, the State Institute of Statistics, the municipalities, and the provincial offices of related ministries (MEF, 2006).

The only legal framework for the industrial pollution is the By-Law on the Control Of the Air Pollution Arising From Industrial Sources (MEF, 2006).

Purposes and Targets: they are developed in the Table IV.

According to the Legislative Compliance with EU Directives, the following works are carrying out (MEF, 2006):

- Integrated Pollution Prevention and Control
- Large Combustion Plants
- Limitation of Emissions of Volatile Organic Compounds due to the Use of Organic Solvents in Certain Activities and Installations
- Petrol Vapour Recovery
- The Control of Major Accident Hazards Involving Dangerous Substances
- Eco Labelling by-Law
- By-Law on EU Eco-Management and Audit Scheme.

According to the harmonisation process, the studies related to the Integrated Pollution Prevention and Control and Large Combustion Plants Directives have been started and still continuing (MEF, 2006). A draft by-law has been prepared for the harmonisation of Large Combustion Plants Directives.

There is a need for an integrated permit system on environmental issues since at present, for each environmental condition a different permit system is implemented. With this scope the studies are still going on with by the Ministry of Environment and Forestry (MEF, 2006).

Table IV: Strategies related to Industrial Pollution Control sector in the EU accession process (adapted from MEF, 2006).

Objectives	Related Laws in force	Strategies
Adoption and implementation of all directives related to the industrial pollution by giving attention to the investment needs as well		- reduction of emissions coming from industrial pollution, - control and prevention of industrial pollution and evaluation of the wastewater management in an efficient manner
Creation of the capacity which leads to make responsible single authority in order to facilitate the permission issues as well as providing an effective monitoring system		-redefining the responsibilities of the existing authorities in order to establish single authority, - strengthening the institutional structure of public and private sector for the effective application of the directives
Utilisation of the best techniques in the Industrial Facilities and Large Combustion Plants		- presentation of the best techniques to the related sectors as well as determination of the cost analysis for the application
Making necessary institutional arrangements for the evaluation of the data and establishment a reporting system related to industrial facilities and emissions		-monitoring and reporting the emissions of the industrial facilities as well as sharing these information with the public
Preparation of work plans including a cost analysis for the harmonisation of EU Directives on: "Integrated Pollution Prevention and Control", "Large Combustion Facilities" and "Seveso II"		- preparation of investment plans related with these Directives, - application of the best technologies in the manufacturing industry, - strengthening of the institutional capacity for the implementation of these best technologies
Preparation of inventories for the industrial facilities with related to the requirements of EU related directives		- preparation of the investment plans related with the harmonisation of EU Directives, - within the scope the Directive on Large Combustion Facilities strengthening of institution capacity and establishment of a system leads to monitoring and reporting of emissions

Even within the scope of by-law on Control of the Air Pollution arising from Industrial Sources some limit values have been established to protect the air quality, still there is no full conformity with the Directive. There is a need of new regulation which leads to measurement and monitoring methods, determination of the numbers, places and capacities of the industrial facilities (MEF, 2006).

Related with the Directive on Petrol Vapour Recovery, there is still no complete harmonisation (MEF, 2006).

Related with the Directive on Control of Major Industrial Accidents involving Dangerous Substances (Seveso II), a draft by-law on Control of Major Industrial Accident Hazards has been prepared but not into force yet (MEF, 2006).

The studies related with the Eco-Labelling Statute and Eco-Management and Audit Scheme (EMAS) which is a voluntary act has not been started yet.

3.3.5. Noise Sector

Present Situation

In Turkey the origins of noise pollution are: land, air, sea and railways traffic; industrial areas; construction and all the entertainment places. There is no specific evaluation about the present situation of noise pollution in Turkey (NPED, 2002).

The authorities responsible for this sector are the Ministry of Environment and Forestry, the Ministry of Tourism, the Ministry of Transportation, the Ministry of Public Works and Settlements, and the municipalities (MEF, 2006).

The main legal framework for this sector is: By-Law on Environment Audit, By-Law on Environment Health Audit and Auditors and By-Law on the Evaluation of Environmental Noise (MEF, 2006).

Purposes and Targets: they are developed in the Table V.

Table V: Strategies related to Noise sector in the EU accession process (adapted from MEF, 2006).

Objectives	Related Laws in force	Strategies
Preparation of strategic noise maps for the areas having population more than 250 thousand as well as more than 100 thousand		- enforcement of institutional capacity in order to prepare the noise maps, - collection of necessary information related with the source of noise such as highways, railways, airports and industry, - preparation of guide books related with the determination and measurement of the noise level
Preparation of Action Plans related to reduce the noise pollution	By-Law on the Evaluation and Management of Environmental Noise	- determination of limit values until 2007, - enforcement of institutional capacity in order to prepare the action plans, - preparation of user's guide related to the measures of noise control
Public awareness on environmental noise and its effects		- participation of public during the preparation process of action plans and noise maps, - enforcement of institutional capacity in order to prepare the action plans

Legislative compliance with EU Directives: the Directive about the Assessment of Environmental Noise and Its Management was fully reflected to the Turkish legislation. But for the implementation of this Directive which requires the establishment of the noise management plans, there is a need to establish the responsible authorities or units (MEF, 2006).

3.3.6 Chemicals and Genetically Modified Organisms Sector

Present Situation

In Turkey, the chemical industry produce approximately 2600 chemical substances with the 20.1515 companies in operation. Through out these companies, 90% of them are small and medium sized companies (MEF, 2006). Within the chemical industry sector there are different parts that produce, use and import chemical materials and

substances. At present, the existing information about this sector is very low since there is no efficient registration system related with production, importation and exportation of the chemicals. Also, there is no systematic control due to the lack of efficient institutional structure as well as the qualified persons and appropriate laboratories for carrying out controls (MEF, 2006).

Like Chemical Industry sector, the knowledge about the genetically modified organisms (GMO) is also very weak. According to the provisions of Bio-Safety Protocol (Turkey is a Signatory Party), a draft Bio-Safety Act has been prepared. Within the purpose of this Act, a risk evaluation should be done before the introduction of these organisms into the market and a permission should be given by a responsible authority for their utilisation (MEF, 2006).

The main responsible authorities for these sectors are the Ministry of Environment and Forestry, the Ministry of Health, the Ministry of Agriculture and Rural Affairs, the Ministry of Interior Affairs, the Turkish Standards Institute, and the municipalities (MEF, 2006).

The main legal framework are: By-law on Chemicals, By-law on Dangerous Chemicals, By-law on the Bases and Methods of the Certification of Pesticide and Similar Substances used for Agricultural Contention, By-law about the Principals of Applications of abundant Laboratories and Certification of Testing Laboratories, the Law approving the Kartegena Protocol about Biological Security, By-law on Experimental Animals used for Experiments or other Scientific Tests, Production Places of Experimental Animals and the Methods and Basis of the Establishment, Operation and Auditing of Experiment Laboratories (MEF, 2006).

Purposes and Targets: they are developed in the Table VI.

Table VI: Strategies related to Chemicals and Genetically Modified Organisms sector in the EU accession process (adapted from MEF, 2006).

Objectives	Related laws in force	Strategies
Prevention of inappropriate utilisation of dangerous chemicals as well as reduction of their adverse effects related with the accidents	By-Law on Chemicals	- harmonisation of related EU Directives as well as enforcement of institutional structure, - establishment of a system that leads to inventory and information about the existing chemical substances, - establishment of a Data Bank which provides the implementation of EU Directives after their harmonisation, - determination of the responsible authorities for the implementation of EU Directives, - increasing the capacity of institutions related with chemical sectors
Creation of an information system related to the specific dangerous chemical substances	By-Law on Chemicals	- harmonisation of related EU Directives as well as enforcement of institutional structure, - establishment of a system that leads to inventory and information about the existing chemical substances, - establishment of a Data Bank which provides the implementation of EU Directives after their harmonisation, - determination of the responsible authorities for the implementation of EU Directives, - increasing the capacity of institutions related with chemical sectors
Protection of human health and environment by providing international information exchange on the risks of dangerous chemical substances		- harmonisation of related EU Directives as well as enforcement of institutional structure, - establishment of a system that leads to inventory and information about the existing chemical substances, - establishment of a Data Bank which provides the implementation of EU Directives after their harmonisation, - determination of the responsible authorities for the implementation of EU Directives, - increasing the capacity of institutions related with chemical sectors
Reduction of hazardous waste by the implementation of related Directives which prohibit the utilisation of dangerous chemical substances		- harmonisation of related EU Directives as well as enforcement of institutional structure, - establishment of a system that leads to inventory and information about the existing chemical substances, - establishment of a Data Bank which provides the implementation of EU Directives after their harmonisation, - determination of the responsible authorities for the implementation of EU Directives, - increasing the capacity of institutions related with chemical sectors, - preparation of a strategy for the constructions with asbestos

Reduction of adverse effects of biocides on human health and environment	By-Law on Chemicals	- enforcement the capacity of institutions
Providing the implementation of Good Laboratory Practices (GLP)		- immediate harmonisation with the Directives of GLP as well as establishment of necessary institutional structure, - development of an accreditation system related with GLP Directive
Reduction of the utilisation of animals for experimental purposes	By-law on Experimental Animals Used for Experiments or Other Scientific Tests, Production Places of Experimental Animals and the Methods and Basis of the Establishment, Operation and Auditing of Experiment Laboratories	- harmonisation of the related Directives for the experimentation on animals, - establishing a system which provides information network and collection of data related with the experimentation on animals
Reduction the risks of GMOs and taking under control of their production		- harmonisation of the related Directives about GMOs, - enforcement the capacity of institutions, - preparation of the legislation related to the Bio-Safety Protocol

Legislative compliance with EU Directives: there are 15 directives in the Chemical sector which are divided into 3 sub-groups: Chemicals, Good Laboratory Practices and Genetically Modified Organisms (MEF, 2006).

The EU legislation related with chemical is REACH by-law become effective this year, leads to the management of chemicals (Registration, Evaluation and Authorisation of Chemicals). Within scope of this, Chemicals Technical Assistance Project has been carried out and will finalise in May 2007 by the financial assistance of EU programme (MEF, 2006).

The Directive about Special Information System (91/155/EEC) was fully reflected to Turkish legislation.

The Directives about the Dangerous Substances (67/548/EEC), Dangerous Preparations (99/45/EEC), Restrictions on the Marketing and Use of Certain Dangerous Substances and Preparations (79/791/EEC), Directive on Asbestos and Directive on Experiments involving Animals (86/609/EEC) were partially reflected to Turkish legislation (MEF, 2006).

Within the Council by-law (793/93/EC) Pertaining to the Risk Evaluation and Control of Some Dangerous Substances, Council by-law (304/2003) Pertaining to the Imports and Exports of Dangerous Substances, Commission Directive on the Introduction of Biocide to the Market (98/8/EC), there is no existing Turkish legislation suitable for the harmonisation (MEF, 2006).

The studies related to the GMO Directives have not been carried out yet.

3.3.7. Nature Protection Sector

Present Situation

Turkey's unique situation between the continents of Europe and Asia provides its rich biological structure as well as different climatic conditions, topographic variations, geologic and geomorphologic differences (Okumus, 2002).

There are more than 10.000 plant species which of these 3000 are endemic species, specific to Turkey (MEF, 2006) Some of these endemic species are localised in

mountain areas whereas the others are mostly localised in the eastern part of country. (Okumus, 2002) Regarding the fauna species, there are 132 mammals, 457 bird species which 250 of them are migratory and around 105 reptilians (MEF, 2006).

There are 37 national parks, 33 nature reserve areas, 18 natural parks, 102 natural monuments, 14 specially protected areas, 108 wildlife protection areas, 188 genetic conservation areas, 56 conservation forests and 12 RAMSAR sites (wetland areas according to RAMSAR Convention) (MEF, 2006).

However, the destruction of biodiversity is a serious and continuing problem as a result of rapid development in urbanisation, tourism, pollution, forest fires, construction of dams and power plants, intensive use of pesticides, illegal cutting and clearing of forests (Okumus, 2002).

The main responsible authorities for the nature protection are the Ministry of Environment and Forestry, the Ministry of Agriculture and Rural Affairs, the Ministry of Interior, the Ministry of Culture, the Ministry of Public Works and Settlement, the Ministry of Tourism, the Ministry of Energy and Natural Resources, the State Hydraulic Work, the municipalities, and the Technical Research Council of Turkey (TUBITAK).

The main national legislative measures are: Law No 2872 on Environment, Law No 2873 on Natural Parks, Law No 2863 on the Protection of Cultural and Natural Heritage, Law No 4915 on Terrestrial Hunting, Law No 5199 on Animal Protection, Law No 4856 on the Establishment and Duties of Ministry of Environment and Forestry, Law No 6831 on Forests, Law No 1380 on Fisheries, By-law on Conservation of Wetlands, Statutory Decree No 383 on the Establishment of the Authority for the Protection of Special Areas (MEF, 2006).

The international Conventions and Protocols ratified are: Convention Concerning Protection of Cultural and Natural Heritage (1983), Bern Convention (1984), Barcelona Convention (1988), Bucharest Convention (1994), Ramsar Convention (1994), CITES Convention (1996), Convention on Biological Diversity (1997), Convention on Combatting Erosion (1998), and European Landscape Convention (2003).

Purposes and Targets: they are developed in the Table VII.

Table VII: Strategies related to Nature Protection sector in the EU accession process (adapted from MEF, 2006).

Objectives	Related laws in force	Strategies
Achievement the compatibility with *acquis communautaire*	Law No 2872 on Environment	- enforcement of the institutional capacity and improvement of technical infrastructure, - review of existing protecting habitats and establishment of Natura 2000 sites, - establishment of a scientific committee for the biological diversity, - rising public awareness campaigns for nature protection, - establishment of effective coordination, cooperation and flow of information between related administration authorities responsible for the nature protection, - identification and decrease of the factors causing the loss of biological diversity, - establishment of CITES office related with CITES legislation, - making necessary legal arrangements for the management and improvement of Hunting Directives as well as providing effective coordination between hunting interest groups.

Legislative compliance with EU Directives: According to the Habitat and Bird Directive which is the main EU Directive for nature protection; the Law on National Parks No 2873, Law on Land Hunting No 3167 and the others can not reflect all the necessary requirements of this Directive. For this purpose, a draft Law on Biodiversity and Nature Protection has been prepared (MEF, 2006).

According to the Convention on International Trade in Endangered Species of Flora and Fauna (CITES), the national legislation partially covered the needs in order to implement the convention (MEF, 2006).

Regarding the legislation for Zoo; Law on Establishment and Work Principles and Procedures of Zoos is being prepared with the framework of Land Hunting Law and Animal Protection Law (MEF, 2006).

According to the keeping of wild animals in zoos and protection of biological diversity, still there is no harmonisation between EU Directive and Turkish legislation.

3.3.8. Horizontal Sector

Present Situation

The Horizontal Sector concerns mainly the environmental impact assessment and access to information. With regard to Environment Impact Assessment, there is a conformity with EU Evaluation of Environmental Effect Directive. However, still there is a need for the capacity strengthening of the related institutions in order to implement the directive efficiently (MEF, 2006).

The Law on the Right to Gain Information and a by-law related with this Law is in force. Also, with this regard, in 2002 with the help of Financial Assistance of EU Financial Cooperation Programme, an Environment Information System was created (MEF, 2006).

Purposes and Targets:: they are developed in the Table VIII.

Legislative compliance with EU Directives: Within the framework of the Law on the Right to Gain Information, a by-law numbered 2004/7189 is also published. With these, the needs of EU Directive on Providing Environmental Information is mainly covered. However, still there is a need to strength the harmony with EU Directive in order to provide public information on environment (MEF, 2006).

Within the framework of the Evaluation of Environmental Effect, the existing by-law is revised according to the needs of EU Directive and came into force on 16.12.2003. Moreover, a draft by-law on Strategic Environmental Evaluation is prepared (MEF, 2006).

Table VIII: Strategies related to Horizontal sector in the EU accession process (adapted from MEF, 2006).

Objectives	Legislation in force	Strategies
Establishment of Turkish Environmental Information Transformation Net	Law on the Right to Gain Information	- creation of a network on environment transformation exchange, - increasing public awareness to access environmental information, - provide of regular information for the environmental information system, - creation of legal basis to exchange information between the institutions and authorities, - regular monitoring of environmental performance
Implementation of Environmental Impact Assessment (EIA)	By-Law on the Evaluation of Environmental Effect	- strengthening of the existing institutional structure, -preparation of guidelines as well as training courses for EIA
Implementation of Strategic Environmental Evaluation (SEE)	By-Law on the Evaluation of Environmental Effect	- strengthening of the existing institutional structure, -preparation of guidelines as well as training courses for SEE, - preparation of pilot projects related to the application of sectoral guides on SEE

3.4. Institutional structures involved in the Harmonisation Process

In the previous chapters, the purposes, targets and the existing legislation have been reviewed for each sector. It would be also important to do the same review at the institutional structure level to highlight the needs (Tab. IX).

Table IX: Needs at the institutional structure level to fulfill the EU accession process (adapted from MEF, 2006).

Name of the Sectors	Institutional Needs
Water Sector	- need of an additional personnel, approximately 9000 for the full harmonisation of water sector, - need of an establishment of a new "Framework Water Act" in order to avoid duplications on controlling, giving permissions on environmental management plans, - need of an emergency centers concerning the pollution in the sea in order to act immediately in case of an accident causing pollution of petroleum or other dangerous substances
Waste Sector	- need of an additional personnel, approximately 3000 for the full harmonisation of waste sector, - need of an enforcement for the Ministry of Environment and Forestry mainly concerning with local administrations in order to obtain effective control on the waste management
Air Sector	- need of an enforcement of institutional capacity, - need of training of the personnel, - need of technical equipment to monitor the air quality
Industrial pollution control sector	- need of enforcement of public and private sector capacity mainly concerning the requirements of Integrated Pollution Prevention and Control Directive, - need of an establishment of one single authority who is responsible for giving permissions and monitoring activities - need of an additional personnel approximately 700, especially for the implementation of the Directives under Industrial Pollution and Risk Management
Noise Sector	- need of enforcement of institutional structure concerning with the Assessment of Environmental Noise and its Management Directive, especially for the Ministry of Environment and Forestry and the municipalities, - need of additional personnel to work in the noise units who will be responsible for the preparation of noise maps and action plans in order to reduce the noise
Chemicals and Genetically Modified Organisms	- need of a more strong institutional framework in order to establish and develop of policies related to the chemical and GMO sector, - strong need of a personnel and necessary equipments for monitoring and controlling the noise pollution as well as GMOs

Nature Protection	- need of an establishment of a single responsible authority in order to prevent the duplications and to improve the efficiency of the work, - need of an additional personnel, - need of a qualified personnel infrastructure for the creation of a scientific authority which is planned under the implementation works, - the scientific authority should be responsible in order to implement the scientific aspect of the Bird Habitat Directive, Directives for Zoos and CITES legislation as well as training, carrying out inventory work, coordination of scientific work and permits of CITES
Horizontal Legislation	- need of an additional 500 personnel who will be responsible in the implementation of Strategic Environmental Directive Evaluation in central and local areas, - need of enforcement of existing institutional structure, - need of an additional personnel for the Environment Information System and National Environmental Information Transformation Network in order to supply new data flow and information changes at the national and EU laws level

4. INTEGRATED ENVIRONMENTAL COMPLIANCE IN ROMANIA AND BULGARIA

4.1 Romania

4.1.1. General View

Romania (Fig. 4, p. 22) has a land area of 237,500 square kilometres which is divided between mountains, hills, plains and plateau. Romania's natural environment had lots of damage due to the its communist regime in the past and even after the transition to democracy, it took much more time that the environmental protection become an important issue (EIA, 2003).

The Ministry of Waters and Environmental Protection was established in 1990, and it was renamed in 1992 as the Ministry of Water Resources, Forests and Environmental Protection (MWFEP). In 1995 the Environmental Protection Law was adopted by the Parliament; it provides the basic principles for the protection of natural resources and their habitats as well as principles on environment management, based on the human solidarity and common interest. Within this regard, the issue of the cooperation of public authorities, users of natural resources and the representatives of local community became very important.

The Ministry of Waters Resources, Forests and Environmental Protection is responsible to control 42 **territorial Agencies of Environment Protection** who are local authorities that implement the environmental policies and strategies at the local basis (Lesnic, 1995). Also there are the autonomous **Romanian Water Authority** who is responsible for the main rivers and tributes, and the autonomous **Forest Authority** who is responsible for the forest areas (www.rec.org).

During the transition period to a market economy, due to the lack of sufficient resources, the environmental problems stayed unresolved and caused industrial air pollution, water pollution, waste management and soil pollution (Lesnic, 1995). The main reasons for the water pollution were: discharge of industrial and municipal wastewater, intensive agricultural activities resulting from nitrate accumulation, insufficient treatment of toxic pollutant by the industrial activities and low sewage treatment (Strategic Environmental Issues in Central and Eastern Europe, 1994).

The energy sector which covers oil, gas and coal production has a big influence on the environment pollution. The main reasons for the air pollution were: thermal power plants, burning of low efficiency solid fuels, heavy fuel with a high-sulphur content (Strategic Environmental Issues in Central and Eastern Europe, 1994) as well as the usage of low quality coal for heat in the households. Another source is the transportation sector which is a result of usage of old cars with running a gasoline that has the highest lead content among Eastern European Countries.

Additional to these main problems; the other obstacles for resolving these issues were lack of financing and very low level of investments for the environmental protection.

Romania accepted the *acquis communautaire* in the field of environmental protection on December 31, 2000 and opened the negotiations on Environment Chapter in March 2002, as being the last Central Eastern European candidate country. Romania promised to finalise its preparations for EU accession till January 2007, with some exceptions of the EU laws for which they asked a transition period (Tab. X).

Table X: The sectors for which Romania asked a transition period to fulfill EU accession process (adapted from MELC, 2003 a).

Sector	Name of the Directive	Requested period
Air Quality	Control of Volatile Organic Compound (VOC) emissions resulting from the storage of petrol and its distribution from terminals to service stations (94/63/EC)	2010- 3 years
Waste Management	- Packing Waste (94/62/EC)	- 2010- 3 years
	- Landfill of Waste (99/31/EC),	- 2017- 10 years
	- Incineration of Waste (2000/76/EC)	- 2010- 3 years
Water Quality	- Urban Waste Management (91/271/EC),	- 2022- 15 years
	- Quality of Water intended for Human Consumption (98/83/EC),	- 2022- 15 years
	- Pollution caused by Certain Dangerous Substances Discharged into the Aquatic Environment (76/464/EC),	- 2015- 8 years
	- Protection of Waters against Pollution caused by Nitrates form Agricultural Sources (91/676/EEC)	- 2014- 7 years
Industrial Pollution Control and Risk Management	-Integrated Pollution Prevention Control (IPPC) (96/61/EC),	- 2015- 8 years
	- Limitations of Emissions of Volatile Organic Compounds due to the Use of Organic Solvents in Certain Activities and Installations (99/13/EC),	- 2015- 8 years
	- Limitation of Emissions of Certain Pollutants into the Air from Large Combustion Plants (88/609/EEC, as amended by 2001/80/EC)	- 2012- 5 years

As it is seen above in the table X, Romania asked transition periods especially for Water and Industrial Pollution Control sectors which have the most difficult and expensive of EU requirements to implement (MELC, 2003a). Due to the past regime period, industrial pollution control and water sector are the main challenges because of usage of old industrial techniques and equipment as well as lack of competent authorities to implement the Directives related to these sectors.

4.1.2. Horizontal Sector

The main requirements related to this sector are public access to environmental information and environmental impact assessment (EIA). During the negotiations, Romania assumed a short-term priority in order to achieve the obligations for the harmonization process (MELC, 2003a).

The main legislative framework which covers the requirements of this sector is the Emergency Governmental Ordinance No 91/2002 amending the 1995 Environment Protection Law (MELC, 2003a).

Concerning the access to information, the main legislation were: Law No 86/2000 for the Ratification of the Convention on Access to Information, Public Participation and Access to Justice in Environmental Matters (Aarhus Convention), Order of the Ministers of Waters, Forest and Environmental Protection No 1325/2000 regarding the public participation, through its representatives, to the drafting plans, programmes, policies and legislation in the environmental field. The complete transposition has done by a Governmental Decision on Free Access to Environmental Information (Position Paper, 2001).

Concerning environmental impact assessment the main existing laws were: Law No 137/95 on Environment Protection, Order No 125/1996 of the Ministers of Waters, Forests and Environmental Protection related with the regulation of the procedure on social and economic activities. The complete transposition has done by a Governmental Decision on Procedure for Environmental Impact Assessment (MELC, 2003a).

The main authority responsible for this sector is the Ministry of Waters, Forestry and Environmental Protection and its Directorate for Permitting and Certification and the

Agreements, Permits and Notification Offices, especially for the environmental impact assessment procedures (MELC, 2003a).

The main challenges for Romania in order to implement the Directives related to the Horizontal Sector were:

- difficulties concerning with the enforcement of the institutional capacity such as increasing the number and quality of the personnel at central and local level in order to implement the requirements of the Horizontal Directives;
- establishing a strong public participation especially during the environmental impact assessment processes.

4.1.3. Industrial Pollution Control

The EU Directives concerning the industrial pollution control is one of the difficult sector for Romania because of its old industrial techniques and installations which caused severe environmental contaminations (MELC, 2003a). With this regard, Romania asked for a transition period concerning the 3 Directives which have been given above.

The main authorities responsible for this sector are the Ministry of Waters, Forestry and Environmental Protection, the Ministry of Public Administration, the Ministry of Agriculture, Food and Forests, the Ministry of Industry and Resources, the Ministry of Health and Family, and the Ministry of Public Works, Transport and Housing (Position Paper, 2001).

The main existing legislation were: Law No 137/95 on Environmental Protection, Government Decision No 17/2001 concerning the functioning and operation of MWEP, amended and completed by GD No 352/2001, Order No 756/1997 of MWEP on the approval of the Regulation fro environmental pollution assessment, Order No 184/1997 of MWEP on the approval of the Regulation establishing the procedure for environmental audit and Order No 462/1993 of MWEP on the approval of Technical norms regarding the emissions into air from stationary sources (Position Paper, 2001).

The main challenges for Romania in order to implement the Directives related to the Industrial Pollution Control Sector were (MELC, 2003a):

- the difficulties related to the permitting procedures for the industrial installations which have been carried out by the Environmental Protection Inspectorates (EPIs) but not required the standards of EU Directives;
- high investment needs for the industrial technologies and pollution control measures to act accordance with the best available techniques;
- the difficulties to obtain adequate information related to the best available technologies in order to implement the IPPC Directive requirements.

4.1.4. Water Sector

The main water sources are surface waters which inland waters and rivers with 4864 streams; natural and artificial lakes and Danube River (Position Paper, 2001). According to a study carried out in 1999, the classification of water quality is: 59% of the rivers are in I quality, 26% are in II quality, 6% are in III quality and 9% are degraded (Position Paper, 2001).

The total river length is around 70,000 kilometres with the average annual water flow on Danube is around 170 billion cubic metres, for surface water is around 40 billion and for groundwater is around 9 billion cubic metres (Braswell, 2000).

The estimated amount of the polluted waters which were discharged into the rivers is 6 million tons that mainly resulted from the mining and the chemical production industries. The pollution of the groundwater however, is mainly due to the agricultural activities in rural areas (Braswell, 2000).

In addition to the industrial and agricultural pollution, municipal waste waters have also caused problems in Romania. According to the data for the year 2003, there were 206 municipal waste water treatment plants. Only 77% of the total flow of public sewerage has been treated, but only 18% fulfill the EU standards for the treatment (MELC, 2003a).

The main authorities related to the water sector are the Ministry of Waters, Forest and Environmental Protection, the Ministry of Health and Family, the Ministry of Public Works and Territorial Planning, the Ministry of Public Administration, and the local authorities (Position Paper, 2001).

The main existing legislation were: Water Law No 107/1996, Governmental Decision No 730/1997 related with the establishment of conditions to discharge the waste water into natural flows, Law No 171/1997 on the approval of the National Plan for Territorial Planning-Section II-Water, the Order of Ministry of Waters, Forest and Environmental Protection No 699/1999 and the Government Decision No 472/2000 on the water quality (Position Paper, 2001).

The main challenges for Romania in order to implement the Directives related to the Water Sector were (MELC, 2003a):

- the challenges between the authorities who are responsible for water management such as insufficient data exchange and weak coordination;
- there was a big investment requirements for the river basin management plans;
- some difficulties related to the implementation of Nitrate Directives such as identification of nitrate waters and designation of the zones under threat;
- there was a big investment requirements for implementation of Drinking Water and Urban Wastewater Treatment Directive which required well developed and equipped laboratories for monitoring.

4.1.5. Air Quality Sector

As it is mentioned above, the air pollution is one of the biggest problem in Romania due to the several factors given in the introduction part (see p. 48). However, between the years 1997-2000, some positive evolutions have been observed due to the effective role of the Environmental Protection Inspectors and decrease of economic activities as well as starting of utilisation of modern technologies (Position Paper, 2001).

According to a research which has been carried out with Danish assistance, it has been shown that the data related with the air quality did not require the objectives of the EU standards (MELC, 2003a) due to the lack of institutional resources and equipments for monitoring.

The main responsible authorities concerning the air pollution are the Ministry of Waters, Forests and Environmental Protection, the Ministry of Health and Family, the Ministry of Industry and Resources, the Ministry of Agriculture, Food and Resources,

the Ministry of Public Administration, the Ministry of Public Works, Transport and Housing, the Ministry of Foreign Affairs, the local authorities and the municipalities.

The main existing legislations were: Emergency Ordinance No 243/2000 on Atmosphere Protection, Governmental Decision No 1336/2000 on the Reduction of the Sulphur Content in the Diesel Fuel (Position Paper, 2001).

The main challenges for Romania in order to implement the Directives related to the Air Quality Sector were (MELC, 2003a):

- difficulties in establishing the capacity building of the related institutions concerning the modelling and assessment of the air quality as well as utilisation of high technologies such as GIS (geographical information system);
- difficulties in establishing a national reference laboratory which will be in charge of measuring air quality as well as maintain a programme on air quality monitoring network;
- need of a high costs of investment needs.

4.1.6. Waste Sector

Waste management sector was one of the important area which required lots of work to do to fulfill the EU standards. During the years 2000s, there was a decrease of industrial activities related to the decrease of industrial activities and improvement in the production technologies. According to the data of the year 2000, the major party of disposition of waste has been done by landfill whereas only 1% of the disposition has been done by incineration process. The mining waste, ash and slag from the thermal power plants, chemical waste and the sludge from industrial waste water treatment plants are the main types of landfill waste. There was a decrease in the hazardous waste due to the decrease in chemical industry (Position Paper, 2001).

The main authorities related with waste management are the Ministry of Health and Family, the Ministry of Industry and Resources, the Ministry of Agriculture, the Ministry of Interior, the Ministry of Defence, the Ministry of Public Administration, the Ministry of Public Works, Transport and Housing, the Ministry of Labour and Social Solidarity and the local authorities (Position Paper, 2001).

The main legislation were: Law No 426/2001 for the approval of Emergency Ordinance No 78/2000 on waste regime, Government Decision No 155/1999 on the introduction of waste registration and the European Waste Catalogue, Government Decision No 173/2000 on the management and control of the polychlorinated biphenyls and other similar compounds, Government Decision No 662/2001 on waste oil management and Law No 465/2001 on the approval of GEO No 16/2001 on the recyclable industrial waste management which were partly in compliance with the *acquis communautaire* (Position Paper, 2001).

The main challenges for Romania in order to implement the Directives related to the Waste Sector were (MELC, 2003a):

- some difficulties related to the Landfill Directive, Waste Incineration Directive and Packaging Directive especially on the implementation and high cots of the new investments such as building of new municipal and hazardous waste incineration;
- establishment of adequate waste management systems at country level which required highly costs investments;
- establishment of a new system concerning the Directive related to the collecting, reusing and disposing of used batteries as well as collecting and recycling used packing waste.

4.1.7. Nature Protection

The Romanian bio-geographical position with different geographical structures such as plain, hill and mountain resulted in very rich and diverse of biodiversity (Position Paper, 2001). 47% of the total surface represent natural and half-natural ecosystems such as: 13 coastal habitats, 89 wetlands, 196 meadows, 206 forest areas, 54 swamp areas, 90 rock/sandy areas and 135 agricultural areas (Position Paper, 2001). More than 37,500 species have been identified out of which 33,085 are animal species and 3,700 are plant species (Position Paper, 2001).

The total surface of the 827 natural protected areas established through the Law No 5/2000 represents 5.2% of the Romania's surface (Position Paper, 2001). The Danube Delta has been declared as a World Natural Heritage, Biosphere Reserve and Ramsar Site (a wetland of international importance) (MELC, 2003a).

The forest mainly divided into two category which are used for economic exploitation and the others have special protection status (MELC, 2003a) .Within this structure, the forests are well protected (MELC, 2003a).

The main responsible authorities for nature protection sector are the Ministry of Waters, Forests and Environmental Protection, the Ministry of Agriculture and Food, Forest Authority; and related institutions such as the Institute for Research and Forestry Planning.

The main existing legislation were Law No 137/1995 on Environmental Protection (republished in 2000), Law No 82/1993 on the Establishment of the Danube Delta Biosphere Reserve, Forest Code, Law No 26/1996, Law on Hunting Fund , Law No 103/1996, Law No 5/2000 on the Territorial Planning Use-section III-Protected Areas (Position Paper, 2001).

There are also international conventions and agreements which Romania has ratified which is given in Annex 2 (p. 97).

Concerning the nature protection sector Romania did not ask a transition period and especially within the framework of hunting wild animals and authorising the harvesting/capturing and purchasing the activities of wild flora and fauna species for trade, the Romanian legislation is stricter than EU requirements (Position Paper, 2001).

The main challenges for Romania in order to implement the Directives related to the Nature Protection Sector were (MELC, 2003a):

- need to establish one responsible authority in order to avoid the duplications between the MWEP and Ministry of Agriculture, Food and Forests;
- need of a development management plans concerning the specially protected areas by taking into consideration of priority of the areas;
- need of development Natura 2000 site list.

4.1.8. Chemicals and GMOs

The general requirements of EU under this sector are to decrease the adverse effects of chemicals on the human and environment health and also facilitating their trades

through mutual recognition of safety tests and harmonised labelling and packaging standards (MELC, 2003a). However, Romania, like other CEE countries, did not have such kind of market during their communist regime period (MELC, 2003a).

The main responsible authorities for this sector are the Ministry of Waters, Forest and Environmental Protection, the Ministry of Industry and Resources, the Ministry of Health and Family, the Ministry of Labour and Social Solidarity, the Ministry of Public Administration, the Ministry of Transport, Public Works and Housing, the Ministry of Foreign Affairs-Foreign Trade Department, and some national institutions such as the National Institute for Research and Development of Environmental Protection, the Institute for Hygiene and Public Health, and the National Institute for Research and Development of Labour Protection (Position Paper, 2001).

The main existing legislation concerning the **dangerous chemicals** were (Position Paper, 2001): Law No 451/2001 for the approval of Emergency Government Ordinance No 200/2000 on the classification, labelling and packing of dangerous chemical substances and preparations, Law No 90/1996 on Labour Protection, Law No 85/95 for approval of GO No 4/95 on the producing, placing on the market and the use of phyto-sanitary products for combating diseases, pests and weeds in agriculture and forestry, Government Decision No 437/1992 amending of the GD No 340/1992 on the conditions for importing any waste and residues, as well as other dangerous goods for the public health and environment.

The main existing legislation concerning the **biocidal products** were (Position Paper, 2001): Law No 426/2001 for the approval of GEO No 78/2000 on the waste regime, GEO No 108/1999 amending Law No 98/1994 on the sanctioning of the minor offences to the legal hygiene and public health norms.

The main existing legislation concerning the **substances that deplete the ozone layer** were (Position Paper, 2001): Law No 84/1993 on Romania's adhesion to the Convention on the Protection of the Ozone Layer, Law No 9/2001 on the approval of the GEO No 24/2000 on the acceptance of the Amendment of the Montreal Protocol, GD No 243/1995 on the establishment of the National Committee for the Ozone Layer Protection.

The main existing legislation concerning the **genetically modified organisms** were (Position Paper, 2001): GO No 49/2000 on the conditions of creating, testing, using and trading of genetically modified organisms.

All these laws and regulations were partially fulfilled the obligations of the EU Directives for this sector (Position Paper, 2001).

The main challenges for Romania in order to implement the Directives related to the Chemicals and GMOs Sector were (MELC, 2003a):

- finalisation of the national legislation compliance concerning the classification, labelling and packing of dangerous substances;
- establishment of new institutional structures and capacity covering the requirements classification, labelling and packing of dangerous substances;
- improvement of the ozone depleting substances (ODS) monitoring system;
- need to develop capacity for testing the chemicals according to the EU standards and methods which requires good laboratory conditions as well as qualified personnel.

4.1.9. Noise Sector

Noise levels are increasing in Romania (MELC, 2003a). The general legal framework for this sector was the Law No 137/1995 on Environmental Protection. The main authority responsible is the Ministry of Waters, Forests and Environmental Protection (MELC, 2003a). The EU Directive on Airborne Noise Emitted by Household Appliances has been transposed through the Government Decision No 672/2001 setting up the conditions for placing on the market of household appliances, depending on the level of airborne noise (Position Paper, 2001).

The main challenge for Romania concerning this sector was to give enough time to the producers in order to make the necessary technical arrangements of their products for achieving the compliance.

4.2. Bulgaria

4.2.1. General View

The political changes in 1989 also had a high influence on environmental issues of Bulgaria (Mindjov, 1995). Due to the negative impact of governmental policies in the past, there was a high environmental degradation (Mindjov, 1995). However, even there were some difficulties and challenges for the transition to a market economy, its positive effect on environment was significant.

"The privatization process, although very low, led to the transfer of the governmental institutions to the private sector. This raises the issue of environmental liability for the past damage caused by these enterprises" (Mindjov, 1995).

The first legislative change started in 1991, leading to create an enforceable, market oriented legislation, by the new Environmental Protection Law (amended in 1992) and the Environmental Strategy Study and National Action Plan (1001-1992) (Mindjov, 1995). The Environment Law consists of 3 major principles such as: polluter pays principle, prevention and precautionary principle and public right to know (Mindjov, 1995).

The main sources for the air pollution are: the energy sector which has the highest influence, the non-ferrous metallurgy industry, the petrochemical industry by sulphur dioxide, hydrocarbons and hydrogen sulphide, burning in households, and road transport (Mindjov, 1995).

Concerning the water pollution the main sources are: industry, agriculture, influence of population, transportation. However, there was a significant improvement on surface water quality depending on reduction in discharges to surface water due to the increase in industrial activities as well as improvement in the collection of waste water and treatment systems (MELC, 2003b).

Concerning the biodiversity, even the surface of Bulgaria is small, it has a relatively very rich biodiversity.

The main responsible authority for all the environmental issues is the Ministry of Environment and Water. Also, the National Centre on Environment and Sustainable

Development and 16 Regional Environmental Protection Inspectorates supply assistance to the Ministry of Environment and Water.

Bulgaria has accepted the *acquis communautaire* in the field of environment on December 1999 and they promised to finalise their harmonisation process until January 1, 2007 with some exception of the EU laws for which they have asked a transition period (Tab. XI).

Table XI: The sectors for which Bulgaria asked a transition period to fulfill EU accession process (adapted from MELC, 2003b).

Sector	Name of the Directive	Requested Period
Air Quality	- Sulphur content of certain liquid fluids (99/32/EC), - VOC emissions resulting from storage and distribution of petrol (94/63/EC), - VOC emissions from solvents (99/13/EC)	- 2015- 8 years, - 2010- 3 years, - 2012-5 years
Waste Management	- Landfill of Waste (99/31/EC), - Packing and packing on waste (94/62/EC), - Disposal of PCBs and PCTs (96/59/EC)	- 2015- 8 years, - 2012- 5 years, - 2010- 3 years
Water Quality	- Urban wastewater treatment (91/271/EC)	- 2011- 4 years, above 10,000 population equivalent, - 2015- 8 years, between 2,000 and 10,000 population equivalent
Industrial Pollution and Risk Assessment	- Integrated pollution and prevention control (IPCC) (96/61/EC), - Limitation of VOC due to the use of organic solvents (99/13/EC)	- 2012- 5 years, - 2012- 5 years

As it is seen above in the table XI, Bulgaria asked transition periods on the air quality, waste management sectors which have most expensive EU requirements.

4.2.2. Horizontal Sector

The main requirements related to this sector are public access to environmental information and environmental impact assessment (EIA) (MELC, 2003b).

The main legislative framework which covers the requirements of this sector is the Environmental Protection Act adopted in 2002 (MELC, 2003b).

Concerning the **access to information**, the main existing legislations were: Environmental Protection Act (State Gazette No 86/1991; as amended in 2000), Administrative Procedures Act (State Gazette No 90/1997; as amended in 1999), Law on Ratification in the European Environment Agency (State Gazette No 105/2000) (Position Paper, 1999).

Concerning the **environmental impact assessment**, the main existing legislations were: Environmental Protection Act, Regulation N4 Environmental Impact Assessment (State Gazette No 84/1998), Decree No 87/95 on Ratification of the Convention on Environmental Impact Assessment in Trans-boundary Context (Position Paper, 1999).

The main authority for the EIA is the Ministry of Environment and Water whereas the High Environmental Expert Council is the decision-making authority for the authorization of EIA reports (Position Paper, 1999).

The main authorities concerning the access to information are the Ministry of Environment and Water, the Ministry of Health, the Ministry of Agriculture and Forests, the Ministry of Transports and Communications, and the municipalities (Position Paper, 1999).

The main challenges for Bulgaria in order to implement the Directives related to the Horizontal Sector were (MELC, 2003b):

- difficulties concerning with the enforcement of institutional capacity in order to diffuse the information to public as well as to respond to the needs of the public;
- establishing a strong public participation with best practices techniques during the environmental impact assessment processes.

4.2.3. Industrial Pollution Control

The major industrial pollutants were the heavy industries such as lead, arsenic, cadmium and oil processing and chemical industries (MELC, 2003b) which caused

the pollution due to the 47% of the total discharged industrial wastewater and 90% of the hazardous waste (1998 data; MELC, 2003b). On the other hand, because of the measures in the pollution control, some decrease have been observed in pollution (MELC, 2003b).

The main authorities responsible for this sector are: Ministry of Environment and Water, Ministry of Health, Ministry of Labour and Social Policy and the State Agency for Energy and Energy Resources (Position Paper, 1999).

The main existing legislations were: Clean Air Act (State Gazette No 45/96, as amended in 2000), Regulation No 15 on emission limit values for sulphur dioxide, sodium oxide, and dust emissions from new large combustion plants (State Gazette No 73/99), Regulation No 6 on the requirements for emission control measurement (State Gazette No 31/99), Law on health and safe work conditions (State Gazette No 124/97), Regulation No 5 on risk assessment (State Gazette No 47/99) (Position Paper, 1999).

The main challenges for Bulgaria in order to implement the Directives related to Industrial Pollution Control Sector were (MELC, 2003b):

- high investment needs for the renewal of old industrial technologies,
- need of an information centre concerning the technologies to implement IPPC directive requirements,
- need to establish a coordination between the authorities responsible to the permitting procedures,
- preparation of an action plan which covers the priorities among industrial sector in order to implement the IPPC directive efficiently.

4.2.4. Water Sector

During the beginning of 90s, because of reduction in industrial activities, a significant reduction in industrial activities and a significant reduction in discharges to surface water has been observed. However, there were still problems related to sewerage systems (MELC, 2003b). 35% of the industrial water discharged to surface water which 70% of this source came from chemical, oil refining and steel industries (MELC, 2003b).

The main authorities responsible for this sector are: Ministry of Environment and Water, Ministry of Health, Ministry of Regional Development and Public Works, Ministry of Agriculture and Forests and the municipalities (Position Paper, 1999).

The main existing legislations were: Law on Water (State Gazette No 67/99), Regulation No 14 on the resort sources, resort sites and resorts (State Gazette No 79/87, as amended in 2000), Regulation No 8 the quality of coastal marine waters (State Gazette No 10/2001), Regulation No 7 on the quality of inland running waters (State Gazette No 96/86), Regulation No 4 on the quality of intended for fish and shellfish life (State Gazette No 88/2000),Regulation No 5 on operation of water monitoring system (State Gazette No 95/2000), Regulation No 7 on waste water discharge in the sewage systems (State Gazette No 98/2000), Regulation No 3 on the sanitary protection zones (State Gazette No 88/2000), Regulation No 2 on protection of water against pollution caused by nitrates from agricultural sources (State Gazette No 87/2000) (Position Paper, 1999).

The main challenges related to the Water Sector were (MELC, 2003b):

- high investment needs especially for the implementation of urban wastewater directive;
- need of an assistance by EU programmes for the river basin directorates;
- need to develop the action plans which includes the utilisation of financial sources of private sector as well as establishment of a coordination of the investments.

4.2.5. Air Quality Sector

After the transition period, Bulgaria started to develop action plans in order to improve the air quality. Within these action plans, the main targets were identified including decrease of sulphur dioxide emissions, heavy metals and organic pollutants with 50-80% till the year 2010 (MELC, 2003b). With all these efforts, including the improvements in environment, Bulgaria was successful to reduce the level of sulphur oxides and nitrogen oxides about 35% (MELC, 2003b).

Concerning the air pollution, the energy sector, by creating 83% of national load of sulphur dioxide, 30% of nitrogen dioxide and 41% of particulates, is the major source of this problem (MELC, 2003b). Also, concerning the Volatile Organic Compounds

(VOC), the major pollutant is the traffics by the motor vehicles with 42% of contribution (MELC, 2003b).

The main responsible authorities concerning the air sector are: Ministry of Environment and Water, Ministry of Health, Ministry of Economy and the State Standardization Agency (Position Paper, 1999).

The main existing legislations were: Clean Air Act (State Gazette No 45/96, as amended in 2000), Regulation No 7 on AAQ assessment and management (State Gazette No 46/99), Regulation No 9 on limit values for sulphur dioxide, nitrogen dioxide and oxides, particulate matter and lead in the ambient air (State Gazette No 46/99), Regulation No 17 on limit values for content of harmful substances in liquid fuels (SG No 97/99), Regulation No 16on the reduction of VOC emissions from storage, loading or unloading and transport of petrol (SG No 75/99) (Position Paper, 1999).

The main challenges for Bulgaria in order to implement the Directives related to the Air Sector were (MELC, 2003b):

- need of structural reforms of the business sector who is the main pollutant as well as to cover the major part of costs required for the compliance;
- need of effective action plans related to the directives required transition periods;
- need of qualified personnel as well as improvement of monitoring process.

4.2.6. Waste Sector

In Bulgaria, generally municipal waste has been deposited at dumpsites whereas the industrial waste has been deposited at municipal landfills (MELC, 2003b) The major waste production was resulted in industrial activities. (roadmap) Concerning the hazardous waste, there were very few incineration plants and it has been deposited at the producer's sites (MELC, 2003b).

The main authorities responsible for waste management are: Ministry of Environment, Ministry of Health, Ministry of Agriculture and Forests, Ministry of Regional Development and Public Works, Ministry of Transport and

Communications, State Agency on Standardization and Metrology, National Statistics Institute (Position Paper, 1999).

The main existing legislations were: Law on Reduction of the Harmful Impact of Waste upon the Environment (SG No 86/87, as amended in 2000), Regulation No 10 on the filling out of the report and the waste management information documents (SG No 151/98), Regulation No 11 on the conditions and requirements for the construction and operation of municipal waste disposal facilities and installations (SG No 152/98), Regulation No 12 on the requirements which must be met by the waste treatment facility sites (SG No 152/98), Regulation on the requirements for treatment and transposition of industrial and hazardous waste (SG No 29/99), Regulation on the requirements for the treatment and the transportation of waste and oil products (SG No 59/2000), Regulation on the requirements of the soil protection when sewage sludge is used in agriculture (SG No 101/2000) (Position Paper, 1999).

The main challenges for implementing the Directives related to the Waste Sector were (MELC, 2003b):

- need to prepare action plans concerning the emergency requirements and investment needs in order to implement the directives efficiently;
- need to prepare projects which promotes the utilisation of low-cost technologies related to waste storage, collection and recycling.

4.2.7. Nature Protection

Bulgaria has a very rich biodiversity with a variety of flora and fauna species. 200 endemic species, 327 bird species, 389 plant species were recorded (MELC, 2003b). Also, Bulgaria has representatives of all the main habitats and biotopes known in Europe (The National Biodiversity Conservation Plan, 2000). Within these, 48 ornithological sites have EU importance and 34 of them were included the Corine biotopes network (MELC, 2003b). There are 6 types of protected areas such as: reserves (55 sites), nature parks (10 sites), monuments (475 sites), maintained reserves (35 sites), nature parks (10 sites) and protected sites (125 sites) (MELC, 2003b and Position Paper, 1999).

The main responsible authorities are: Ministry of Environment and Water, Ministry of Agriculture and Forest, Ministry of Regional Development and Public Works,

Customs Agency at the Ministry of Finance and municipalities (Position Paper, 1999).

The main existing legislations were: Protected Areas Act (SG No 133/98), Nature Conservation Act (SG No 47/67, as amended in 2000), Law on Hunting and Game Protection (SG No 78/2000), Fishing Act (SG No 91/82 as amended in 1998), Medicinal Plants Act (SG No 29/2000), Regulation on Developing Protected Areas Management Plans (SG No 13/2000) (Position Paper, 1999). Also international agreement and conventions which are given in Annex 3 (p. 98).

The main challenges in order to implement the requirements related to this sector were (MELC, 2003b):

- need to designate the sites in order to establish NATURA 2000 network,
- need to establish Specially Protected Areas with the collaboration of private land owners in order to determine general procedures for imposing the sustainable use against economic costs,
- need to establish management plans depending on the different types of protected areas.

4.2.8. Chemicals and GMOs

The chemical sector was not well developed in Bulgaria with respect respect to the EU requirements mainly because of its past regimes (MELC, 2003b). There were significant gaps related to the chemical safety, trade of chemicals and chemical products as well as their labelling and packing standards (MELC, 2003b).

The main responsible authorities for this sector are: Ministry of Health, Ministry of Environment and Water, the Customs Agency and the Council for Use of Genetically Modified Higher Plants within the Ministry of Agriculture and Forests (Position Paper, 1999).

The main existing legislations were: Law on Limitation of the Harmful Impact of Waste on the Environment, Clean Air Act, Regulation No 7 on the hygiene requirements of the residential areas (SG No 46/92), Regulation No 2 on the emissions limit values (concentration in waste gases) of harmful substances, emitted in the atmospheric air from stationary sources (SG No 51/98), Regulation No 13

about the allowed concentrations of harmful substances in the air of working environment (SG 81/92), Regulation No 27 on the import of goods for the health of the population (SG No 75/95), Law on Veterinary Medicine, Regulation on labelling and food presenting requirements (SG No 62/2000), Ordinance on the deliberate release of genetically modified higher plants, created by recombinant DNA technology (SG No 70/96) (Position Paper, 1999).

The main challenges related to this sector were (MELC, 2003b):

- need of capacity development in order to analyse the characteristics of hazardous substances as well as to develop risk assessment management plans,
- need to enforce the institutional capacity related the control of chemicals.

4.2.9. Noise Sector

Concerning this sector, Bulgaria was at the very beginning of harmonisation process and had much to do in order to implement the EU requirements (MELC, 2003b).

The main responsible authority is the Ministry of Environment and Waters.

The main challenges were (MELC, 2003b):

- need to create laboratories which have the capacities to test the noise levels,
- public awareness especially for the producers who are responsible to make technical changes on their products which were asked for compliance.

5. THE TRANSPOSITION PROCESS IN TURKEY, ROMANIA AND BULGARIA

The previous chapters presented the state of integrated environmental compliance to EU Directives for Turkey (p. 18), Romania (p. 48) and Bulgaria (p. 59). These processes are compared in the table XII. The comments related to this table are resulted from the Progress or Monitoring Reports of the each country which depends on Tables of Concordance (TOCs) and Implementation Questionnaires (IQs) received from the Environmental Ministries of each country. The different sources used to build, complete or comment the table XII and the following are: Carl Bro International, 2002; MELC, 2003a; Europan Environmental Bureau, 2005; CEC, 2006a; www.abgs.gov.tr; CEC, 2006b, 2006c, 2006d.

5.1. Horizontal Sector

Turkey: Transposition and implementation still continue and are not in line with the EU requirements. Significant efforts and progress are needed. Turkey has not ratified Kyoto Protocol nor become party to the Espoo and Aarhus Conventions.

As regards the Environmental Liability and reporting, no progress has been made. Concerning the Public Access to Information, through the adoption of Law on the Right of Access to Information in 2003, amended in 2005, some part of the transposition has been done. But still there is a need for progress for completing the transposition and implementation.

As regards the Environmental Impact Assessment Directive, the existing by-law on EIA does not cover the needs of this Directive especially for the trans-boundary consultation issues.

Regarding the Strategic Environment Assessment Directive (SEA), still there is a need of transposition with a by-law which is still in drafting process. Completion of the transposition and implementation of the requirements related to this Directive is foreseen by the end of 2007.

Table XII: Comparison between Turkey, Romania and Bulgaria of the transposition process of the EU directives into the national frame to fulfill the accession. The transposition process is evaluated according a semi-quantitative scale: 0 = no information; 1 = no transposition or beginning; 2 = 25 to 50% of the transposition done; 3 = 50 to 75% of the transposition done; 4 = more than 75% of the transposition done or full transposition.

(Sources for Turkey: Carl Bro International, 2002; MELC, 2003a; Europan Environmental Bureau, 2005; CEC, 2006a; www.abgs.gov.tr)
(Sources for Romania and Bulgaria: Europan Environmental Bureau, 2005; CEC, 2006b, 2006c, 2006d)

DIRECTIVES	TURKEY	ROMANIA	BULGARIA
HORIZONTAL			
85/337/EEC, amended by 97/11/EC on the assessment of the effects of certain public and private projects on environment	3	3	3
90/313/EC on the freedom of access to information on the environment	1	3	3
90/210/EEC on the establishment of the European Environment Agency and the European environment information and observation work	1	4	4
92/1973/EEC establishing a financial instrument for the environment (LIFE)	0	4	4
91/692/EEC standardizing and rationalizing reports on the implementation of certain directives related to the environment	0	4	4
2001/42/EC Strategic Environment Evaluation	1	3	3
AIR QUALITY			
96/62/EC on ambient air quality assessment and management	3	4	4
99/30/EC relating to limit values for sulphur dioxide, nitrogen dioxide and oxides	3	4	4
92/72/EC on air pollution by ozone	1	4	4
97/68/EC relating to measures against the emissions of gaseous and particulate pollutants from internal combustion engines to be installed in non-road mobile machinery	1	4	4
2000/69/EC relating to limit values for benzene and carbon monoxide in ambient air	1	4	4
98/70/EC on the quality of petrol and diesel fuels	2	4	4
99/32/EC relating to sulphur content of certain liquid fuels	1	4	3
94/63/EC on the control of volatile organic compound (VOC) emissions resulting from the storage of petrol and its distribution from terminals to service stations	1	3	3
99/94/EC relating to the availability of consumer information on fuel economy and carbon dioxide emissions in respect of marketing of new passenger cars	4	4	4

WASTE MANAGEMENT			
75/442/EEC on waste	3	4	4
91/689/EEC on hazardous waste	3	4	4
2000/76/EC on the hazardous waste incineration	1	4	3
94/62/EC on packaging and packaging waste	2	3	3
86/278/EC on protection of the environment and in particular of the soil, when sewage is used in agriculture	4	4	4
91/157/EEC on batteries and accumulators containing certain dangerous substances	3	4	4
99/31/EC on the landfill of waste	2	3	4
96/59/EC on the disposal of PCB and PCT	1	3	4
2000/53/EEC on end of life vehicles	1	4	4
WATER QUALITY			
91/271/EEC, amended by 98/15/EC on waste water treatment	3	3	3
2000/60/EC establishing a framework for Community action in the field of water policy	1	4	4
76/160/EEC on the quality of bathing water	3	4	4
98/83/EC on the quality of water intended for human consumption	3	3	4
76/464/EEC on pollution caused by certain dangerous substances discharged in the aquatic environment	3	3	4
79/869/EEC as amended by 91/692/EEC on sampling and analysis of surface water	3	4	4
75/440/EEC on the quality of surface water intended for the abstraction of drinking water	3	4	4
78/659/EEC on the quality of fresh water needing protection or improvement in order to support fish life	1	4	4
79/923/EEC on the quality required for shellfish water	2	4	4
91/676/EEC concerning the protection of waters against pollution caused by nitrates from agricultural sources	3	3	4
80/68/EEC on the protection groundwater against pollution caused by certain dangerous substances	2	4	4
77/795/EEC on exchange of data on the quality of surface fresh water	0	4	4
NATURE PROTECTION			
92/43/EEC as amended by 97/62/EC on the conservation of natural habitats and wild flora and fauna	2	3	4
79/409/EEC on the conservation of wild birds	2	4	4
99/22/EC relating to the keeping of wild animals in zoos	1	4	4
83/129/EEC concerning the importation into member states of skins of certain seals pups and products derived thereform	1	4	4
97/338/EC regulation for trading with species of Wild Flora and Fauna (CITES)	1	4	4

INDUSTRIAL POLLUTION AND RISK ASSESSMENT			
96/61/EC concerning integrated pollution prevention and control (IPPC)	1	3	3
88/609/EEC on the limitation of emissions of certain pollutants into the air from large combustion plants (LCP) (amended by 2001/80/EC on large combustion plants)	2	3	3
96/82/EC on the control of major accident hazards involving dangerous substances (SEVESO II)	2	4	4
99/13/EC on the limitation of emissions of volatile organic compounds due to the use of organic solvents in certain activities and installations (VOC)	1	3	3
Regulation EEC/1836/93 on eco-management and audit scheme (EMAS)	0	4	4
Regulation EC/1980/2000 of the European Parliament and of the Council on a revised community eco-label award scheme	1	4	4
CHEMICALS AND GMOs			
87/217/EEC on the Prevention and Reduction of Environmental Pollution by Asbestos	3	4	4
98/8/EEC concerning the Placing of Biocides on the Market	1	4	4
67/548/EEC as amended by 2001/59/EC on Dangerous Substances	3	4	4
86/609/EEC on the Protection of Animals Used for Experimental and other Scientific Purposes	2	4	4
76/769/EEC Restrictions on the Marketing and Use of Certain Dangerous Substances and Preparations	3	4	4
99/45/EC Restrictions on the Labelling and Packaging of Certain Dangerous Substances	3	4	4
87/18/EEC as amended by 99/11/EC and 88/320/EEC on Good Laboratory Practices Sub-sector	3	4	4
90/219/EEC as amended by 98/81/EEC on the Contained Use of Genetically Modified Micro-organisms	1	4	4
90/220/EEC as amended by 2001/18/EC on the Deliberate Release into the Environment of Genetically Modified Organisms	1	4	3
NOISE			
2000/14/EC on the Approximation of the laws of the Member States relating to the Noise Emissions in the Environment	3	4	4
86/594/EEC on Airborne Noise emitted by Household Appliances	0	4	4

Bulgaria: In general, there is a need to improve the administrative capacity. Also, as regards the EIA and SEA Directives, there is a need concerning the implementation process at national and regional levels. Moreover, there is a need of specific actions concerning the public awareness and involvement in the areas of NATURA 2000.

Romania: In general, transposition of the directives have been finalised. However, still there is a further need to complete the transposition concerning the SEA Directive as well as access to justice and public participation.

5.2. Air Quality Sector

Turkey: In general, progress has been done in this sector. As regards to the Directives related to the Quality of Petrol and Diesel Fuels, much progress has been achieved with almost full transposition of the legislation. However, there is no progress concerning the transposition of the Air Framework Directive. In order to implement these directives, a Twinning Project has been started which also provides facilities concerning the preparation of a new by-law on Air Quality Protection. Concerning the Directive on Volatile Organic Compounds and Emission Trading, the transposition has not started yet.

Concerning the implementation of all the Directives in the air quality sector, the assumptions have been made for the years between 2008-2020. In overall, there are lots of efforts needed to be done in this sector.

Bulgaria: In general, this sector is in line with the *acquis*. Bulgaria requested a transition period concerning the Heavy Fuel Oils and Gas Oils and Storage of Petrol directives due to the need of investments for the construction and modernization of the existing installations in order to implement the requirements of these directives.

Romania: In general, this sector is in line with the *acquis*. Romania asked a transition period for the Storage of Petrol Directive due to the substantial need of investments.

5.3. Waste Management Sector

Turkey: In general, the transposition of the *acquis* is well advanced. As regards the horizontal waste management, there is still need of progress for further transposition and implementation. With a support of a Twinning Project, technical studies are continuing mainly for the adoption a new framework legislation.

As regards the PCB/PCT Directive, there is still much work to do in order to complete the full transposition which is expected between the years 2007-2010.

Concerning the Batteries Directive, the rate of transposition is rather low, but expected at the end of 2007. For the Landfill Directive, the full transposition is expected for the year 2008 and full implementation will need much more long time.

Bulgaria: In general, the legislation is in line with the *acquis*. Bulgaria requested a transition period for Packing Waste Directive in order to establish sufficient infrastructure for collection, recovery, incineration and recycling of the waste. Another transition period was requested for Landfill of Waste Directive because of the huge quantities of waste as well as much more time is needed to improve the technologies for treatment of the wastes.

In addition, there is still a need of qualified personnel in order to implement the waste management legislation. Concerning the Waste Hazardous Waste Directives, further progress is needed for implementation.

Romania: In general, the legislation is in line with the *acquis*. Romania also requested a transition period for Packing Waste Directive with the same reasons as Bulgaria. Concerning the Landfill of Waste Directive, Romania also asked a transition period in order to establish a necessary capacity for landfill and disposal of hazardous waste.

The main responsible authorities for this sector are the Ministry of Environment and the National Environmental Protection Agency. However, the Agency will need additional qualified personnel in order to implement the tasks of the waste directives. Also, the regional waste management plans should be finalised as soon as possible.

For both of the countries, concerning the Shipments of Waste Directive, additional time is given to build up the necessary recovery and recycling capacities.

5.4. Water Quality Sector

Turkey: In general, there has been a considerable progress achieved on transposition in this sector. Concerning the Water Framework Directive, further steps need to be taken in order to allow new investments to comply with the *acquis*. Also, in line with this Directive and international conventions as well, the development of trans-boundary water cooperation is very weak.

Even if the transposition has been achieved concerning the Directives for nitrates, ground water and drinking water, there were some uncertainties by the Commission especially for the Nitrate Directive since there were several weaknesses.

The institutional capacity for water is weak due to the distribution of the responsibilities which results in duplications or overlaps. Moreover, there is still a substantial need of investments for this sector.

Bulgaria: In general, water management is in line with the *acquis*. Bulgaria asked a transition period for the Urban Waste Waters Directive in order to build collection systems and treatment facilities.

As regards the Water Framework Directive, the draft of the transposing act is awaiting the final parliamentary approval. Administrative capacities are needed to be strengthened at local, regional and national level by increasing the human capacity, laboratories and equipments. Moreover, there is a need of sufficient coordination between the responsible authorities.

As regards to the Drinking Water Directive, there is a need of completion of the monitoring systems especially at regional level as well as development of the drinking water network.

As regards the Surface Water Directive, in order to improve the water quality there is a need of action plans and resource management plans with their efficient implementation.

Romania: Legal transposition on water has not completed yet. Romania asked transition periods for Urban Waste Directive in order to build collection systems and treatment facilities; for Discharges of Dangerous Substance Directive in order to make necessary arrangements concerning the industrial installations and permit issues; for Quality of Water Intended for Human Consumption Directive and for Pollution from Nitrates Directive.

There is a need of further improvement concerning the water quality. Moreover, there is still funding requirement in order to improve the water infrastructure investments.

5.5. Nature Protection Sector

Turkey: In general, with the adoption of several legislation and establishment of protected areas concerning the nature conservation, some progress has achieved in line with the *acquis*. However, these are sufficient for transposition, implementation and enforcement process.

The framework law on nature protection and implementing legislation on birds and habitats are still waiting to be adopted.

Institutional framework is needed to be clearly defined since the responsibilities are divided among several authorities which is in result of duplications as well as complexity of the works.

Bulgaria: It is in line with the *acquis*. With the recruitment of additional staff, the administrative capacities were strengthened. However, there is a further need to finalise the preparations of the list of special protected areas.

Romania: In general, it is in line with the *acquis*. However, still the preparation concerning the list of NATURA 2000 sites are continuing and there is a need of further strengthening of this process. Also, there is a need of identification of the responsibilities of the National Agency for Protected Areas which has been established under the framework of Ministry of Environment and Water in order to maintain the efficient coordination.

5.6. Industrial Pollution Control Sector

Turkey: Transposition and implementation is very low in this sector. As regards the IPPC Directive, the transposition is still waiting since the draft Ministerial Orders are not adopted yet. As overall, there is a need of significant effort for the alignment and implementation.

Bulgaria: In general, it is in line with the *acquis*. Bulgaria asked for transition periods for the Large Combustion Plants Directive, Solvents Directive and Integrated Pollution, Prevention and Control Directive.

There is a significant progress on issuing integrated permits for the construction of new and operation of existing industrial plants.

The enforcement of the administrative capacity has been achieved as well as the cooperation between the regional and central authorities.

Romania: In general, it is in line with the *acquis*. The full transposition of the legislation is achieved and the institutional capacity is enforced with a sufficient number of personnel. However, there is a need to strengthen the National Environmental Guard related to the IPPC permitting procedures.

Romania asked for a transition period for the same directives as Bulgaria.

5.7. Chemicals and GMOs

Turkey: In general, the overall harmonization is low. As regards to the Dangerous Substances Directive, the full transposition has not been completed and still there is a need of drafting the legislation. On the other hand progress achieved regards to the Asbestos and Animal Experiments Directives. The implementation for the Animal Experiments Directive is foreseen at the end of 2007, whereas for the Asbestos Directive it is foreseen at the end of 2011.

As regards to the Genetically Modified Organisms Directive, even if the schedule was given as 2006 for the full transposition, no progress has been achieved. With this regard, the timing for the implementation has not been determined yet.

Bulgaria: The transposition of the legislation has been completed and it is in line with the *acquis*. A substantial progress has been achieved as well on the contained used of genetically modified organisms and their deliberate release into the environment.

However, there is a need for enforcement the administrative capacity by the recruitment of the additional staff for central and local levels.

Romania: It is in line with the *acquis*. However, further implementation is needed as regards to the biocides in order to comply with the *acquis*.

5.8. Noise Sector

Turkey: Transposition of the Noise Directive is partially achieved even the full implementation is foreseen for the long-term period. There is a need of financial capacity as well as enforcement of the institutional authorities especially for the preparation of strategic maps and action plans.

Bulgaria: It is in line with the *acquis*. However, further progress is needed in order to make actions plans and to prepare the strategic noise maps.

Romania: It is in line with the *acquis*. However, there is a need for the strengthening the administrative capacity by additional staff and their training.

5.9. Global overview

As regards to **Turkey**, in overall assumption, except the waste management and noise sector, the level of transposition of the environmental *acquis* is low (Fig. 5). The trans-boundary issues and public access to information related to the horizontal sector is the major concern since there was no progress has achieved.

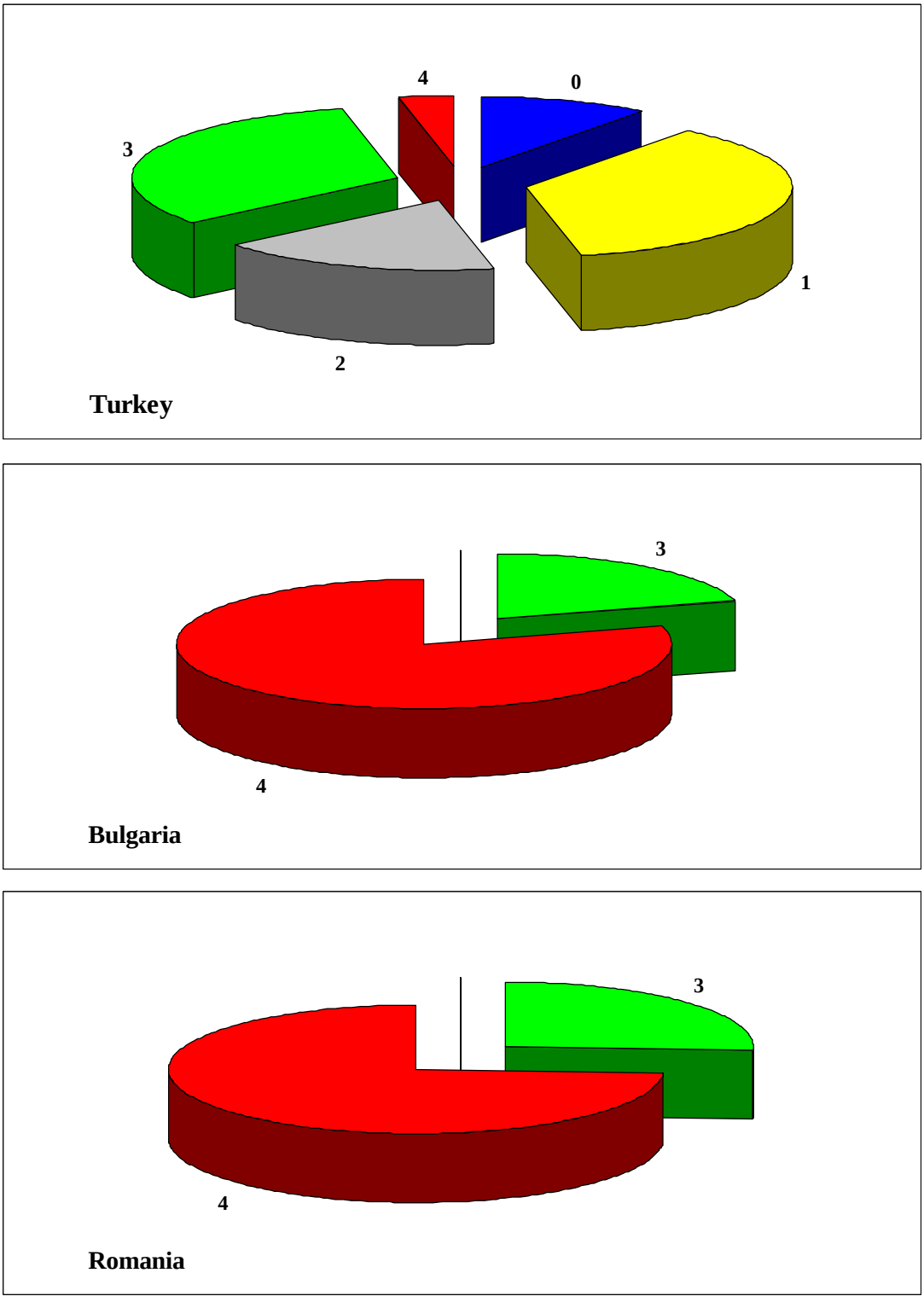

Figure 5: Comparison between Turkey, Romania and Bulgaria of the transposition process of the EU directives, whatever the sector, to fulfill the accession. The transposition process is evaluated according a semi-quantitative scale: 0 = no information; 1 = no transposition or beginning; 2 = 25 to 50% of the transposition done; 3 = 50 to 75% of the transposition done; 4 = more than 75% of the transposition done or full transposition (see Table XII for references).

However, there was a substantial progress concerning the administrative capacity especially by the establishment of the Law of the Ministry of Environment and Forestry in May 2003 (Europan Environmental Bureau, 2003). With the adoption of this law, the roles and the responsibilities of the Ministry has clearly defined and helped to reduce the overlaps the responsibilities with other institutions and facilitate the coordination issues between these institutions. Moreover, the additional qualified staff has been recruited at the beginning of the 2006 in the Ministry of Environment and Forestry which increased capacity.

Bulgaria, before its accession to EU, has achieved to meet the commitments for the development of the legal framework on environment protection, noise, chemicals and genetically modified organisms (Fig. 5). There was also a good progress on implementation of the legal framework in practical terms within the national and regional executive authorities as well as by increasing the staff capacity.

Bulgaria has achieved a progress on horizontal legislation, waste management, water management, industrial pollution and risk assessment. As regards to these sectors, Bulgaria needs to finalise the transposition and to implement the legislation. Also, further enforcement of the institutional capacity is needed.

Considering the directives which Bulgaria requested a transition period, there should be strict and practical action programmes with concrete financing strategies. As regards to this issue, Bulgaria achieved a very slow process. Moreover, there is a challenge between the establishment of the administrative capacity and to maintain the required activities by using the private sector investments.

Among other accession countries, the cost of the environmental compliance is much more higher in Bulgaria. On the other hand, by receiving around 500 million euros/year from the PHARE, ISP and SPARD programmes, Bulgaria got the highest benefits in environmental issues compared to other countries (Europan Environmental Bureau, 2005).

As regards to **Romania**, before its accession, the main challenge was the administrative capacities which caused difficulties to complete the legal transpositions. However, Romania achieved a good progress in general concerning with this issue by carrying out additional staff recruitments and training (Fig. 5). But, at local and regional level, there is still need of human and technical capacity.

Romania had some difficulties concerning for the utilisation of the EU funded projects due to the lack of long-term financial planning. In order to solve this problem, Romania got the technical and financial assistance not only from EU but also from other bilateral donors in order to prepare the qualified projects according to the EU granted programmes.

6. CONCLUSION

With the last enlargement processes, by the membership of Bulgaria and Romania, for the first time in its history Europe has been enlarged on such a large geographic scale. Within this context, the EU has started to be present in the Black Sea region which will open a new perspective and opportunities for their future policies. Also, this requires a more coherent, longer term effort which could help to seize this new opportunity as well as by bringing a stability and prosperity for the Black Sea region.

This study tried to show the enlargement process of the three important Black Sea countries, Romania, Bulgaria and Turkey (as a candidate country) on the environmental issues where it is one of most difficult chapter to fulfill the requirement of the *acquis communautaire*.

It was shown that the environmental issues were major concerns of our world nowadays where the threat of climate change or the lost of biological diversity cause major effects on the human life. That is why the EU is playing a major role with its policies, measures, and laws at a worldwide level.

Later it was shown that the enlargement process had both its positive and negative effects on the environment. As regard to the negative point, with their low level of environmental and protection issues, Bulgaria, Romania and Turkey could slow down the dynamism of the EU policy. However, as regard to the positive point, these countries with their rich biodiversity and large quantity of nature protected areas, will enrich EU's natural heritage. Moreover, these countries have their own specific environmental circumstances and experience, which will help the EU to fill the gaps in existing legislation. In the same way, these countries also benefit from the EU policies which help them to develop their future environmental policies. It is also important for EU that, with the enlargement process, the monitoring of the whole European environment become easier than before since these countries become member of an environmental information system called Europan Environment Agency.

With the examination of the environmental transition process of these three countries it was seen that the environment chapter is one of the most difficult sector during the negotiation. Concerning the directives which need high cost investments, an extended transitional period has been required. It is important that, these transition requests

have to be supported by implementation programmes including intermediate targets and milestone which can be monitored after the date of country accession.

At a national level, an analysis of the state of the environmental legislative framework showed that these Black Sea countries suffered from the same handicaps before the accession process:

- duplication of the authorities or institutions delivering or responsible of permissions, monitoring programmes and control activities;
- overlap in the legislation;
- need to reinforce the institutional capacity at both local and national levels;
- lack of coordination between the institutions and cooperation between the stakeholders.

Consequently, these previous enlargement processes showed that transcription of the EU Directives into the national legislative framework is not enough alone. The establishment of appropriate and efficient institutional structures as well as the effective implementation of the laws are strongly required. In the same way, during the planning and coordination stages of the harmonisation process, it is important to designate a single authority at the national level who will be responsible to coordinate all the activities.

The January 1st 2007, Bulgaria and Romania became members of the EU. The data presented and analysed in this study allowed to show that, for the only environmental chapter, these both countries more or less totally fulfill the requirements of EU. Turkey started the harmonisation process in December 1999, when the European Council Meeting held in Helsinki officially recognised it as a candidate country. Six years after, is it possible to consider that Turkey partially fulfilled the requirements of the EU ?

- In most of the environmental sectors, the process is going very slowly and the transcription of EU Directives into the national legislative framework is not complete or even was not initiated. Why ? The main factor to explain this delay is probably the degree of investment to sustain such a process. The harmonisation process required heavy investments in Bulgaria and Romania (around 500 to 900 millions of euros by year, *i.e.* 40-50 euros/person/year; Europan Environmental Bureau, 2005). Even if similar data are not clearly available for Turkey, it seems that the EU funding of pre-accession is of the

same magnitude (Europan Environmental Bureau, 2005). But, according the larger population of this country, the subvention for Turkey did not reach 5 euros/person/year. Whatever the balance the EU could propose to reinforce this assistance to pre-accession, in a recent analysis, the Europan Environmental Bureau (2005), an international NGO, highlighted that Turkey needs to further improve its capacity to manage and use these funds effectively. Consequently, it was encouraged to establish the necessary institutions needed for the implementation of the Instrument for Pre-Accession Assistance (IPA), which is scheduled to come into force in 2007. This point of view was also shared by G. Sarigül, Sector Director responsible for Environment and Sustainable Development, representative for the European Commission in Turkey.

- On the other hand, during the last five years, there has been significant progress in the technical and administrative capacities, and the leadership of Ministry of Environment and Forestry is well established and recognized by the other institutions.

EU fixed the deadline at 2014 for Turkey to fulfill the harmonisation process. Even with the slow progresses registered until now, the leadership of Ministry of Environment and Forestry could probably allow to be successful. However, the dramatic political events which almost disorganized Turkey this year, temporarily stopped the process. Recently, in May 2007, one of the Director of the Secretariat General for EU Affairs in Ankara, Turkey, Dr N. Numano™lu thought that it will be very difficult to totally fulfill the EU requirements before 2014.

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INTERVIEW

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ANNEXES

Annexe 1: Turkey Legislation on Environment

Annexe 2: Romania Legislation on Environment

Annexe 3: Bulgaria Legislation on Environment

Annex 1: Turkey Legislation on Environment

A. Laws

- 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 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 the Organization and Responsibilities of the Ministry 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 the Organization and Responsibilities of the Ministry of Health and Social
- The Law on Security numbered 3017 (1936)
- The Law on the Organization and Responsibilities of the Ministry of Transport numbered 3348
- The Law on the Organization and Responsibilities of the Ministry of Industry and Commerce numbered 3143
- The Decree Law on the Organization and Responsibilities of the Undersecretary 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 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 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 Forest Law numbered 6831

- The Law on the Emergency Intervention and Indemnification in Case 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 Biosafety (2003)
- The Law of Local Government Associations
- The Law on Organized Industry Regions
- The Law on Establishing Certain Investments and Services in the Framework of Install-Operate-Transfer Model
- The Law on the Organization and Responsibilities of the State Hydraulic Works numbered 6200 (1953)
- The Law on Underground Waters numbered 167 (1960)
- The YAS Law
- The Decree Law on the Organization and Responsibilities of the Ministry of Health and Social Assistance numbered 181
- The City Administration Law numbered 5302
- The Law on Misdeeds numbered 5326 and dated 30.03.2005
- The Animal Protection Law dated 24.06.2004
- The Law on the Protection of Cultural and Natural Entities numbered 2863
- The Law on Right to Access to Information numbered 4982 and dated 09.19.2003

B. International Agreements and Conventions

- The Convention on the Trans-boundary 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 Trans-boundary 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, (Moscow1963, 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 Trans-boundary Air Pollution (Geneva, 1979, Official Gazette dated 23.3.1983)
- 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)

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 Battery Wastes and Accumulators (Official Gazette dated 31.08.2004 No.25569)
- By-law of the Control of Oil Wastes (Official Gazette dated 21.01.2004 No.25353)
- By-law of Hunting, Wild Animals and Stock, Production and Trade 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 Hunting Education and Certificate (Official Gazette dated 31.12.2004 No.25687)
- By-law on the Basic principles 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 Buildings
- By-law on the Control 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 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 the Establishment, Operation and Inspection 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 the Industrial Air Pollution
- By-law on the Methods of the Identification of the Offence 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 10.08.200 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, Economisations 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 dated11.01.2002 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: Romania Legislation on Environment

- Decree No 187/1990 for ratifying the Convention on Protection of World Cultural and Natural Heritage
- Law No 5/1991 for ratifying the Convention on Wetlands of International Importance especially as Waterfowl Habitats (RAMSAR)
- Law No 58/1994 for ratifying the Convention on Biological Diversity
- Law No 13/1993 on Romania's adhesion to the Convention on the Preservation of the European Wildlife and Natural Habitats
- Law No 13/1998 for ratifying the Convention on the Preservation of Migratory Species of Wild Fauna
- Law No 89/2000 for ratifying the International Agreement on the Protection of the Migratory Species of African-Eurasia Birds
- Law No 90/2000 for ratifying the International Agreement on the Preservation of Bats in Europe
- Law No 91/2000 for ratifying the International Agreement on the Conservation of Cetacean in the Black Sea, Mediterranean and Contiguous Atlantic Area (ACCOBAMS)
- Law No 84/1993 on Romania's adhesion to the Convention on the Protection of the Ozone Layer, adopted in Vienna on March 22, 1985 and to the Protocol on the Substances that Deplete Ozone Layer, adopted in Montreal on 16 September 1987, and the acceptance of the amendment to the Montreal Protocol on Ozone Depleting Substances, signed at the Second Meeting of the Member States in London, on 27-29 June 1990
- Law No 9/2001 on the approval of the Governmental Emergency Ordinance No 24/2000 on the acceptance of the Amendment of the Montreal Protocol on ODS regarding substances that deplete the ozone layer, adopted in Copenhagen on 25 November, 1992
- Government Decision No 243/1995 on the establishment of National Committee for the Ozone Layer Protection

Annex 3: Bulgaria Legislation on Environment

- Convention on the Conservation of European Wildlife and Natural Habitats (Bern Convention), ratified on 25.01.1999, in force on 01.05.1991 (State Gazette No 23/1195)
- Convention on Biological Diversity, ratified on 29.02.1996, in force on 16.07.1996 (State Gazette No 19/1999)
- Convention on Wetlands of International Importance Especially as Waterfowl Habitat (RAMSAR Convention), ratified, in force on 24.01.1976 (State Gazette No 56/1992)
- International Trade in Endangered Species of Wild Flora and Fauna (CITES Convention), ratified on 1990, in force on 16.04.1991 (State Gazette No 6/1992)
- Convention for the Protection of the World Cultural and Natural Heritage, signed, ratified and in force since 1976
- Convention on the Conservation of Migratory Species of Wild Animals (Bonn Convention), ratified on 03.08.1999, in force on 01.11.1999 (State Gazette No 16/2000)
- Agreement on the Conservation of Cetaceans of the Black Sea, Mediterranean Sea and Contiguous Atlantic Area, ratified and promulgated in the State Gazette No 87/1999
- Agreement on the Conservation of African-Eurasian Migratory Waterbirds, ratified by law, State Gazette No 87/1999; promulgated in the State Gazette No 16/2000
- Agreement on the Conservation of Bats in Europe, ratified by law, State Gazette No 69/1999; promulgated in the State Gazette No 16/2000
- Law on the ratification of the Basel Convention on the Control of Trans-boundary Movements of Hazardous Waste and their Disposal