ECE/CEP/166

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Foreword

In 1993, Environmental Performance Reviews (EPRs) of the United Nations Economic Commission for Europe (ECE) were initiated at the second Environment for Europe Ministerial Conference in Lucerne, Switzerland. They were intended to cover the ECE States that are not members of the Organisation for Economic Co-operation and Development.

At the fifth Environment for Europe Ministerial Conference (Kiev, 2003), the Ministers affirmed their support for the EPR Programme, and decided that the Programme should continue with a second cycle of reviews. This second cycle, while assessing the progress made since the first review process, puts particular emphasis on implementation, integration, financing and the socio-economic interface with the environment.

Through the peer review process, EPRs promote dialogue among ECE member States and the harmonization of environmental conditions and policies throughout the region. As a voluntary exercise, an EPR is undertaken only at the request of the country concerned.

The studies are carried out by international teams of experts from the region working closely with national experts from the reviewed country. The teams also benefit from close cooperation with other organizations in the United Nations system, for instance the United Nations Environment Programme (UNEP).

This is the second EPR of Romania published by ECE. The review takes stock of progress made by the country in the management of its environment since the country was first reviewed in 2001. It assesses the implementation of the recommendations in the first review (annex I). This second EPR also covers 10 issues of importance to the country related to policymaking, planning and implementation, the financing of environmental policies and projects, and the integration of environmental concerns into economic sectors, in particular sustainable management and protection of water resources, waste management, forestry, biodiversity and protected areas, and climate change.

I hope that this second EPR will be useful in supporting policymakers and representatives of civil society in their efforts to improve environmental management and to further promote sustainable development in Romania, and that the lessons learned from the peer review process will also benefit other countries of the ECE region.

Sven Alkalaj
Executive Secretary
Economic Commission for Europe

Preface

The second EPR of Romania began in July 2011 with a preparatory mission. During this mission, the final structure of the report was discussed and established. A review mission took place on 15-22 November 2011. The international team taking part included experts from Germany, Hungary, Italy, the Republic of Moldova and Slovakia, as well as from UNEP and the ECE Secretariat.

The draft EPR report was submitted to Romania for comments and to the ECE Expert Group on Environmental Performance Reviews for consideration in March 2012. During its meeting on 4-5 April 2012, the Expert Group discussed the report in detail with representatives of the Government of Romania, focusing, in particular, on the conclusions and recommendations made by the international experts.

The EPR recommendations, with suggested amendments from the Expert Group, were then submitted for peer review to the eighteenth session of the ECE Committee on Environmental Policy on 18 April 2012. A delegation from Romania participated in the peer review. The Committee adopted the recommendations as set out in this report.

The Committee on Environmental Policy and the ECE review team would like to thank the Government of Romania and its experts who worked with the international experts and contributed their knowledge and assistance. ECE wishes the Government of Romania further success in carrying out the tasks involved in meeting its environmental objectives, including the implementation of the recommendations in this second review.

ECE would also like to express its appreciation to the German Federal Ministry for the Environment, Nature Conservation and Nuclear Safety and to the German Federal Environment Agency for their support of the EPR Programme through the Advisory Assistance Programme for Environmental Protection in the Countries of Central and Eastern Europe, the Caucasus and Central Asia; to Germany, Italy and UNEP for having delegated their experts for the review; and to the United Nations Development Programme (UNDP) for its support of the EPR Programme and this review.

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KEY ABBREVIATIONS

AAU	Assigned Amount Unit
ANRE	National Energy Regulatory Authority
CBD	Convention on Biological Diversity
CDM	Clean Development Mechanism
CF	(EU) Cohesion Fund
CHM	clearing house mechanism
CITES	Convention on International Trade in Endangered Species of Wild Fauna and Flora
CLRTAP	Convention on Long-range Transboundary Air Pollution
CPHD	county public health department
CPI	consumer price index
DDBRA	Danube Delta Biosphere Reserve Authority
EBRD	European Bank for Reconstruction and Development
EEA	European Environment Agency
EEE	electrical and electronic equipment
EF	Environmental Fund
EFA	Environmental Fund Administration
EIA	environmental impact assessment
EIB	European Investment Bank
EIONET	European Environment Information and Observation Network
EMAS	Eco-Management and Audit Scheme
EMEP	Protocol (to CLRTAP) on Long-term Financing of the Cooperative Programme for Monitoring and Evaluation of the Long-range Transmission of Air Pollutants in Europe
EPR	Environmental Performance Review
ERDF	European Regional Development Fund
ESD	Education for Sustainable Development
EU	European Union
EU ETS	EU emissions trading scheme
FAO	Food and Agriculture Organization of the United Nations
FDI	foreign direct investment
GC	green certificate
GD	Government Decision
GDP	gross domestic product
GEF	Global Environment Facility
GEO	Government Emergency Ordinance
GHG	greenhouse gas
GPP	green public procurement
ICPDR	International Commission for the Protection of the Danube River
IFIN-HH	Institute for Physics and Nuclear Engineering “Horia Hulubei”
IMF	International Monetary Fund
IMF SBA	International Monetary Fund Stand-by Arrangement
INSSE	National Institute of Statistics
IPCC	Intergovernmental Panel on Climate Change
IPPC	Integrated Pollution Prevention and Control
ISPA	Instrument for Structural Policies for Pre-Accession
JI	Joint Implementation
LEPA	local environmental protection agency
LULUCF	Land Use, Land Use Change and Forestry
MDGs	Millennium Development Goals
MEA	multilateral environmental agreement
MO	Ministerial Order
MoAI	Ministry of Administration and Interior
MoARD	Ministry of Agriculture and Rural Development
MoEF	Ministry of Environment and Forests
MoERYS	Ministry of Education, Research, Youth and Sport

MoETBE	Ministry of Economy, Trade and the Business Environment
MoH	Ministry of Health
MoRDT	Ministry of Regional Development and Transport
MoTI	Ministry of Transport and Infrastructure
MSW	municipal solid waste
NAM	National Administration of Meteorology
NAPCC	National Action Plan on Climate Change
NARW	National Administration "Romanian Waters" (Apele Romane)
NBSAP	National Biodiversity Strategy and Action Plan
NCCC	National Commission on Climate Change
NDP	National Development Plan
NEG	National Environmental Guard
NEPA	National Environmental Protection Agency
NFA	National Forest Administration
NGHGI	National Greenhouse Gas Inventory
NGO	non-governmental organization
NIHWM	National Institute of Hydrology and Water Management
NIMRD	National Institute for Marine Research and Development "Grigore Antipa"
NIPH	National Institute of Public Health
NPP	nuclear power plant
NRAMS	National Regulatory Authority for Municipal Services
NSCC	National Strategy on Climate Change
NSDS-2	Second National Sustainable Development Strategy 2013–2020–2030
NSRF	National Strategic Reference Framework
NWMP	National Waste Management Plan
NWMS	National Waste Management Strategy
OECD	Organisation for Economic Co-operation and Development
OP	Operational Programme
OPCOM	(Romanian national electricity market operator)
PA	protected area
PCB	polychlorinated biphenyl
PCT	polychlorinated terphenyl
p.e.	population equivalent
pH	power of hydrogen
PHARE	Poland and Hungary: Assistance for the Restructuring of the Economy
PM	particulate matter
POP	persistent organic pollutant
PPs	(public) plans and programmes
PPP	purchasing power parity
PRTR	Pollutant Release and Transfer Register
RAAN	Romania Authority for Nuclear Activities
REPA	regional environmental protection agency
RES	renewable energy sources
RIA	regulatory impact analysis
ROC	regional operator company
RWMP	regional waste management plan
SCI	Site of Community Importance
SDI	Sustainable Development Indicator
SEA	strategic environmental assessment
SOE	State-owned enterprise
SOP	Sectoral Operational Programme
SOP ENV	Sectoral Operational Programme on Environment
SOP-T	Sectoral Operational Programme on Transport
SPA	Special Protection Area
TAC	technical advisory committee
TPES	total primary energy supply
UNDP	United Nations Development Programme

ECE	United Nations Economic Commission for Europe
UNEP	United Nations Environment Programme
UNESCO	United Nations Educational, Scientific and Cultural Organization
UNFCCC	United Nations Framework Convention on Climate Change
UWWTP	urban wastewater treatment plant
VOC	volatile organic compound
WBA	water basin administration
WEEE	waste electrical and electronic equipment
WFD	(EU) Water Framework Directive
WGA	Working Group on Adaptation
WSSD	World Summit on Sustainable Development
WWF	World Wildlife Fund

SIGNS AND MEASURES

..	not available
-	nil or negligible
.	decimal point
°C	degree Celcius
$	dollar
Ci	Curie
GWh	gigawatt-hour
ha	hectare
kg	kilogram
kJ	kilojoule
km	kilometre
km^2	square kilometre
km^3	cubic kilometre
kgoe	kilogram of oil equivalent
ktoe	kiloton of oil equivalent
kV	kilovolt
kW	kilowatt
kWh	kilowatt-hour
l	litre
m	metre
m^2	square metre
m^3	cubic metre
MW	megawatt
PJ	petajoule
ppm	parts per million
s	second
t	ton
TJ	Terajoule
toe	ton of oil equivalent
tofe	ton of fuel equivalent
TWh	terawatt-hour

CURRENCY CONVERSION TABLE

Year	lei / US$	lei / EUR
2000	2.16	1.99
2001	2.90	2.60
2002	3.31	3.13
2003	3.32	3.76
2004	3.26	4.05
2005	2.91	3.62
2006	2.81	3.53
2007	2.43	3.34
2008	2.50	3.68
2009	3.04	4.24
2010	3.18	4.21
2011	3.05	4.24
2012	3.47	4.46

Source: ECE common database (accessed 11.2.2013).

Executive summary

The first Environmental Performance Review (EPR) of Romania was carried out in 2001. This second review intends to measure the progress made by Romania in managing its environment since the first EPR and in addressing upcoming environmental challenges.

Since 2000, the Romanian economy has improved substantially. According to the World Bank, Romania is now characterized as an Upper Middle Income country. Its gross domestic product (GDP) increased from US$127.9 billion in 2000 to US$311.7 billion in 2010. Despite this general trend, the global economic and financial crisis caused a 2.5 per cent drop in GDP between 2008 and 2009. However, economic growth recovered and GDP increased again in 2010, surpassing the 2008 level.

The overall standard of living in Romania improved over the past decade. Real GDP per capita rose by nearly 60 per cent from 2000 to 2011. There has also been progress in catching up with average living standards in the European Union (EU), although there is still a considerable way to go. GDP per capita (at purchasing power parity, or PPP) corresponds to 46 per cent of the EU-27 average, up from 26 per cent in 2000. Despite the progress made, Romania (along with Bulgaria) still has the lowest per capita income in the EU. Furthermore, Romania's ranking in UNDP's Human Development Index (HDI) has improved. The *Global Human Development Report* of 2006 showed that Romania had risen to the group of high HDI countries. The 2011 HDI value of 0.781 places Romania 50th of 187 countries, on the basis of comparable data.

Foreign direct investment (FDI) in the country has fluctuated sharply. FDI in Romania, which amounted to US$1 billion in 2000, increased to almost US$14 billion in 2008. A sharp decline started in 2009, and FDI fell to US$3.5 billion in 2010.

The export volume of goods and services has increased during the past decade. This is due to changes in Romania's foreign trade policy and to increased competitiveness owing to a more diversified export offer. The share of exports of goods and services increased from 32.8 per cent of GDP in 2000 to 35.5 per cent in 2010.

At the same time however, Romania's external debt has grown. In 2000, the country's gross external debt stood at US$11 billion, rising to US$38.8 billion in 2005 then peaking in 2010 at US$122.9 billion. The country's public debt was 34 per cent of GDP in 2011, up from 31 per cent of GDP in 2010.

In 2009, Romania agreed a two-year financial assistance package worth nearly €20 billion with the EU and other international financial institutions. The aim was to prevent difficulties resulting from the global economic and financial crisis of 2008, by supporting the balance of payments, securing the credit and investment flow and consolidating the reserves of the Romanian Central Bank. The Romanian Government continues to work to fulfil the EU convergence criteria and the terms of the Stability and Growth Pact, as well as to ensure long-term stability of the exchange rate, with the objective of switching to the euro.

Policymaking framework for environmental protection and sustainable development

Since the first EPR, in 2001, Romania has undergone significant economic, social and environmental changes. On 1 January 2007, Romania became a member State of the EU. Accordingly, a constant challenge for the environmental authorities of the country is to ensure compliance with new requirements that arise continually and to operate new institutional structures effectively.

Since the first EPR, all key laws on environmental protection have been affected by the country's accession to the EU in January 2007. The adoption and implementation of new regulations for environmental protection have become legislative priorities for Romania. The current regulations are based on several legal principles, as in the case of other EU member States, such as: (i) compliance with the environmental *acquis communautaire*; (ii) integration of environmental concerns into sectoral policies; (iii) monitoring and reduction of climate change risks; (iv) application of the "polluter pays" principle; (v) preservation of biodiversity and specific ecosystems; (vi) sustainable use of natural resources; (vii) disclosure of environmental information and public participation in decision-making; and (viii) international cooperation for environmental protection.

There are several parallel ongoing strategy-making and planning processes within the country. Many of these documents are interlinked due to their cross-cutting nature, although procedures for their elaboration are not necessarily the same. Thus, the interconnectedness of strategies, plans and programmes needs to be improved.

The key policy document on sustainable development, the second National Sustainable Development Strategy 2013–2020–2030 (NSDS-2), was approved by the Government in 2008. It provided objectives and general guidance for actions to be taken during the three distinct periods until 2013, 2020 and 2030. Although environmental aspects were taken into account for several actions, the Strategy did not directly support their implementation.

In the 2009–2012 Government Programme, one of the 26 chapters is dedicated to environment. A Ministerial Decision was adopted on the preparation of monthly reports on the implementation of this chapter, to be compiled by the Ministry of Environment and Forests (MoEF), including activities of all ministries. As information comes from several sources, a uniform table was developed in order to facilitate the summary. However, from experience so far, it is not always clear to different contributors exactly which kinds of activities need to be notified. Consequently, sometimes relevant information on certain activities does not appear in the reports.

One of the six national development priorities of the National Development Plan (NDP) for the period 2007–2013 is to protect and improve the quality of the environment. High-priority areas in the NDP are the improvement of water, soil and air quality, and natural resources management. The NDP provided the foundation for the National Strategic Reference Framework (NSRF) for the period 2007–2013.

Environment is high on the priority list of the NSRF for the period 2007–2013. The NSRF is implemented through sectoral operational programmes (SOPs) and operational programmes (OPs). The SOP on environment attracted almost one quarter (23.5 per cent) of funding in the NSRF budget allocation.

Compliance and enforcement mechanisms

Since the first EPR, Romania has worked to establish an environmental regulation and compliance assurance system that would respond to the needs arising from the country's EU accession and membership. Romania uses regulatory impact analysis (RIA) and has fully aligned the strategic environmental assessment (SEA), environmental impact assessment (EIA) and permit-issuing procedures with EU requirements. Its inspection system is broadly compliant with the Recommendations on Minimum Criteria for Environmental Inspection.

While making good progress, Romania still needs to streamline and improve some of the elements of its system of environmental regulation and compliance assurance. The goal of such rationalization would be to reduce the regulatory burden on both economic agents and competent authorities, with a view to achieving a higher level of compliance with the budgetary resources available to them.

Both the two key competent authorities and their stakeholders face problems, often of a technical character, in respect of access to relevant regulatory and enforcement information. The National Environmental Protection Agency (NEPA) and the National Environmental Guard (NEG) do not have a joint database that would facilitate information-sharing on both the technical characteristics of regulated entities and their most recent compliance behaviour and enforcement actions taken against them.

NEG's performance indicators show a very high intensity of inspection, while site visits are very short. A relatively low incidence of identified cases of non-compliance also poses the question of whether the risk analysis criteria should not be adjusted. Moreover, the number of unplanned inspections is particularly high in Romania and "hides" some planned inspections. In addition, the strategy of dealing with complaints may need to be adjusted, since they mostly reveal petty non-compliance, often not related to environmental requirements, and take up too much time for NEG's experts.

Large companies have become increasingly prone to using voluntary approaches, such as ISO 14000 series certification. In 2010, Romania ranked among the top 10 countries in this respect. However, certification under

the EU's Eco-Management and Audit Scheme (EMAS) is comparatively poor, with only six enterprises and four organizations participating in the scheme so far.

Monitoring, information, public participation and education

Romania has made significant improvements in the area of environmental quality monitoring. These include putting in place the necessary legal framework, setting up institutions, and adopting national programmes, action plans, and a number of parameters, criteria and methods. Furthermore, over the past 10 years, foreign technical assistance and loans have helped the country to acquire advanced monitoring equipment and modernize its laboratories, stations and posts.

As a signatory to several regional and international environmental treaties and agreements, Romania complies with its reporting duties and periodically submits its national reports. However, the level of environmental reporting for Romanian listed companies is very low. Romanian companies provide general information regarding their environmental impact, but such information is generally incomplete and irrelevant for users. This is due to the absence of national or international regulations that would impose reporting certain information regarding a company's environmental impact.

Romania has made progress in increasing public participation in environmental decision-making. The public has now an opportunity to engage in public consultations, hearings and debates on environmental matters ranging from environmental review procedures to the development of environmental plans and programmes (PPs) and their implementation. Furthermore, Romania has moved ahead in putting in place a number of laws on access to justice in environmental matters in order to ensure prevention and remedy environmental damage.

Romania has approved the ECE Strategy for Education for Sustainable Development (ESD). The Ministry of Education, Research, Youth and Sport (MoERYS) is the decision-making authority designated for reporting on matters related to ESD. A number of activities have been implemented in support of environmental education projects that enhance the public's awareness, knowledge and skills in order to help people make informed decisions that affect environmental quality. However, Romania has not yet adopted a national strategy on sustainable development or national implementation plan on ESD, as recommended by ECE.

The level of cooperation between MoEF and the environmental non-governmental organization (NGO) community on a number of environment and sustainability issues is not yet adequately developed. The partnership between the two is not a proactive one. Invitations to attend each other's meetings are not sufficient to deal with broader environmental issues. The goodwill has to be translated into a more substantive working relationship to tackle a number of environmental challenges, and to utilize the knowledge and expertise of the NGO community.

Environmental international agreements and commitments and their implementation

Since the first EPR, Romania has pursued an active role in international cooperation on environmental protection and sustainable development. The most significant results have been achieved in transboundary cooperation on water, industrial accidents and biodiversity conservation, particularly with regard to the Danube River basin.

Romania is a party to 67 multilateral environmental agreements (MEAs). The country has lately strengthened its commitment to the global and regional process relating to sustainable development and the environment through the implementation of Agenda 21 at local level following the 2002 World Summit on Sustainable Development (WSSD), and achievements with regards to the Millennium Development Goals (MDGs).

EU accession has also accelerated implementation of international provisions at national level. In particular, the considerable volume of pre-accession European assistance available to Romania has represented a significant financial resource for making progress in this field. Although discrepancies still exist between Romania's performance and the EU average, particularly with regard to certain key sustainable development indicators (SDIs), the GDP growth between 2001 and 2007 qualifies Romania for the status of development aid donor.

Despite the concrete achievements in the field of environmental international cooperation, Romania does not rely on strategic policy planning to identify national priorities and coordinate activities in the field of international cooperation. There is no single document setting out a general framework for international cooperation on the environment, even though some elements of such a framework may be found in different policy documents, such as NSDS-2, adopted in 2008, and the 2009–2012 Government Programme.

Romania has made progress in ensuring better access to information and public participation in the decision-making process as well as a contribution to public awareness of environmental matters. MoEF holds meetings with relevant stakeholders from time to time to exchange views, but no structural dialogue between the Romanian private sector and environmental authorities is currently foreseen.

Economic instruments for environmental protection

Since the first EPR, Romania has strengthened the use of economic instruments to achieve environmental objectives. Law No. 265 (2006) on Environment Protection established the "polluter pays" and the "user pays" principles as well as the principle of sustainable use of natural resources. Accordingly, the Government has introduced a range of environment-related taxes and other charges. The pursuit of environmental objectives is, moreover, supported by various subsidy schemes. Green public procurement (GPP) and eco-labelling schemes have also been established.

Romania applies a system of taxes for emissions of air pollutants and water pollutants. Not all air pollutants that are subject to emission limit values, however, are also subject to a pollution tax. Some of the tax rates applied appear to be rather low, also when compared with rates applied in other countries. There is no publicly available evaluation of these taxes as regards their impact on the behaviour of polluters.

A system of waste taxes is applied to waste generation by enterprises, in some cases linked to EU directives or national targets. There is also a landfill tax on the deposit of potentially recyclable waste, and a new tax to be paid by municipal administrations that fail to meet the established annual targets for the reduction of collection and deposited waste. Nevertheless, efforts to systematically organize municipal waste collection and disposal have only started in earnest in recent years. There is no published information on the degree of cost recovery of waste charges applied and on collection rates.

The water supply and sewerage sector has been undergoing a significant transformation with the establishment of regional water companies. Improvements in the water supply and sewerage infrastructure have been in parallel with a progressive increase in tariffs to cost recovery levels. However, the system of water abstraction charges does not appear to be generating sufficient revenue to cover adequate repair and maintenance of the corresponding infrastructure, including the need to cope with damage from weather hazards.

Car owners are subject to a car pollution tax, which is basically a registration tax with an exhaust emission norm component, and an annual car ownership tax based on engine capacity. In fact, the car pollution tax has been the dominant source of income of the Environmental Fund (EF) since 2008. Nonetheless, the car pollution tax and the annual ownership tax are not related to actual car use and are therefore unlikely to impact upon purchasing decisions concerning the fuel efficiency of cars, which are more likely influenced by the level of fuel excise duties.

Legislation to liberalize the electricity and gas markets for end users entered into force in 2007. However, a large proportion of consumers have preferred to stay in the regulated market segment, given the lack of financial incentives to switch to suppliers in the competitive market segment. Electricity prices in Romania are among the lowest in the EU, and gas prices have been the lowest for many years. There is evidence of cross-subsidization of residential users by industrial users. Low energy prices, in turn, stimulate demand not only from residential users but notably in energy-intensive industries. At the same time, they curb incentives for private investors to engage in the energy sector which, in principle, has a strong need to attract private capital.

The proportion of environment-related tax revenues in total tax revenue was 7 per cent in 2009 compared with an EU average of 6.3 per cent. Transport fuel taxes accounted for three quarters of environmental tax revenues, while the remainder is broadly equally divided between taxes on other energy products and taxes on transport equipment. Revenues from pollution/natural resource taxation were on a declining trend between 2005

and 2009, and their relative contribution to total tax revenue was insignificant in 2009. This places Romania within the lower tier of EU member States.

In 2010, the total amount of fines imposed by NEG for non-compliance with environmental regulations amounted to 77.3 million lei (some €18 million), an increase of 57 per cent compared with 2009. However, only about one quarter of all fines imposed were actually collected in 2010. Revenues collected from fines are allocated to the general State budget, with the exception of water pollution-related fines, which are earmarked for water quality protection and monitoring.

Expenditures for environmental protection

The activities of the EF are financed from a number of environment-related revenues which have been earmarked for environmental protection. More generally, revenues are designed to reflect the "polluter pays" principle, the principle of producer responsibility and the "user pays" principle. Revenues were relatively modest until 2007, but the resources available to the Fund have increased considerably following the introduction of the car pollution tax in 2008.

A striking feature is that, in most years since the start of its operations, actual EF expenditures corresponded to less than half of annual revenues. Actual payments for project financing corresponded to less than 40 per cent of the corresponding annual budget appropriations during 2004–2010. The major factor behind the large gap between revenues and expenditures has been the lack of adequate administrative capacity, as reflected by long delays in the project approval process and the small number of projects approved per year.

The main instrument employed by the Government to promote the increased use of renewable electricity is a mandatory quota system combined with tradable green certificates (GCs). Each GC represents the value of renewable electricity at a given point in time, providing producers with market signals. On the other hand, the price range established for trading of certificates is relatively wide and cannot therefore truly remove risks concerning the current and future prices for certificates. Given these price risks that investors are facing, such a quota obligation system is best suited for renewable technologies that are relatively mature and close to being competitive with fossil fuels.

Romania has faced considerable problems in absorbing the sizeable EU structural funds made available for promoting the objective of convergence towards the EU. There are various reasons for the very low effective fund absorption rate, which include lack of adequate administrative capacities to deal effectively with areas such as project management, cofinancing, public procurement, audit and control.

There has been notable progress in Romania as regards the efficiency of project preparation and selection procedures. This is reflected in a rise in the commitment ratio from 44 per cent in mid-2010 to 81.6 per cent at the end of 2011. Nevertheless, project preparation and cofinancing capacity are weak, especially at the municipal/regional level, where the bulk of infrastructure investments will take place.

Sustainable management of water resources and protection of the Black Sea

The general trend underlying water demand for population, industry and agriculture is one of decline. This is due to the installation of water meters, increased water prices, use of modern technology in industry, and a decline in the water needs of agriculture – although, according to a survey by the National Institute of Hydrology and Water Management (NIHWM), water demand is expected to increase in the future. This will result from a growth in water demand in the industrial sector and for livestock, as well as an increase in national irrigated areas.

The geographical position of the country, in both the Danube River basin and the Black Sea region, made it necessary for Romania to declare its whole territory a sensitive area. Accordingly, all municipalities with more than 10,000 population equivalent (p.e.) must ensure a wastewater infrastructure with advanced treatment. Action plans for municipalities have been prepared, together with an assessment of the current wastewater infrastructure and investments in this field.

Local authorities are entrusted with responsibility for drinking water supply as well as wastewater disposal and treatment. As the State does not provide any financial support for the financing of local water infrastructure, a major effort by the municipalities is required. However, local authorities do not yet have sufficient of their own resources to meet these needs, and operators of public water supply and sanitation have very limited financial resources.

In all, 56.9 per cent of the population is linked to wastewater collection systems. In rural areas, however, only 4.1 per cent is connected to sewerage systems, which means that rural wastewater management remains the major challenge for coming years. Further efforts are needed to improve administrative efficiency and ensure good absorption of the EU Cohesion Fund (CF) during the period 2007–2013.

Often, water supply and sanitation networks are not introduced simultaneously in rural areas, due to varying financing plans and priorities. Water supply is frequently given higher priority than sanitation. However, households can only be connected to the water supply network if they are already hooked up to a sewerage disposal system. These discrepancies often lead to illegal household connections, in addition to which the lack of sewage disposal places intense stress on groundwater and surface water. There is a need to enforce coordinated implementation of water supply and sewage disposal.

For the treatment of wastewater from industry, technical requirements apply to all industries. As a result of this one-size-fits-all policy, several industries are unable to comply with limit values they cannot reach. For instance, there need to be separate request catalogues for the food industry and the metalworking industry.

The increase in the number of urban wastewater treatment plants (UWWTPs) will generate an important amount of sludge. Major investments are required to build adequate facilities for the treatment of sludge generated by wastewater treatment and to find new ways of using it. However, there is currently no national strategy for sludge management.

Eutrophication is a phenomenon that occurs over wide areas of the Black Sea and concerns the entire Black Sea basin. Strategies and measures have been implemented within the framework of international cooperation with the countries bordering the Black Sea and in the context of the International Commission for the Protection of the Danube River (ICPDR). This includes in particular the implementation of the EU Water Framework Directive (WFD) as well as the adoption of the 2011 Law on the Integrated and Sustainable Development of the Coastal Area.

Waste management

The key driver of changes in waste management in Romania is the need to achieve compliance with EU legislation. The process is supported by the development of strategies and regional waste management plans (RWMPs), and EU funds for investment in new waste management infrastructure. Tangible results have not yet been forthcoming from the implementation of the National Waste Management Strategy (NWMS) and National Waste Management Plan (NWMP), but conditions are being created to achieve an integrated waste management system geared to waste recovery over the medium term.

The bulk of municipal solid waste (MSW) is disposed of in landfills and dumpsites. Less than 3 per cent of collected MSW is recycled. These trends are due to low waste tariffs, which do not generate sufficient income for future investments. Accordingly, waste separation and recycling infrastructure are not yet sufficiently developed to achieve targets set by the EU. However, the volume of recycled secondary raw materials is growing fast, reflecting large investments in waste recycling infrastructure.

The quality of waste service is satisfactory in urban centres. However, collection services in side streets and outlying areas have to improve. Additionally, coverage of the rural population must be increased. Municipalities need greater control over the activities of private collection companies, but the prevailing system of individual contracts makes this difficult. The introduction of municipal/regional contracts would allow better planning of waste collection services for the entire municipality or region, including rural areas.

Although there are no legal or political barriers for greater involvement of international companies in the Romanian waste market, their share remains small. Romania can speed up the process of modernizing waste

management and ensure effective utilization of developed infrastructure by attracting large international waste management companies.

Shutting down some Romanian mines and modernizing others that have remained in operation has led to significant changes in waste generation. The generation of non-hazardous waste from mining has decreased by half and hazardous waste from mining has decreased by 95 per cent. Although some additional mines may be closed and remediation of closed ones continues, transformation of the mining sector has been successful, with positive impacts on the environment.

The system of data collection on waste generation, collection, treatment and disposal is well developed but its potential is not fully utilized. In view of the necessity to develop a new waste management strategy and plans for the period after 2013, detailed and well-structured statistical information will be needed to assess the success and impact of the current waste management strategy and develop baselines for the new waste management strategy.

Forestry, biodiversity and protected areas

Romanian forests cover 29 per cent of the total land area and have some of the richest biodiversity in Europe. The forest sector contributes 1.8 per cent to the gross value added of the national economy, but recreational use is a main management goal for only 5 per cent of forests. As a means of greening the economy, Romania should seek ways to further benefit from its natural wealth and invest in the maintenance of forest ecosystem services and development of recreation and tourism.

The restitution of part of the forests to private ownership in recent years has led to an increased harvest and wood supply from these forests compared with the management practices of the National Forest Administration (NFA) Romsilva. Private forest owners often do not seem to follow sustainable forest management techniques. At the same time, Government authorities claim that there is a problem because private citizens whose forested land was identified as a Special Protection Area (SPA) or Site of Community Importance (SCI) have not yet been appropriately compensated for economic losses associated with changes in land use required under the Natura 2000 criteria. Landowners therefore need to be better informed on how to make a claim to the State to be compensated for the restrictions imposed on them.

Romania experienced impacts on its biodiversity due to the changes brought about by the transition to a market economy. At the same time, with integration into the EU, there is an opportunity for both improved management of biodiversity and greater involvement by civil society in addressing the impacts of economic activities so that the rich natural heritage of Romania is conserved for future generations. Romania has just finalized its new National Biodiversity Strategy and Action Plan (NBSAP), which awaits approval by the Government. However, no holistic system for biodiversity monitoring to support decision-making at the national level has been set up, and most databases on wild species and habitats are a result of initiatives by universities, museums, research institutions and NGOs.

Romania has built a network of protected areas (PAs) that covers 19 per cent of the national territory, including Natura 2000 sites with species and habitats of European importance. However, the country has only three approved management plans for PAs, and one pending approval. Therefore, there is an urgent need to develop management plans for all PAs. Regulations need to be clarified and measures implemented specifically for each PA, and these measures should be reviewed and evaluated on a routine basis.

MoEF appears to be working in isolation from other sectors in the Government. This could be affecting the desired goal of mainstreaming the values of biodiversity, forests and PAs into decision-making processes at the national level. Particularly in the management of SPAs and SCIs, it is important to work intersectorally so that policies are not contradictory and reflect the need to manage these sites in national planning.

Climate change

Both the National Strategy on Climate Change (NSCC) and the National Action Plan on Climate Change (NAPCC) for the period 2005–2007, currently in use, are in effect outdated and focused on mitigation efforts. Romania does not have either a climate change adaptation strategy or a climate change action plan;

rather, the 2008 Guidelines on Adaptation to Climate Change are the only document on adaptation. The long-overdue strategy on climate change which is now under preparation needs to have a long-term time horizon, and to give adequate weight to both mitigation and adaptation issues.

Romania's greenhouse gas (GHG) emissions trading was halted in August 2011 when the Compliance Committee of the Kyoto Protocol suspended the country's right to trade its Assigned Amount Units (AAUs). The reasons for the suspension were the deficiencies in the National Greenhouse Gas Inventory (NGHGI) and the failure to comply with the requirements of the inventory's methodology. By the end of 2011, however, the Romanian authorities had started to correct the non-compliance situation of the inventory with a set of measures.

The National Commission on Climate Change (NCCC) is underutilized as a Government-wide climate change cooperation body. NCCC is an interministerial consultative body which supports the integration of climate change policy within sectoral policies and provides advisory services related to the approval of the National Communications on climate change under the United Nations Framework Convention on Climate Change (UNFCCC) and the GHG inventories. Although NCCC's consultative and advisory role is central in facilitating interministerial and inter-agency work and dialogue on climate change issues, this key body is underutilized due to the lack of regular meetings.

At present, there are no working groups on climate change issues such as energy efficiency, transport or agriculture other than the Working Group on Adaptation (WGA). This body was established in 2007 to develop, monitor and coordinate the implementation of climate change adaptation actions mentioned in the NAPCC. Combating climate change requires information-sharing and cooperation within Government and between Government and other relevant stakeholders, such as research institutes and civil society.

Most of the reductions in GHG emissions up until now have been an outcome of the consequences of Romania's economic transformation process rather than of mitigation efforts. The Romanian economy has experienced a clear decoupling of energy consumption from GDP growth. Between 2000 and 2009, GDP increased by 64.9 per cent, while total primary energy supply (TPES) rose by only 8.8 per cent. Thus, the economy is using less energy for production. GHG emissions per capita and per produced GDP unit decreased during the same time period by 6.7 and 45.8 per cent respectively.

INTRODUCTION

I.1 Physical context

Romania is situated in the south-eastern part of central Europe. It has a land area of 238,391 km^2, of which approximately 8,500 km^2 consists of bodies of water. The total border length is 2,508 km. Romania shares a border with Bulgaria (border length 608 km) to the south, Serbia (476 km) to the east, Hungary (443 km) to the north, Ukraine to the north (362 km) and to the east (169 km), and to the north-east with the Republic of Moldova (681 km). Romania also has 247 km of Black Sea coastline to the east of the country.

Romania is crossed by the Carpathian Arch, the eastern part of Europe's central mountain system. The highest peaks of the Romanian Carpathians are Moldoveanu Peak at 2,544 m and Negoiu Peak at 2,535 m. Romania's terrain is almost evenly divided between mountains, hills and plains, each of which covers some 30 per cent of the country's total surface area. The natural vegetation in the mountains and hills consists of coniferous, beech and oak forests, alpine meadows on the Carpathian summits, and steppe vegetation in the south-east. Romania's geographical variety has led to a diversity of flora and fauna. Over 3,700 species of plants and 33,792 species of animals may be found within the country's borders.

Romania is characterized by a temperate continental climate. Climatic conditions are modified by the country's varied relief. The Carpathians function as a barrier to the Atlantic air masses, confining their oceanic influences to the west and centre of the country and keeping the continental climate influences of the Eastern European plains to the north.

Generally, the winters are cold and cloudy with frequent snow and fog, while the summers are sunny with frequent showers and thunderstorms. In wintertime, the *cravat*, a cold north-easterly wind, blows from the Eastern European plains, while the *austru*, a south-westerly wind, blows over western Romania during summer.

Average annual precipitation is between 600 and 700 mm, with high rainfall of 1,000 to 1,400 mm in mountainous areas and low rainfall below 400 mm in the coastal areas. Average annual temperature is 11° C in the south and 7° C in the north.

Of the 2,587 km total length of the Danube River, 1,075 km run within Romania's borders, making it the country's largest river. With the construction of the Danube-Black Sea and Danube-Rhine canals, it is the most important waterway to and from Western Europe. Other major rivers, all part of the Danube's water system, are the Mures River (length 766 km), the Prut River (742 km), the Olt River (615 km) and the Siret River (571 km). The 5,800 km^2 Danube River delta has 180,000 ha of single reed bed, making it one of the world's largest unbroken reed-bed marshes. There are around 3,500 lakes in Romania, of which many are small, freshwater mountain lakes. The large lakes are lagoons and coastal lakes on the Black Sea shore, such as Lake Razim and Lake Sinoe, or lakes situated along the Danube riverbanks.

According to the Food and Agriculture Organization of the United Nations (FAO), Romania has a total agricultural area of roughly 13.5 million ha. Of this total, arable land accounts for 8.8 million ha, permanent meadows and pastures for 4.4 million ha and permanent crops for 0.37 million ha. Forests cover 6.5 million ha of the total land area. Overall distribution of land use is shown in figure I.1.

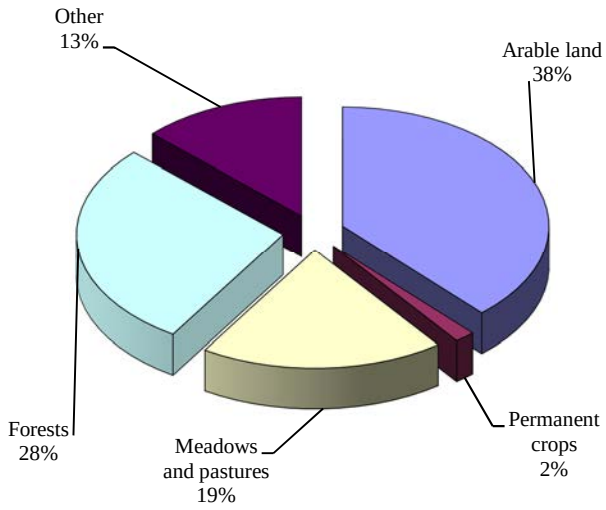
Romania's climate and geographic relief is well suited for agriculture. The extensive Romanian plains are favourable to the growing of cereal crops, although cereal crops are also found in the Sub-Carpathians and in the Transylvanian Basin, where they occupy a high proportion of the total arable land. Wheat and maize are the major crops, followed by barley, rye and oats.

Romania has a wide range of natural resources. The country's petroleum industry dates back to the nineteenth century and hydrocarbons are found across two thirds of the country. Oil reserves are concentrated in the foothills of the Southern and Eastern Carpathians, while smaller reserves have been discovered close to the Black Sea coast. In 2010, Romania produced 107,100 barrels per day (bbl/day), ranking 50th among the world's oil-producing countries.

Deposits of natural gas are located in the Transylvanian Plateau. Natural gas production in 2009 was 10.86 billion m^3, putting Romania in 41st place on the world ranking scale (*The World Factbook*, 2010). In 2011, proven natural gas reserves were estimated at 63 billion m^3.

Photo I.1: Patriarchal Palace, former headquarters of the Chamber of Deputies

Figure I.1: Land use area, 2009, per cent



Source: FAOSTAT (accessed January 2012).

The country's largest coal reserves are composed of lignite. In 2009, Romania produced 33,950 kilo tons of lignite. The main coal production is found in the Jiu Valley and along the fringe of the mountain areas. Anthracite coal is located in the Banat and Walachia regions.

A wide variety of metals is also found in Romania. Iron ore deposits are located in south-eastern and south-western Transylvania, the Poiana Rusca Mountains, and the Banat and Dobrogea regions, as well as in the Eastern Carpathians. Most of the non-ferrous metal reserves are concentrated in the north-west, particularly in the Maramures and Apuseni Mountains, where silver and gold deposits can also be found. In addition to metal deposits, amounts of pure salt are located at Slanic, Tîrgu Ocna and Ocna Mures.

Romania's total electricity production was 58,014 GWh in 2009. Fossil fuels are the country's principal energy source, and oil- and coal-burning thermal plants produce an estimated 40 per cent of the electricity generated in Romania, that is, some 23,206 GWh/year. Romania has a nuclear power production of some 20 per cent of the electricity generated, amounting to 11,752 GWh/year. This comes from the country's sole active nuclear power plant (NPP), situated in Cernavodă.

The installed capacity of hydro plants is approximately 5,912 MW, and they generate 16,700 GWh/year. Although only some 40 per cent of the country's technically feasible hydro potential has been developed so far, the full potential is 36,000 GWh/year, corresponding to 11,500 MW of capacity. Romania is also one of Europe's emerging wind power producers. Romania installed 520 MW of new capacity in 2011, reaching total installed wind power potential of 980 MW.

I.2 Demographic and social context

According to the latest estimations, Romania has 21.44 million inhabitants and a population density of 90 inhabitants per km^2. The proportion of the population in rural areas was 42.5 per cent in 2010, while that in urban areas was 57.5 per cent. The capital, Bucharest, is home to approximately 2.2 million people.

Since 1989, however, the country's population has been generally declining. This is caused by a decrease in the number of births, combined with net emigration. The birth rate was 9.55 births per 1,000 population in 2011, while the death rate was 11.81 deaths per 1,000 population. Meanwhile, life expectancy is growing, and the number of citizens over 65 years reached 14.9 per cent of the population in 2009. The infant mortality rate has been following a positive trend, having halved over 10 years.

Over the past decade, Romania's human development, as measured by UNDP's HDI, has improved. The HDI combines several indicators, such as life expectancy, educational attainment and income, into an index describing the country's social and economic development. The index is expressed as a value between 0 and 1, where a higher value indicates a better performance.

The *Global Human Development Report* of 2006 showed that Romania had risen to the group of high HDI countries. In 2011, the country's HDI was 0.781, when that of Bulgaria was 0.771, Ukraine 0.729 and the Republic of Moldova 0.649. The 2011 HDI value places Romania 50th of 187 countries, based on comparable data.

The overall standard of living in Romania has improved over the past decade. Real GDP per capita rose by nearly 60 per cent from 2000 to 2011. Progress has also been made in terms of catching up with average living standards in the EU, although there is still a considerable way to go. GDP per capita (at PPP) corresponds to 46 per cent of the EU-27 average, up from 26 per cent in 2000. Notwithstanding the progress made, Romania (along with Bulgaria) still has the lowest per capita income in the EU. As from the beginning of 2011, the monthly gross minimum salary was raised to 670 lei (about €159), up from 600 lei (€142.50).

Measured by the Gini index, Romania's household income is relatively equally distributed. A Gini index of 0 implies perfect equality and an index of 100 perfect inequality. Romania had a Gini index of 31.2 in 2008, which is quite close to the index of around 23 which Sweden and Denmark had in 2005. In comparison, neighbouring Bulgaria had an index of 45.3 in 2007.

Despite improved living standards and relatively low levels of inequality, problems persist with poverty and social exclusion. In 2010, 41.4 per cent of the population, i.e. about 8.8 million people, were at risk of poverty or social exclusion, placing Romania second lowest among the EU-27 countries. When the problem is framed in terms of age group, children (0-17 years old) are worst off, with as many as 48.7 per cent affected. In 2010, 31 per cent of the population were also materially deprived, i.e. with living conditions constrained by a lack of resources. This can be compared with the EU-27 average of 8.1 per cent.

I.3 Economic context

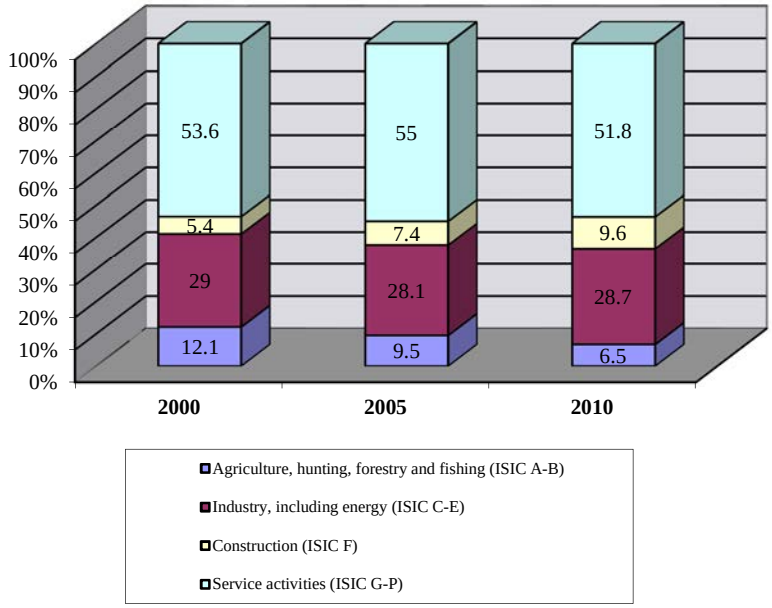
Since 2000, Romania has experienced economic expansion, and according to the World Bank is now characterized as an Upper Middle Income country. GDP increased from US$127.9 billion in 2000 to US$311.7 billion in 2010. Despite this general trend, the global economic and financial crisis caused GDP to drop by 2.5 per cent between 2008 and 2009. However, economic growth recovered and GDP rose again in 2010, surpassing the 2008 level.

Agriculture's share of GDP has been decreasing, and stood at 6.5 per cent in 2010. The FAO estimates that the agricultural population, which was 5.8 million in 1990, will diminish to 1.71 million people in 2011. The agricultural sector has several problems, including a lack of investment due to difficulties in accessing available funds, fragmentation and erosion of soil, property-related lawsuits and the use of obsolete technology.

The construction sector's share of GDP has almost doubled in the past 10 years, from 5.4 per cent in 2000 to 9.6 per cent in 2010, while that of agriculture, hunting, forestry and fishing has virtually halved. The other sectors, however, have remained almost stable; service activities stood at 51.8 per cent of GDP in 2010, and industry at 28.7 per cent (figure I.2).

The hyperinflation characterizing the 1990s has been decreasing steadily. The inflation rate, as measured by the consumer price index (CPI), was very high at 45.7 per cent in 2000 but dropped to 15.3 per cent in 2003 and reached its lowest level in 2007 at 4.8 per cent. After having climbed to 7.8 per cent during the financial crisis in 2008, it dropped to 6.1 per cent in 2010.

Figure I.2: GDP by sector, 2000, 2005, 2010, percentage of total GDP



Source: ECE database (accessed January 2012).

The unemployment rate (as a percentage of the total labour force) has remained steady over the past decade. It was 6.8 per cent in 2000, bottomed out in 2008 at 5.8 per cent and then rose to 7.3 per cent in 2010

An improved business environment along with foreign partners' positive attitude towards Romania's accession to the North Atlantic Treaty Organization (NATO) and the EU have helped to attract foreign investment. FDI in Romania has fluctuated greatly. Standing at US$1 billion in 2000, it increased to almost US$14 billion in 2008. A sharp decline started in 2009 and FDI fell to US$3.5 billion in 2010 (for flows and trends in FDI, see annex III).

Romania's external debt has displayed an upward trend. Gross external debt stood at US$11 billion in 2000, rising to US$38.8 billion in 2005 and peaking at US$122.9 billion in 2010. In 2011, the country's public debt was 34 per cent of GDP, having increased from 31 per cent of GDP in 2010.

The export volume of goods and services has increased over the past decade, a fact resulting from changes in Romania's foreign trade policy and from increased competitiveness due to a more diversified export offer. Exports of goods and services rose from 32.8 per cent of GDP in 2000 to 35.5 per cent in 2010.

Since the 1990s, there has been a reorientation in Romanian export patterns, mainly to facilitate the country's accession to the EU in 2007. Today, Romania generates 72 per cent of its export revenue in the EU, equivalent to 30 per cent of GDP. Romania's leading export partner is Germany (18.4 per cent), followed by Italy (14.1 per cent), France (8.5 per cent), Turkey (6.9 per cent) and Hungary (4.9 per cent). Romania's main export goods are machinery equipment, metal products, minerals, fuels, chemicals, textiles and agricultural products.

Romania's import patterns closely resemble the export patterns in terms of the importance of and shares held by the country's trading partners. Romania's import trade with the EU countries accounts for about 55 per cent. Imports of goods and services increased during the first half of the past decade but have been declining since 2006, accounting for 40.7 per cent of GDP in 2010. The main imports are machinery and industrial products, simple processed goods, fuels and energy, and manufactured goods.

The Romanian currency, the leu (lei in plural), subdivided into 100 bani (ban in singular), underwent a currency reform in July 2005, when a switch was made from the previous leu (ROL) to a new leu (RON). One RON is equivalent to 10,000 ROL. The transition to the new leu was expected to stabilize the Romanian currency and prepare the country for the adoption of the euro.

In 2009, Romania agreed with the EU and international financial institutions a two-year financial assistance package worth nearly €20 billion, consisting of the following contributions: International Monetary Fund (IMF) (around €12.95 billion under an IMF Stand-By Arrangement (IMF

SBA), amounting to 1,110.77 per cent of Romania's quota); the World Bank (€1 billion under a Development Policy Loan); and the European Investment Bank (EIB) and the European Bank for Reconstruction and Development (EBRD) (€1 billion combined).

The aim was to prevent difficulties caused by the global economic and financial crisis of 2008 by shoring up the balance of payments, securing the credit and investment flow, and consolidating the reserves of the Romanian Central Bank. The Romanian Government continues to work to fulfil the EU convergence criteria and the terms of the Stability and Growth Pact, as well as to ensure the long-term stability of the exchange rate, with the objective of switching to the euro. Reforms are focusing on decentralizing public administration, mobilizing public funds and strengthening administrative capacity to generate projects with a view to better absorbing European funds. More specific priorities are to improve infrastructure, ensure energy security, modernize agriculture, and enhance the quality of education and health-care services.

Following its accession to the EU in 2007, Romania was reclassified as a donor country. Like all other member States that joined the EU after 2002, Romania committed to increase its Official Development Assistance (ODA) to reach 0.17 per cent of Gross National Income (GNI) by 2010, with the ultimate goal of reaching 0.33 per cent by 2015.[1] Partly because of the economic crisis and its impact on the country's GNI, Romania's ODA contributions have fluctuated between 2008 and 2010. Expressed as a percentage of the country's GNI, however, ODA contributions have been in constant decline, from 0.07 per cent of GNI in 2008, to 0.06 per cent in 2009 and 0.05 in 2010 (table I.1). Nevertheless, the country still has a long way to go before it meets the ambitious targets of providing 0.33 per cent of GNI as ODA and reaching the MDGs.

I.4 Political institutions and foreign policy

Romania is a parliamentary republic, and its Constitution provides for separation of the executive, legislative and judicial branches. The country's latest Constitution was adopted via national referendum in 1991 and amended in 2003. Romania joined the EU on 1 January 2007.

The President is the Head of State, elected by universal suffrage for a five-year term and eligible to serve no more than two consecutive terms. The President directs and implements domestic and foreign policy, and guarantees the national independence, unity and integrity of the country.

The executive branch consists of the President and the Prime Minister, who is appointed by the President with the consent of Parliament. The Cabinet, or the Council of Ministers, is headed and appointed by the Prime Minister. The current Government consists of 16 ministries.

Romania has a bicameral 471-member Parliament, which is composed of the Senate (137 members) and the Chamber of Deputies (334 members). Members of both chambers are elected by popular vote in a mixed-member proportional system and serve four-year terms. Citizens cast two votes, one for each chamber. Candidates with at least 50 per cent of the votes win a seat in the legislature directly. Votes for the unelected candidates are counted together nationally and the remaining seats are distributed among political parties in proportion to their share of the vote.

The threshold to win parliamentary representation is 5 per cent for political parties and 8-10 per cent for coalitions. Parties which do not qualify for the national threshold of 5 per cent may still obtain parliamentary representation by winning at least six districts in elections to the Chamber of Deputies or three districts in elections to the Senate.

Local government in Romania is divided into three administrative levels: counties (*judet*), towns and communes. There are 41 counties and one municipality – the capital, Bucharest. Various ministries have their own subordinate administrative entities at county and local levels in the form of inspectorates and public directorates.

Romania has a civil law legal system. The judiciary is made up of a hierarchical system of courts which encompasses the Supreme Court of Justice, courts of appeal, tribunals, specialized tribunals, military courts, regional courts and the Arbitrary Court.

The Supreme Court of Justice comprises 11 judges appointed for three-year terms by the President in consultation with the Council of Magistrates. The Constitutional Court is a separate body, responsible

[1] The rest of the EU member States committed to collectively provide 0.7 per cent of their GNI in aid by 2015 to support the achievement of the MDGs (Council Conclusions 9266/05 of 24 May 2005: "Conclusions of the Council and of the Representatives of the Governments of the Member States Meeting within the Council on Accelerating Progress Towards Attaining the Millennium Development Goals").

for adjudicating compliance with the Constitution. It is composed of nine members serving nine-year terms, of whom the President, the Senate and the Chamber of Deputies each appoint three members. Romania joined NATO in 2004 and became a member of the EU in 2007. Romania's priority in foreign policy and diplomatic relations is now to deepen the integration process with the EU, notably by accessing the Schengen Area, the European External Action Service and the EU Danube Region Strategy. Romania will also work to support the EU Neighbourhood Policy, which emphasizes the role of regional cooperation through the development of sectoral and multilateral projects. Accession to the OECD remains another priority, particularly with the aim of encouraging foreign investment and promoting the nation's economic interests.

Table I.1: ODA net disbursements, 2010, US$ million

Aid type	2008	2009	2010
Multilateral Official Development Assistance	94.26	119.87	87.59
1. Multilateral contributions to:	94.26	119.87	87.59
UN agencies	0.90	0.50	2.22
EU institutions	93.12	118.09	84.14
Other (World Bank IBRD, IFC, MIGA)	0.13	..	..
Montreal Protocol	0.10	0.01	..
Other agencies	0.02	1.27	1.23
GNI	134,271.00	201,857.00	160,036.00
ODA (per cent of GNI)	0.07	0.06	0.05

Source: OECD, ODA by donor dataset (accessed 7 September 2012); ECE calculations.

Table I.2: Ministries

Ministry of Administration and Interior
Ministry of Agriculture and Rural Development
Ministry of Communication and Information Society
Ministry of Culture and National Cultural Heritage
Ministry of Economy, Trade and Business Environment
Ministry of Education, Research, Youth and Sports
Ministry of Environment and Forests
Ministry of European Affairs
Ministry of Foreign Affairs
Ministry of Health
Ministry of Justice
Ministry of Labor, Family and Social Protection
Ministry of National Defense
Ministry of Public Finance
Ministry of Regional Development and Tourism
Ministry of Transport and Infrastructure

Source: www.gov.ro (accessed January 2012).

Map I.1: Administrative map of Romania

Source: United Nations Cartographic Section, 2010.

Note: The boundaries and names shown on this map do not imply official endorsement or acceptance by the United Nations.

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PART I: POLICYMAKING, PLANNING AND IMPLEMENTATION

Chapter 1

POLICYMAKING FRAMEWORK FOR ENVIRONMENTAL PROTECTION AND SUSTAINABLE DEVELOPMENT

1.1 Introduction

Since the first EPR, in 2001, Romania has gone through relevant economic, social and environmental changes. These changes were closely connected to the country's intention to become a member State of the EU. Although the application for EU membership was submitted in 1995, formal accession negotiations started only in 2000. It took a long time to meet all of the membership criteria (political, economic and legal), and Romania had to make a concerted effort to create the conditions for integration. In the following years, changes concerned both administrative structures and national legislation. It is important to transpose the EU legislation into national legislation; however, it is even more important to implement and enforce it effectively.

Consequently, during the accession period, the necessary changes affected the entire economic and social structure of the country. It is obvious that these changes also covered the environment, especially as there is a huge body of directives and regulations to be transposed and implemented. Once this very important stage was completed, on 1 January 2007 Romania became a member State of the EU. Currently, the task is to operate the new structures effectively and ensure compliance with the new requirements which are continually arising.

1.2 Sustainable development

National sustainable development strategies

The first National Sustainable Development Strategy (NSDS-1) was prepared with the assistance of UNDP and was adopted as an official policy document of the Romanian Government in 1999. Although the impact of the document on public policy at national level was relatively limited, it supplied the conceptual and methodological framework for stakeholder consultation and facilitated the successful preparation of Local Agenda 21 (LA21) strategies in approximately 40 counties and municipalities. This progress made in strategic planning was not followed by the preparation of action plans for both the NSDS-1 and the LA21 strategies. This was why, generally speaking, NSDS-1 implementation was very weak in the following years. In July 2007, an interim report was presented to the European Commission on NSDS-1 implementation. This interim report was not available for review for this EPR.

NSDS-2 was approved by Government Decision (GD) No. 1460 (2008) and contained objectives and general guidance for actions to be taken at the three benchmark years of the Strategy. Strategy documents and sector programmes prepared during the pre- and post-accession periods provided most of the reference materials for drafting NSDS-2. Some of these documents were:

- Treaty of Accession to the EU;
- NDP for the period 2007–2013;
- NSRF for the period 2007–2013.

Objectives and actions were developed for the key challenges and cross-cutting policies identified in NSDS-2, namely:

- Climate change and clean energy;
- Sustainable transport;
- Sustainable consumption and production;
- Conservation and management of natural resources;
- Public health;
- Social inclusion, demography and migration;
- Global poverty and the challenges of sustainable development.

Cross-cutting policies were:

- Education and training;
- Research and development (R&D) and innovation.

Environmental aspects were taken into account in the description of several actions in connection with, for example, the energy and transport sector, industry, natural resource management, environmental infrastructure, preservation of biodiversity, human health, education and research. The main

consideration related to environmental aspects was not, however, matters of implementation but, rather, of policy, i.e. providing guidance for elaborating further programmes and action plans.

At the time of preparation of the Strategy, it was not envisaged to devote a separate budget to NSDS-2 implementation. Under NSDS-2, the necessity and feasibility of such a step would be considered for future revisions of the Strategy, starting with that of June 2011. The objectives and targets of the Strategy and of its future revised versions would provide the reference points for the drafting of national and local budgets (annual and multi-annual) and for the formulation and promotion of Romania's proposals concerning the preparation and approval of allocations under the next EU financial programming periods (2014–2020 and 2021–2027). The first progress report on its implementation was also scheduled for June 2011. There is no information as to whether this report was indeed developed, and no information is available on the revision of the Strategy.

NSDS-2 featured a separate section entitled "Issues and concerns specific to Romania", in which various problems were analysed. Although these problems (insufficient emphasis on long-term sustainability, high unemployment, territorial disparities, increasing demographic imbalances, decreasing capacity for preservation of national cultural heritage) do indeed exist in Romania, they can also be found in several other countries. However, this section was unable to propose special solutions for these problems based on Romania's local circumstances and capacities.

Finally, NSDS-2 recommended measures for implementing the Strategy. Most were of an administrative nature, and only the last four recommendations addressed to the Government could provide direct support for the Strategy's implementation, e.g. continual, uninterrupted funding of sustainable development activities, preparation of economic and social development strategies, and interdependent sector programmes.

Sustainable development indicators

The Romanian SDIs pursue the objectives and modes of action established by NSDS-2 toward the horizons of 2013, 2020 and 2030. They are built on information available from the National Institute of Statistics (NIS), MoEF and institutions under its coordination or subordination, and methodologies that are harmonized with the EU. Their main function is to provide a solid basis for regular monitoring of progress in meeting the strategic objectives of sustainable development. Currently, 81 indicators (and the time series since 2000) are available on the NIS website. No indicators have been developed so far for biodiversity; however, the database is to be updated and supplemented with other indicators as they are developed and made available.

Participation in the United Nations Commission on Sustainable Development

Romania plays an active role in the work of the United Nations Commission on Sustainable Development (UNCSD). In preparation for the WSSD in Johannesburg in 2002, Romania developed the Country Profile (2002), a comprehensive overview of Agenda 21 implementation status at national level. According to the UNCSD working programme, national reports were provided on selected topics. The latest report prepared for the eighteenth session of UNCSD included assessments on chemicals, mining, sustainable consumption and production patterns, transport and waste management.

Romania has appointed a national focal point for UNCSD issues, and the Minister of Environment and Forests of Romania acted as Chair at the nineteenth session of UNCSD. The United Nations Conference on Sustainable Development (Rio+20 Conference, Rio de Janeiro, Brazil, 2012) focused on two themes: (a) a green economy in the context of sustainable development and poverty eradication; and (b) the institutional framework for sustainable development. As part of preparations for the Rio+20 Conference, MoEF organized various consultations to facilitate understanding of the sustainable development concept.

The last such event took place in November 2011 at United Nations House in Bucharest. It provided an opportunity for presentations by invited guests from universities and research institutions and a pragmatic analysis of what Romania can offer in particular to the Rio+20 Summit, national experience in this field, as well as concrete steps in preparation for the event. National authorities, representatives from academia, private sector representatives, civil society organizations and media personnel participated in the debate.

1.3 Strategies, programmes and action plans on environmental protection

Government Programme

In the Government Programme for the period 2009–2012, objectives and actions to be taken are set out in

26 chapters, one of which is dedicated to the environment. It is worth mentioning one of the 13 objectives defined in the Government Programme: "Enforcement of the principles of sustainable development in sectoral policies". This objective covers three groups of actions:

1. Sustainable development, quality of life and environment;
2. Sustainable development, environment and human health;
3. Implementation of the second National Strategy for Sustainable Development.

In the following part of the chapter, these actions are described in more detail. Some of them appear in the concrete wording of the action to be taken, e.g. "Develop a National Action Programme for Health and Environment", "Review of the National Strategy for Waste Management", and "Implementation Plans to Reduce Emissions of Pollutants into the Atmosphere". For one action, target figures are specified: "provide drinking water supply networks for 80 per cent of the population and domestic sewage and wastewater treatment for 69 per cent of the population". The majority of actions in the list refer not to a single act but, rather, to a group of arrangements which have to be made cooperatively by different contributors in order to implement the Government Programme.

As progress monitoring was viewed as a very important and inseparable item of implementation, a Ministerial Decision was adopted on the preparation of monthly reports compiled by MoEF. The reports should cover activities of all ministries. As information comes from several sources, a uniform table was developed in order to facilitate preparation of the summary. Preparation of these monthly reports has already started. According to the experience gathered so far, it is not always sufficiently clear to different contributors what kinds of activities must be included in the table as a major contribution to the implementation of the Government Programme. Consequently, sometimes relevant information on certain activities may not be included in the reports.

National Development Plan

The NDP for the period 2007–2013 is a strategic planning document that includes multi-annual financial planning. NDP is targeted towards EU policies for economic and social cohesion. As such, its overall objective, elaborated in December 2005, is the fastest possible reduction of socioeconomic disparities between Romania and other EU member States. It is aimed at establishing the main directions for earmarking public funds for investment with a significant impact on social and economic development and environmental protection. These investments will be financed out of internal (State budget, local budgets, etc.) and external (EU structural funds and the CF, EU funds for rural development and fisheries, etc.) sources.

In the NDP, six national development priorities were set, bringing together a multitude of priority domains and subdomains. One of these priorities is to protect and improve the quality of the environment.

Specific objectives were as follows:

- Improving living standards via the provision of public utilities services at the requested quality and quantity standards, for the water and waste sectors;
- Improving environmental quality, focusing on compliance with relevant EU directives – improvement of water, soil and air quality, and natural resources management.

NDP provided the foundation for the period 2007–2013.

National Strategic Reference Framework

The 2006 NSRF for the period 2007–2013 is implemented through SOPs and (non-sectoral) OPs.The specific objectives of the SOP on environment (SOP ENV) attracted 23.5 per cent of the total budget allocations in the NSRF (table 1.1) and were in line with those in the NDP:

- Improving the quality of and access to water and wastewater infrastructure, via the provision of water supply and wastewater services in most urban areas by 2015 and the establishment of efficient regional water and wastewater management structures;
- Developing sustainable waste management systems, via improvement of waste management and a reduction in the number of historically contaminated sites in a minimum 30 counties by 2015;
- Reducing the negative environmental impact and mitigating the climate change caused by urban heating plants in most polluted localities by 2015;
- Protecting and improving biodiversity and natural heritage via support for PA management, including Natura 2000 implementation;

Photo 1.1: Palace of Parliament

- Reducing the incidence of natural disasters affecting the population, via the implementation of preventive measures in most vulnerable areas by 2015.

Table 1.1: Sectoral and non-sectoral operational programmes and budget allocation, 2007–2013

Operational Programme (OP)	Percentage of total budget allocated
Increasing Economic Competitiveness	13.3
Transport	23.7
Environment	23.5
Human Resources Development	18.1
Administrative Capacity Development	1.1
Regional	19.4
Technical Assistance	0.9

Source: National Strategic Reference Framework for the period 2007–2013.

According to the NSRF, three main types of evaluation will be carried out for SOP ENV: *Ex ante* evaluation, Ongoing evaluation and *Ex post* evaluation. Criteria for the evaluation of SOP ENV are listed in table 1.2. In 2011, the most important exercise was the evaluation of progress made in the first half of the implementation period. Pursuant to the annual activity report of the SOP ENV Management Authority for 2010, 35 projects were approved, with a total cost of €2.5 million.

Water projects dominated with 19; in addition, 7 waste projects, 6 flood prevention projects and 3 heating system projects were approved (table 1.3). Figures for 2011 were not available at the time of the EPR.

Specific strategies, programmes and plans within the environment sector

Water

Chapter 18 of the Government Programme for the period 2009–2012 contains objectives for environmental protection, which can also be found in the NDP for the period 2007–2013. This latter document forms the basis for the NSRF for the period 2007–2013. Improving water infrastructure to reach the level of other EU countries is an essential goal of the NDP. SOP ENV is based on policy objectives and priorities which include the sustainable development of water infrastructure and integrated water resource management in accordance with the EU WFD.[2]

Waste

The NWMS for the period 2003–2013 and the NWMP for the period 2004–2009 were prepared and

[2] Directive 2000/60/EC of the European Parliament and of the Council establishing a framework for the Community action in the field of water policy.

approved by GD No. 1470 (2004), and amended and completed by GD No. 358 (2007). The Strategy includes short-, medium- and long-term objectives, for 2005, 2010 and 2013 respectively. Waste management options should be considered in decreasing order of priority, as follows:

- Waste prevention – application of "clean technologies" in waste-generating activities;
- Reduction of waste quantities – implementing best practices in every waste-generating activity;
- 3Rs – reuse, material recycling and energy recovery;
- Disposal – incineration and landfilling.

RWMPs for the period 2008–2015 were developed and approved for eight regions (Joint Order 1364/1499 (2006) of the Ministry of Environment and Water Management and the Ministry of European Integration) (chapter 8).

Forestry

The last national forest programme covered the period 2001–2010. No new national forest programme has been developed since then (chapter 9).

Climate change

The NSCC for the period 2005–2007 was prepared and approved via GD No. 645 (2005). The overall objective of the NSCC was twofold:

1. Securing compliance with Romania's commitments under the UNFCCC, the Kyoto Protocol and climate change-related commitments of the EU;
2. Establishing and implementing voluntary objectives and activities of Romania related to adaptation to climate change impacts, reduction of the carbon intensity of the Romanian economy and participation in the flexible mechanisms under the Kyoto Protocol to increase the competitiveness of the Romanian economy.

The NAPCC for the period 2005–2007 was developed and approved by GD No. 1877 (2005). The NAPCC consisted of two parts. Part I introduced general considerations underlying the drafting of the document, the working procedures and implementation schedule, and the procedure for monitoring and updating. It provided an overview of the NAPCC structure and all actions included.

Part II presented the actions developed by the four working groups created for drafting the NAPCC. The working groups covered four main topics:

- General reporting requirements and the NGHGI;
- Joint Implementation Mechanisms and "Green Investments Scheme-GIS";
- EU emissions trading scheme (EU ETS) (Directive 2003/87/CE), GHG emission reduction policies and measures;
- Adaptation to climate change, awareness-building, education and public participation.

Updated versions of the Strategy and the Action Plan have not been developed so far (chapter 10).

Environmental security

Work has begun on preparing a national strategy on environmental security. NEG coordinates the strategy drafting. Though preparations are at an early stage, adoption of the strategy is expected to take place at the end of 2012.

Sectoral strategies and programmes

Transport

NSDS-2, namely its chapter on Sustainable Transport, defined the following objectives:

- Horizon 2013: promoting a transport system that would facilitate the safe, fast and efficient movement of passengers and goods, in accordance with EU standards;
- Horizon 2020: reaching the EU average level of economic, social and environmental efficiency of transport and achieving substantial progress in development of transport infrastructure;
- Horizon 2030: getting close to the average EU level of 2030 in relation to all the basic sustainability indicators for transport activities.

In order to achieve these objectives, the SOP on transport (SOP-T) was prepared within the NSRF, whereby transport projects would be eligible for EU support, namely through the European Regional Development Fund (ERDF) and the CF. SOP-T had the following specific objectives:

- Modernizing and developing
- The Trans-European Transport Network (ten-t), with the necessary measures for environmental protection;

Table 1.2: Indicators of Sectoral Operational Programme on Environment

	Indicator	Unit	Baseline 2006	Target 2015
Water	Localities provided with new/rehabilitated water facilities in a regional management system	number	60	300
	New/rehabilitated wastewater treatment plants (total in baseline year: 3,017)	number	0	200
	Population connected to basic water services in a regional system	per cent	52	70
	Wastewater treated (of total wastewater volume)	per cent	35	60
	Number of regional water companies created	number	10	35
Waste	New or completed integrated waste management systems at county/regional level	number	0	30
	Old waste landfills and dumps closed in rural areas (small)	number	0	1,500
	Old municipal waste landfills closed in urban areas	number	17	150
	Pilot projects for rehabilitation of historically contaminated sites	number	0	5
	Population benefiting from improved waste management systems	number	0	8,000,000
Climate change	Rehabilitated urban heating systems	number	0	8
	Option studies elaborated	number	0	15
	Localities in which the air quality is improved due to rehabilitated urban heating systems	number	0	8
	Reduction of SO_2 emissions from urban heating plants due to SOP interventions	ton	80,000*	15,000
	Reduction of NO_x emissions from urban heating plants due to SOP interventions	ton	7,000*	4,000
Nature protection	Protected areas and Natura 2000 sites with management plans in force	number	3	240
	Surface of protected areas and Natura 2000 sites benefiting from nature conservation measures	per cent of protected area surface	0	60
Risk prevention	Projects on floods protection	number	0	10
	Seashore rehabilitated	km	0	10
	Population benefiting from flood protection projects in the SOP intervention areas	number of inhabitants	0	1,500,000
	Reduction of incidence to flood risk in the SOP intervention areas	per cent	100	30
	Extension of coastal area	per cent	0	30

Source: National Strategic Reference Framework for the period 2007–2013.
* Baseline year is 2003.

- National transport networks, in accordance with the principles of sustainable development;
- Promoting rail, shipping and intermodal transport;
- Supporting sustainable transport development by minimizing adverse effects on the environment, improving traffic safety and protecting human health.

Four OPs of the NSRF had been subject to the SEA process; one of them was SOP-T. Based on the assessment, the SEA team made some proposals, primarily on aspects of project selection and use of indicators. According to the SEA final summary, comments and suggestions were considered in the final version of SOP-T.

Table 1.3: Sectoral Operational Programme on Environment projects approved, 2010

	Number
Water sector	19
Waste sector	7
Heating systems	3
Flood prevention	6
Total	**35**

Source: Sectoral Operational Programme on Environment Management Authority, *Activity Report 2010*.

It is not clear what SOP-T measures were developed to support environment-related objectives and review their implementation, i.e. in terms of minimizing adverse environmental impacts due to transport investments. The Romanian Intermodal Transport

Strategy until 2020 was approved in June 2011 and published in the *Official Journal* in July 2011. The overall objective of the Strategy is the development of a national intermodal freight transport system. Reaching this objective is expected, inter alia, to reduce gas emissions and minimize the negative impact on the environment.

Tourism

The 2007 Master Plan for National Tourism Development for the period 2007–2026 analysed the country's status, strengths and weaknesses as a tourist destination and the economic impact of tourism. The Master Plan has five-year phases with clear targets (table 1.4). The Plan's objectives are to:

- Make Romania a tourist destination, based on the quality of its cultural heritage and natural values;
- Meet EU standards on the provision of products and services by 2013;
- Achieve sustainable development in the environmentally friendly tourism sector faster than can other European travel destinations.

Mindful of the advantages of ecotourism for the environment and its socioeconomic benefits, and based on previous Government documents, the National Strategy for Ecotourism Development was prepared in 2009. The vision of the Strategy was that national ecotourism destinations created by 2020 would help to improve the life of local communities and protect and conserve nature. The targets of the Strategy were as follows:

- Develop specific ecotourism infrastructures in and near PAs;
- Ensure national and international recognition over the next 10 years for at least 10 ecotourism destinations;
- Boost the revenue of local communities active in ecotourism by at least 7 per cent annually over the next 10 years;
- Allocate 2 per cent of revenues from ecotourism to nature conservation over the next 10 years;
- Increase minimum stays by visitors to Romanian ecotourism destinations to 5-7 days for foreign ecotourists and 3-4 days for Romanian ecotourists.

To achieve these targets, direct support has to be provided in the following fields:

- Institutional framework and associations;
- Infrastructure and spatial planning;
- Education and awareness-raising;
- Human resources development;
- Business development and local development;
- Conservation and protection of nature;
- Marketing and promotion.

The institutional framework has been increasingly strengthened in this area, involving more than one ministry. Specifically, since 2011:

- An interministerial working group was created in order to promote ecotourism with the participation of the Ministry of Regional Development and Tourism (MoRDT), MoEF, the Romanian Ecotourism Association, the National Institute for Research and Development in the Field of Tourism and UNDP. The group has as its main mission the definition of the criteria used for the designation of the ecotouristic areas and their publication on the MoRDT website (www.mdrt.ro);
- Tourism was created, in order to increase the quality of rural products. The body consists of two working groups. The main task of the first is to design specifications related to the touristic and agritouristic guesthouses. The second has as its main task the designation of the ethnographic touristic destinations of Romania;
- A Committee for the Development of Rural An interministerial working group formed by MoRTD and the Ministry of Agriculture and Rural Development (MoARD) for the harmonization of the programmes developed in the tourism field;
- An interministerial working group formed by MoRTD and MoEF for the harmonization of the programmes developed in the tourism field.

Six training seminars have been organized since 2011 on the development and promotion of rural tourism; tourism in nature; ecotourism in PAs; and the tourist destinations whose administrative territory is included in biosphere reserves, national parks, PAs and the Natura 2000 network; among other topics. A further six seminars focused on Romanian SPAs, which are located in the radius area of natural and national parks.

Table 1.4: Targets in the Master Plan for National Tourism Development for selected years

	2006 (baseline)	2011	2016	2021	2026
Number of foreign visitors (million)	6,037	7,707	9,736	12,279	15,485
Spending of Romanian and foreign visitors (million €)	2,755	4,561	7,005	10,712	16,069
Share of tourism in national GDP (per cent)	3.5	4.3	4.9	5.9	6.9

Source: Master Plan for National Tourism Development for the period 2007–2026.

Regional development

Within the NSRF, the Regional OP was prepared and the implementation of different projects was cofinanced by the ERDF. Its priorities include:

- Supporting sustainable urban development/integrated urban development plans;
- Rehabilitating unused polluted industrial sites and preparing them for new activities;
- Developing and modernizing specific infrastructure for sustainable use of natural resources with tourism potential.

Rural development

The National Strategic Plan of Rural Development for the period 2007–2013 aims at increasing the economic dynamism of Romania's rural areas while maintaining social dynamism and sustainable agriculture and ensuring the preservation and consolidation of natural resources.

Planned provisions were to be implemented primarily via cofinancing from the European Agriculture Fund for Rural Development (EAFRD). The strategic objectives of the Strategic Plan include improving the environment and rural areas through the sustainable use of agricultural and forestry land (25 per cent of EAFRD's financial means).

The following measures were developed to achieve this objective:

- Ensuring the continuous and sustainable use of agricultural land, with special attention given to areas where natural conditions are less favourable for farming;
- Preserving and improving state-of-the-art natural habitats and resources, and providing support in maintaining environmentally sensitive areas in good environmental condition, together with reducing agricultural pollution of water resources and taking steps to promote soil conservation;
- Promoting sustainable management of forest land.

No progress report on implementation of the Strategic Plan was made available for the EPR team.

European Union supporting programmes, plans and instruments

In developing and implementing national strategies, programmes and plans, Romania was able to successfully utilize its experience and lessons learned in former programmes which were implemented over the past decade with the support of different pre-accession instruments. Some factors can be considered as prerequisites for fruitful work in both the development and implementation phase, e.g. qualified administrative capacity, clear procedures, reliable baseline data and information, feasibility studies and surveys, special analysis (e.g. cost-benefit analysis), skills in organizing and managing the work of several contributors, functional monitoring systems and regular evaluation.

In Romania, the EU/PHARE[3] programme has been active since 1998, and environmental protection represented an important topic in supported projects. Transposition of many pieces of EU legislation was supported by this programme: horizontal legislation and legislation on chemical substances, waste management, industrial pollution control, air quality and noise protection.

PHARE projects have contributed substantially to administrative capacity-building at central, regional and local levels via the organization of training sessions or seminars on different environmental issues and the provision of equipment for environmental quality monitoring, computers, software for research, and data processing.

The objectives of the Instrument for Structural Policies for Pre-Accession (ISPA) were to help beneficiary countries, inter alia, catch up in terms of

[3] Originally created in 1989 as the Poland and Hungary: Assistance for the Restructuring of the Economy (PHARE) programme, the PHARE programme, as a pre-accession instrument, is now the main channel for the European Community's financial and technical cooperation with the countries of Central and Eastern Europe.

EU environmental standards. ISPA focused on the environmental directives that were very costly to implement, especially in the following areas: drinking water supply, treatment of wastewater, management of solid waste and hazardous waste. During 2000–2005, 29 water quality projects and seven integrated waste management projects were approved for ISPA cofinancing.

The Programme for Small and Medium-sized Towns Infrastructure Development, which was launched in 2001, focused on improving the local drinking water infrastructure and the quality of water service. In 2001–2007, projects were implemented in 91 towns serving approximately 2.5 million inhabitants. The Programme was primarily funded out of the EU grant; additional contributors were the national EF, EIB and EBRD.

In 2000, the European Commission approved the National Agriculture and Rural Development Plan of Romania, whose implementation was cofinanced by the Special Accession Programme for Agriculture and Rural Development.

The rural infrastructure development and rehabilitation component of the Plan focused in particular on the construction and modernization of drinking water systems, sewerage systems and wastewater treatment plants. In 2001–2007, more than 850 projects were selected for improvement of rural infrastructure.

LIFE is the EU's instrument for supporting environment and nature conservation projects. Projects financed by LIFE Environment address specific local issues and protect or improve environmental quality. Innovative projects can also be supported, such as the development of monitoring and warning systems and awareness-raising campaigns. LIFE Natura projects focus on biodiversity, e.g. efforts to protect different ecosystems and plant and animal species. In Romania, 51 projects were financed of which 16 focused on environmental innovation, 34 on nature conservation and one on information and communication.

1.4 Legislation

Adopting and implementing new legislation for environmental protection has been a priority for Romania since the first EPR. This legislation is based on several legal principles, such as: (i) compliance with the *acquis communautaire* for environment; (ii) integration of environmental concerns into sectoral policies; (iii) monitoring and reduction of climate change risks; (iv) application of the "polluter pays" principle; (v) preservation of biodiversity and specific ecosystems; (vi) sustainable use of natural resources; (vii) disclosure of environmnental information and public participation in decision-making; and (viii) international cooperation for environmental protection. Since the first EPR, all key laws on environmental protection have been affected by the country's accession to the EU.

Air protection

Law No. 104 (2011) on Ambient Air Quality transposes relevant EU legislation, such as Directive 2008/50/EC on Ambient Air Quality and Cleaner Air for Europe and Directive 2004/107/EC Relating to Arsenic, Cadmium, Mercury, Nickel and Polycyclic Aromatic Hydrocarbons in Ambient Air. The Law imposes obligations on natural persons or legal entities who or which engage in activities with a potential impact on ambient air quality. These include monitoring and self-reporting on emissions of air pollutants within and in excess of set limit values, and providing information for an emissions inventory.

Water protection

Law No. 107 (1996) on Water remains the main legal instrument for water protection. Two important amendments to this Law since the first EPR are Government Emergency Ordinance (GEO) No. 64 (2011) regarding the geological storage of carbon dioxide, and GEO No. 3 (2010) amending Law No. 107 (1996) on Water.

These amendments cover the public authority with environmental responsibilities; measures to be taken to prevent temporary deterioration of water bodies; protection and conservation of surface water resources; gradual reduction of water pollution; uniform, rational and integrated management of waters; and exploitation rights for minerals in waterbed courses and lakes, with a new detailed section on the management of flood risks.

Waste management

Law No. 211 (2011) on Waste transposes the provisions of Directive 2008/98/EC of the European Parliament and of the Council of 19 November 2008 on waste. The most important provisions of this Law refer to:

- The waste hierarchy for the purpose of diminishing the negative effects of waste on the environment;

- Regulation of the extended liability of the producer for the purpose of strengthening reuse, reduction, recycling and other methods for the recovery of waste;
- Application of the self-sufficiency and proximity principles;
- The control and labelling of hazardous waste;
- The preparation and content of waste management plans and waste prevention programmes.

Biodiversity

The most important change since the first EPR is GEO No. 57 (2007) on the Protected Natural Areas Regime and the Conservation of Natural Habitats, Wild Flora and Fauna.

Forest management

Law No. 46 (2008) on the Forest Code aims at preventing uncontrolled deforestation and increasing public awareness of diminishing forest land through a better crafted and more understandable law. The Forest Code provides that forests can be either public or private property.

Regardless of their property status, all forests are of national interest, falling within the protection of State, rather than local, authorities. The Law makes provision for privately owned forest land, which can be sold or transferred. The Forest Code expressly prohibits any construction on forest land.

The Forest Code introduced the concept of sustainable forest management and its underlying principles such as increase in the area of land occupied by forests; environmental priority objectives of forestry; increased role of forestry in rural development; promotion of forest biological diversity; and prevention of irreversible degradation of forests as a result of human activities.

European Union membership – derogations

The 2005 Treaty of Accession of Romania to the EU specifies transition periods for the implementation of certain EU directives and regulations by Romania, in annex VII to the Treaty's protocol.

Romania developed implementation plans on measures needed to ensure compliance with the defined transition period. The status of transition periods for selected environmental directives and regulations is reflected in table 1.5.

1.5 Institutional framework

Central level environmental authorities and institutions

Since the first EPR, the structure and sphere of action of ministries have changed considerably in Romania. Currently, the Government has 16 ministries. At present, key environmental authorities are: (i) MoEF; (ii) NEPA; (iii) the regional environmental protection agencies (REPAs); (iv) the local environmental protection agencies (LEPAs); and (v) NEG. The environmental authorities are supported in their activity by other public, central and local authorities.

Ministry of Environment and Forests

The main governmental institution at central level responsible for environmental issues is MoEF. It is accountable for developing and implementing national legislation, policies and strategy on sustainable development and environmental protection.

It has been appointed Managing Authority for SOP ENV with responsibility for managing, implementing and administering relevant EU financial assistance.MoEF promotes a unitary, coherent environmental policy aimed at:

- Integrating environment requirements into sectoral strategies Complying with the acquis communautaire concerning the environment, especially with regard to drinking water supply, wastewater treatment, noise protection, improved energy efficiency, waste management and rehabilitation of polluted areas, forest management and biodiversity conservation;
- Decoupling economic growth and environmental load;
- Monitoring and diminishing climate change risks;
- Managing and preventing flood risks and disasters caused by floods;
- Implementing the "polluter pays" principle;
- Financing projects related to the environment, including through the EF;
- Raising public awareness and strengthening cooperation with environmental NGOs.

MoEF's structure has been modified several times. The structure as at early 2012 is presented in figure 1.1. MoEF has some 580 employees. There are three categories of bodies linked with MoEF:

Table 1.5: Transition periods for selected European Union directives and regulations for Romania

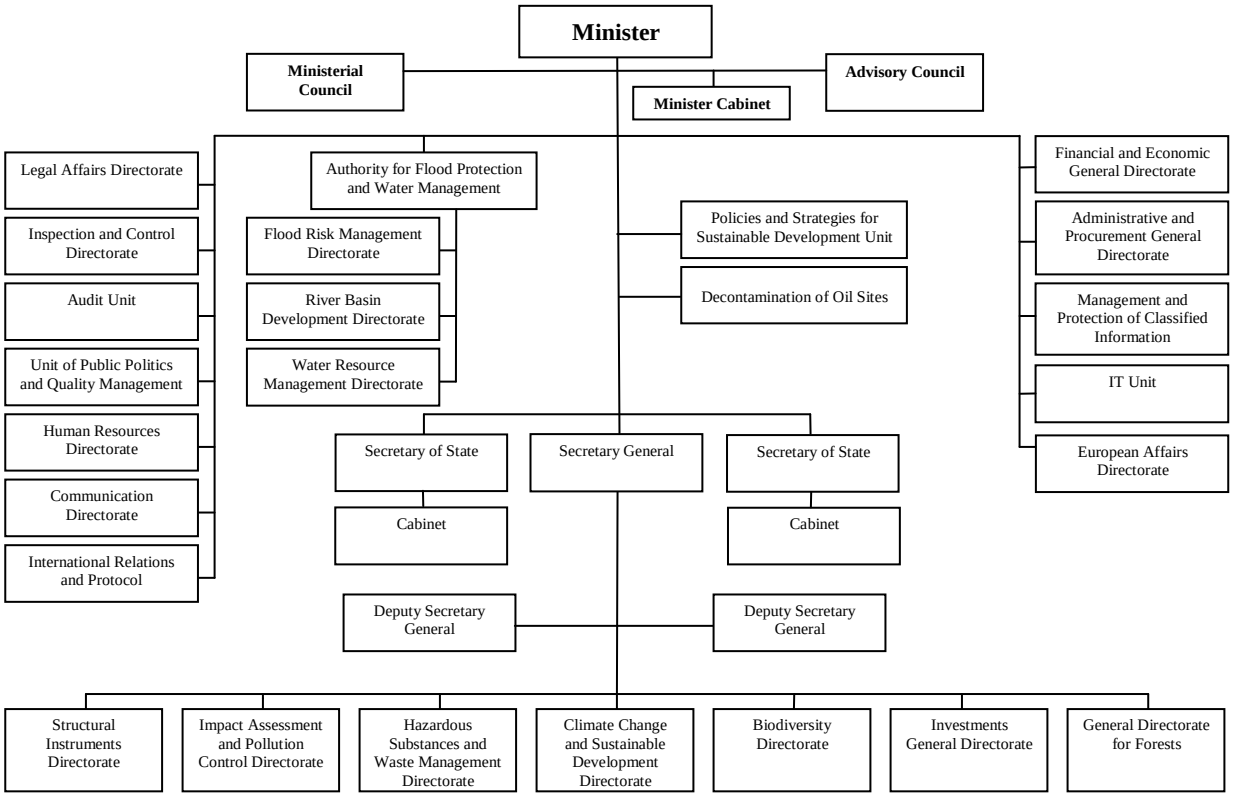
Directive	Transition period approved
Directive 94/63/Ec on the control of volatile organic compound (VOC) emissions resulting from the storage of petrol and its distribution from terminals to service stations	31 December 2009 - for gradual compliance of 2261 installations/containers.
Directive 94/62/EC on packaging and packaging waste, as amended by Directive 2004/12/EC	31 December 2013 - for gradual overall recovery and recycling targets. 31 December 2013 - for gradual plastic and glass recycling targets. 31 December 2011 - for gradual wood recycling targets.
Directive 1999/31/EC on the landfill of waste	16 July 2017 - for gradual cease landfilling activity on 101 class "b" non-complying landfills in urban areas. 31 December 2013 - for gradual cease landfilling activity on 23 liquid waste landfills having certain properties (corrosive and oxidant). 31 December 2010 - for gradual cease landfilling activity on 3 ponds in minerals extraction industry. 31 December 2011 - for compliance in order to continue to operate of 2 ponds in minerals extraction industry. 31 December 2009 - for temporary storage of hazardous industrial waste. During transition periods, Romania shall ensure gradual reduction of waste landfilled in these non-complying landfills with the annual maximum quantities established by the Accession Treaty.
Regulation (EEC) No 259/93 on the supervision and control of shipments of waste within, into and out of the European Community	31 December 2011 (extended to 31 December 2015[5]) - the competent authorities can raise objections to shipments to Romania of waste for recovery (some categories of waste listed in Annex III (see Accession Treaty), waste listed in Annex IV and unlisted waste). 31 December 2015 - all shipments to Romania of waste for recovery listed in Annex II will be notified to the competent authorities. The competent authorities can raise objections to shipments to Romania of waste for recovery, listed in Annexes II, III and IV of the Regulation and shipments of waste for recovery unlisted in those Annexes, destined for a facility benefiting for a temporary derogation from certain provisions of Directive 96/61/EC, Directive 2001/80/EC and Directive 2000/76/EC, during the period in which the temporary derogation is applied to the facility of destination.
Directive 2002/96 on recovery and recycling and reuse targets of waste electrical and electronic equipment	31 December 2008 - for achieving the selective collection target of minimum 4 kg/inhabitant and year WEEE from households and achieving the recovery, reuse and recycling targets according to article 7.2 of the Directive.
Directive 91/271/EEC on collection systems and treatment facilities for urban waste waters	Romania declares the whole territory as a sensitive area until 31 December 2018 with intermediate targets by 31 December 2013 and 31 December 2015. For gradual extension of the urban wastewater collecting system: · 61 % by 31 December 2010; · 69 % by 31 December 2013; · 80 % by 31 December 2015. For gradual extension of the urban waste water treatment: · 51 % by 31 December 2010; · 61 % by 31 December 2013; · 77 % by 31 December 2015.
Directive 98/83/EC on the quality of water intended for human consumption	31 December 2010 - for Oxidability, Ammonium, Aluminium, Pesticides, Iron and Manganese for the localities of more than 100,000 inhabitants; for Oxidability and Turbidity for the localities with a population between 10,000 and 100,000 inhabitants; for Oxidability for the localities of less than 10,000 inhabitants. 31 December 2015 - for Ammonium, Nitrates, Aluminium, Iron, Lead, Cadmium, Pesticides and Manganese for the localities with a population between 10,000 and 100,000 inhabitants; for Ammonium, Nitrates, Turbidity, Aluminium, Iron, Lead, Cadmium and Pesticides, for the localities of less than 10,000 inhabitants.
Directive 76/464/EEC on pollution caused by certain dangerous substances discharged into the aquatic environment of the Community	31 December 2009 · for 21 industrial units (anorganic, organic, rubber, petrochemical sector, pulp and paper) to discharge five dangerous substances (Hexachlorobenzene, Hexachlorobutadiene, 1,2 –Dichlorethane, Trichloroethylene, Trichlorobenzene); · for 27 industrial units to discharge cadmium and mercury; · for 3 industrial units to discharge lindane.
Directive 2001/80/EC on the limitation of emissions of certain pollutants into the air from large combustion plants (LCP)	31 December 2013 - for gradual compliance of 34 LCP installations with the emission limit values of sulphur dioxide; for gradual compliance of 64 LCP installations with the emission limit values of nitrogen oxides; for gradual compliance of 22 LCP installations with the emission limit values of dust. During transition period, the sulphur dioxide emissions, nitrogen oxides emissions and dust emissions from all LCPs shall not exceed the intermediate ceilings established by the Accession Treaty.01 January 2016-31 December 2017 - for gradual compliance of 6 LCP installations with the emission limit values of nitrogen oxides.
Directive 96/61/EC concerning integrated pollution prevention and control (IPPC)	31 December 2015 – for gradual compliance of 195 IPPC installations.
Directive 2000/76/EC on the incineration of waste	31 December 2008 - for gradual closure of 110 existing installations for the incineration of hazardous waste resulting from medical activities.

Source: Protocol Concerning the Conditions and Arrangements for Admission of the Republic of Bulgaria and Romania to the European Union, Annex VII.

- Bodies that are subordinated to MoEF: this category includes NEPA, NEG and the Danube Delta Biosphere Reserve Authority (DDBRA);
- Bodies under MoEF authority: this category consists of the National Administration of Meteorology (NAM) and NFA Romsilva;
- Bodies operating in close coordination with MoEF: the list includes the Environmental Fund Administration (EFA), the National Administration "Romanian Waters" (NARW) and the National Institute for Research and Development in Environmental Protection.

Subordinated institutions do not have their own budgets, whereas those under the authority of the Ministry have financial autonomy and their own budget, which consists of their own revenues and allocations from the State budget.

Figure 1.1: Structure of the Ministry of Environment and Forests



Source: Ministry of Environment and Forests, 2011.

The Minister appoints administration boards of these bodies and their heads, regardless of their level of financial autonomy.

National Environmental Protection Agency

NEPA was established in 2004 and reorganized by GD No. 459 (2005) and GD No. 918 (2010). The 2005 reorganization was aimed at creating the legal and institutional framework needed to fulfil the obligations assumed by Romania during its EU accession negotiations. The shift of subordination of REPAs and LEPAs from the central authority to NEPA was the result of this reorganization. The 2010 reorganization determined the current structure and functions of NEPA. Specific functions of permit issuing, strategic environmental planning and environmental monitoring were entrusted to NEPA, together with the development of secondary legislation, preparation of annual reports and reporting to the European Environment Agency (EEA).

The responsibilities of NEPA and its regional agencies are to:

- Provide technical support for the preparation of normative documents, strategies and policies harmonized with the acquis communautaire and based on the concept of sustainable development;
- Coordinate the implementation of environmental strategies and policies at national, regional and local levels;
- Represent environmental authorities in internal and external relations, as mandated by MoEF;
- Authorize activities with potential environmental impact;
- Provide national reference laboratories and staff to undertake measurements (air, waste, noise, vibration and radioactivity);
- Ensure coordination of sectoral action plans and national action plans for environmental protection.

National Environmental Guard

NEG was established in 2003 and its current structure and activities are determined by GD No. 112 (2010). The functions of NEPA and NEG reflect the complete separation of the permit-issuing and oversight roles with regard to the environment. Given that oversight activities constitute the main function of NEG (with nearly 60,000 inspections in 2010), special attention is paid to creating the right conditions to ensure that this role can be performed on a permanent basis and at a high level of quality.

According to the NEG 2010 Annual Report, inspectors accounted for some 75 per cent of its total staff. They are well equipped with IT tools and benefit from training courses to keep their professional skills up to date (chapter 2).

Danube Delta Biosphere Reserve Authority

The DDBRA was established in 1990 in order to protect and conserve the Danube Delta Biosphere Reserve territory. According to Law No. 82 (1993) which was subsequently completed and amended, the DDBRA is a public institution.

National Administration of Meteorology

NAM, set up by Law No. 216 (2004) and functioning under MoEF, is primarily tasked with performing observations, measurements and studies in the areas of meteorology and climatology.

National Administration "Romanian Waters" (Apele Romane)

Government policy on water management is implemented by NARW, which was set up by Law No. 404 (2003) (chapter 7). Subordinated to NARW are 11 water basin administrations (WBAs) organized on river basins.

Environmental Fund

The EF was established under Law No. 73 (2000) and GEO No. 86 (2003). It is managed by EFA, which is a public institution (chapter 6).

National Institute for Research and Development in Environmental Protection

Until 2009, three research institutes provided scientific and research support for MoEF, i.e. the National Institute for Research and Development "Danube Delta" of Tulcea, the National Institute for Research and Development in Environmental Protection of Bucharest, and the National Institute for Marine Research and Development "Grigore Antipa" (NIMRD) of Constanta. In 2009, these three institutions were merged into the National Institute for Research and Development in Environmental Protection.

Environmental institutions at the regional and local levels

Two institutions working under MoEF, i.e. NEPA and NEG, have regional agencies. NEPA has eight REPAs corresponding to the eight development regions. REPAs were established in 2004 by Law No. 315 (2004) on Regional Development in Romania. In addition to REPAs, 34 LEPAs were set up by GD No. 1626 (2004). They are in charge of implementing and enforcing environmental legislation at the county level.

NEG has eight regional inspectorates and 41 county inspectorates. This institutional structure is the result of the way in which NEG was created in 2003, as a specialized body subordinated to the central authority, by merging the forestry and hunting territorial inspectorates. The employees from the former inspection bodies of the Ministry and local environmental agencies were also merged into NEG. NEG's county branches work closely with the LEPAs, carrying out oversight functions.

Environment-related responsibilities of other ministries

Many important environment-related responsibilities are entrusted to or shared with ministries other than MoEF. Most prominent among these are MoARD, the Ministry of Health (MoH), and the Ministry of Transport and Infrastructure (MoTI). Also of importance are the Ministry of Economy, Trade and the Business Environment (MoETBE), MoRDT, and the Ministry of Administration and Interior (MoAI).

The environment-related tasks of MoARD include infrastructure modernization, expansion of land reclamation and agricultural adaptation to climate change. The Cross Compliance Department of MoARD:

- Prepares draft regulations for implementing the cross-compliance system balancing agricultural and environmental conditions;
- Cooperates with competent authorities to implement community legislation in water resources protection;
- Develops action programmes for areas vulnerable to nitrate pollution from agricultural sources;
- Periodically reviews the Code of Good Agricultural Practice to Protect Waters from Pollution by Nitrates;
- Cooperates with competent authorities to implement community legislation on soil protection, reduction of pollutants from agriculture, waste and wastewater.

MoARD Organic Agriculture Department, inter alia, approves applications to use the national logo for organic farming.

MoARD Plant Protection and Quarantine Service carries out the following tasks:

- Organization of plant protection and phytosanitary quarantine at the national level with customs officials;
- Development of draft legislation concerning protective measures against the introduction and spread of organisms harmful to plants and plant products.

MoARD Department of Approval of Plant Protection Products performs the following functions:

- Coordination, technical guidance and control activities in the approval of marketing and use of plant protection products;
- Development of draft laws concerning the plant protection products system;
- Monitoring the implementation of legislation on maximum residue levels of pesticides in plants and plant production.

MoH, working through the National Institute of Public Health (NIPH) and the county public health departments (CPHDs), monitors the impact of environmental factors on human health. It monitors the quality of water used in food by the manufacturer, and the quality of bottled water. MoH aims at developing the public health system at national, regional and local levels for efficient supervision and control of communicable and non-communicable diseases, and assessment of the impact of environmental factors on human health. It is also involved in flood risk management with the CPHDs, through:

- Preventive measures, namely working together with the Red Cross to educate and prepare the population and provide specific training for health workers;
- Actions during and immediately after floods, to direct health care to affected areas, perform epidemiological surveys of the affected population, and ensure a supply of safe drinking water and uncontaminated food.

Finally, MoH, through NIPH, assesses annually the national health-care waste management system and provides a report of the collected data to MoEF and NIS. In addition, it monitors health in relation to the environment, in terms of air and water quality.

MoTI is involved in flood risk management by providing the necessary funds for defensive flood control works, ensuring a functional transportation infrastructure and restoring flood-affected infrastructure. It is also obliged to promote sustainable transport policy in the country.

MoETBE informs and trains economic operators about sustainable development principles. It also oversees and manages the transport of waste through the EU. MoRDT takes part in establishing the requirements for preserving areas with landscape, historical or architectural value.

Interministerial cooperation

Cooperation at the expert level between MoEF and other ministries is fairly diverse. In some ministries, a relatively small unit works under the direction of the Ministry's Secretary General. This unit is responsible for coordination with MoEF experts. A unit of this kind, consisting of three persons, operates in MoTI within the Directorate for Strategy, Management and Environment. According to Ministerial Order (MO) No. 397 (2011) on the Rules concerning Organization and Operation, the Department of Environment Protection in Transport collects and processes environment-related information, facilitates the cooperation of experts of specialized departments and represents the Ministry in interministerial committees and working groups. A similar unit operates in MoRDT, and was operating in MoETBE until its last reorganization. No information is available on units working in other ministries, if any.

Interministerial Committee

The Interministerial Committee for the Coordination of the Integration of Environmental Protection Principles into Sectoral Policies and Strategies at the National Level was established in 2001. It comprises representatives from all ministries and other relevant institutions. Its main tasks are:

- Adopting the necessary decisions required for coherence in the process of elaborating and promoting legal acts regarding environmental protection;
- Approving national action plans for environmental protection;
- Approving programmes and plans to ensure the integration of environmental concerns into sectoral policies and strategies at the national level.

This Interministerial Committee was reorganized in 2011 by GD No. 741 (2011). The most notable change is the addition of sustainable development issues to its agenda.

Since its reorganization in 2011, the Interministerial Committee has met twice, in 2011 and 2012, concentrating on providing interministerial support and consultation in the environmental transposition and implementation process. The integration of environmental issues and objectives into other sector policies, e.g. in industry and energy, agriculture, and transport and infrastructure policies, is just beginning and will be developed in the coming period.

1.6 Conclusions and recommendations

NSDS-2 was approved by the Government in 2008. It provided objectives and general guidance for actions to be taken. This guidance can be applied effectively for elaborating further programmes and action plans. Revision of NSDS-2 was scheduled for June 2011, with special emphasis on decisions related to financing. Review and amendment are necessary in the light of results that have been achieved and changes in SDIs.

Additionally, a short-term action plan has to be developed, identifying the tasks, responsible institutions and organizations, and relevant budgets. No information is available on this revision, however. There is no sustainable development council involving all stakeholders in Romania.

Recommendation 1.1:

(a) The Interministerial Committee for the Coordination of the Integration of Environmental Protection into Sectoral Policies and Strategies at the National Level should initiate a comprehensive evaluation and revision of the second National Sustainable Development Strategy, including:

(i) In the first phase, development of a short-term action plan of the second National Sustainable Development Strategy, identifying the tasks, responsible bodies and financial resources;

(ii) In the second phase, evaluation and revision of the mid-term and long-term objectives and a lasting solution for financing implementation of the second National Sustainable Development Strategy; and

(b) The Government should set up a national Sustainable Development Council with broad representation of civil society and stakeholders to provide advice on the development of its future sustainable development policy.

There are several parallel, ongoing processes which have to be interconnected. Strategies, plans and programmes are developed in different strategy-making and planning processes (Government Programme, NSDS-2, NSRF, programmes supported by EU and other external donors, sector and subsector strategies).

Aspects for elaboration of these documents and the objectives and measures defined are not necessarily the same across all documents; however, their cross-cutting nature has to be considered in the phase of development. Regular evaluation is considered in most of these strategies and programmes as an important element of implementation, but this activity is not always performed.

Recommendation 1.2:

The Interministerial Committee for the Coordination of the Integration of Environmental Protection into Sectoral Policies and Strategies at the National Level should:

(a) Improve the coordination and harmonization of relevant strategies and programmes, taking into account results of forward-looking analysis; and

(b) Improve monitoring and evaluation of progress made in the implementation of the adopted policy documents in order to provide regular feedback for revision of the ongoing actions and preparation of the new ones.

Expert-level cooperation between MoEF and other ministries is fairly diverse. Some ministries have a relatively small environment unit, usually working under the direction of the Secretary General, whereas other ministries do not. In the latter case, cooperation is initiated based on personal networks and experience. Consequently, the quality of cooperation between ministries is not constant. Responsibility of the appointed unit is generally limited to providing coordination between MoEF experts and experts from its own ministry.

While this is, of course, an important issue, effective and sustained cooperation between ministries requires an internal consultation phase with input by professionals working in particular subject areas. Strengthening the personnel of the mediator unit with professional experts would allow their direct participation in interministerial consultations. Thus, the time-consuming second phase of internal consultation would no longer be necessary.

Recommendation 1.3:

The Government should:

(a) Ensure that public authorities with environment-related functions and impacts establish a dedicated environment unit, unless they already have one; and

(b) Strengthen cooperation between these public authorities.

Chapter 2

COMPLIANCE AND ENFORCEMENT MECHANISMS

2.1 Introduction

The first EPR of Romania, in 2001, established a baseline situation that has changed over the last decade due to the EU accession process and the major reshuffle of environmental legislation and institutional framework resulting from Romania's EU membership. Currently, the country enjoys a system of environmental compliance and enforcement that is comprehensive, relatively transparent, focused on addressing major environmental problems and open to the participation of the general public.

Due to the effective functioning of this system, many substantive objectives related to EU environmental legislation are being achieved in Romania. The institutional arrangements for environmental compliance and enforcement in Romania are broadly in line with international practice and specific EU requirements, such as the Recommendations on Minimum Criteria for Environmental Inspection. Since the first EPR, two autonomous agencies have been re-established for permit issuing and inspection. Although it has made good progress on the recommendations of the first EPR in terms of compliance and enforcement, Romania is still confronted with a number of problems stemming from the rapid and sometimes incoherent institutional changes in the past, a certain "superposition" of old and new legal requirements and procedures, and new challenges.

2.2 Institutional structure and capacity for compliance assurance

Specific competent authorities were designated for carrying out the entire range of tasks that need to be performed within the environmental regulation and compliance assurance system. Besides well-developed horizontal governance, a multilevel vertical organization ensures effective implementation of environmental laws and policies at the subnational level. Both national and subnational authorities are engaged in a regular process of information exchange and coordination.

Within MoEF, several autonomous agencies are currently entrusted with tasks that are relevant for ensuring environmental compliance (NEPA, NEG, NARW and NFA).

NEPA deals with strategic and project-level environmental assessments, permit issuing and ambient monitoring, coordinating eight REPAs and 34 LEPAs. The main responsibilities of REPAs are issuing integrated permits for large industrial facilities. LEPAs deal with permit issuing for smaller-scale installations and ambient monitoring. Both REPAs and LEPAs are involved in implementing the SEA and the project-level EIA procedures. In addition, these agencies have a coordination function as concerns the implementation of environmental policies and strategies, as well as specific environmental programmes and plans.

NEG performs environmental inspections and administrative enforcement. Its mandate covers both pollution control (industrial emissions, chemicals and waste) and nature protection. NEG includes the General Commissioner's Office and, similarly to NEPA, eight regional commissariats. Each regional commissariat has from four to seven county commissariats (there are 41 counties plus Bucharest).

Another autonomous agency, NARW, is responsible for issuing water permits and water inspection. Requirements established through water permits are then included in the environmental permit and can be monitored by NEG, leading to a blurred division of functions that is compensated for by very close interaction between the two agencies. NFA and its territorial inspectorates for the hunting and forestry regime deal with forest management, including authorization issuing and inspections.

In terms of compliance monitoring and administrative enforcement, Romania went through a most interesting experiment of merging all enforcement agencies into a single organization. In 2003, NEG was integrated as an independent structure into the National Control Authority, which had a short life and was dissolved after barely two years of activity.

Since 2007, NEG has been ISO 9001 certified. Furthermore, the agency qualified for ISO 14001 certification in 2008. It has been the first public oversight body in Romania to achieve ISO 9001 and 14001 certification. This in turn has helped NEG to harmonize and improve internal procedures, and "green" its own operations.

Photo 2.1: Indoor billboard on environmental information

In terms of capacity, both NEG and NEPA seem to have relatively modern facilities and equipment, and sufficient personnel and operational budgets. Staff turnover is relatively low. NEG staffing has increased in recent years, from 748 positions in 2007 to 953 in 2011, due to the extended scope of its work.

However, new positions resulted from an internal redistribution within MoEF. For instance, in 2010 the Ministry transferred 125 positions from NEPA to NEG (including 56 positions that were filled and 69 vacant ones). Within NEPA, some 320 people are engaged in environmental assessment and permit-issuing activities. In both agencies, the number of non-technical personnel has been reduced to the bare minimum; for instance, all inspectors must have driving licences and drive NEG cars themselves. A national training centre for NEG staff operates in Sibiu.

MoEF encourages cooperation among its implementation arms, an objective which is also supported by bilateral protocols of collaboration. For instance, at the request of prefects, REPAs and LEPAs convene weekly technical advisory committees (TACs), which are decision-making bodies on EIA and integrated permit issuing, with the involvement of NEG inspectors, NARW and other stakeholder institutions. There is no common database of controlled installations which contains both permit-issuing files and compliance-monitoring information. Another gap in coordination efforts is a lack of coordination between NEG inspection plans and the schedule of planned and unannounced sampling by LEPAs and NARW. Overlapping inspections by NARW and NEG also need to be avoided.

Competent authorities for the implementation of Seveso Directives[4] in Romania are: 1) MoEF, through the Risk Secretariat together with its subordinated institutions (NEPA, REPAs, LEPAs, and NEG); and 2) MoAI, through the General Inspectorate for Emergency Situations together with its subordinated institutions.

During the accession period, specific nationwide coordination mechanisms have been established with input from other ministries. For example, the permanent Industrial Pollution Control Working Group was established for the implementation of the the IPPC (Integrated Pollution Prevention and

[4] Council Directive 82/501/EEC on the major-accident hazards of certain industrial activities (Seveso I), amended byDirective 87/216/EEC of 19 March 1987 and Directive 88/610/EEC of 24 November 1988; Seveso I was replaced by Council Directive 96/82/EC on the control of major-accident hazards (Seveso II), amended by Directive 2003/105/EC of the European Parliament and of the Council of 16 December 2003; Directive 2012/18/EU (Seveso III), adopted on 4 July 2012, entered into force on 13 August 2012.

Control) Directive[5] and coordination with the implementation of other related directives. The Trade Register provides NEG with information from its database on new industrial activities. The above-mentioned TACs bring together many other administrative bodies in addition to NEG, such as regional development agencies and directorates for sanitary, veterinary and food safety, but also municipalities. There is no formal voting within the TACs, but each stakeholder can give its views.

Municipalities have some powers to enforce parts of legislation concerning household waste and green areas. Primarily, they respond to citizens' complaints. NEG can also play this enforcement role, but given that municipalities often have a larger workforce available, it tries to make local officials aware of their tasks and encourage them to become more involved. Currently, however, NEG remains overloaded with petty cases which would be more effectively dealt with by local authorities.

At the local level, NEG also cooperates with police forces, based most often on an annual plan of joint inspections. The police also have the right to enforce parts of environmental laws. NEG staff often call the police for assistance; the police can act as the "strong arm", for instance, only the police can ask persons to identify themselves or stop cars. The police can also assist with criminal investigations.

The judicial component, including criminal law enforcement, involves prosecutors and courts. NEG can initiate a criminal case by notifying the prosecutor's office. After notification, the prosecutor decides whether to take the case to a criminal trial; NEG does not have the right to refer a case to court directly. At present, there are no prosecutors specialized in environmental issues. Prosecutors do not prioritize NEG and are not sent the inspection programme. No regular meetings are organized between NEG and prosecutors; however, once a year, a report on legal cases is sent to the General Commissariat and presented to local courts. Civil judicial enforcement can be initiated by individuals or NGOs.

2.3 Legal framework and commitments

Environmental legislation has been aligned with the *acquis communautaire*, substantially enlarging the scope of environmental regulation. During the EU accession negotiations, of a total of 200 EU environmental legal acts, implementation plans have been negotiated for 12 directives and one regulation. As a result, transition periods were obtained for the latter, except for two directives (table 1.5). All of these have to be fully transposed by 2018, which will require a major compliance thrust, hence a financial effort, against the background of the global economic crisis. In order to maintain the pace of transposition and implementation, annual plans containing priority measures are prepared. The plan for 2010 contains 172 measures which cover a wide range of issues: horizontal legislation, integrated pollution control, waste management, water and air quality, climate change, chemicals, nature protection, etc. Some of the legal acts that were adopted prior to EU membership still remain in force.

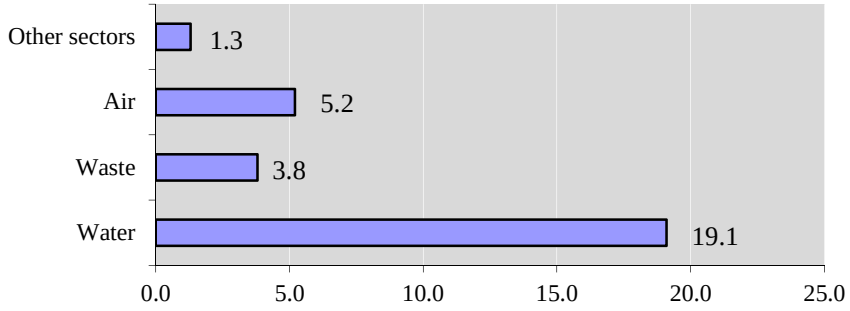
Prior to Romania's EU accession, a series of RIA studies was conducted to assess the costs and benefits of transposing the EU legislation. Currently, the RIA procedure is part of national requirements and has to be systematically implemented. These pre-accession studies came to the conclusion that, while bringing important benefits, this major change in the level of ambition of environmental standards requires a considerable financial effort (figure 2.1) that is likely to lead to compliance-assurance challenges.

One major challenge relates to water quality regulation, due to the fact than Romania decided to apply quite stringent requirements by declaring its entire territory as "sensitive". As a result, all agglomerations of more than 10,000 p.e. must be endowed with wastewater treatment plants offering the highest degree of treatment, that is, removal of nitrogen and phosphorous (tertiary treatment). The deadline for bringing wastewater plants into compliance with this requirement is the end of 2018. The cost assessment for the implementation of these provisions is some €9.5 billion, of which €5.7 billion is for wastewater treatment and €3.8 billion for sewerage systems. Major investments are necessary in order to construct adequate facilities for treating sludge generated by wastewater treatment.

The financial investment necessary to ensure compliance with EU norms concerning municipal landfills has been estimated at €1.8 billion. In the field of municipal waste disposal, Romania seems to have the lowest percentage of waste in controlled landfills among the EU countries which have opted for landfilling as the main method of municipal waste disposal (18 per cent, compared with 96 per cent in Portugal or Hungary). This situation is caused by the high number of non-compliant landfills.

[5] Directive 2008/1/EC of the European Parliament and of the Council of 15 January 2008 concerning integrated pollution prevention and control.

Figure 2.1: Overview of costs related to the change in stringency of environmental requirements, € billion



Source: Ministry of Environment and Sustainable Development, 2007. Sectoral Operational Programme on Environment, 2007–2013.

Table 2.1: Romanian commitments in accordance with the Gothenburg Protocol

Pollutant	Situation in 1990	Emissions ceilings for 2010 (Gothenburg Protocol)	Situation in 2002	Situation in 2004	Situation in 2010	Actual emission reduction for 2010 (compared with 1990)
	thousand tons					per cent
SO_x	1,311.0	918.0	776.5	832.0	372.0	71.62
NO_x	546.0	437.0	359.5	380.0	272.0	50.18

Sources: Total national emissions reported under CLRTAP: www.emep-emissions.at/index.php?id=4560 (accessed 7 September 2012).

During the accession negotiations for environment, Romania assumed the obligation to cease activity at 137 landfills in urban areas covering some 427 ha by 16 July 2009, and at 101 municipal waste landfills covering some 301 ha between 16 July 2009 and 16 July 2017. Apart from the landfills in urban areas, there are 2,686 dumping sites in rural areas, most with a surface of 1 ha. These sites had to be closed and cleaned up by 16 July 2009, in parallel with the extension of collection services in rural areas, the organization of transport and transfer systems, and the construction of zonal landfills.

Romania ratified the Convention on Long-range Transboundary Air Pollution (CLRTAP) in 1991 and, in 2003, three of its Protocols: the 1999 Gothenburg Protocol to Abate Acidification, Eutrophication and Ground-level Ozone; the 1998 Aarhus Protocol on Persistent Organic Pollutants (POPs); and the 1998 Aarhus Protocol on Heavy Metals.

The country committed itself to comply from 2010 with the stringent air emissions thresholds set out in table 2.1. As a result of the economic recession, the reduction in the actual emissions in 2010 by far exceeded the emissions ceilings set by the Gothenburg Protocol. The challenge for Romania will be to remain within the ceiling prescribed by the Protocol once economic activity returns to the pre-crisis levels.

2.4 Size of the regulated community

Besides facing the challenge of enforcing an extensively ramified and increasingly stringent body of environmental law, the competent Romanian authorities must deal with a large and heterogeneous regulated community. In 2010, a total of 44,866 installations were supervised for environmental compliance, including 15,575 installations "with significant environmental impact", i.e. installations in risk categories A and B.

Of the total number of installations, 716 are large industrial facilities subject to the IPPC Directive. These installations are quite diverse from a sectoral perspective, although many of them belong to waste management and the energy sector (figure 2.2). The number of installations reported to the European Commission has fluctuated from one year to another, and no data are available to the general public on the NEPA website. Transition compliance periods were granted to 195 IPPC installations.

Some 277 installations have to comply with the Seveso II Directive[6] on the control of hazards associated with major accidents involving hazardous substances. This includes 162 upper-tier installations

[6] Council Directive 96/82/EC on the control of major-accident hazards.

and 115 lower-tier installations. An inventory of regional distribution of Seveso II installations is also available on the NEPA website, showing their relatively uniform distribution throughout the country.

There are 174 fossil-fuelled large combustion plants (LCPs) but only seven comply with relevant EU legislation.[7] These plants with a rated thermal power equal to or greater than 50 MW (using mainly fossil fuels) emit high concentrations of particulates and nitrogen and sulphur oxides, which cause acid rain and pose a significant health risk, mainly in urban industrial areas. Of the total number of LCPs, 163 are old plants (operational before 1 July 1987) and 11 are new installations. As a result of analysis of the 174 LCPs, Romania obtained transition periods on the emission of SO_2, NO_x and dust of between one and six years for 77 LCPs (2008–2013), and for nitrogen oxides of between one and two years for six LCPs (2016–2017).

Facility-specific information is available from the website of the national Pollutant Release and Transfer Register (PRTR), which includes data up to 2009. A total of 485 installations are part of the PRTR.

The inventory of industrial landfills falling under the provisions of Council Directive 1999/31/EC of 26 April 1999 on the landfill of waste was completed in early 2004. As a result, a total of 169 landfills covering some 3,000 ha were identified. Only 15 of the 169 landfills are in compliance with EU norms and will continue to operate until the depletion of their capacity. The other 154 landfills will gradually be closed. There are 20 non-compliant power plants, which burn solid fuels, use hydro-transport for the waste generated, and dispose of the waste in their own ash and slag dumps. These plants must change their disposal technologies in order to comply with environmental standards. Following the accession negotiations, they have obtained transition periods of between two and seven years in order to comply.

The area of sites exposed to historical contamination is around 350,000 ha, of which some 30,000 ha are heavily affected. Many of these sites give rise to problems due to their uncertain legal situation. Despite such uncertainties, these sites will need to be decontaminated.

2.5 Environmental assessment tools and permit issuing

The basic elements of environmental regulation, aligned with the EU environmental *acquis communautaire*, are set forth in Law No. 265 (2006) on the Approval of GEO No. 195 (2005) on Environmental Protection. According to the Law, three main regulatory instruments are used:

- Programme and plan-level SEAs;
- Project-level EIAs;
- Environmental permit issuing.

While EIAs and permit-issuing procedures were in place at the time of the first EPR, the SEA procedure was introduced later, in the wake of the EU adherence process. At the same time, EU accession triggered important changes in EIA and permit issuing, linking these processes to stricter standards, strengthening cross-sector prevention of pollution and ecosystem degradation, and making them more transparent and participatory.

Parallel to the more stringent substantive requirements, an attempt was made to reduce the administrative burden on the regulated community by merging various permits into a single permit, even for non-IPPC installations, and extending the legal validity of all permits up to 10 years.

Strategic environmental assessment

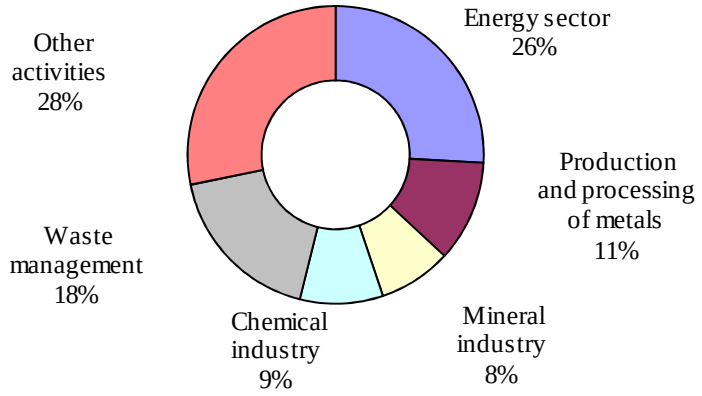
The legal provisions for SEAs are set out in GD No. 1076 (2004) on the Establishment of the Procedure for Environmental Assessment for Plans and Programmes. The GD transposes the SEA Directive,[8] subjecting certain public plans and programmes (PPs) to environmental assessment prior to adoption.

The PPs covered by the GD are subject to an environmental assessment during their preparation and before their adoption. This includes preparation of an environmental report in which the likely significant effects on the environment and the reasonable alternatives are identified, and consultations (with the public, the environmental authorities, and other countries in the case of transboundary impacts).

[7] Directive 2001/80/EC of the European Parliament and of the Council of 23 October 2001 on the limitation of emissions of certain pollutants into the air from large combustion plants.

[8] Directive 2001/42/EC of the European Parliament and of the Council of 27 June 2001 on the assessment of the effects of certain plans and programmes on the environment.

Figure 2.2: Sectoral distribution of IPPC installations, per cent



Source: Government of Romania, 2004, Implementation Plan for Directive 96/61/EC concerning integrated pollution prevention and control.

The environmental report and the results of the consultations are taken into account before adoption. The following PPs, and amendments thereto, are covered when they are prepared and/or adopted by an authority and required pursuant to legislative, regulatory or administrative provisions:

- PPs prepared for certain sectors which set the framework for future development consent in respect of projects under the EU EIA Directive;[9]
- PPs requiring an assessment under the Habitats Directive[10] transposed by GEO No. 57 (2007) on the Protected Natural Areas Regime and the Conservation of Natural Habitats, Wild Flora and Fauna;
- PPs setting the framework for development consent in respect of projects (not limited to those listed in the EIA Directive) and determined by "screening" as being likely to have significant environmental effects;
- PPs for small areas at local level, only if the screening determines they are likely to have significant environmental effects.

Further, MO No. 995 (2006) introduced a specific list of PPs concretizing the generic areas specified under article 5(2) of GD No. 1076 (2004). This comprehensive list specifies some 80 PP types – mostly large scale – such as national, regional or sectoral strategies, plans and programmes, but also developments of surprisingly limited scope, e.g. urban plan details or small-scale forest plans.

The competent environmental authorities for SEAs are REPAs and LEPAs for local and county-level PPs, and the central environmental authority (MoEF) for national and regional-scale PPs. The administrative act issued by the competent authority confirming the integration of environmental aspects into the PP under examination is called an "environmental consent".

The "screening" model used by Romania is based on a combined approach, whereby the list of PPs to be assessed is supplemented by a case-by-case approach to determine whether an assessment is needed, based on a list of (rather general) criteria set out in annex I to the GD on SEAs, transposing the SEA Directive. Screening is handled through a consultation process involving – besides the competent environmental authority and the PP proponent – the public health authorities as well as other stakeholder institutions, within the framework of an ad hoc committee set up by MoEF or a REPA.

The scope and the level of detail of the information to be included in the environmental report (the "scoping") is based on a broad framework set of parameters. The environmental report identifies, describes and evaluates the likely significant effects of the PP on the environment and reasonable alternatives, taking into account its objectives and geographical scope.

The public is informed about the process throughout all the stages of the SEA procedure, by the PP proponent and the competent environmental authority, through publications in the press and on

[9] Directive 85/337/EEC; the initial Directive of 1985 and its three amendments have been codified by Directive 2011/92/EU of the European Parliament and of the Council of 13 December 2011 on the assessment of the effects of certain public and private projects on the environment (codification).

[10] Directive 1992/43/EEC on the conservation of natural habitats and of wild fauna and flora.

the organizations' websites. During the review phase, the PP proponent is required to organize a public hearing of the draft environmental report, before the decision of the environmental authority on granting the environmental consent. The document comprises: (i) the reasons for issuing it; (ii) the measures to be taken for monitoring the environmental impacts; and (iii) the measures for environmental impact reduction or compensation.

NEPA reports a particularly high number of cases entering the SEA procedure, in the order of thousands every year. The number of SEA reviews approved/environmental consents issued is also quite important (table 2.2). This may be caused by the planning system which sometimes fails to specify clearly the boundaries of what constitutes a plan, a programme or a project, as a result of which the environmental authority may have some doubts as to whether the "subject" of the assessment meets the criteria of either SEA or EIA, or both of the Directives.

Environmental impact assessment

Romania introduced legal provisions for EIA of economic developments in the mid-1990s. Detailed EIA procedures were prescribed for projects that may have significant effects on the environment due to their nature, size or location. Those requirements were largely based on and reflected the spirit of the EU EIA Directive 85/337/EEC. The EU accession process required, however, that the letter of the EU environmental *acquis communautaire* be respected. Thus, the EIA Directive, as amended in 1997 and 2003, was transposed by GD No. 1213 (2006) on Establishing the Framework Procedure for the Impact Assessment of Certain Public and Private Projects on the Environment. This GD establishes the framework for EIA procedures to be conducted before issuing an "environmental agreement", which is the technical and legally binding document issued in writing and setting out the conditions for the project in terms of environmental protection.

In 2008, the European Commission issued Romania an official notice on the incorrect transposition of the EU law – specifically the EIA Directive and the Habitats Directive as amended by Directive 2006/105/EC – and calling for compliance with EU legal requirements. In particular, the definition of the environmental agreement as "the decision of the competent environmental authority that gives the project proponent the right to implement the project" was considered ambiguous since – in the Commission's opinion – it mixes up the concepts of "environmental agreement" and "development consent" and does not correspond to either the provisions of the EIA Directive or Romanian legislation on construction permit issuing. Besides, GD No. 1213 (2006) was not correlated with the provisions of the Habitats Directive (notably, art. 6, paras. 3 and 4).

Following this EU infringement procedure, the Government adopted GD No. 445 (2009) on the Impact Assessment of Certain Public and Private Projects on the Environment, which correctly transposed the provisions of the EIA Directive in correlation with the modification of domestic legislation on construction permit issuing. GD No. 445 (2009) replaced GD No. 1213 (2006). The EIA procedure is treated as an integral part of the procedure of granting development consent (e.g. a construction permit).

The new GD also took into consideration the aspects related to the appropriate assessment, according to the Habitats Directive, which attaches special attention to the assessment of projects that can have significant effects on nature-protected areas of European Community importance (Natura 2000 sites).

Following GD No. 445 (2009), in 2010 MoEF adopted the methodology to be applied for assessing the effects of certain public and private projects on the environment and prescribed detailed EIA procedures. The procedure of issuing environmental agreements on the basis of EIA and the appropriate assessment according to the Habitats Directive, if applicable, is implemented by central and territorial authorities for environmental protection and is achieved with the participation of other public central or local authorities with responsibilities in the environmental protection field, brought together under a TAC. The REPAs are responsible for the projects falling under IPPC regulations, whereas MoEF coordinates the EIA procedure for projects under the Convention on Environmental Impact Assessment in a Transboundary Context.

The EIA procedure consists of: (i) the screening stage; (ii) the scoping stage followed by development of the EIA report; and (iii) analysis of the EIA report and decision on granting the environmental agreement. Importantly, the EIA procedure is preceded by a "preliminary screening/assessment" of the project by the local environmental authorities. Under the latter, the proponent notifies the LEPA of the intention to develop a project, presents the project dossier and formally requests the issuing of an environmental agreement.

Table 2.2: Annual regulatory load on the National Environmental Protection Agency, 2007–2011

	2007	2008	2009	2010	2011
SEA reviews approved / environmental consents issued	148	245	257	286	334
Files considered and turned out from entering the EIA procedure (preliminary assessment)	25,374	28,275	66,924	87,448	79,399
Files considered during the EIA screening phase	9,442	12,242	10,013	6,912	7,797
EIA reviews approved / environmental agreements issued	796	963	794	511	381
Environmental permits issued	20,272	17,393	13,735	11,940	12,621
IPPC permits issued	..	169	157	145	122
Permits notifications	..	302	246	196	489
Permits suspensions	..	72	49	38	53
Permits withdrawn	..	..	12	24	44

Source: National Environmental Protection Agency, 2011.
Note: The cut-off date for 2011 is 30 October.

After examining the project documentation and checking the proposed site, the LEPA informs the proponent on:

- Dropping the case for projects that do not fall under either article 28 of GEO No. 57 (2007) on the Protected Natural Areas Regime and the Conservation of Natural Habitats, Wild Flora and Fauna, or GD No. 445 (2009) (annexes 1 and 2), provided that the decision of the competent authority states "not subject to EIA and appropriate assessment";
- Rejecting the request for environmental agreement for projects located in areas with building restrictions, with justification provided;
- Deciding on the need to enter the EIA procedure, the appropriate assessment procedure, or both, by presenting a (quite detailed) project memorandum to the competent environmental authority indicated by the LEPA.

The number of cases submitted for preliminary assessment is overwhelming (table 2.2). It increased further after the decision to assign this task to environmental authorities in 2008. The number of cases, which is steadily approaching 100,000 per year – each requiring the consideration of a small project dossier and often an on-site visit – imposes a heavy burden on the activity of LEPAs and keeps their staff from more specific assessment/permit-issuing tasks. Fewer than 10 per cent of the development projects submitted for preliminary assessment go on to enter the screening stage of the EIA procedure.

During the EIA screening, the competent environmental authority reviews the project memorandum and convenes a TAC meeting where a decision is made on whether or not an EIA is necessary. The public is informed accordingly and may comment on the draft decision of the EIA screening phase. The final decision is then made at a TAC meeting, taking account of comments received from the public. Generally, more than 90 per cent of all projects which enter the screening stage stop there (i.e. no further EIA study is considered necessary).

Once the decision to enter the EIA procedure has been taken, the competent environmental authority provides the project developer with a guide on environmental issues to be covered by the EIA (scoping stage). Based on this guide, the developer must provide information on the environmental impact (EIA report). The EIA must be carried out by a certified independent natural person or legal entity.

The EIA report is made public by the environmental authority and a public debate (public hearing) has to be organized by the project developer, who then has to react/provide solutions to any concerns expressed by the public. Taking into consideration the results of the public consultation, the environmental authority convenes the TAC meeting in order to decide whether to: (i) update the EIA report; (ii) reject the EIA report; (iii) grant the environmental agreement for the project; or (iv) reject the request for an environmental agreement.

The decision is made public and is substantiated, and it provides information on the administrative appeal procedures available. The public can challenge the decision before the courts. Cases where the public has obliged the environmental authorities to reconsider an initial decision are not exceptional.

At the same time, the implementation of the EIA procedure has shortcomings. This is due partly to the still insufficient in-country knowledge/experience on EIA but also to the discretionary application of the law in some cases (box 2.1).

Box 2.1: EIA issues in Romania: the case of the Kronospan formaldehyde production plant in Sebes

In March 2010, the European Commission sent Romania a reasoned opinion over its breach of several major pieces of EU environmental legislation in permitting the "Kronospan Sebes" formaldehyde production plant. The infringement case was opened by the European Commission Directorate for the Environment following a warning submitted by Romanian NGOs involved in the "Pollution-free Sebes!" campaign.

Kronospan Romania is the largest producer of wood-based panels in South-Eastern Europe and a branch of the multinational company, Kronospan. In 2007, Kronospan built on its existing industrial platform in the town of Sebes a formaldehyde production installation with a production capacity of 60,000 tons/year, without EIA and without carrying out the development consent procedure. The competent Romanian authorities (Alba County Environmental Guard) did not properly apply legal sanctions against Kronospan and thus infringed the EU EIA Directive and the Seveso Directive on the prevention of major-accident hazards involving dangerous substances. In 2006, the City Hall of Sebeş issued an Urban Planning Certificate according to which, in order to build a new installation for the production of formaldehyde at a capacity of 60,000 tons/year, it is mandatory to obtain, inter alia, a development consent and to elaborate a detailed urban plan. REPA Sibiu did not issue an approval or a development consent in accordance with the EIA Directive, although it issued a favourable opinion of the detailed urban plan, in accordance with the provisions of the Directive, which is not enough to allow construction to begin.

In its communiqué dated 18 March 2010, the Commission showed that Romania was in breach of the EIA and Seveso Directives when it failed to apply the appropriate legal measures against the illegal plant with a production capacity of 60,000 tons/year of formaldehyde. According to the Commission, it sent a first written warning ("Letter of Formal Notice") to Romania in October 2009. It received an unsatisfactory reply from the Romanian authorities, requiring it to subsequently issue a "Reasoned Opinion" on the infringement situation.

Several local NGOs have strongly criticized the authorities for their lack of will to enforce environmental legislation and to ensure that the public is properly informed and consulted before any decision regarding development consent for such a major industrial operation is taken.

Consequently, the Romanian environmental authorities required Kronospan to undertake an EIA study of the project and to seek the environmental agreement. In August 2011, the company made public the submission of the EIA report and the safety report to the competent environmental authority (REPA) and posted the documents on the web. The public debate on the EIA report was held in September 2011. The summary of the public debate is available at Sibiu's website (http://arpmsb.anpm.ro/sc_kronochem_sebes_srl_rezumat_dezbatere_publica_15092011-41452). At the same time, representatives of NGOs are involved in the EIA procedure, which is under way.

Source: Independent Center for the Development of Environmental Resources, "Pollution-free Sebes!" campaign press release: http://pollutionfreesebes.wordpress.com (accessed 27 December 2012).

Permit issuing

The legal requirements for environmental permit issuing are set out in the above-mentioned Law No. 265 (2006). MO No. 1798 (2007) for the Approval of the Procedure of Environmental Permit Issuing sets out the conditions for permit soliciting, issuing and review. It lists 280 economic activities which are subject to permit requirements.

The competencies for environmental permit issuing are basically attributed to NEPA and its local and regional branches, depending on the extent of economic development. For activities where the environmental permit is issued by the GD, MoEF is the competent authority. Environmental permits for activities involving the territory of the Danube Delta Biosphere Reserve are issued by the DDBRA.

Environmental permits can be issued for new developments and for existing facilities. In the former case, the competent environmental authority checks the dossier, assesses compliance with the requirements of the environmental agreement obtained, verifies the site conditions and makes public the decision to grant (or not) the environmental permit (this decision can be challenged within a 15-day period).

For existing facilities, the competent environmental authority requires the proponent to undertake a so-called "environmental balance" of the facility (in fact, an environmental audit). The report containing the conclusions of the environmental balance/audit is subject to public debate.

After the public hearing, the environmental authority convenes a meeting of the TAC to consider the results of the environmental balance and the conclusions of the public debate and to decide whether the environmental permit is to be issued, with or without a compliance programme. The public has 30 days to challenge the decision to issue the environmental permit in court.

In the event of non-compliance with the environmental permit's requirements, the environmental authority can withdraw the permit. The procedure first requires notification of the operator, who is given 60 days to return to compliance (without stopping the activity). If the problem persists, the environmental authority can suspend the permit's validity for six months and the operation is interrupted until the problem has been remediated. If this still does not happen, the environmental authority can withdraw the permit.

A specific regulatory framework is established for installations that are subject to IPPC. The legal provisions for IPPC permit issuing are set out in GEO No. 152 (2005) on Integrated Pollution Prevention and Control, as approved by Law No. 84 (2006). These acts transposed IPPC Directive 96/61/CE, as amended by Directive 2003/35/CE on public participation in the development of certain environmental plans and programmes. MO No. 818 (2003) for the Approval of the Procedure of Integrated Environmental Permit Issuing sets out the conditions for issuing integrated environmental permits.

The competent authorities for issuing integrated environmental permits are the REPAs. The procedure is implemented with the participation of other authorities with responsibilities for the environment, brought together under the TAC. It also ensures that the public is informed and involved in decision-making.

At the design stage, new IPPC installations must obtain the "environmental agreement" (following an EIA procedure) as a basis for securing an integrated environmental permit. Operation of such installations may only start once such a permit has been obtained.

The REPAs have the right to inspect IPPC installations on an annual basis for compliance checking (usually in joint actions with NEG). The environmental authority can periodically revise and bring the permit requirements up to date, if the situation so requires, e.g. if large operating changes have occurred or if current pollution levels require the setting of new emission limit values.

Both environmental permits and integrated environmental permits are valid for 10 years. The national Register of Integrated Environmental Permits may be consulted on the NEPA website.

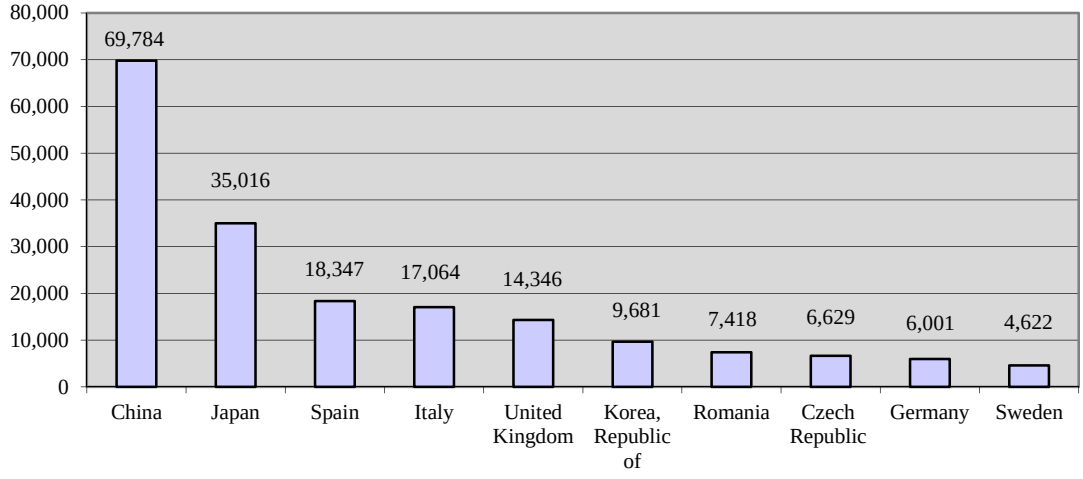
Auditing

A mandatory due diligence audit is required in the event of ownership change or privatization. The audit report must address such issues as historic pollution, the need to bring the installation into compliance, and the costs of remediation and achieving compliance. After the sale is concluded, the new owner becomes liable for all environmental problems of the site acquired.

2.6 Compliance promotion and voluntary schemes

The current compliance assurance strategy is based on a hierarchy of measures that starts with compliance promotion, even though there are not many channels yet for such measures. MoEF ensures full and timely access to new legal acts; with the posting of draft laws and regulations, enterprises can get a picture of the future development of environmental legislation. At the local level, both NEPA and NEG provide information upon request and proactively, during site visits.

Figure 2.3: ISO 14001 certification in selected countries, 2010



Source: International Organization for Standardization, 2011, *ISO Survey of Certifications 2010*.

Nevertheless, there are no dedicated materials or a webpage that would facilitate understanding of both procedural and substantive environmental requirements. Whereas this is not generally a problem for large enterprises, small and medium-sized enterprises may see the lack of targeted information materials as an impediment to environmental compliance.

Large companies have become increasingly prone to using voluntary approaches, such as ISO 14000 series certification. In 2010, with a total of 7,418 ISO 14001-certified enterprises, Romania ranked among the top 10 countries in this respect (figure 2.3). However, certification under the EU's voluntary EMAS is comparatively poor, with only four registrations awarded in Romania by the end of 2010, which is comparable to other Central European countries such as Slovakia. Currently, some 4,500 organizations and 7,800 sites have completed EMAS registration. The relatively limited use of EMAS is primarily due to its higher costs, more stringent requirements, and lack of visibility both inside and outside the EU.

Of more than 1,150 EU Eco-label licences awarded by the end of 2010, only four were awarded to Romanian products (in comparison with 359 products in Italy, the EU Eco-label's top performer). Romania's poor showing in this area may be a result of limited consumer awareness and, possibly, higher costs of environmentally friendly products.

2.7 Identification of non-compliance: self-monitoring and inspection

Self-monitoring requirements are part of environmental permits, which specify the emissions to be monitored by the operator, the frequency and location of sampling or measurement and the self-reporting requirements. Self-monitoring reports must be sent to NEPA. In addition, self-reporting is submitted to NARW and the EF. Generally, these requirements are followed by operators.

Inspections are performed mainly at the county-level NEG units, although the planning process is organized in such a way as to combine local, national and EU priorities (box 2.2). This process results in annual plans which, in addition to defining priorities and the number of routine inspections, signal the allocation of resources to planned and unplanned site visits and allow for non-inspection activities – such as reporting and non-compliance response activities: in particular, relations with prosecutors' offices and courts – and participation in permit issuing, training courses and seminars. In Romania, inspection programmes are not published, but can be made available to the general public upon request.

Each inspector is responsible for supervising an assigned number of sites. Inspectors often specialize in certain types of IPPC or Seveso installations. Occasionally, they may be required to conduct inspection activities outside their county or even outside their region. In the course of a year, an inspector carries out between 100 and 120 inspections, acting as team leader in half of all such inspections.

Site visits by NEG to verify environmental compliance can be both planned and unplanned, with or without preliminary announcement to the operator. Risk analysis is conducted in order to define the category of installation, with technical standards established for each category stipulating the normative inspection frequency and the average duration of routine inspection (table 2.3). These are not mandatory: the county commissariat is entitled to make adjustments according to local priorities and needs. The average duration of inspections includes the time necessary for preparation and conduct of missions (including travel time). Some 10 working hours, on average, are allocated for unplanned inspections.

The category of each controlled installation is assessed annually based on two major groups of criteria:

- The impact of the unit on the environment;
- The operator's performance.

The first group of criteria reflects, for instance, such characteristics as the environmental impact of the sector; proximity to urban and/or PAs; proximity to surface waters; type and volume of air emissions; type and volume of wastewater and waste; existence of contaminated terrains, etc. The second group includes performance criteria such as the use of Best Available Techniques (BAT), implementation of the environmental management system, number and amount of fines applied, number and type of other sanctions, number of pollution incidents, number of grounded complaints, existence of criminal charges, and frequency and quality of self-monitoring. Based on various criteria, scores are assigned to each installation. A multiplication coefficient is applied to each criterion to give it a relative importance. Data from previous inspections are used for the scoring. The category of installation is assigned as shown in table 2.4. As of 2010, there were 1,106 Category A, 14,469 Category B, 16,460 Category C, and 12,831 Category D installations.

Box 2.2: Major elements of the inspection planning process: top-down and bottom-up streams

Although inspection programmes are developed at the county level, they must be aligned with priorities and goals established in the national inspection plan. The planning process is typically launched in October, when a meeting is convened by the General Commissariat of NEG with regional and county chief commissariats. At the meeting, preliminary outcomes of the previous national plan are discussed and national priorities are outlined for the coming year. The General Commissariat then decides on the national priorities and circulates them to all subnational units in the form of a national inspection plan. Next, each county commissariat drafts its county inspection plan by bringing together the particular needs and characteristics of the county and the national priorities. The draft county plan is sent to the regional commissariat, which mainly assesses the compatibility of the plan with the resources available. Subsequently, the draft county inspection plan is sent by regional commissariats to the General Commissariat for technical validation and approval by the Minister. Inspection programmes are coordinated with REPAs and LEPAs, with proposals for joint inspection.

Source: European Union Network for the Implementation and Enforcement of Environmental Law (IMPEL), 2011.

Table 2.3: Recommended frequency and duration of inspection

Category of installation	Recommended frequency: inspections per 24 months	Average resource intensity: working hours per inspection
A	6	24
B	4	16
C	2	16
D	1	10

Source: National Environmental Guard, 2010.

Table 2.4: Algorithm of risk definition based on environmental impacts and operator performance

Criteria	Environmental impact	
Compliance performance	**High (> 150 points)**	**Low (< 150 points)**
Low (< 300 points)	Risk Category A	Risk Category B
High (> 300 points)	Risk Category C	Risk Category D

Source: European Union Network for the Implementation and Enforcement of Environmental Law (IMPEL), 2011.

Although the resulting scores are not communicated to the companies or the general public, NEG is considering making the classification methodology more transparent so that it can evolve into an information-based tool for compliance promotion, in addition to an inspection planning tool. The currently applied risk analysis methodology is relatively new (introduced in 2009) and is due to be evaluated shortly. A simple risk assessment approach was used previously, with risk classes depending primarily on the type of installation (IPPC, Seveso, LCP, volatile organic compounds (VOCs), etc.). While providing a well-grounded method of planning, the new approach is relatively time consuming. There are plans to computerize score calculation.

All routine site visits are integrated. During such inspections, compliance with the entire corpus of environmental law is checked. Specific inspection guides have been developed for the majority of EU directives, with key support from an EU twinning programme.

Besides such integrated inspections, the General Commissariat of NEG regularly launches nationwide thematic campaigns, which are considered to be "unplanned" site visits. These thematic campaigns can be decided during the year. For each campaign, the General Commissariat prepares guidelines and inspection formats. Examples of such campaigns include waste management in villages, implementation of selective waste collection systems, verification of chemicals storage facilities in rural areas, monitoring of hazardous industrial waste landfills, etc. The category of "unplanned" inspections includes a variety of other types of site visits (table 2.5). It is not clear why some of these categories, in particular thematic inspections, are categorized as unplanned inspections, since they are planned well in advance.

Table 2.5: Structure of unplanned site visits and share of specific category, 2010

Category of unplanned inspection	Absolute figures		Share of the total, per cent	
	Pollution control	Nature conservation	Pollution control	Nature conservation
Inspections within the framework of thematic campaigns	14,463.0	3,187.0	43.7	45.8
Joint inspections with other authorities	3,752.0	903.0	11.3	13.0
Complaint driven	6,154.0	743.0	18.6	10.7
In response to NEG intelligence	2,428.0	581.0	7.3	8.3
Regulated community identification	2,384.0	503.0	7.2	7.2
Follow-up inspections	1,678.0	333.0	5.1	4.8
Activity start-up inspections	1,176.0	513.0	3.6	7.4
Permit issuing and EIA-related visits	908.0	191.0	2.7	2.7
Accidents investigation	165.0	5.0	0.5	0.1
Total	**33,108.0**	**6,959.0**	**100.0**	**100.0**

Source: National Environmental Guard, *Activity Report 2010*.

This flawed typology of unplanned inspections presents a skewed picture of the activities undertaken by NEG, depicting its inspection strategy as a "fire-fighting" approach, which is not at all the case.

Complaints must be addressed within 30 days, with the possibility of extending the legal period for responding to complaints by an additional 15 days. Most of the complaints received by NEG (some 10,800 in 2010) could be more effectively dealt with by local authorities, as they often concern petty nuisances rather than environmental non-compliance.

The results of inspections are systematically documented and communicated to industrial operators. NEG intends to post inspection reports for IPPC installations on its website.

Some 65,000 planned and unplanned inspections were conducted in 2011. The number of planned inspections is relatively stable, while the number of unplanned inspections increased more than twofold in the period 2004–2011 (figure 2.4). The reason for this rise is not clear, particularly against the background of a questionable typology of unplanned inspections. In addition, some time series are not complete: information for 2007 and 2008 is lacking.

Finally, it is worth mentioning that an environmental volunteer network was established under NEG auspices by decision of the Ministry of Environment and Water Management in 2004. Potential volunteers need to apply and must have good references. They are then trained and carry NEG identification. These volunteers have since been organized into an association. Citizens who want to become more involved can apply to become environmental volunteers. To do so, they receive specific training and have to pass an exam concerning legislation. They then act as extra "eyes and ears" for the inspectorate in the field, even though they have no special competences. They are sometimes asked to support NEG staff during thematic campaigns.

2.8 Non-compliance responses

Roughly 15 per cent of inspections result in one or another "core" form (fine or warning notice) of administrative non-compliance response. In 2010, a total of 5,592 fines were imposed and 2,810 warning notices issued. The range of administrative sanctions that can be applied is more diverse (table 2.6). Sanctions that are called "complementary" are used, however, in a relatively small number of cases which constitute some 2 per cent of total administrative proceedings. Besides administrative cases, criminal sanctions are used.

NEG handles most administrative enforcement and has the right to initiate criminal proceedings, albeit only through the prosecutors' offices. In 2010, a total of 42 criminal cases (26 concerning pollution control legislation and 16 concerning nature protection legislation) were initiated by NEG, as compared with 24 criminal cases initiated in 2009 and 92 in 2004. In addition, NEPA issues warning notices as regards non-compliance with permit requirements, and has the authority to suspend or withdraw permits, following requests from NEG.

Administrative sanctions are applied gradually. In principle, the non-compliance response procedure starts with merely providing recommendations and not imposing any formal sanctions. If non-compliance is not corrected, a formal warning notice is issued; subsequently, if non-compliance continues, fines are levied (tables 2.6 and 2.7). The above statistics contradict this approach, as the number of fines is higher than the number of warning notices. Most likely, these sanctions are perceived by the field

personnel as being equivalent rather than sequential. NEG has the right to levy fines up to 100,000 lei.

An appeal procedure is in place, and any sanction may be challenged within a period of 15 days from its imposition. Appeal proceedings can take up to two years; if an appeal procedure is ongoing, the sanction may not be applied. In 2010 (with 1463 pending cases), of 478 cases that were resolved, NEG lost 114 cases. The fine collection procedure is as follows:

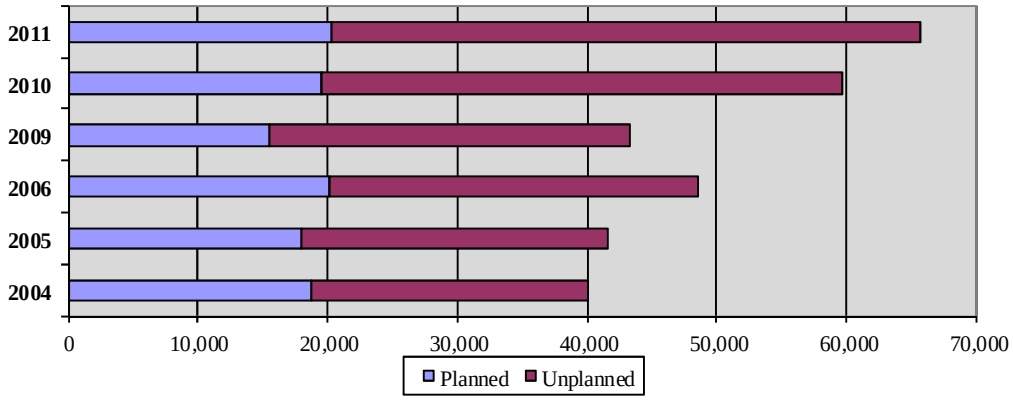
- Within 48 hours following imposition, only half of the imposed fine may be paid;
- The full amount of the imposed fine must be paid within 30 days;
- If the fine is not paid within 30 days, the file is forwarded to the tax authorities.

This procedure explains the low collection rates for fines (table 2.7). Another explanation arises from the difficulties in collecting fines when the appeal procedure is applied. Courts often lack technical expertise and fail to grasp the economic and social consequences of non-compliance. As a result, they reduce or simply cancel many fines and other sanctions imposed by NEG. Lack of know-how in handling judicial proceedings may have been another obstacle but it has been addressed by NEG, which has hired lawyers to deal with this type of proceeding.

Damage compensation claims are enforced through the courts as well. NEPA has the right to use public money in cases when immediate remediation is needed, then recover the equivalent amount from the offender. However, damage compensation claims involving two private entities and enforced through civil proceedings require a formal opinion from NEG as to the damage caused.

Criminal environmental enforcement is very limited. Most of the cases initiated by NEG are not followed up by judicial authorities, the rate of case acceptance being about 1 per cent. Besides facing uncooperative judicial authorities, NEG inspectors do not have the right to testify in court, which also reduces their capacity to rely on criminal proceedings.

Figure 2.4: Planned and unplanned inspections, selected years



Source: National Environmental Guard, annual activity reports for 2005, 2006, 2010, 2011.
Note: The cut-off date for 2011 data is 30 November. Data for 2007 and 2008 were not available.

Table 2.6: Structure of administrative sanctions imposed by National Environmental Guard, selected years

	2004	2005	2006	2010	2011
Inspections	40,040	41,549	48	59,614	65,655
Fines	4,345	6,093	7,531	5,592	5,931
Warning notices	2,134	2,421	2,350	2,810	2,404
Temporary closure of installation	140	174	139	118	125
Permanent closure of installation	..	..	..	8	3
Proposals for permit withdrawal	38	138	46	9	18

Source: National Environmental Guard, annual activity reports for 2005, 2006, 2010, 2011.
Note: The cut-off date for 2011 data is 30 November. Data for 2007 and 2008 were not available.

Table 2.7: Value of fines and collection rates, selected years

	2004	2005	2006	2009	2010	2011
Value of fines imposed (million lei)	8.7	20.1	61.7	49.3	77.3	87.5
Value of fines collected (million lei)	n.a.	n.a.	n.a.	10.5	18.9	n.a.
Collection rate (per cent)	n.a.	n.a.	n.a.	21.2	24.4	n.a.

Source: National Environmental Guard, *Activity Report 2010.*
Note: Data for 2011 reflect only 11 months.

2.9 Conclusions and recommendations

Since the first EPR, Romania has worked to establish an environmental regulation and compliance assurance system that would respond to the needs arising from the country's EU accession and membership. For the environmental sector, EU membership brought an enlarged scope of regulation and new compliance challenges, resulting, most importantly, from the costs of compliance and a relatively short period for fully transposing and applying the EU *acquis communautaire*.

On the road to full compliance, Romania has achieved procedural compliance with many administrative requirements and defined transitional periods and measures for ensuring substantive compliance. Thus, Romania uses RIA and has completed the full alignment of SEA, EIA and permit-issuing procedures with EU requirements. Its inspection system is broadly compliant with the Recommendations on Minimum Criteria for Environmental Inspection.

The last decade has also seen important changes in the structure of competent authorities in charge of compliance assurance. The Government of Romania decided to split the permit-issuing and inspection arms, with a view to rendering the workload more manageable and ensuring that decision-making is free of unwanted pressure, thereby safeguarding the professionalism and integrity of staff. Simultaneously, risk-based inspection tools have been introduced which bring the benefit of targeting compliance-monitoring activities and reducing the likelihood of groundless discretionary decisions. Guidelines for carrying out inspections have been developed to ensure coherence of compliance-monitoring activities nationwide. The competent authorities have a good understanding of the regulated community and dedicate resources and time to identifying new, undeclared businesses. Lately, the value of compliance promotion has become more evident for the competent authorities, and their new approach of providing positive incentives and using information-based tools of compliance assurance needs to be pursued. Cooperation with the general public and NGOs helps in identifying cases of non-compliance.

Against the background of procedural and organizational improvements, a satisfactory level of environmental compliance is reported by NEG. While all regulatees are checked at least once every two years, only some 15 per cent of them become subject to "core" administrative non-compliance responses, such as warning notices and fines. As many large enterprises have established environmental management systems according to the ISO 14001 standard, Romania ranks among the top 10 countries in terms of the number of certified enterprises.

While making good progress, Romania still needs to streamline and improve some of the elements of its system of environmental regulation and compliance assurance. The goal of such rationalization would be to reduce the regulatory burden on both economic agents and competent authorities with a view to achieving a higher level of compliance. A first step towards higher efficiency would be to adjust the scope of environmental assessments and permit issuing. Changing the legal requirements in order to decrease the number of cases subject to SEA, specifically by removing from the list of activities detailed urban plans which are not associated with any changes in land use (unlike the general urban plans and zonal urban plans) and assigning them to the EIA procedure, if relevant, would lighten the workload of NEPA.

Recommendation 2.1:
The Ministry of Environment and Forests should:

- *(a) Review the regulatory acts that define activities subject to Strategic Environment Assessment in order to decrease the number of cases subject to it and streamline assessment procedures; and*
- *(b) Consider diminishing the regulatory load on the National Environmental Protection Agency by delegating some of its current tasks, such as certain category screening of Environmental Impact Assessment, to local authorities.*

Both the two key competent authorities and their stakeholders face problems, often of a purely technical character, in respect of access to relevant regulatory and enforcement information. NEPA and NEG do not have a joint database that would facilitate information-sharing on both the technical characteristics of regulated entities and their most recent compliance behaviour and enforcement actions taken against them (both agencies have certain enforcement powers). The intermittent work on the NEPA website and irregular updating of the websites of both NEPA and NEG would be very simple to address. There are some problems with activity reporting. NEPA activity reports are not available at all.

Activity reporting by NEG has been up and down over recent years, with data for 2007 and 2008 missing, at least from the public domain. In 2011, NEG made a major effort to report on a set of performance indicators on a four-monthly basis. Unfortunately, the structure of annual reports does not foresee a place for cross-regional comparisons that are needed to understand the coherency of compliance assurance efforts on a national level.

Facility-specific compliance information is available to the general public from four-monthly reports, although a searchable online database would magnify the benefits that NEG can extract from its efforts to uncover non-compliance. In the same vein, NEG could envisage disclosing the results of risk analysis conducted in conjunction with its annual inspection planning.

<u>Recommendation 2.2:</u>
The Ministry of Environment and Forests should improve National Environmental Protection Agency and National Environmental Guard information management and disclosure practices, by arranging that these public institutions:

- *(a) Regularly update their websites and disclose a wider range of information, particularly as concerns permit issuing and compliance monitoring of high-risk installations;*
- *(b) Establish a nationwide, shared database with facility-specific regulatory and compliance assurance information, thus ensuring a smoother flow of relevant data between the two institutions;*
- *(c) Disclose the results of facility-specific risk analysis information and check the coherence of regulatory requirements and compliance assurance across the entire country; and*
- *(d) Improve reporting activities and performance, including by extending indicator comparison to longer time series and by adding a subnational perspective.*

Performance indicators for NEG show a very high intensity of inspection, while site visits are very short. In this context, NEG management may consider how to reconcile quantitative and qualitative objectives within its compliance monitoring strategy. A relatively low incidence of identified cases of non-compliance also poses the question of whether the risk analysis criteria should not be adjusted. Moreover, the number of unplanned inspections is particularly high in Romania, and "hides" some planned inspections, such as thematic campaigns.

The typology of unplanned inspections therefore needs to be revised. In addition, the strategy of dealing with complaints may need to be adjusted, since they mostly reveal petty non-compliance, often not related to environmental requirements, and take up too much time, thus reducing the availability of NEG experts for serious cases. Since responding to citizens' complaints is mandatory, some responsibilities for addressing complaints will have to be delegated to local authorities.

<u>Recommendation 2.3:</u>
The Ministry of Environment and Forests should systematically review key elements of its compliance monitoring strategy to optimize the balance between quantitative and qualitative elements, such as:

- *(a) Frequency and duration of inspections;*
- *(b) Scope and focus of compliance checks during site visits;*
- *(c) The character of unplanned inspections; and*
- *(d) The extent of site visit reporting.*

Finally, the problem of the poorly functioning judicial environmental enforcement needs to be addressed. Environmental authorities regularly see their efforts to uncover non-compliance and respond adequately to offences undermined by prosecutors' offices and, especially, courts. Most of the responses suggested by NEG are weakened or totally cancelled out. The fact that the judicial authorities' lack of environmental awareness undermines the credibility of regulation needs to be communicated to them in a way that highlights the danger of eroded public authorities' credibility.

In addition, NEG may want to demonstrate that the proportionality of non-compliance response suffers, with a window of escape available to offenders committing more serious non-compliance. Furthermore, NEG may want to document and disclose budget losses associated with flawed judicial responses. A complementary measure to capacity

development within the judiciary authorities may be capacity-building within NEG to collect evidence for court cases and give inspectors the right to provide expert testimony in courts.

Recommendation 2.4:

The Government should increase the capacity to address environmental cases within existing judicial authorities and by organizational adjustments, such as the creation of dedicated environmental courts or environmental divisions within existing courts.

Chapter 3

MONITORING, INFORMATION, PUBLIC PARTICIPATION AND EDUCATION

3.1 Introduction

Since its first EPR, in 2001, Romania has strengthened its legislation and institutions dealing with environmental monitoring, information, public participation and education. The EU accession process and Romania's commitment to its international obligations have furthered implementation of the recommendations proposed in the first EPR.

The recommendations which have been implemented include the legal requirements for the entry into force of the Convention on Access to Information, Public Participation in Decision-making and Access to Justice in Environmental Matters (the Aarhus Convention) and improvement of the monitoring system. In addition, good progress has been made in involving and informing NGOs in respect of national and international environmental programmes, and in promoting ESD.

3.2 Environmental monitoring

Air quality

MoEF is responsible for the coordination of air quality monitoring activities at the State and local levels. Since the first EPR, a number of laws have been adopted setting requirements for air quality monitoring.

The legal framework includes GEO No. 243 (2000) on Protection of the Atmosphere, adopted by Law No. 655 (2001); GD No. 586 (2004) on the Setting-up and Organization of the National System for Integrated Assessment and Management of Air Quality; GD No. 543 (2004) on Establishing the Procedure for the Elaboration and Implementation of Air Quality Management Plans and Programmes in order to Attain the Limit Values During a Certain Period; MO No. 745 (2002) of the then Ministry of Environment and Water Management, establishing the agglomerations and the classification of agglomerations and zones for the assessment of air quality in Romania; and MO No. 592 (2002) of the Ministry of Environment and Water Management on the Approval of the Norms Regarding the Establishment of the Limit Values, of the Threshold Values and of Criteria and Methods of Assessment for Sulphur Dioxide, Nitrogen Dioxide and Nitrogen Oxides, Particulate Matters (PM_{10} and $PM_{2.5}$), Lead, Benzene, Carbon Monoxide and Ozone in Ambient Air.

These legislative acts were repealed by Law No. 104 (2011) on Ambient Air Quality, which transposes the provisions of Council Directive 2008/50/EC on Ambient Air Quality and Cleaner Air for Europe and the provisions of Council Directive 2004/107/EC Relating to Arsenic, Cadmium, Mercury, Nickel and Polycyclic Aromatic Hydrocarbons in Ambient Air.

In addition to the different legislative acts, Romania has put in place national programmes and action plans that set priorities for the implementation of air quality monitoring and its development. These are reflected in GD No. 731 (2004) on the Approval of the National Strategy for Atmospheric Protection, and GD No. 738 (2004) on the Approval of the National Action Plan for Atmospheric Protection. All the action plans on air quality assessment and management have been implemented.

To this end, robust air quality monitoring is conducted on a regular basis. There are 142 automated stations in place measuring pollutants according to EU directives (table 3.1). Data go from the stations to the local air quality database located in the LEPA, automatically via GSM transmission, and from the agency they go directly to the National Reference Laboratory for Air Quality located in NEPA. Data are validated daily by the local agency and transmitted with a "flag" (indicator of status of the data) to the central database at NEPA. At the same time, all data from the station are sent to the public website.

The number and types of monitored parameters have increased since the first EPR. These include sulphur dioxide, nitrogen oxides, carbon monoxide, ozone, VOCs, particulate matter, lead and meteorological parameters.

Photo 3.1: Outdoor billboard on air quality monitoring

Table 3.1: Development of air quality monitoring, 2004–2011

number

Air quality monitoring	2004	2005	2006	2007	2008	2009	2010	2011
Cities covered by monitoring	1 agl.	4 agl.	4 agl.	4 agl.	11 agl. and 8 zones			
Stationary monitoring posts including:								
Automated posts	8	23	23	23	117	142	142	142
Background monitoring stations	3	12	12	12	48	58	58	58
Transboundary monitoring stations	..	..	..	..	..	3	3	3
Precipitation monitoring stations	6	18	18	18	100	121	121	121

Source: Ministry of Environment and Forests, 2011.

Water monitoring

MoEF has a major responsibility in coordinating and monitoring the implementation of the EU WFD, which establishes a general framework for the protection of all water resources (rivers, lakes, transitional waters, groundwaters and coastal sea waters). MoEF operates the National Integrated Water Monitoring System through its technical specialized body, NARW.

MO No. 1072 (2003) and Joint MO No. 242/197 (2005) set up the National Integrated Water Monitoring System based on two interactive subsystems for water and soil. MO No. 31 (2006) establishes the requirements for different needs and types of monitoring programmes (surveillance, operational and investigative in special cases of accidental pollution and where the reason for any exceedances is unknown). Another key piece of legislation relevant to water monitoring is the EU Nitrates Directive[11] which was transposed into Romanian law by GD No. 964 (2000) on the Approval of the Action Plan for Protection of Waters against Pollution by Nitrates from Agricultural Sources.

The National Integrated Water Monitoring System has been developed for the implementation of the requirements of the EU water-related directives, implementation of international and bilateral agreements, and European Environment Information and Observation Network (EIONET) reporting requirements.

[11] Council Directive 91/676/EEC concerning the protection of waters against pollution caused by nitrates from agricultural sources.

Water monitoring sites

Water monitoring networks cover surface water (rivers, lakes, transitional, coastal, marine waters and artificial water bodies), groundwater, PAs and wastewater discharged by water users.

There are over 1,560 monitoring sites for surface water and 1,631 monitoring sites for groundwater.

For the Nitrate Directive, some of the specific criteria for selection of monitoring sites include downstream of agricultural points and diffuse sources, PAs (drinking water abstractions, vulnerable areas), areas where nitrate concentrations are higher than 50 mg/l and areas where eutrophication occurs.

Some of the general criteria for monitoring sites include: (i) the sites should be representative – surveillance monitoring; (ii) transboundary sites and sites of the international networks; (iii) reference sites; (iv) intercalibration sites; (v) impacted sites – operational monitoring; and (vi) sites located in PAs (drinking water abstractions, nutrient-sensitive areas, nitrate-vulnerable areas, Natura 2000, PAs for fish).

Monitoring parameters/elements and frequency

The number and types of monitored parameters have increased since the first EPR. The size of the matrix (from water to sediment, biota – fish and molluscs), has risen significantly from 27 general physico-chemical parameters, nine metals and three pesticides to over 220 indicators and substances, including biological and hydromorphological parameters.

For surface water, the chemical and physico-chemical elements required by the EU WFD include thermal conditions, oxygenation conditions, salinity, acidification status, nutrient status, transparency, and pollutants and priority substances with a monitoring frequency of between four and 12 times per year. For example, for vulnerable areas where specific criteria are applied under the Nitrate Directive, the frequency is 12 times per year for nitrates.

The biological elements monitored in surface waters are phytoplankton, other aquatic flora (phytobenthos, macrophytes – for rivers and lakes; macroalgae and angiosperms – for transitional and coastal waters), macro invertebrates and fish (for rivers, lakes and transitional waters) with a monitoring frequency ranging from four times per year to once every three years, depending on the subsystem type, quality elements and parameters and monitoring programmes for assessment of trophic status: phytoplankton – especially for rivers in the plain areas, lakes, reservoirs, the Danube, the Black Sea, with a frequency of two to four times per year or monthly (April to September) in cases where eutrophication has occurred.

From a hydromorphological point of view, the monitored elements are river continuity, and hydrological and morphological parameters, with a monitoring frequency between daily and once every six years. For groundwater, the quantitative parameters (level and/or flow) and qualitative parameters (nutrients-nitrates, nitrites, ammonium, phosphates, and other physico-chemical indicators (oxygen content, pH, conductivity), priority substances and specific substances (pesticides and heavy metals)) are monitored with a frequency of between two and 120 times per year for quantitative parameters and between once every six years to two times per year for physico-chemical parameters.

Black Sea monitoring

Romania is a party to the Bucharest Convention on the Protection of the Black Sea Against Pollution and participates actively in monitoring programmes for observing, measuring, evaluating and analysing the risks or effects of pollution on the marine environment of the Black Sea.

Moreover, the Black Sea littoral States have an agreement to utilize common sampling, storage, analytical techniques, assessment methodologies and reporting formats, as well as common quality assurance/quality control procedures, and to undertake intercalibration and intercomparison exercises.

Under the Black Sea Commission, the countries have established the Black Sea Integrated Monitoring and Assessment Programme to facilitate monitoring, analysis and reporting. The Programme builds on established national monitoring programmes. In the case of Romania, NIMRD has the responsibility of reporting annually to the Black Sea Commission. The Dobrogea–Litoral Water Basin Administration has the obligation of monitoring transitional and coastal waters as per EU WFD requirements and reporting to the ICPDR and to the European Commission through NARW and MoEF.

The monitoring grid has 44 stations, of which 21 are in coastal waters, 12 in transitional waters and 11 in marine waters. Parameters monitored four times per year include nutrients (NO_3, NO_2, NH_4, N, PO_4 and P), petroleum hydrocarbons, salinity, oxygen balance parameters (per cent, mg/l), suspended solids,

chlorophyll-a, total suspended solids (TSS), sediment trace metals, oil and oil products, chlorinated pesticides and other physico-chemical parameters. Trace metals are monitored once a year.

Soil monitoring

MoEF prepares draft laws, methodological norms and guidelines for the application on soil and subsoil pollution investigation and assessment. The Bucharest Institute for Pedagogical and Agricultural Research implements the National Monitoring System for Soil based on the classification and types of soil in Romania, and analyses the physical and chemical parameters of soil (organic contents, pH, nitre, nutrients, nitrogen) under the coordination of MoARD and, in the event of accidental pollution, in cooperation with LEPAs.

An electronic version of monitoring data on a range of environmental issues is accessible to decision-makers and the public (http://cdr.eionet.europa.eu/ro).

Noise pollution monitoring

The legal framework for noise pollution includes the EU Environmental Noise Directive,[12] transposed into Romanian regulations by GD No. 321 (2005) setting the requirements for the assessment and management of environmental noise (and reissued in 2007); MO No. 1258 (2005), of the then Ministry of Transport, Constructions and Tourism for the elaboration of noise mapping, strategic noise maps and their corresponding action plans; MO No. 678/1344/915/1397 (2006) on the Approval of the Guide for Interim Computation Methods; MO No. 1830 (2007) for the Approval of the Guide Regarding the Elaboration, Analysis and Evaluation of Strategic Noise Maps; MO No. 152/558/1119/532 (2008) on the Approval of the Guide for Noise Limits for Action Planning; and MO No. 831/1461 (2008) on the Establishment of Technical Commissions to Analyse the Action Plans.

Various city halls (Bucharest, Cluj-Napoca, Iasi, Timisoara, Constanta, Galati, Craiova, Brasov and Ploiesti, together with small towns Brazi, Blejoi and Barcanesti), the National Railway Company, the Romanian National Company of Motorways and National Roads, and the National Airport Company (Henri Coandă) in Buchares, are involved in the strategic noise mapping and action planning field. In addition, they organize public consultations for action plans and provide the public with information on strategic noise maps and action plans.

Strategic noise maps for agglomerations cover four main noise sources: road traffic, railway traffic, airports and industrial sites. The maps are drawn up according to the computational methods of the Environmental Noise Directive. REPAs and NEPA collect the strategic noise maps and action plans from all authorities that prepare them, and use the information from noise measurements to prepare the corresponding annual report. Strategic noise maps and action plans may be consulted on the websites of city halls, the National Railway Company, the Romanian National Company of Motorways and National Roads, and Henri Coandă Airport.

Radioactivity monitoring

Monitoring of radioactivity on Romanian territory is carried out by NEPA and the LEPAs. NEPA has a National Reference Laboratory for Radioactivity, which provides surveillance of radiation monitoring in the environment through a National Environmental Radioactivity Surveillance Network consisting of the LEPAs' 37 radiological laboratories (radioactivity surveillance stations – map 3.1) and through the automatic early warning system. MO No. 338 (2002) and MO No. 1978 (2010) set out the requirements for radiation monitoring and the rules for the organization and functioning of the National Environmental Radioactivity Surveillance Network.

The automatic early warning system supports routine radiological surveillance and provides monitoring data needed in emergency situations. Data are also provided to the European Radiological Data Exchange Platform managed by the Joint Research Centre of the European Commission. Since 2001, radioactivity is measured in Romania at the 37 environmental radioactivity surveillance stations mentioned above, 44 automatic gamma dose rate monitoring stations and 5 automatic water monitoring stations.

Self-monitoring by enterprises

According to Law No. 265 (2006) on Environmental Protection, all operators must self-monitor emissions. Self-monitoring reports require thorough validation of the accuracy of information and data provided by the enterprises before publication. The level of environmental reporting for Romanian listed companies is very low. Despite having the raw data, some of the enterprises do not send them to the LEPAs.

[12] Directive 2002/49/EC of the European Parliament and of the Council of 25 June 2002 relating to the assessment and management of environmental noise.

Map 3.1: Radioactivity surveillance stations

Source: Ministry of Environment and Forests, 2011.
Note: The boundaries and names shown on this map do not imply official endorsement or acceptance by the United Nations.

Currently, the information and data reported in corporate environmental reports are perceived as fulfilment of monitoring requirements.

MO No. 662 (2006) for the Procedure and Competences for Granting Water Permits and Licences stipulates that polluters who have a permit or water licence are obliged to ensure self-monitoring of discharged waters. The detailed obligations and parameters are set out in each water licence and are entirely under the responsibility of NARW.

Enterprises provide raw data to NARW, which then processes the data for inclusion in the annual report, *Synthesis of Water Quality in Romania*.

Analytical laboratories

There are 41 operational laboratories equipped with the necessary equipment for analysis. Of these, 40 are located in REPAs and LEPAs; they do not have ISO 17025 accreditation. The National Reference Laboratory for Air Quality under NEPA received ISO 17025 accreditation as of September 2011.

For water, there are: 1 national laboratory, 5 regional laboratories (in Bucharest, Râmnicu Valcea, Bacau, Cluj and Constansa, with high-performance analytical equipment) and 41 local laboratories (with equipment for general physico-chemical parameters), all under NARW.

Two laboratories are involved in the monitoring of transitional, coastal and marine waters: Dobrogea–Litoral Water Basin Administration and NIMRD.

Accreditation is an ongoing process, starting from accreditation of simpler parameters, followed by heavy metals and some organic dangerous substances. Accreditation for chemical analysis of water status became obligatory in August 2011, after

European Commission Directive 2009/90/EC[13] was transposed into Romanian legislation.

Technical assistance

Since the first EPR, MoEF has received substantial foreign technical assistance for supporting air quality monitoring. This assistance includes a PHARE 2000 pilot project for the procurement of air quality monitoring equipment for Bucharest (eight automatic air quality stations) at a cost of €1.6 million; PHARE 2002 for the acquisition of 15 air quality monitoring stations for Craiova, Iasi and Cluj at a cost of €2.8 million; and a loan from the Council of Europe Development Bank to purchase 94 air quality monitoring stations at a cost of €8 million from the Bank and €8 million from the budget.

Technical assistance has also been received from the EU for redesigning the monitoring network, and for acquiring high-performance analytical equipment for the five regional laboratories and implementation of an adequate environmental radioactivity monitoring and reporting system.

3.3 Information and reporting

Romania became a member of the EEA in 2001. Membership was ratified via Law No. 662 (2001), and Romania has designated a national focal point to EIONET within MoEF, in order to fulfil its obligations. MoEF has an entire section on its website devoted to environmental legislation, including the list of EU directives, regulations and decisions and their transposition into Romanian law, and also a dedicated website for RO-EEA-EIONET.

NEPA, along with its 8 REPAs and 34 LEPAs, is responsible for environmental monitoring and reporting to the EEA on air quality, climate change, PAs, soil contamination and water (data is available on both the Romanian and EEA websites). Annual reports are available online for the years 2006–2010, for example. Sections for monthly reports have also been designed; however, there is no information available as yet.

The setting-up of a national PRTR register became compulsory once Romania became a member of the EU in 2007. The first reporting year was 2008; thus, the data submission to the European Commission referred to industrial facilities emissions and transfers performed during 2007. Data transmitted for the years 2008–2009 are available to the public on the e-PRTR European website and also on the Romanian dedicated website.

NIS regularly publishes environmental statistics focusing on water quality and use, PAs and environmental protection investment expenditure in Romania. The Romanian Sustainable Development Indicators (SDIs) database is available online on the NIS website: it includes 103 indicators and will be updated as new indicators are developed and made available.

Because of the absence of national or international regulations which would impose reporting on companies' environmental impact, the level of environmental reporting for Romanian listed companies is very low. Romanian companies provide general information regarding their environmental impact (mostly in their annual reports), but the information provided is generally incomplete and irrelevant for users.

3.4 Access to information, public participation in decision-making and access to justice in environmental matters

Romania set the requirements for public access to environmental information through Law No. 86 (2000) on the Ratification of the [Aarhus] Convention on Access to Information, Public Participation in Decision-making and Access to Justice in Environmental Matters, Law No. 544 (2001) on Free Access to Public Information, and GD No. 878 (2005) on Public Access to Environmental Information.

In line with GD No. 878 (2005), environmental information available to the public includes the text of treaties, conventions and international agreements to which Romania is a party, and environmental laws or law relating to the environment; policies and PPs relating to the environment; progress reports and documents on the implementation of environmental projects; reports on environmental conditions; data or summaries of data from monitoring activities; notices, agreements and permits for activities with significant environmental impact; agreements between public authorities and individuals and/or legal entities on environmental objectives or an indication of where such information may be requested or found; and environmental impact studies and risk assessments concerning environmental elements.

[13] Commission Directive 2009/90/EC of 31 July 2009 laying down, pursuant to Directive 2000/60/EC of the European Parliament and of the Council, technical specifications for chemical analysis and monitoring of water status.

Access to information and awareness-building

Environmental information is available to the public by telecommunication, websites and other means of communication (e.g. radio and television, newspapers and public debate). Moreover, public authorities are obliged to respond to applicants who request environmental information in writing.

From time to time, MoEF organizes targeted seminars and public hearings on a range of environmental issues and concerns with the participation of individuals and groups who or which will be affected by a specific decision or plan. In addition, it produces information guides for raising public awareness.

Although no opinion polls have been conducted since the first EPR, discussions held with several stakeholders indicate that the majority of the Romanian people are more concerned about economic and living conditions than the environment.

Public access to air quality monitoring data

In total, there are 107 billboards for public information in Romania: 48 are outdoor billboards located in highly populated areas or pedestrian areas, and 59 are indoor billboards located in buildings housing public administration offices (city halls, environmental protection agencies). All information is transferred via GSM (online) for validation and real-time feed into billboards. They also display indexes showing the level of air quality from 1 (excellent) to 6 (very bad)**.** The same information can be accessed on a webpage (www.calitateaer.ro). This system was established in 2004–2008, so it did not exist at the time of the first EPR in 2001.

Public access to water quality monitoring data

The annual *Synthesis of Water Quality in Romania* is available on the NARW website. The information contained in the report shows the classification of water quality and sources of pollutants in 11 river basins, based on biological, chemical and physico-chemical parameters. For the surface water bodies, five ecological status classes were defined (high, good, moderate, poor and bad) from the point of view of biological parameters.

The National Management Plan and the 11 river basin management plans, which were elaborated according to the EU WFD and approved via GD No. 80 (2011), contain information and maps showing the ecological status/potential and chemical status of surface water bodies, and quantitative and chemical status of groundwater bodies. These plans are available on the websites of NARW and the WBAs.

Media

MoEF interacts regularly with the media to ensure that environmental issues are covered as part of the news. Some examples include daily uploads of press releases on the MoEF website and public announcements in newspapers regarding the development of EIA and SEA. Public environmental authorities also have an obligation to issue monthly press releases, including syntheses of events and actions that occurred in the previous month.

Citizens' complaints or requests for information

The current practice in terms of handling citizens' complaints or requests for environmental information is to deal with them as directly as possible. The first step is that the responsible authority responds to or resolves the complaint by formulating an appropriate response.

Any citizen who considers that his or her request for the provision of environmental information has been unreasonably refused, not answered (in part or in whole), ignored, or resolved with an inadequate response by a public authority, may address the prior complaint to the director of the public authority body, requesting reconsideration of any acts or omissions.

If the complainant is not satisfied by the answer received from the authority or authorities, he or she may turn to the administrative court for the final stage of the procedure, public access to justice. MoEF has received some 3,000 complaints and requests per year for the last 10 years. Its Communication Directorate is responsible for dealing with any requests or complaints. The manner of response ranges from e-mail to an official letter or a face-to-face meeting with the concerned party.

Operation of NGOs

NGO registration, their nature and scope, and their mission and activities are regulated by Ordinance No. 26 (2000) on Associations and Foundations, as amended by Law No. 246 (2005).

A wide range of environmental NGOs is involved in environmental protection across Romania. There are two environmental NGO coalitions. Natura 2000

(www.natura2000.ro) has a membership of 55 NGOs and is currently coordinated by World Wildlife Fund (WWF) Romania. The Coalition of Environmental NGOs (www.coalitiademediu.ro/rn1n8/initiative.html) has a membership of 69 NGOs MoEF also maintains a list of environmental NGOs on its website.

NGOs are involved in the procedures governing the formulation of opinions necessary in the environmental decision-making process, and have signed partnership agreements with local environmental authorities to promote implementation of measures for sustainable development of localities and metropolitan areas, and also to preserve natural capital and further EU objectives.

Some of the more active NGOs include Asociatia Aurarilor ("Alburnus Maior" Goldsmiths' Association); Centrul de Resurse Juridice Bucuresti (Centre for Legal Resources); WWF Programul Dunare Carpati (WWF Danube Carpathian Programme); Terra Mileniul III; Association "Save the Danube and Delta" (Asociaţia "Salvaţi Dunărea şi Delta – Academia Caţavencu"); Romanian Ornithological Society SOR (Societatea Ornitologica Romana); and Environmental Experts Association, Bucharest (Asociatia Expertilor de Mediu, Bucuresti).

Cooperation between environmental authorities and NGOs

Cooperation between environmental authorities and NGOs is limited. Currently, if the authorities are invited to major events organized by NGOs (e.g. seminars or workshops organized by the Environmental Experts Association on EIA issues), representatives from the environmental authorities would generally make a presentation, if invited in sufficient time. Representatives of NGOs are also invited to participate in seminars and workshops organized by MoEF.

Given the existence of several active NGOs in the country, and that NGOs are pillars for the implementation of a range of sustainable development goals, cooperation between authorities and the NGO community needs to be strengthened and take place on a regular basis in order to utilize the knowledge and expertise of the NGO community.

Discussions with environmental NGOs have revealed that many are not familiar with or aware of the programmes and projects financed from the EF which are in line with their own activities. There is a feeling that only those NGOs with close proximity to MoEF are benefiting from such funding. It is important that such information be made widely available to all NGOs.

MoEF, through the Social Dialogue Committee established in 1998, has regular consultations with workers' organizations/unions to discuss environmental issues of concern, new legislation or socioeconomic initiatives, as well as any administrative concerns the unions may have with local or central environmental administration. Committee membership consists of 19 representatives from MoEF, 5 from the unions (National Union Block, National Union Confederation "Cartel Alfa", National Confederation of Free Unions "Fratia", Confederation of Democratic Unions of Romania, National Union Confederation "Meridian") and 13 other stakeholders. The Committee meets once a month and is chaired by a Secretary of State of MoEF.

Public participation in environmental decision-making

Part of legislation concerning public participation in environmental decision-making was in place as early as the first EPR, and has been further developed and strengthened through the adoption of key pieces of legislation since then. These include Law No. 86 (2000) ratifying the Aarhus Convention; GD No. 1076 (2004) on the Establishment of the Procedure for Environmental Assessment for Plans and Programmes; GD No. 445 (2009) on the Impact Assessment of Certain Public and Private Projects on the Environment; and MO No. 135 (2010) on Implementing Methodology for Assessing Environmental Impact on Public and Private Projects. These instruments establish the detailed methodology on how the EIA studies are drawn up, at what stage the public may participate and in which way, including public debate.

NGOs and individual members of the public are part of the regulatory EIA and SEA procedures and of the permit-issuing procedures by which the environmental permit is issued. Apart from offering written comments and opinions, they are also involved in the compulsory public hearings which are developed within these procedures (EIA, SEA and environmental authorization).

Stakeholders, including NGOs, were involved in the process of elaborating the river basin management plans. The following were published and made available to the public for comment: (a) a timetable and work programme for the production of the plan – December 2006; (b) an interim overview of the

significant water management issues identified in the river basin – December 2007; (c) draft river basin management plans – December 2008.

Access to justice on environmental matters

A number of legislative acts setting requirements for access to justice on environmental matters have been introduced. These include GEO No. 68 (2007) on Environmental Liability With Regard to the Prevention and Remediation of Environmental Damage, Law No. 86 (2000) ratifying the Aarhus Convention, GD No. 1213 (2006) on Establishing the Framework Procedure for the Impact Assessment of Certain Public and Private Projects on the Environment, GD No. 445 (2009) on the Impact Assessment of Certain Public and Private Projects on the Environment, and Law No. 554 (2004) on Administrative Disputes.

3.5 Environmental education and education for sustainable development

As part of the EU integration effort, Romania approved the ECE Strategy for Education for Sustainable Development (which has been translated into Romanian) and actively joined the United Nations Decade of Education for Sustainable Development. MoERYS serves as a focal point for the implementation of the Strategy. A working group has been set up in order to elaborate National Implementation Reports (one of which was submitted at the end of 2010). However, Romania has not yet adopted a national strategy on sustainable development or national implementation plan on ESD, as recommended by the ECE Strategy.

Apart from some national projects and school competitions, there is no budget specifically earmarked for ESD. However, all projects financed through structural funds – i.e. the SOP on human resources development (SOP HRD) – have sustainable development as a horizontal objective. Accordingly, each project must denote at least minimum measures for the promotion and awareness of sustainable development. Also, each training module within a project must include a section devoted to environmental protection and sustainable development.

Within the framework of the United Nations Decade of Education for Sustainable Development, MoERYS also promotes the Earth Charter (which has also been translated into Romanian and is available along with other documents on ESD, e.g. on quality criteria and tools for ESD schools, on the Ministry's website[14]) as an educational instrument or material to be used in pre-tertiary education.

MoEF also actively promotes ESD by signing agreements and setting up partnerships with civil society in order to introduce the concept of sustainable development into educational curricula. According to Law No. 265 (2006) on Environmental Protection, both the central authority and the local agencies for environmental protection are in charge of developing programmes and training materials on environmental protection.

NSDS-2 sets education and training as a cross-cutting policy and a strategic prerequisite for future national development and for effective implementation of the principles of sustainable development. An interdepartmental committee for sustainable development, involving ministries and other central institutions in order to implement the Strategy, was to be set up according to GD No. 1460 (2008) but this has not yet been done. However, according to GD No. 7411 (2011), an existing interministerial committee for coordinating the integration of environmental protection into sectoral policies and strategies at the national level, constituted through GD No. 1097 (2001), has been reorganized.

Taking into consideration the key themes of sustainable development, the Government has developed formal and non-formal education policies which incorporate them into education and learning. These policies are carried out by MoERYS through:

- National curriculum for all pre-tertiary education levels including vocational education and training. The key sustainable development themes are included in disciplines/modules in core or optional curricula. There is no specific discipline on sustainable development itself;
- Development and implementation of national programmes, such as education for environment, since January 2004, for pre-primary and primary education;
- Organization of educational activities, such as seminars and conferences that are related to sustainable development issues;
- Development and implementation of programmes with international assistance.

Geography provides an example of the inclusion of sustainable development in the formal curriculum;

[14] Available from www.edu.ro/index.php/articles/c838/ (in Romanian, accessed 29 December 2012).

secondary education (high school) now includes a variety of relevant issues, for example, Class IX – Physical Geography (Earth, the planet, people) includes elements of climate, climate change, clean energy, environmental features, resources, etc. In addition to the common core school curriculum, there are optional, nationally or locally developed subjects on sustainable development, usually in the Man and Society curriculum, for example: the contemporary world, basic issues; regional and sustainable development; climate and pollution.

Public and private universities have also made significant efforts to include climate change or topics related to sustainable development in their curricula. For example, the Ecological University of Bucharest offers a Master's degree on climate change, entitled Managing Climate Impact, by means of MO No. 4666 (2009) of the then Ministry of Education, Research and Innovation. The Bucharest Academy of Economic Studies Faculty of Agrifood and Environmental Economics has included in its curricula ecological subjects such as hazardous waste management, the impact of climate change on natural capital, and assessment of economic and environmental performance at the microeconomic level, and runs scientific sessions for students in environmental economics, environmental management and environmental policies. Master's or doctoral studies on ecology are available.

The Law and Economic Studies faculties of Titu Maiorescu University in Bucharest have study plans which include environmental law and The Environment and Environmental Protection. The National Research and Development Institute of Cryogenics and Isotopic Technologies Rm. Valcea and the Institute for Atomic Physics of Bucharest are promoting doctoral studies on education in environmental safety (with six theses produced in 2009). Several universities have also signed agreements under SOP HRD for programmes related to sustainable development; The University of Petrol-Gas of Ploiesti offers Researchers for the Sustainable Development of the Romanian Society (2009), while the Transylvania University of Brasov proposes Doctoral Studies for Sustainable Development (2009).

The European Institute of Romania (EIR) currently functions as a public institution under the coordination of the Department of European Affairs within the Romanian Government. It provides training and expertise in the field of European affairs to the public administration, and also to the business community, social partners and civil society organizations.

EIR has organized several training courses and sessions, including on integrated systems of waste management, and on sustainable development and European policy. It has also conducted training needs assessment on environmental issues for both central and local administrations, which formed the baseis for the programmes organized by EIR on environmental issues between 2009 and 2011. EIR has more than doubled its training activities since 2009 in terms of both training sessions (from 14 to 31) and days of training (from 45 to 115). It promotes these activities through several channels – the EIR website, the EIR newsletter, specialized websites, conferences and other events.

The Carpathian Sustainable Education Network, with guidance from the UNEP Vienna Interim Secretariat of the Carpathian Convention, in partnership with the Environment and School Initiatives and with the support of the international corporate social responsibility initiative OMV Move & Help, initiated the Move4Nature Teacher Training programme on ESD in 2008 in Bucharest, benefiting from the support of MoERYS and local NGOs. Non-formal education related to sustainable development also includes:

- Contests organized at the county, regional and national levels (e.g. National Contest for Environmental Projects, and The Friends of the Nature and The Friends of the Danube Delta national contests);
- Specific activities dedicated to events such as The European Day for Citizenship through Education, Earth Day, International Day for Environment, Water Day, Tree Day and World Day for Animals, developed by each school;
- ESD summer camps organized by the Association for Sustainable-Alternative Initiatives (this also includes summer camps for training of trainers).

NGOs are important providers of informal and non-formal education, and are able to implement actions to inform citizens, integrate scientific knowledge and make information easily understood. Their role as mediators between Government and the public is widely recognized, promoted and supported. Partnerships between NGOs, Government and the private sector add considerable value to ESD. Companies, through their corporate social responsibility programmes, also contribute to ESD, usually through partnerships with the authorities and/or NGOs. For example, between 2007 and 2010, the Royal Bank of Scotland – Romania, together with Association internationale des étudiants en Sciences

Économiques et Commerciales – Romania, implemented an ESD programme to educate young Romanian students through several theoretical and practical activities. Holderbank and Holcim Romania SA, together with the CONCEPT Foundation and MoERYS, announced in 2007–2008 that the educational project entitled Create Your Environment was being included in the national curriculum of optional study subjects for primary and secondary school (several manuals were drafted, for both students and teachers, from the 3rd to 7th grades).

In recent years, MoEF has embarked upon a school programme entitled The Green Corner in My School, which is the largest national school programme devoted to teaching children how to separate trash (plastic, paper, glass and aluminium cans). The programme is run in partnership with MoERYS and involves over three million children of different ages from 14,000 schools. It is expected to reach six million parents who will learn about the need to separate and recycle trash. With this kind of project, MoEF has an ambitious plan of educating the population at large and, by 2015, reaching the target of 50 per cent of the population being environmentally educated.

Another important school campaign is entitled Baterel and the World without E. Baterel represents a cartoon character showcasing a world full of electronic waste and its impact on human health and the environment. Like The Green Corner in My School, this project is intended to increase the number of eco-educated children as well as engaging parents in an environmental protection programme.

The Green Capital of Romania is a national educational campaign and contest among municipalities targeted at making citizens' lives more "green" and pleasant. The contest considers what each city has done in terms of GHG reduction or contribution, use of public transportation, creation of urban green areas, waste management, water consumption, local environmental strategy and actions slated for the following year. In 2010, the city of Brasov won the contest and will represent Romania at the international level in the Green Capital of Europe contest. This campaign is also designed to involve at least 100 cities across Romania, thereby spreading the environment sustainability message to the Romanian public at large.

3.6 Conclusions and recommendations

The Law on Environmental Protection stipulates that all operators must have self-monitoring and monitor their emissions into air. Currently, the information and data reported in corporate environmental reports are generally incomplete and largely irrelevant for users. Furthermore, the level of environmental reporting by Romanian listed companies is very low. In fact, some enterprises do not submit information to LEPAs, although the raw data is available.

Recommendation 3.1:
The Ministry of Environment and Forests should:

(a) Strengthen compliance of enterprises, in particular of listed companies, with their environmental self-monitoring and reporting obligations; and

(b) Link self-monitoring data submitted to it by enterprises with data collected by national monitoring programmes.

Together, MoEF and MoERYS have been instrumental in promoting ESD through a number of partnerships by supporting environmental education projects which enhance public awareness, knowledge and skills and help people make informed decisions which affect environmental quality.

In 2007, Romania prepared a Strategy on ESD, which followed the recommendations of the ECE Strategy and detailed the objectives and specific actions to be undertaken in this area. However, it has not adopted a national strategy and implementation plan for ESD.

Recommendation 3.2:
The Government should:

(a) Adopt a national strategy on education for sustainable development and its national implementation plan, as recommended by the ECE Strategy for Education for Sustainable Development; and

(b) Ensure that adequate funding is made available for its implementation.

Since the first EPR, Romania has made significant improvements – in putting in place the legal frameworks and setting up the institution, national programmes and action plans, criteria and methods – required for environmental monitoring. Over the past 10 years, through a number of foreign technical assistance arrangements as well as loans, Romania has been able to acquire advanced monitoring equipment and modernize its laboratories, stations and posts.

Romania has also made progress in making environmental information available to the public through a number of channels including websites, press briefings and press releases. Further, progress has been made in respect of public participation in

environmental decision-making; the public has the opportunity to engage in public consultations, hearings and debates on environmental matters ranging from environmental review procedure to environmental development plans, programmes and implementation. Moreover, the country has moved ahead in putting in place a number of laws on access to justice on environmental matters. Citizens have an opportunity to protect their rights and their environment through the courts.

There is a lot of goodwill on the part of MoEF as well as the NGO community to work on a number of environmental issues. However, the level of partnership between the two is not proactive. Invitations to attend each other's meetings are not sufficient to deal with the broad variety of environmental issues. The goodwill has to be translated into a more substantive working relationship to tackle a number of environmental challenges.

<u>Recommendation 3.3:</u>
The Ministry of Environment and Forests should:

(a) Create more opportunities to meet and discuss with NGOs to explore ways and means to jointly implement environmental projects; and

(b) Enhance information provided to the environmental NGO community about programmes and projects financed from the Environmental Fund and how such funds can be accessed.

Chapter 4

IMPLEMENTATION OF INTERNATIONAL AGREEMENTS AND COMMITMENTS

4.1 Introduction

Since the first EPR, Romania has pursued an active role in international cooperation on environmental protection and sustainable development. The most significant results have been achieved in cooperation on transboundary waters and biodiversity conservation, particularly with regard to the Danube River basin. Romania is a party to 67 MEAs, 17 of which have been ratified since the first EPR (annex II). The country has also strengthened its participation in the global processes on environment and sustainable development, e.g. through the implementation of Agenda 21 following the WSSD and achievements in respect of the MDGs. The progress made has enabled the country to set more ambitious targets for 2015.

There is no single document that outlines the general framework for international cooperation on environmental protection issues. However, elements of such a framework are reflected in several policy documents, in particular NSDS-2 and the Government Programme for the period 2009–2012.

4.2 Policies and strategies

On 12 November 2008, the Government, through GD No. 1460 (2008), adopted NSDS-2, which was elaborated with the support of UNDP. It identifies the main objectives for 2013, 2020 and 2030 and the consequent actions to be implemented in accordance with EU strategic guidelines (chapter 1). NSDS-2 underlines the key priorities for the country, including compliance with the *acquis communautaire* in the field of environment, protection and management of transboundary water resources, and bilateral and regional cooperation with neighbouring countries.

The Government Programme for the period 2009–2012 devotes a chapter to environmental protection and fixes as key Government objectives the development of international cooperation through participation in transboundary projects and programmes as well as an enhanced presence of Romanian representatives in international and European institutions, bodies and organizations.

4.3 Institutional and legal framework for international cooperation on environment

MoEF is responsible for negotiating and implementing MEAs and undertakes actions and initiatives for Romania's participation in multilateral and bilateral cooperation at the subregional, regional and global levels. If other ministries or authorities are concerned by specific MEAs, a joint commission can be set up to deal with operative issues and avoid conflicts of competences.

The legal and institutional framework regulating MoEF international responsibilities is set out in a decree issued in 2010 regarding the Ministry's functioning and organizational structure. In particular, the MoEF International Relations and Protocol Directorate is responsible for participating with the authority of the Government in negotiations on new MEAs and for initiating their ratification. It also provides support for the negotiation and implementation of bilateral and multilateral memoranda of understanding (MoUs), letters of intent and other forms of bilateral cooperation in environmental protection and forest and water management. The Directorate is responsible for setting up an appropriate framework for the development of transboundary, transnational and interregional cooperation according to specific obligations under applicable MEAs.

With regard to European affairs, there is a MoEF European Affairs Division responsible for EU environmental policy and legislation. This body coordinates the exchange of information on European Community regulations to be negotiated. It also coordinates the instructions preparation and mandates to be sent to Romania's Permanent Representation to the EU.

4.4 Global and regional processes on sustainable development and the environment

Progress towards the Millennium Development Goals

Romania has reported on its MDG progress in 2003, 2007 and 2010. The 2007 MDG report highlighted

progress achieved, with special emphasis on the impact of the EU accession process on the attainment of most of the MDG targets. According to the 2010 MDG report, the country is on track to achieve or has already achieved its specific targets with reference to MDG 7, "Ensure environmental sustainability" (table 4.1). Active implementation of EU policy and legislation as well as rational use of various European funds can boost efforts to maintain progress with regard to MDG targets.

World Summit on Sustainable Development

On the occasion of the WSSD, held in Johannesburg in 2002, Romania issued its Country Profile which provided a comprehensive overview of the status of national implementation of Agenda 21. The National Centre for Sustainable Development (NCSD) has handled the implementation of Local Agenda 21 (LA21) programmes and the implementation of NSDS-2 through specific projects at the national and local levels. The LA21 pilot phase started in nine locations which had completed their respective local plans for sustainable development. One of the main goals achieved at this stage was the establishment of a methodology whereby local agendas were drafted in all participating cities.

After the successful introduction of the LA21 pilot phase, between 2003 and 2010 the project expanded to further locations, where the local authorities agreed to draft their local action plans for sustainable development. In 2005, NCSD added a new dimension to the project, through its partnership with the Canadian International Development Agency, for the purpose of introducing an integrated environmental assessment practice in Romania.

The goal of the LA21 fourth phase was to further boost institutional capacity and raise the awareness of the authorities and the public regarding the implementation of the principles of sustainable development in strategies and action plans of cities and counties. One important new element in this last phase of the LA21 project was the involvement of smaller localities in rural areas. During 2009–2010, NCSD offered consulting services to local administrations engaged in LA21 implementation to facilitate implementation of priority projects eligible for public–private partnerships.

Table 4.1: Implementation by Romania of MDG 7: "Ensure environmental sustainability"

Target 16 *– Ensure growth of the afforestation rate from 27 per cent in 2003 to 35 per cent by 2040.* ***Status – On track***
Increasing the surface area covered by forests is seen as a mitigating strategy for potentially reducing the incidence of extreme weather conditions. Progress made in Romania so far shows that from a total forest surface area of 26.11 per cent in 2000, the figure had increased to 26.57 per cent by 2009. In relative terms, this might not appear as a huge improvement; however, in absolute terms, it equals an increase in total forested area of around 110,000 hectares, from approximately 6.22 million hectares in 2000 to around 6.33 million hectares in 2009.
Target 17 *– Increase the proportion of protected land area from 2.56 per cent in 1990 to 10 per cent by 2015.* ***Status – Achieved***
Progress in legislation and concrete efforts to protect the wide variety of natural sites has led to an increase in protected land area to around 9.32 million hectares, i.e. some 39 per cent of the country's total surface. Most of this improvement comes from the significant increase in the surface area of natural parks as well as from a more than doubling of the surface area of nature reserves. In addition to the Danube delta (which alone accounts for 87.2 per cent of the total), biosphere reserves have been established at Rodna and the Retezat in the Carpathian chain. Protected areas also include 108 avian protection areas covering an estimated 2.92 million hectares, with 273 community nature sites covering 3.28 million hectares in all.
Target 18 *– Reduce greenhouse gas emissions of reference year (1989) by 8 per cent by 2008 and 2012.* ***Status – Achieved***
Greenhouse gas emissions declined drastically in Romania as a result of the massive industrial restructuring during the transition from a planned to a market economy. By 2000, greenhouse gas emissions were already more than 35 per cent below their 1990 levels, and by 2005 they stood at 55 per cent of their 1990 levels. Therefore, Romania, the first country to have ratified the Kyoto Protocol, in 2001, remains significantly below its established limits.
Target 19 *– Double by 2015 the proportion of rural population with access to drinking water.* ***Status – On track***
Between 2003 and 2008, the number of new dwellings equipped with drinking water facilities increased nationwide by almost 300 per cent. Whereas, in 2008, in urban areas the share of new dwellings equipped with drinking water installations was 99 per cent, in rural areas, only 66.7 per cent of newly built dwellings had access to drinking water and less than half (48 per cent) had access to canal and sewerage installations. As a whole, the proportion of households occupying dwellings with access to drinking water rose between 2003 and 2009 from 58.6 per cent to 65.8 per cent, while the proportion of households living in dwellings with better sanitary facilities (i.e. water toilet) rose from 56.5 per cent in 2003 to 60.7 per cent in 2008. However, much remains to be done.

Source: United Nations and Government of Romania, 2010, *Millennium Development Goals - Romania, 2010*.

Photo 4.1: Ruff (Philomachus pugnax)

Rio+20 Conference

In 2011, for the Rio+20 Conference to be held in June 2012, Romania prepared a policy document on "The Romanian way to the green economy". The report was jointly supported by three ministers responsible for the environment, economy and social affairs respectively, and its aim was to provide a strategic framework for putting sustainable development and the green economy into practice at the national level.

"Environment for Europe" process

At the Seventh Ministerial Conference, which took place in Astana (Kazakhstan) in September 2011, Romania presented two actions for the Astana Water Action, the collection of actions towards sustainable management of water and water-related ecosystems. The first action refers to the Integrated Nutrient Pollution Control Project, cofinanced by the World Bank, which aims to reduce over the long term the discharge of nutrients into watercourses leading to the Danube River and the Black Sea, through integrated land and water management, and to strengthen the Government's institutional and regulatory capacity to meet EU requirements on water protection. The second action is to fully implement the provisions of the bilateral transboundary waters agreement for the protection and sustainable use of the Prut and Danube rivers, signed in 2010 with the Republic of Moldova.

The agreement is based on the provisions of the Convention on the Protection and Use of Transboundary Watercourses and International Lakes (ECE Water Convention), the Convention on Cooperation for the Protection and Sustainable Use of the Danube River (Danube River Protection Convention), as well as the EU WFD. The Joint Commission on Transboundary Waters has been established but specific subcommissions have yet to be set up with terms of reference and technical regulations on flood protection, exchange of hydrometeorological data, water protection and procedure in case of accidental pollution of waters.

4.5 Implementation of specific multilateral environmental agreements

Biodiversity

Romania lies at the geographic heart of Europe and includes five of the 10 biogeographic regions officially recognized by the EU. Romania is rich in flora and fauna as well as freshwater and coastal resources, including the Danube Delta Biosphere Reserve, the largest wetland in Europe. The natural and semi-natural ecosystems cover approximately 47 per cent of the country's territory.

Romania has taken major steps to preserve this huge natural capital, by adopting several laws and implementing relevant EU legislation in the field through which it is also implementing the provisions of major multilateral agreements on nature conservation.

Since 2007, it has accelerated implementation of the MEAs, in particular the Convention on Biological Diversity (CBD), ratified by Law No. 58 (1994), through the transposition of EU directives on biodiversity and nature protection. In recent years, Romania has developed national strategies, plans and programmes for the conservation of biological diversity and the woodlands, including those related to the Natura 2000 ecological network (which covers 17.8 per cent of its territory), and has adopted regulations for forest planning and the constitution of national parks.

In particular, through the CBD National Strategy 2006–2009, now under interministerial revision, the NDP for the period 2007–2013 and the launch of the clearing house mechanism (CHM) on biodiversity, Romania has taken significant steps towards the protection and preservation of its huge natural patrimony. Nevertheless, with regard to the Natura 2000 network, there is still a need to improve the development and implementation of site management plans.

Finally, in order to achieve a comprehensive policy for the preservation and sustainable development of the Carpathians, 60 per cent of which belongs to Romania, the country ratified the Framework Convention on the Protection and Sustainable Development of the Carpathians (Carpathian Convention, Kiev, 2003) via Law No. 368 (2006), and has developed projects on bioenergy and on integrated management of biological and landscape diversity for sustainable regional development and ecological connectivity in the Carpathians.

Climate change

Romania ratified the UNFCCC in 1994 and the Kyoto Protocol to the Convention in 2001. The establishment of the national system for estimating the level of GHG emissions has improved cooperation among the different institutions involved in collection of the necessary data and its processing, recording, reporting and storing in the national inventory of GHG emissions. In this context, Romania seems to be able to comply with the commitment of reducing GHG emissions during the first period of the engagement, 2008–2012 (chapter 10).

Land degradation

Romania has been a party to the United Nations Convention to Combat Desertification in Countries Experiencing Serious Drought and/or Desertification, Particularly in Africa (UNCCD) since 1998, and has submitted five national reports – in 2000, 2001, 2002, 2006 and 2010. Romania is a party categorized as an "affected country" under the UNCCD definition. The Institute for Soil Science and Agrochemistry in Bucharest prepared a National Strategy and Programme to Combat Desertification, Land Degradation and Drought in 2001. Following the severe drought of 2007, the document was updated in 2008.

The National Committee to Combat Drought, Land Degradation and Desertification was established by GD No. 474 (2004) as a consultative body under the authority of the former Ministry of Agriculture, Forests and Rural Development, currently MoARD. It is responsible for coordinating activities geared to UNCCD implementation in Romania. The National Committee coordinates the implementation of the National Strategic Plan to Combat Desertification and Land Degradation for the period 2007–2013, developed by MoARD in 2006.

In view of the increasing occurrence, frequency and impact of droughts, in 2006, 12 countries of South-Eastern Europe, including Romania, in cooperation with the UNCCD Secretariat, set up a Drought Management Centre for South-Eastern Europe, based in Slovenia. Its main task is to ensure drought preparedness, monitoring and management in the region. Despite Romania's intention to give priority to combating desertification, activities foreseen under the NSP have only been partially implemented, for a number of reasons. As UNCCD does not rely on a specific fund, NSP implementation depends on the availability of funding from national programmes on rural development, water management, afforestation and agricultural research. Yet the 2008–2009 economic recession has constrained UNCCD implementation and funding, despite the fact that the political and economic relevance of UNCCD in Romania increased following severe droughts and heatwaves like the one that occurred in 2007.

Air protection and ozone layer protection

In line with the first EPR recommendations, Romania acceded to three Protocols to CLRTAP, namely, the Protocol on Heavy Metals, the Protocol on Persistent Organic Pollutants, and the Protocol to Abate Acidification, Eutrophication and Ground-level Ozone (the Gothenburg Protocol). The transposition

of EU legislation in the field has facilitated implementation of the Convention and its Protocols. In line with its obligations, Romania reports every two years on strategies and policies for the abatement of air pollution and submits annual national inventories to the Convention Secretariat.

Since 2005, NEPA has been in charge of general implementation activities related to the three Protocols and, in particular, of preparing and transmitting the relevant reports to MoEF, which is responsible for checking data and forwarding final submissions to the Secretariat and EEA. Romania has complied with the 2010 national emissions ceiling set by the Gothenburg Protocol. A significant decrease in sulphur oxides and polychlorinated biphenyl (PCB) emissions occurred between 2008 and 2009, mainly due to reductions in energy sector emissions, which came about as a consequence of the economic recession.

Although Romania has ratified the CLRTAP Protocol on Long-Term Financing of the Cooperative Programme for Monitoring and Evaluation of the Long-range Transmission of Air Pollutants in Europe (EMEP), there are concrete difficulties with regard to the implementation of this instrument for international cost-sharing of a monitoring programme in Europe. Law No. 652 (2002), which transposed the EMEP Protocol into domestic legislation, failed to identify a specific budget source for ensuring the national mandatory contribution to the Protocol, which has gone unpaid since 2006 as a result. A GD is now required to allow the fulfilment of the country's obligations under the Protocol.

Since the first EPR, the Government has strongly committed itself to implementing the necessary measures to protect the ozone layer. Romania, which was already a party to the Vienna Convention for the Protection of the Ozone Layer and its Montreal Protocol on Substances that Deplete the Ozone Layer, also ratified the Montreal Amendment in 2001 and acceded to the Beijing Amendment to the Montreal Protocol by acceptance in 2005. Until 1 January 2008, Romania was classified as a developing country party in accordance with article 5 of the Montreal Protocol. On that date, Romania was reclassified as a developed country.

In 2010, Romania fulfilled all the Montreal Protocol requirements related to the phase-out of ozone-depleting substances (ODS), and is currently applying EU regulation 1005/2009 on Substances that Deplete the Ozone Layer. In 2008 and 2009, Romania was a member of the Executive Committee of the Multilateral Fund for the Implementation of the Montreal Protocol.

Waste and chemicals management

Romania ratified the Ban Amendment as well as annexes VIII and IX of the Convention on the Control of Transboundary Movements of Hazardous Wastes and their Disposal (the Basel Convention) through Law No. 265 (2002). Since 2007, Romania has applied Regulation (EC) No. 1013/2006 of the European Parliament and of the Council of 14 June 2006 to shipments of waste. The relevant national legislation identifies certain measures for enforcement of the regulation and establishes the responsible public authorities for the supervision and control of the export, import and transit of waste. The regulation, which transposes the provisions of the Basel Convention, represents the main legislative tool, considering that the majority of the shipments of waste originate within the EU.

The import of hazardous and other waste into Romanian territory is allowed only for recycling and recovery operations and only with the prior approval of the competent Romanian authorities. The import of waste for disposal on Romanian territory is forbidden. National policy documents governing waste management comprise the NWMS and the NWMP, which are basic tools for EU waste policy implementation in Romania. Both documents are currently under revision to establish updated targets and actions for reducing the amount of waste disposed of by landfilling through effective selective collection, and for recycling materials and energy from waste and restoring them to economic systems.

Reports to the Basel Convention show that in 2009 no figures were given for hazardous waste generated in the country. The amount of hazardous waste exported increased from 1,203 tons in 2006 to 7,412 tons in 2009 (table 4.2). This is a six-fold increase over a period of three years and the source of this hazardous waste is not clear on the basis of the national report.

In Romania, waste management is hampered by illegal waste shipments (five cases in 2009) and low institutional capacity compared with other member States, as well as a lack of information concerning policies developed or implemented. To this end, a LIFE+ project[15] is currently under implementation to establish an electronic system for exchanging data on shipments of waste so as to reduce administrative

[15] The EU Financing Instrument for the Environment (L'Instrument Financier pour l'Environnement – LIFE).

work and speed up information exchange between operators and State authorities.

In 2004, Romania acceded to the Convention on Persistent Organic Pollutants (POPs) (the Stockholm Convention) via Law No. 261 (2004). Since then, it has taken concrete steps to implement the obligations resulting from ratification. The first such measure has been the development of the National Implementation Plan of the Stockholm Convention according to article 7 provisions. The Plan's 11 key objectives and relative actions are listed as parts of a common approach to regulate POPs production, use and elimination. Romania has encountered concrete difficulties in operationalizing the Plan due to a lack of funding and a shortage of the requisite expertise, as well as difficulties in getting stakeholders to commit to the process. It has fulfilled its reporting obligations and submitted national reports in line with article 15 of the Convention.

The National Implementation Plan of the Stockholm Convention identified PCB issues as the second priority for Romania, requiring immediate attention and action. The United Nations Industrial Development Organization (UNIDO) has supported the organization of specific activities such as awareness-building campaigns at national level for POPs-related issues and the implementation of a project concerning the disposal of PCB waste in Romania. In the same spirit, MoEF has elaborated national guidelines for the environmentally sound management of PCBs.

At the regional level, in 2009, Romania launched the Regional Best Available Techniques (BAT) and Best Environmental Practices (BEP) Forum for Central and Eastern Europe, Caucasus and Central Asia to Promote Strategies to Reduce or Eliminate Unintentionally Produced POPs from Industry. Until December 2011, Romania held the chair. The Forum aims at providing technical assistance to developing countries and countries with economies in transition in order to enable full implementation of the BAT/BEP-related provisions of the Stockholm Convention. Furthermore, a Global Environment Facility (GEF)-funded regional project on capacity-building to deal with obsolete pesticides in the countries of Eastern Europe, Caucasus and Central Asia is currently being implemented in collaboration with the FAO, with the primary objective of reducing pesticide releases into the environment and eliminating the threat they pose to human health and the environment in the region.

When Romania acceded to the EU in 2007, the provisions of Regulation (EC) No. 850/2004 on persistent organic pollutants were applied at national level. In order to develop an adequate infrastructure for the implementation of this regulation, GD No. 561 (2008) on the Establishment of Measures for the Implementation of Regulation (EC) No. 850/2004 on persistent organic pollutants was adopted.

Romania ratified the Convention on the Prior Informed Consent Procedure for Certain Hazardous Chemicals and Pesticides in International Trade (the Rotterdam Convention) by Law No. 91 (2003). The country became vice-chair at the fourth meeting of the Conference of the Parties (CoP) to the Rotterdam Convention. Following the approval of Regulation (EC) No. 689/2008 concerning the export and import of dangerous chemicals, new provisions came into effect for imports and exports of restricted chemicals. In 2008, Romania's Designated National Authority issued two export authorizations and two import authorizations under the prior informed consent (PIC) procedure. In addition, the PIC inventory of importers and exporters was updated in accordance with the provisions of Regulation (EC) No. 689/2008.

Table 4.2: Generation and transboundary movements of hazardous and other wastes, 2006 and 2009

ton

		2006	2009
Generation	Amount of hazardous wastes generated under Art. 1(1)a (Annex I: Y1-Y45) of Basel Convention	1,052,815	..
	Amount of hazardous wastes generated under Art. 1(1)b of Basel Convention	..	..
	Total amount of hazardous wastes generated	1,052,815	..
	Amount of other wastes generated (Annex II: Y46-Y47)	5,362,443	5,714,478
Export	Amount of hazardous wastes exported	1,203	7,412
	Amount of other wastes exported	0	..
Import	Amount of hazardous wastes imported	0	..
	Amount of other wastes imported	0	..

Source: Basel Convention, *Country Fact Sheet: Romania*.

All three conventions (Basel, Rotterdam and Stockholm) are under MoEF responsibility and managed by two departments. Following a decision to promote synergies in respect of the three conventions, Romania adopted MO No. 1659 (2010) on the Establishment of a Joint Working Group on Synergies among the Basel, Rotterdam and Stockholm Conventions in order to Ensure their Proper Implementation. MoEF has designated NEPA as the implementing authority for all three conventions in order to ensure coherence and coordination in the implementation process.

Risk management

As recommended in the first EPR, Romania acceded to the Convention on Transboundary Effects of Industrial Accidents (the Industrial Accidents Convention) via Law No. 92 (2003) and participates actively in its implementation. MoEF and the General Inspectorate for Emergency Situations of Romania have been designated as the competent authorities responsible for implementing the Convention and coordinating the activities of relevant authorities at the local level. The two authorities are also involved in the enforcement of the Seveso II Directive on the control of major-accident hazards involving dangerous substances, as established by GD No. 04 (2007).

At the local level, prefects are responsible for coordinating interventions in the event of major accidents with transboundary effects. On the basis of the notification of all operators under the provisions of the Seveso II Directive, Romania has identified five industrial installations which handle or store hazardous chemical substances with the potential to cause transboundary effects.

At the regional level, Romania also relies on the Accident Emergency Warning System set up under the Danube River Protection Convention, which is activated whenever there is a risk of transboundary water pollution or threshold danger levels of hazardous substances are exceeded. This early warning system has a crucial value for Romania, since every riparian State in the region is a party, including Ukraine, which has not ratified the Industrial Accidents Convention. Currently, there is a strong push to harmonize the early warning and response systems of the two conventions.

To improve implementation of the Industrial Accidents Convention, Romania has developed two projects with the participation of its neighbouring countries. The first concerned the joint management of transboundary emergencies arising from spills of hazardous substances into the Danube River and was launched in 2009. The objective of the project was to assist the crisis management authorities in Bulgaria, Romania and Serbia in further optimizing the emergency procedures in a transboundary context.

The second project focused on the protection of the Danube delta and the improvement of cooperation on industrial accidents between Romania, the Republic of Moldova and Ukraine. The project places emphasis on the three countries' oil terminals, which generate an increased hazard potential for the ecosystem and natural heritage of the Danube delta. Romania has signed but not ratified the 2003 Protocol on Civil Liability and Compensation for Damage Caused by the Transboundary Effects of Industrial Accidents on Transboundary Waters.

Transboundary environmental impact assessment

Romania ratified the Convention on Environmental Impact Assessment in a Transboundary Context (the Espoo Convention) in 2001. The national legal framework consists of Law No. 22 (2001) ratifying the Convention, GEO No. 195 (2005) on Environmental Protection, as approved and amended by Law No. 265 (2006), later amended by GEO No. 164 (2008). In order to fully transpose the EU Directive, the Romanian environmental authorities issued GD No. 445 (2009) on the Impact Assessment of Certain Public and Private Projects on the Environment, establishing the framework procedure for EIA and approving the list of private or public projects to which the procedure must be applied. The competent authority in charge of the transboundary EIA procedure set out in the Convention is MoEF. In the event an application is submitted to a LEPA for a project likely to have a significant transboundary environmental impact, the LEPA is obliged to inform MoEF, which notifies the potentially affected parties according to the procedure established by the Espoo Convention.

Since the first EPR, Romania has been involved in many transboundary EIA procedures, both as a party of origin and an affected party. Successful cases of cooperation in applying the Convention have been recorded with Hungary and Bulgaria, as facilitated by the same national legislation transposing the EU requirements. In particular, Romania has notified Hungary and Bulgaria that the provisions of the Espoo Convention would be applied to the proposed Nabucco gas pipeline project.

Romania served as Chair of the Bureau of the Espoo Convention between 2004 and 2008 and as Vice-

Chair between 2008 and 2011. In 2011, Romania was designated as Vice-Chair of the Implementation Committee until the next Meeting of the Parties (MoP) in 2014. The country ratified the Protocol on Strategic Environmental Assessment to the Espoo Convention in 2010. It has also accepted the first amendment of the Espoo Convention by Law No. 293 (2006) but has not yet ratified the second amendment. In 2008, at the Fourth MoP of the Espoo Convention held in Bucharest, a multilateral agreement for the implementation of the Espoo Convention between the States of South-Eastern Europe was signed. This new international instrument is not yet in force, because at the time of the review only Bulgaria and Montenegro had ratified it. Once it enters into force, the multilateral agreement will offer a practical framework for enhanced international cooperation to prevent, minimize and monitor environmental impact. The agreement includes detailed provisions for consultations between countries on both sides of a border, setting out appropriate means for providing information to authorities and the public as well as opportunities for comment for both the public authorities and the public affected by the transboundary impact.

Transboundary waters

Considering that Romania is almost entirely (97.4 per cent) situated within the Danube River basin and that the Romanian Danube delta (the country's most important PA) is also the end carrier of all wastewater discharges by the Danube upstream countries to the Black Sea, the Danube River Protection Convention, the ECE Water Convention and its Protocol on Water and Health are among the most important MEAs for the country. These agreements also provide a framework for multilateral and bilateral cooperation with specific priorities and tasks.

The most important activities developed in this connection are the project for the integrated management of the Tisza River basin (the largest sub-basin in the Danube River basin) and the Danube River Basin Management Plan, adopted at the Ministerial Meeting of the International Commission for the Protection of the Danube River (ICPDR) on 16 February 2010. At this meeting, held in Vienna, ministers responsible for water management from the Danube River basin countries and the European Commission endorsed the Danube Declaration, which expresses the commitment to further reinforce transboundary cooperation on sustainable water resource management within the Danube River basin.

The Danube River Basin Management Plan outlines concrete measures to be implemented by the year 2015 to improve the environmental status of the Danube and its tributaries. These include the reduction of organic and nutrient pollution, the offsetting of environmentally detrimental effects of man-made structural changes to the river, improvements to urban wastewater systems, the introduction of phosphate-free detergents on all markets, and effective risk management of accidental pollution. Furthermore, measures to restore river continuity for fish migration and reconnect wetlands will be tackled. The Plan also addresses key requirements of the EU WFD. Flood action plans for the 17 sub-basins in the Danube catchment area have also been adopted. These contain hundreds of concrete measures which the Danube countries will have to take to protect their populations from floods and mitigate flood damage and losses, such as those caused by the massive flooding in the years 2002, 2005 and 2006. Finally, concerning the ECE Protocol on Water and Health, Romania hosted the MoP in 2010 and took the leadership of the Task Force on Public Participation established under the Work Programme of the Protocol.

Public participation

Since the first EPR, additional secondary legislation has been developed to ensure proper implementation of the provisions of the Aarhus Convention. GEO No. 195 (2005) on Environmental Protection, as approved by Law No. 265 (2006), introduces relevant principles such as access to environmental information, public participation in environmental decision-making processes and access to justice. Based on the provisions of this Law, it is the duty of the local and central public authorities to ensure that the public is informed and participates in the decision-making process, in compliance with the Aarhus Convention.

It should also be underlined that the transposition of EU legislation, such as Directive 2003/4/EC on public access to environmental information[16] and Directive 2003/35/EC[17] providing for public participation in respect of the drawing-up of certain PPs relating to the environment, also facilitates the

[16] Directive 2003/4/EC of the European Parliament and of the Council of 28 January 2003 on public access to environmental information

[17] Directive 2003/35/EC of the European Parliament and of the Council of 26 May 2003 providing for public participation in respect of the drawing up of certain plans and programmes relating to the environment and amending with regard to public participation and access to justice Council Directives 85/337/EEC and 96/61/EC

implementation of this Convention. Law No. 52 (2003) on Transparency in Decisions of the Public Administration, defines the terms of public participation in the elaboration of regulations. According to the Law, authorities must publish drafts of normative acts on their websites.

In 2010, a memorandum between the Ecological University and the Romanian Environment Association established the Aarhus Centre for Romania. Within this framework, representatives of environmental authorities and civil society are encouraged to collaborate in implementing the Aarhus Convention. MoEF organizes meetings with relevant stakeholders to exchange views on an ad hoc basis.

The provisions of the Aarhus Convention are integrated with environmental protection legislation. However, turnover among the personnel responsible for environmental information as well as a lack of juridical training for staff in environmental bodies are obstacles for the implementation of obligations under the Convention. There is no regular dialogue between the Romanian business community and environmental authorities, as a result of which the former does not yet participate actively in environmental decision-making.

4.6 Bilateral cooperation and international assistance

Bilateral cooperation

Romania has signed bilateral agreements with all neighbouring countries on cooperation with regard to transboundary water resources management. Over time, most of them have been updated according to relevant MEAs (e.g. the ECE Water Convention).

Specifically, Romania has signed agreements with the Republic of Moldova on fish resources protection and fishing regulations on the Prut River and the Stanca-Costesti Lake (signed in Stanca on 1 August 2003) and with Bulgaria on cooperation on water management (signed in Bucharest on 12 November 2004). The country has also updated its bilateral agreement with Ukraine on cooperation in the transboundary waters field (1997), and has held consultations with Serbia since 2006 with a view to updating the bilateral agreement signed with the Socialist Federal Republic of Yugoslavia in 1955 on hydrotechnical problems relating to the hydrotechnical systems of transboundary watercourses.

The main objectives of such cooperation are the protection and sustainable use of waters and responsibility and procedures in case of accidental pollution of transboundary waters; flood protection; assessment of water quantity and quality; mutual assistance; and exchange of data and information. The Agreement between the Government of Romania and the Government of Hungary on collaboration for the protection and sustainable use of transboundary waters (Budapest, 15 September 2003) may be considered as an example of best practice in this field.

International technical assistance

In recent decades, Romania has played an active role in the DABLAS Task Force, which was set up in November 2001 to provide a platform for cooperation for the protection of water and water-related ecosystems in the Danube and Black Sea region. This body comprises a number of representatives from countries in the area, the ICPDR, the Black Sea Commission, international financial institutions, the European Commission, interested EU member States, other bilateral donors and other regional and international organizations with relevant functions. From January 2008 to 2010, the European Commission supported a number of DABLAS priority investments projects through the DABLAS PHARE Facility which operated in Turkey, Croatia and Romania.

The collaboration between Romania and UNDP is also particularly fruitful. Several major projects have been developed in the fields of energy and environment, for instance those entitled A Sustainable Energy Solution for Schools in Poor Rural Areas from Maramures Mountains Natural Park, and Capacity-building for Greenhouse Gas Emissions Reduction through Energy Efficiency, both of which came to an end in 2006. Other projects are ongoing, for instance, Improving Energy Efficiency in Low-Income Households and Communities in Romania, Improving the Financial Sustainability of the Carpathian System of Protected Areas, and Strengthening Capacity to Integrate Environment and Natural Resources Management for Global Environmental Benefits.

Romania adopted the National Strategy on International Development Cooperation Policy and an action plan for the implementation of the Strategy via a GD of 2006. The Strategy sets the geographical priorities (Eastern Europe, Western Balkans and South Caucasus, while the list of recipient States can be expanded to Central Asia, Africa and Latin

America) and the priority areas for targeted assistance, including environment.

Use of European Union financial instruments

Since Romania's participation in the Financial Instrument for the Environment (LIFE) of the EU, a total of 51 projects have been cofinanced by the EU in Romania. Of these, 16 focus on the environment, 34 on nature protection and one on information and communication. These projects represent a total investment of €31.3 million, of which €17.9 million has been provided by the EU.

Specifically, in the years between 1996 and 2006, i.e. during the LIFE I, II and III programmes, the LIFE Environment component (now called LIFE+ Environment Policy and Governance) cofinanced 13 projects in Romania. This represented a total investment of €8.1 million, of which €3.4 million was contributed by the EU. The projects covered several themes, such as clean technologies, water management on a river basin scale, industrial and municipal waste management, air quality, risk assessment and pollution control, urban planning, sensitive area management, and eco-labelling. National and local authorities were the main beneficiaries, as were development agencies, public enterprises and research institutions.

Between 1999 and 2006, the LIFE Nature component (now called Nature and Biodiversity) cofinanced 27 projects in Romania. These projects represented a total investment of €13.3 million, of which €8.4 million came from the EU. LIFE Nature projects in Romania mainly consisted of habitat restoration projects (alpine, subalpine and forest, islands, bogs, Danube and Lower Prut plains and wetland habitats), but also aimed at the conservation of certain species (large carnivores, bats, the meadow viper, dolphins, birds).

Parks, national and regional authorities and research institutions accounted for nearly 80 per cent of the project beneficiaries. Other types of beneficiaries included development agencies, NGOs, universities, training centres and local authorities. Some of these projects were awarded LIFE Best of the Best status, a system introduced by the European Commission for evaluating completed projects funded through the LIFE programme (box 4.1).

According to the LIFE Ex-Post Evaluation, the projects, implemented under the LIFE Environment and the LIFE Nature components in 1996–2006, generally delivered the expected results. However, their long-term sustainability depends on the institutional capacity to carry out action plans developed within them.

Since October 2008, 11 projects have been approved for LIFE+ cofinancing in Romania: three under the LIFE+ Environment Policy and Governance component, seven under the LIFE+ Nature and Biodiversity component and one under the LIFE+ Information and Communication component.

Box 4.1: LIFE Best of the Best in Romania

Project **LIFE05 AT/RO/000169**. Duration 01-11-2005 to 30-09-2009. Total budget €656,928.
The DDBRA is the public institution which coordinated the project. It was set up to manage the reserve through the conservation and protection of the existing natural heritage, encouragement of sustainable use of the natural resources and the provision of support, based on the results of research for management, education, training and services. Partners: Romanian Ornithological Society (Romania) and Royal Society for the Protection of Birds (UK).

Project **LIFE05 AT/RO/000176**. Duration 07-01-2005 to 30-01-2009. Total budget €933,490.
The coordinator is the University of Transylvania. Partners: WWF Danube Carpathian Programme, NFA Romsilva, and the former Ministry of Agriculture, Forests and Rural Development. The overall objective of the project was to prepare the designation of Romanian Natura 2000 sites for forests, subalpine and alpine habitats. The project aimed to identify, map and describe potential SCIs, according to the Habitats Directive.

Project **LIFE05 NV/RO/000106**. Duration 01-09-2005 to 31-10 -2008. Total budget €1,113,477.
The project responds to the European Community's Air Quality Framework Directive by developing a set of indicators and calibrating them according to the correlation between air pollution and public health. Its overall aim is to assist with spatial planning decision-making, traffic management and pollution control in the Bucharest metropolitan area by predicting the health and environmental impacts of air pollution. The project plans to promote a cross-institutional data-sharing system, to develop a set of indicators, and to construct a mathematical model of air pollution based on a geographical information system (GIS) platform.

Source: European Commission, 2009. *Ex-Post Evaluation of Projects and Activities Financed under the LIFE Programme - Country-by-country analysis, Romania*

4.7 Conclusions and recommendations

Over the past decade Romania has continued to play an active role in major international processes and to accede to MEAs at regional and global levels. Particular efforts have been made to establish the necessary legislative framework for ensuring proper implementation of MEA provisions.

Romania's accession to the EU in 2007 provided substantial support by strengthening institutional and legislative capacity and by encouraging the transposition of relevant EU legislation, thereby accelerating implementation of international provisions at the national level. In particular, the considerable volume of pre-accession European assistance available to Romania has represented a very significant financial resource for making progress in this field. Furthermore, the country has also made a major effort to enhance bilateral cooperation with all its neighbouring countries in several environmental fields, with an emphasis on transboundary water resources management and industrial accidents.

Despite the concrete achievements in the field of international environmental cooperation in recent years, Romania does not rely on strategic policy planning to identify national priorities and coordinate activities in the field of international cooperation. There is no single document setting out a general framework for international cooperation on the environment, even though some elements of such a framework may be found in different policy documents.

Recommendation 4.1:
The Government should develop a strategy for international cooperation based on national environmental priorities, clear objectives and a realistic time schedule for their achievement.

Romania is a party to a number of MEAs which entail a great deal of variety in legal obligations for the country. The shortage of staff at national and regional levels responsible for carrying out activities related to MEAs could hinder their full implementation.

Recommendation 4.2:
The Government should provide an appropriate number of qualified staff to ensure the implementation of obligations under multilateral environmental agreements by increasing absorption of relevant EU funds devoted to strengthening capacity-building and to supporting the training of professionals.

Developing and implementing activities related to international cooperation on environmental protection require the active participation of all stakeholders, in particular the business community. MoEF holds occasional meetings with relevant stakeholders to exchange views, but no structural dialogue between the Romanian private sector and environmental authorities is currently foreseen.

The involvement of the private sector could also be considered in the light of Romania's efforts to develop a green economy sector and linked to related national and international measures developed within this framework.

Recommendation 4.3:
The Ministry of Environment and Forests should:

(a) Develop a mechanism to promote dialogue with the private sector on national and international environmental issues; and
(b) Facilitate the active participation of the private sector in international cooperation on the environment and the green economy.

Since Law No. 652 (2002) on the Transposition of the Protocol on Long-term Financing of the Cooperative Programme for Monitoring and Evaluation of the Long-range Transmission of Air Pollutants in Europe (EMEP) to the Convention on Long-range Transboundary Air Pollution in National Legislation did not identify a specific budget source to ensure financial contributions, Romania is not in compliance with the financial obligations under the EMEP Protocol to CLRTAP.

Recommendation 4.4:
The Ministry of Environment and Forests should clearly identify budget sources which will be devoted to complying with the financial obligations under the Protocol on Long-term Financing of the Cooperative Programme for Monitoring and Evaluation of the Long-range Transmission of Air Pollutants in Europe (EMEP) to the Convention on Long-range Transboundary Air Pollution in order to ensure the mandatory national contribution.

PART II: ECONOMIC INSTRUMENTS AND FINANCIAL RESOURCES

Chapter 5

ECONOMIC INSTRUMENTS FOR ENVIRONMENTAL PROTECTION

5.1 Introduction

Since the first EPR, Romania has strengthened the use of economic instruments to achieve environmental objectives. Law No. 265 (2006) on Environmental Protection established the "polluter pays" and "user pays" principles as well as the principle of sustainable use of natural resources. Accordingly, the Government has introduced a range of environment-related taxes and other charges. The pursuit of environmental objectives is, moreover, supported by various subsidy schemes. GPP and eco-labelling schemes have also been established. There is nevertheless room for improvement in the application of these tools in key areas such as air and water pollution taxes.

5.2 Use of economic instruments for environmental objectives

Environment-related taxes

Air pollution taxes

Emissions of air pollutants from stationary sources are subject to a pollution tax. The tax was established by Law No. 655 (2001), which approved the corresponding GEO No. 243 (2000) on Protection of the Atmosphere, and it became effective in 2002. It is currently applied to emissions of seven major air pollutants (table 5.1). Originally, the pollutants covered by the emissions tax included GHGs (CO_2, CH_4 and nitrous oxides) and CO. These were, however, abolished in 2005 in anticipation of Romania's accession to the EU in 2007 and the associated participation in EU ETS.

Air pollutants are subject to emission limit values, which are established in separate permits for each polluting source. However, not all air pollutants that are subject to emission limit values (as part of integrated permits) are subject to an emissions tax. Examples are fine particles (PM_{10}), VOCs and fibres.[18] Romania has encountered problems in meeting the emission limits for PM_{10} established in Directive 2008/50/EC of the European Parliament and of the Council of 21 May 2008 on Ambient Air Quality and Cleaner Air for Europe. This led to a warning by the European Commission in April 2011 requesting the authorities to address this issue. It is noteworthy that in 2010, Romania's emissions of acidifying and eutrophying major pollutants and ozone precursors – sulphur dioxide (SO_2), nitrogen oxides (NOx), non-methane VOCs and ammonia – were below the national emissions ceilings established by the EU national emission ceilings (NEC) Directive.

Emission taxes are due for total emissions, including those above the established limit values. Excess emissions are, however, subject to an additional fine for non-compliance with the established threshold. Tax rates on pollutants doubled between 2002 and 2005 but have remained unchanged since then. Adjusted for inflation as reflected by the CPI, tax rates rose by some 40 per cent in real terms between 2002 and 2005, but this was offset by a decline of some 30 per cent between 2005 and 2011. In the event, pollutant tax rates in real terms in 2011 were broadly unchanged compared with 2002.

In contrast to tax rates on emissions of heavy metals, rates for emissions of SO_2 and NOx are quite low when compared with other Central European countries, which suggests that they do not provide any significant incentives for changes in the behaviour of polluters and that their main purpose is to generate revenues for the EF (table 5.2).

Revenues from air pollution taxes are earmarked for the EF. They amounted to 23.2 million lei (€5.5 million) in 2010, a decline of 35 per cent compared with 2009. There is no official assessment of the impact of these taxes on the volume of emissions.

Water pollution taxes

The monitoring of water quality and the regulation of raw water use are part of the responsibilities of NARW. It is also in charge of implementing the Government's water management policy and strategy (chapter 7). NARW has to finance its operating costs,

[18] Directive 2001/81/EC of the European Parliament and of the Council on national emission ceilings for certain atmospheric pollutants.

including the costs of repair and maintenance of the water infrastructure, out of revenues related to payments by economic entities for water use and water resources management. In addition to water pollution taxes, these include charges for abstraction and fines for non-compliance with effluent standards. Other sources of revenue are fees for the issuing of permits concerning dam security and fees for the regulation of water reservoirs at dams for hydropower generation. These payments are considered by the authorities to be in line with the principle of cost recovery for water services established in the EU WFD as well as the "polluter pays" principle.

Table 5.1: Taxes on emissions of air pollutants, 2002, 2005, 2011

Pollutants	Lei per ton			Euro per ton
	2002	2005	2011	2011
NOx	20	40	40	9.4
POPs	10,000	20,000	20,000	4,719.3
SOx	20	40	40	9.4
Dust	10	20	20	4.7
Heavy metals				
Cadmium	8,000	16,000	16,000	3,775.5
Lead	6,000	12,000	12,000	2,831.6
Mercury	10,000	20,000	20,000	4,719.3

Source: Law No. 293 (2002) approving GEO No. 93 (2001) concerning Law No. 73 (2000) on Establishing the Environmental Fund; GEO No. 196 (2005) on the Environmental Fund, and amendments.
Note: Emissions from stationary sources (enterprises with more than 1MW of installed power capacity).
Figures in euros were calculated using the corresponding average annual exchange rate for 2011
(€1 = 4.2379 lei).

Table 5.2: Comparison of air pollution taxes

Euro per ton

	NOx	SO_2	Cadmium
Czech Republic	32	40	791
Estonia	85	51	1,128
Hungary	430	180	..
Poland	120	120	42,600
Romania	9	9	3,776
Slovak Republic	48	64	1,300

Source: OECD/EEA economic instrument database: www2.oecd.org/database.
Note: Tax on NOx for France excludes NO_2. Tax rate for NO_2 = €67/ton. Figures are rounded.
Cd = Cadmium

Water pollution taxes (or effluent charges) for main water users (mainly paid by water utilities and some industrial enterprises) are set by the Government based on a proposal by NARW. Tax rates have been specified for 28 categories of chemical indicators (general, specific and highly toxic). Effluent charge rates were last revised in 2010. Tax rates rose uniformly by some 28 per cent in 2011 compared with 2005 (table 5.3). This increase was insufficient to fully offset the cumulative inflation that has occurred over recent years. In the event, water pollution tax rates fell in real terms by 11 per cent in 2011 compared with 2005. Compared with 2002, the decline in real terms amounted to some 37 per cent. There is no publicly available information on revenues from water effluent charges.

Tax rates on Biochemical Oxygen Demand (BOD) and Chemical Oxygen Demand (COD) are, however, set at a very low level when compared with other Central European countries (table 5.4), which means that their main function is not to change the behaviour of economic agents. The same probably applies to many of the other water pollution taxes, with the main exceptions of arsenic and cyanides.

Taxes on generation of waste streams

Whereas the organization of the collection, transport and disposal of municipal waste is the responsibility of the local public administrations, the management of industrial waste has been delegated to the waste generators, in line with the "polluter pays" principle. Enterprises are responsible for organizing the management of waste generated (except waste that is similar to household waste), either by using their own means or, as is most common, by outsourcing these activities to specialized waste operators. These taxes fall into two categories: (i) taxes that are linked to recycling and recovery targets; and (ii) landfill taxes.

Taxes linked to recycling quotas are applied to packaging waste, vehicle tyres and waste oil. The management of packaging waste is governed by the packaging and packaging waste Directive,[19] which was transposed into national legislation by GD No. 621 (2005). The recycling target is 60 per cent of total weight for glass and paper, 50 per cent for metal, 22.5 per cent for plastic and 15 per cent for wood. The target year for achieving these quotas was 2008, but it was applied to Romania only for paper and metal waste. The target for wood had to be achieved at the end of 2011. For other packaging waste (glass and plastic), the target year is 2013 (chapter 8).

[19] Directive 94/62/EC of the European Parliament and of the Council of 20 December 1994 on packaging and packaging waste.

Table 5.3: Water pollution taxes on selected pollutants, 2005, 2009, 2011

Pollutants	Lei per ton			Euro per ton
	2005	2009	2011	2011
BOD5	36.4	45.6	46.5	11.0
COD	36.4	45.6	46.5	11.0
Ammonium, Nitrogen	145.6	182.4	186.1	43.9
Arsenic	28,318.6	35,469.0	36,196.1	8,541.1
Cyanides	28,318.6	35,469.0	36,196.1	8,541.1
Filterable residuum	33.2	41.6	42.4	10.0
Detergents – biodegradable	145.6	182.4	186.1	43.9
Nitrates	36.5	45.7	46.7	11.0
Phenols, sulfites	145.6	182.4	186.1	43.9
Phosphates	7.2	9.0	9.2	2.2
Potassium	36.5	45.7	46.7	11.0
Chlorine, Magnesium	36.5	45.7	46.7	11.0
Sulphates, Chloride	36.5	45.7	46.7	11.0
Suspended solids	8.9	11.2	11.4	2.7

Source: GEO No. 107 (2002); GD No. 803 (2008); GD No. 522 (2009); GD No. 328 (2010); GD No. 1202 (2010).
Note: Figures in euros were calculated using the average annual exchange rate for 2011 (€1= 4.2379 lei).

To achieve and maintain these targets, there is a tax of 2 lei (€0.47)/kg of packaging introduced on the domestic market by importers and/or domestic producers of packaging material. The tax is only due in the event that the economic operator fails to meet the official annual target for packaging waste recovery. In other words, the tax base is the difference between the specific recovery target and the actual recovery achieved by the economic operator.[20] Revenues from packaging waste taxes amounted to 34.4 million lei (€8.1 million) in 2010, down from 55.6 million lei (€13.1 million) in 2009. The same tax rate (2 lei/kg) is applied to vehicle tyres placed on the domestic market. The tax rate doubled in 2011 compared with 2010. The tax is due only to the extent that the annual targets stipulated in the relevant waste legislation for recycling of used tyres are not achieved. A similar tax for waste oil was adopted in 2011 and entered into force at the beginning of 2012. The tax rate is 2 lei/litre of industrial oil and lubricants.

There is a landfill tax to be paid by landfill operators using new land for industrial waste storage. Tax rates are expressed in terms of m^2 of land covered, and depend on the type and origin of industrial waste (table 5.5). Revenues from this tax were, however, negligible in 2009 and 2010. Effective 1 January 2011, there is also a landfill tax to be paid by local authorities, which amounts to 100 lei (€23.60)/ton of waste deposited. The tax, which is designed to promote selective collection of municipal waste and its recycling, is only due to the extent that the official target for reducing the volume of municipal waste discharged at landfills by 15 per cent per year is not achieved. In other words, the tax is only due for the difference between the actual reduction in municipal waste volumes and the target rate.

Table 5.4: Comparison of water pollution taxes

€ per ton

	BOD	COD
Czech Republic	630.0	630.0
Estonia	1,379.0	1,379.0
Hungary	..	320.0
Poland	960.0	380.0
Romania	11.0	11.0
Slovak Republic	21.5	21.5

Source: OECD/EEA economic instrument database: www2.oecd.org/database (accessed 2011).
Note: Figures are rounded.

There is also a so-called "ecotax" on plastic shopping bags (non-biodegradable materials), which was introduced in 2009. The initial tax rate of 0.2 lei (€0.05) per piece was halved to 0.1 lei (€0.025) in 2010. Revenues from this tax amounted to 22.5 million lei (€5.3 million) in 2010, nearly twice the amount (12.2 million lei) collected in 2009. Finally, there is a 3 per cent tax on the value of company sales of ferrous and non-ferrous scrap metal to waste operators who are officially authorized to recover and collect scrap metal.

[20] To illustrate, a company introduces 1,000 kg of packaging material and recovers 500 kg. Assuming a minimum recovery rate of 60 per cent, i.e. 600 kg, the amount of the tax would be (600-500) x 2 lei/kg = 200 lei. If it had not recovered any packaging at all, the payment would be 1,200 lei (1,000 kg x 60% x 2 lei/kg).

However, this tax is not directly related to environmental protection. Revenues collected amounted to 120.9 million lei (€28.5 million) in 2010.
All revenues collected from these waste-related taxes are earmarked for the EF. They amounted to 178 million lei (€42.1 million) in 2010, of which the sales tax on scrap metal accounts for nearly 70 per cent.

Motor vehicle taxation

Car pollution tax

Motor vehicles registered for the first time in Romania are subject to a car pollution tax. This tax has had different names since its introduction into the Romanian legislation in 2007.[21] The tax is due for both new and second-hand vehicles, and entered into force on 1 July 2008 (GEO No. 50 (2008)). The tax due is calculated taking into account four components: the cylinder capacity of the engine; the CO_2 emissions norm (g/km); the Euro emission standard; and a tax reduction coefficient, which depends on the age, the average annual kilometrage and the overall general condition of the motor vehicle. The standard formula for calculating the tax payment for vehicles meeting Euro 3, 4 and 5 standards is as follows:

Tax = [(A*B**0.3) + (C*D*0.7)] * (100-E)/100, where:
A = CO_2 emissions (g/km) as indicated in the vehicle identification documents;
B = tax rate (€/g) on CO_2 emissions, which increases with the level of norm emissions;
C = cylinder capacity (ccm);
D= tax rate (€/1 ccm) on cylinder capacity, which varies, depending on the vehicle emission standard;
E = tax reduction coefficient.

For passenger cars that meet Euro 1 and Euro 2 pollution standards and those that do not meet Euro pollution standards, the tax is calculated by the following formula:

Tax = C*D*(100-E)/100.

Although officially called a pollution tax, this is basically a registration tax as it does not take into account the actual emissions originating from the use of the car. One rationale for the introduction of the car pollution tax was to collect new revenues that compensate for the abolition of vehicle customs and excise duties on account of EU membership. Another reason was to deal with the adverse environmental implications of the strong growth in imports of, mainly old, second-hand motor vehicles.

Indeed, the new legislation aims to discourage the use of older, less "environmentally friendly" vehicles. The registration tax can amount to a substantial sum of money. To illustrate, in 2008 a Romanian citizen who had purchased a second-hand car in Germany (built in 1997) with a cylinder capacity of 2,155 ccm and compliant with the Euro 2 emission standard had to pay a registration tax of 7,595 lei. This corresponded to some €2,262 or 35 per cent of the price (€6,500) paid for the car in Germany. The owner of the car challenged the tax, arguing that a similar car that was already registered in Romania before 1 July 2008 would not be subject to the registration tax on the occasion of its resale.

In April 2011, the European Court of Justice found the car pollution tax to be contrary to EU law because it created an indirect discrimination between imported second-hand motor vehicles and similar second-hand motor vehicles that are already on the national territory.[22] This was tantamount to discouraging the import of second-hand cars purchased in other EU member States without discouraging the purchase of a similar car already on the domestic market.

New legislation to address the concerns of the European Court of Justice, which was adopted by Parliament at the end of November 2011, was supposed to enter into force in January 2012, but implementation has been delayed until 2013.

The tax base for the calculation of the tax remains unchanged, but the pollution tax will be reduced by 25 per cent across the board for cars meeting Euro pollution standards. Those new car owners who registered their car for the first time after 1 July 2008 and for whom the amended pollution tax will be lower are entitled to a corresponding refund.

The tax will now also be applied to domestic sales of vehicles that were first registered in Romania before 2007, under the amendments of GEO No. 1 (2012) for suspension of certain provisions of Law No. 9 (2012) taxing pollutant emissions from cars and for the reimbursement of tax paid in accordance with article 4 (2) of this Law.

[21] Namely "taxa specială pentru autoturisme şi autovehicule", "taxa de poluare pentru autovehicule" and "taxa pentru emisii poluante provenite de la autovehicule".

[22] EUR-Lex: Judgment of the Court 62009CJ70402 of 7 April 2011 [eur-Lex.europa.eu/LexUriServ].

Table 5.5: Landfill tax for deposit of recyclable/recoverable materials, currency units per square metre per year

Waste category	Lei			Euro
	2002	2005	2011	2011
Waste from alcohol production	0.05	0.20	0.20	0.05
Waste from oil extraction and processing	0.50	4.00	4.00	0.94
Waste from primary wood processing	0.10	1.20	1.20	0.28
Ashes from thermal power stations	..	4.00	4.00	0.94
Sludge	..	4.00	4.00	0.94
Bast furnace slag	..	4.00	4.00	0.94
Pyrite ashes	..	4.00	4.00	0.94
Phosphogypsum	..	4.00	4.00	0.94
Metallurgical slag	..	4.00	4.00	0.94

Source: Law No. 293 (2002) approving GEO No. 93 (2001) concerning Law No. 73 (2000) on Establishing the Environmental Fund; GEO No. 196 (2005) on the Environmental Fund, and amendments.
Note: Tax to be paid by landfill operators using new land for waste storage.
Figures in euros were calculated using the average annual exchange rate for 2011 (€1= 4.2379 lei).

Revenues collected from the car pollution tax are earmarked for the EF. They amounted to 802 million lei (some €190 million) in 2010. In fact, the car pollution tax has been the dominant source of income of the EF since 2008 (chapter 6).

Annual motor vehicle ownership tax

There is an annual ownership tax for road-going motor vehicles that require registration with the local authorities. This is a tax earmarked for local budgets of the administrative-territorial unit where the residence of the owner is located. The tax is based on article 261 of Law No. 571 (2003) on the Fiscal Code. There is a notable exemption for means of transport used for public transport purposes. The tax was revised, effective on 1 January 2010 based on GD No. 659 (2009).

The rate of tax depends on the engine capacity and the type of vehicle. Tax rates vary from 8 lei (€1.90) to 145 lei (€34.20) for each 200 ccm of cylinder capacity, depending on the car's total cylinder capacity. Before the revision, the tax was calculated per 500 ccm of engine capacity.
To illustrate, the tax rate for an automobile of 2,000 ccm is 18 lei (€4.25) for each 200 ccm, i.e. the total tax due is 180 lei (€42.50). In the case of an automobile motor car of more than 3,000 ccm engine capacity, the tax rate rises to 145 lei; a car with an engine capacity of 3,600 ccm would be subject to a total tax of 1,740 lei (€410.50). Buses, including minibuses, are subject to a flat tax rate of 24 lei (€5.70) per 200 ccm of engine capacity.

For commercial freight transport vehicles, the ownership tax is based on the total authorized weight, the number of axles of auto trailers, the suspension system, and whether the vehicle is used for domestic transport only or for combined domestic and international transport.

There is also an annual local tax on ownership of slow-moving vehicles ("vehicule lente") such as vehicles used for agricultural and construction purposes. This is based on a general provision for raising local taxes in article 283 of Law No. 571 (2003) on the Fiscal Code. In the county of Tulcea, the tax was set at 42 lei (about €10) per year for all types of vehicles in this category. There is also a local ownership tax on vehicles for water transport, which depends on the type of water vehicle and, partly, the horsepower and the loading capacity.

Motor fuel excise duties

Upon accession to the EU, Romania was granted transitional periods as concerns the application of the EU excise minimum duty rates for unleaded petrol (until 1 January 2011) and gas oil used as motor fuel (until 1 January 2013). For all energy products used as motor fuels, with the exception of gas oil, excise duties in 2011 were at or slightly above the required minimum level, which is set in euros (table 5.6). As regards gas oil, a further increase (by 9.1 per cent) is required to reach the minimum level during 2012.

The changes in excise duties in euro values during 2007–2011 mask a much higher increase in national currency units due to the marked cumulative depreciation of the lei against the euro. To illustrate, a constant excise duty in euros corresponded to a lei-denominated increase of 27 per cent in 2011 compared with 2007 (using average annual exchange rates).

The excise duty on unleaded petrol is set at one of the lowest rates applied among the EU member States. Energy products used as motor fuels are exempted from the payment of excise duties if they are entirely produced from biomass. Since EU accession, only low-sulphur and sulphur-free fuels have been marketed in Romania in line with Directive 98/70/EC of the European Parliament and of the Council of 13 October 1998 relating to the quality of petrol and diesel fuels and amending Council Directive 93/12/EEC. In 2007, 90.1 per cent of petrol sold was of low-sulphur RON 95 grade and the remaining petrol sold was sulphur free. As regards diesel, 87.4 per cent was of low-sulphur grade, while the remainder was sulphur free. In addition to excise duties, motor fuels have been subject to VAT of 24 per cent since 1 July 2010. The previous rate was 19 per cent.

Other excise duties

As concerns other excise duties on energy products, Romania was granted a transitional period until 1 January 2010 for the implementation of the EU minimum excise duty rate on natural gas used for non-commercial purposes and on heavy fuel oils used for district heating purposes. The same arrangement was applied to excise duty rates on electricity. The necessary increase in excise duty rates was considerable in the case of natural gas and electricity (table 5.6).

Revenues from environment-related taxes

The share of revenues from environment-related taxes in total tax revenues was 7 per cent in 2009 compared with an EU average of 6.3 per cent. Transport fuel taxes accounted for three quarters of environmental tax revenues, while the remainder is broadly equally divided between taxes on other energy products and taxes on transport equipment (table 5.7).

Revenues from pollution/natural resource taxation were on a declining trend between 2005 and 2009, and their relative contribution to total tax revenues was insignificant in 2009. This places Romania within the lower tier of EU member States.

Overall, Romania has quite a low tax-to-GDP ratio, which amounted to 27 per cent in 2009 compared with a (weighted) EU average of 38.4 per cent. The environmental tax-to-GDP ratio was 1.9 per cent in 2009, half a percentage point below the EU average of 2.4 per cent.

This reflects the lower overall tax-to-GDP ratio in Romania, which more than offset the higher share of environmental tax revenues in total taxes compared with the EU average, explaining Romania's overall low rankings based on this indicator (table 5.7).

Table 5.6: Excise duties on selected energy products and electricity, 2007, 2011

Type of product / product group	Unit	EU Minimum	Romania		
			2007 (1)	**2011** (2)	**Ratio** (2)/(1)
		Euro	Euro	Euro	
Leaded petrol	1,000 litres	421.00	421.19	421.19	1.000
Unleaded petrol	1,000 litres	359.00	327.29	359.59	1.099
Gas oil (propellant use)	1,000 litres	330.00	259.91	302.51	1.164
LPG used as motor fuel	1,000 kg	125.00	128.26	128.26	1.000
Natural gas used as motor fuel	Gigajoules	2.60	2.60	2.60	1.000
Kerosene used as motor fuel	1,000 litres	330.00	375.91	375.91	1.000
Heavy fuel oil – heating, business use	1,000 kg	15.00	13.00	15.00	1.154
Heavy fuel oil – heating, non-business use	1,000 kg	15.00	13.00	15.00	1.154
Coal and coke – heating, business use	Gigajoules	0.15	0.15	0.15	1.000
Coal and coke – heating, non-business use	Gigajoules	0.15	0.30	0.30	1.000
Natural gas – heating, business use	Gigajoules	0.15	0.17	0.17	1.000
Natural gas – heating, non-business use	Gigajoules	0.30	0.17	0.32	1.882
Electricity – business use	MWh	0.50	0.26	0.50	1.923
Electricity – non-business use	MWh	1.00	0.52	1.00	1.923

Source: Taxes in Europe database: http://ec.europa.eu/taxation_customs ECE calculations.
Note: In Romania, energy products used as motor fuel or heating fuel are exempted from payment of excise duties if they are produced in totality from biomass. The coal and solid fuels used by households and/or charitable organizations are exempted from payment of excise duties.

Table 5.7: Environmental tax revenues by major group, 2005–2009

Taxes	Per cent of total tax revenues					Ranking
	2005	2006	2007	2008	2009	2009
Energy	6.6	6.0	5.8	5.0	6.0	10
of which: Transport fuel taxes	..	..	4.6	4.0	5.2	11
Transport (excl. fuel)	0.2	0.5	1.2	1.3	1.0	18
Pollution/Resources	0.4	0.3	0.1	0.0	0.0	21
Total environmental taxes	7.2	6.8	7.1	6.3	7.0	14
Memorandum item						
EU-27 weighted average	6.6	6.4	6.2	6.0	6.3	..

Taxes	Per cent of GDP					Ranking
	2005	2006	2007	2008	2009	2009
Energy	1.8	1.7	1.7	1.4	1.6	26
of which: Transport fuel taxes	..	..	1.3	1.1	1.4	20
Transport (excl. fuel)	0.1	0.1	0.3	0.4	0.3	17
Pollution/Resources	0.1	0.1	0.0	0.0	0.0	20
Total environmental taxes	2.0	1.9	2.1	1.8	1.9	21
Memorandum item						
EU-27 weighted average	2.6	2.5	2.4	2.4	2.4	..

Source: European Commission/Eurostat, 2011. *Taxation Trends in the European Union*.
Note: Energy taxes include taxes on energy products used for both stationary purposes and transport. CO_2 taxes are included in this category. Transport taxes cover taxes related to the ownership and use of motor vehicles.
Taxes on pollution cover taxes on measured or estimated emissions to air (with the exception of CO_2) and water, on noise and on solid waste management.
Resource taxes include any tax linked to extraction of natural resources, i.e. they also include licence fees to be paid for fishing and hunting, etc. Ranking refers to the position among the EU-27 member countries (top rank = 1).

Other environmental charges

Mineral resource use charges

Romania is relatively richly endowed with mineral resources. These comprise, notably, crude oil and natural gas, and bauxite for aluminium production as well as significant reserves of coal. Article 135 of the 1991 Constitution establishes that all subsoil resources are public property. Law No. 85 (2003), the Mining Law, regulates mining activities in Romania, while petroleum activities are regulated by Law No. 238 (2004) on Petroleum. Two licences are required for mining activities (exploration and exploitation), whereas for petroleum products a single licence covers both exploration and exploitation. Licences are granted by the National Agency for Mineral Resources. Petroleum operations require a concession from the Agency. Mining policy issues are the responsibility of MoETBE. In principle, licence holders have an obligation to protect and rehabilitate the environment.

Taxes and other payments related to mining activities are regulated by the Fiscal Code and the Mining Law. Apart from a profit tax, licence holders have to pay annual taxes on a km^2 basis for prospecting (2.5 lei), exploration (10 lei) and exploitation (2,500 lei). These taxes are adjusted annually for inflation by special GDs. There are also mining royalties which are within a range of 2 to 10 per cent of the production value. The production value for producers of crude oil and petroleum is calculated by the National Agency for Mineral Resources, based on a reference price determined with respect to world market prices. Producers are free to set their own sales prices, but these do not reflect environmental taxes.

In April 2004, Romania adopted the Mining Industry Strategy for 2004–2010 aimed at rehabilitating, upgrading and privatizing viable mines; encouraging foreign investment; protecting environmental standards; and mitigating the social consequences of the closure of non-viable mines. The World Bank has been supporting Romania in this effort with a mining closure project. In line with the country's EU commitments, the Strategy included the phase-out of State subsidies and transfers for coal by 2010 and for other minerals by 2007. However, coal mining, which is located in Romania's Jiu Valley, remains strongly subsidized. Government plans for gradually reducing subsidies for the coal mining sector have made little progress so far. In fact, in 2011 the Government announced that the State-owned coal mining company CNH Petrosani would receive a subsidy of 136 million lei (€32 million) to continue its activity. Some 40 per cent of total electricity produced in Romania comes from coal.

Water abstraction charges

Romania applies charges on water abstraction that are volumetric and differentiated by water source (groundwater and surface water) and user category. There is no regional differentiation of charge rates. However, the major river, the Danube River, has been treated as a separate water source category. The charge rates for water abstraction are set by the Government (published as GDs) based on proposals from NARW. Charges for abstraction of groundwater have been persistently higher compared with abstraction of surface water. The agricultural sector has benefited from quite low charge rates for surface water abstraction. Charge rates have been raised regularly, mainly to adjust for cumulative inflation. Thus, between 2005 and 2010, charge rates rose across the board by some 28 per cent, compared with an overall rise in the average annual CPI by 35 per cent over this period (table 5.8).

Revenues from abstraction charges are earmarked for the maintenance and repair of water sector infrastructure. In December 2010, the Government published a special note[23] on the funds required for the administration and maintenance of the water sector assets, particularly for ensuring adequate protection against weather hazards, notably flood risks. It estimated that in the year 2008, the funds required for these purposes would have amounted to 841 million lei (some €200 million at average 2010 exchange rates). But the revenues of NARW from standard sources, notably payments for use of water resources, amounted to only 324 million lei (€77 million). In other words, there was a shortfall of funds amounting to 517 million lei (€123 million).

The Government pointed out that slightly more than half (52 per cent) of the revenues related to water use were paid by economic entities (mainly water supply and sewerage companies and electricity producers – hydropower, thermoelectric and nuclear) which, however, together accounted for more than 90 per cent of the total volume of water abstraction. To eliminate these imbalances, the Government decided to harmonize the abstraction charges for water drawn from the Danube with those for other surface waters as from 2011. This was tantamount to a significant increase in charge rates for water abstraction from the Danube, with the exception of water used for irrigation and aquaculture. At the same time, however, charge rates for water abstraction for electric and thermal power production from surface waters other than the Danube River were reduced by some 46 per cent (table 5.8).

Overall, the Government expects that these adjustments of charge rates will reduce the above-mentioned deficit by some 215 million lei (€51 million) and that the share of total NARW revenues paid by the two major groups of water users (water companies and power producers) will increase from 52 to 70 per cent. The additional revenues should allow NARW to raise its rate of cost recovery (operating and maintenance expenditures) to 65 per cent, up from only 38.5 per cent in 2008.

Water supply and sewerage tariffs

The State has delegated responsibility for the provision of drinking water, sewerage and wastewater services to the local public administrations (Law No. 251 (2001)). The water sector infrastructure (water supply and wastewater treatment networks and facilities) are the permanent public property of the local authorities (Law No. 213 (1998) and MO No. 69 (1994)) and cannot be sold to the private sector. Law No. 251 (2001) also stipulates that local public administrations can cooperate with each other in order to ensure an efficient provision of public water services.

Indeed, at the time that this Law was adopted, local water services were provided by municipal water companies, which, in general, operated at a suboptimal scale with inefficient technologies and insufficient revenues to cover operating costs, including repair and maintenance. Only a small number of municipalities were able to attract foreign funds for financing the investments required to rehabilitate and extend the water sector infrastructure with a view to raising the level of service quality.

Against this background and the need to create conducive conditions for meeting EU standards for drinking water quality[24] by 2015 and urban wastewater treatment[25] by the end of 2018, the Government introduced the regionalization of the provision of water supply and wastewater services. This involved the merger of municipal water companies in a region into a larger regional operator company (ROC), with the central aim of achieving the necessary economies of scale for ensuring the economic viability of the required massive investments in local water services provision. In

[23] Background note by the Government to the 2010 GD No. 1202.

[24] Council Directive 98/83/EC of 3 November 1998 on the quality of water intended for human consumption.

[25] Council Directive 91/271/EEC of 21 May 1991 concerning urban waste-water treatment.

2006, the Government further adopted the National Strategy for Accelerating the Development of Public Utility Community Services (GD No. 246 (2006)), a multi-annual plan for the development of public utility community services designed to promote the modernization and improvement of utility services with a view to loser alignment with EU standards.

A ROC is typically a joint stock company that is fully owned by an association of municipalities, called an Intercommunity Development Association (IDA). Such companies operate independently, following commercial principles, and are managed on the basis of a delegation contract or concession contract specifying basic performance requirements and the IDA's obligations in relation to the ROC. The regionalization process is largely complete. In November 2011, there were 42 regional water companies accounting for some 98 per cent of national water supply.

Private sector involvement in the water supply and wastewater sector is quite limited. There are two major private operators, one in Bucharest, the capital, and the other in the town of Ploeisti. These private operators have concession contracts for a period of 25 years, but these concessions do not affect the public ownership status of the physical assets of the water company.

The process of regionalization of water services has been strongly supported by EU pre-accession funds (ISPA, PHARE). EU financial support for the development of the water sector now comes largely from SOP ENV (2007–2013), which has allocated some €2.8 billion to the rehabilitation and extension of the water supply and wastewater sector.

A major condition imposed for EU-funded projects has been to establish a tariff policy that ensures full cost recovery, associated with rational use of water resources. Proposals for tariffs and tariff changes, which are prepared by a ROC, are subject to review by the competent local/regional administration (IDA) and approval by the National Regulatory Authority for Municipal Services (NRAMS). The tariff approval process is based on a detailed methodology describing the various cost components to be considered in tariff-setting.

A new tariff methodology entered into force in 2007 (MO No. 65 (2007) of NRAMS on the methodology for the establishment and revision of prices/tariffs for public water supply and sewerage).

The cost components that should be covered by tariff-setting, in addition to operating costs, include an allowance for depreciation, royalties to be paid to the local authorities which own the water company infrastructure and a quota for profit. It is noteworthy that local government authorities may approve tariffs which are different from those approved by NRAMS if this does not endanger the financial autonomy, profitability and economic efficiency of the corresponding water company.

For projects which are mainly financed by EU grants, there is a mandatory tariff portion that is earmarked for a maintenance, repair and development fund. Local authorities may, moreover, decide to allocate another portion of tariffs ("development quota") to a separate "development fund" for supporting fixed investments by a ROC and for the reimbursement of loans contracted for cofinancing of EU grants. The primary role of both the maintenance, repair and development fund and the "development fund" is to support the replacement of obsolete technical physical assets and the further development of the water sector infrastructure needed for the provision of adequate water services. ISPA-funded projects, which are spread over many years and therefore not yet completed, include provisions for progressive significant increases in water tariffs in real terms at specified dates. Within the framework of water projects financed out of SOP ENV, tariffs are adjusted for inflation every six months.

While the majority of funds were provided as grants from the EU, there has also been a need for ROCs to generate adequate revenues to ensure debt servicing payments on loans attracted from the EIB and EBRD for cofinancing of these investment projects. Investment costs have been quite high, notably for the upgrading and modernization of wastewater treatment facilities, given the need to meet stringent environmental performance criteria.

Against this backdrop, water tariffs displayed a steep upward trend over the past decade. Average household tariffs for drinking water supply rose by some 240 per cent in 2010 compared with 2002. Tariffs for sewerage and wastewater treatment rose even more, by 390 per cent over the same period. This compares with an average increase in the CPI of some 90 per cent (table 5.9). In the event, drinking water tariffs rose in real terms by some 150 percentage points over this period. The corresponding increase for wastewater services amounts to some 300 percentage points.

Water tariffs vary significantly among the various utilities nationwide. This reflects differences in the cost of providing services, the level of technology installed and average income in the region. Sewerage

Table 5.8: Water abstraction charges, 2005, 2008–2011

	Lei per 1,000 m^3					Euro per 1,000 m3
	2005	2008	2009	2010	2011	2011
Groundwater						
Public water supply	45.00	52.36	56.36	57.52	57.52	13.57
Industrial use	45.00	52.36	56.36	57.52	57.52	13.57
Agrozootechnical uses	45.00	52.36	56.36	57.52	57.52	13.57
Irrigation	45.00	52.36	56.36	57.52	57.52	13.57
Aquaculture	45.00	52.36	56.36	57.52	11.00	2.60
Surface water (excl. Danube)						
Economic users and public institutions	35.00	40.73	43.84	44.74	50.00	11.80
Electric and thermal power production	35.00	40.73	43.84	44.74	24.00	5.66
Hydropower generation	0.20	0.23	0.25	0.26	1.10	0.26
Irrigation	3.00	3.49	3.76	3.84	3.00	0.71
Aquaculture	2.40	2.79	3.00	3.06	0.50	0.12
Danube						
Economic users and public institutions	4.00	4.65	5.01	5.11	50.00	11.80
Electric and thermal energy production	0.20	0.23	0.25	0.26	24.00	5.66
Hydropower plants	0.20	0.23	0.25	0.26	1.10	0.26
Nuclear energy generation	3.50	4.07	4.38	4.47	24.00	5.66
Irrigation	3.00	3.49	3.76	3.84	3.00	0.71
Aquaculture	2.40	2.79	3.00	3.06	0.50	0.12

Source: GEO No. 107 (2002); GD No. 803 (2008); GD No. 522 (2009); GD No. 328 (2010); GD No. 1202 (2010).
Note: Tariffs excluding VAT of 24 per cent.
Economic users include water companies for water supply, sewerage and wastewater treatment.
Figures in euros were calculated using the average annual exchange rate for 2011 (€1= 4.2379 lei).

charges vary widely depending on the presence of water treatment at a locality, discharge conditions and contents, and the state of the sewerage network (table 5.10). At the end of September 2011, the average household tariff for drinking water in 12 major towns was 2.80 lei (€0.67)/cbm. The average tariff for sewerage and wastewater treatment was 1.77 lei (€0.42), yielding a total charge rate of 4.57 lei (€1.09)/cbm (table 5.10). The average tariff applied by all 44 regional water operators was 2.66 lei (€0.63)/cbm. The average tariff for sewerage for ROCs equipped with wastewater treatment facilities was around 1.70 lei (€0.40)/cbm.

Since 2005, water meters have been installed progressively. On average, 87 per cent of households connected to the water supply system were equipped with meters in 2010. However, this masks the fact that many households living in older apartment blocks have only a single joint central meter, which means that the aggregate water bill is shared on a pro rata basis. Households with no meters at all are billed on the basis of an assumed monthly consumption of 8.4 cbm per person (corresponding to 280 litres ppd) for homes which are equipped with bathrooms and connected to district heating systems. In the absence of the latter, monthly charges are based on consumption of 5.4 cbm per person (180 litres ppd), but local authorities can decide to set different (lower) tariffs in these cases.

As regards industrial water users that are serviced by ROCs, the approach to tariff policy is the same as for households, i.e. based on the "user pays" principle. Tariffs for drinking water supply are the same as for households, i.e. there is no cross-subsidization. Tariffs for industrial wastewater discharge are set in separate contracts between a ROC and an industrial firm. Charge rates depend on the type of pollutants based on the "polluter pays" principle. Industrial water users are mainly handled by ROCs; the few others have direct arrangements with NARW. The discharge of industrial wastewater by ROCs is monitored by NARW to ensure compliance with effluent standards. It is noteworthy, however, that many ROCs have not yet installed the technology for adequate wastewater treatment.

Revenues of water companies have also been bolstered by more stringent policies for collection of water bills. Exceeding the normal payment delay of 30 days entails an interest penalty. The ultimate response to non-payment is to cut customers off from the water supply. The average national collection rate for bills was more than 90 per cent in 2010. In the event, the financial situation of the ROCs has

developed quite favourably. In 2009/10, profits amounted to some 12 per cent of total production costs. The need to ensure affordability of water services for vulnerable groups of society is regulated by GD No. 246 (2006). It establishes a national affordability rate ("rata de suportabilitate"), which is the maximum share of water charges allowed in the average household income. This share has been set at 3.5 per cent (annex 1, s. 6.3.5 of GD No. 246 (2006)). It assumes an average water consumption of 110 litres ppd in urban areas (as well as national affordability rates there are rates for municipal waste services, public transport and central thermal heating supply). Local authorities can, however, approve affordability rates that exceed the national rate of 3.5 per cent if this is required for the cofinancing of EU projects, but this can only be done after the adoption of adequate social protection measures for vulnerable groups of persons, such as low-income families.

Table 5.9: Consumer price indices for water supply and sewerage and wastewater treatment services, 2002–2010

Indices, 2002=100

	Water supply	Sewerage and WWT	Total CPI
2002	100.0	100.0	100.0
2003	127.5	129.0	115.3
2004	153.7	155.5	129.0
2005	191.2	203.0	140.6
2006	224.1	248.2	149.9
2007	238.8	275.7	157.1
2008	264.0	318.2	169.4
2009	298.6	394.9	179.0
2010	338.4	489.4	189.8

Source: ECE calculations based on information from the Romanian Water Association.

The calculation of affordability rates has to follow a specific methodology and be done separately for urban and rural areas within each county or region serviced by the water utility (these calculations appear to be often outsourced to consultancy firms.) Family income data are typically taken from official household budget surveys conducted by NIS. Local authorities can decide in "justified cases" to apply an affordability rate that is different from the national rate. Prices/tariffs for each utility service can, in principle, be increased until these threshold values have been reached. It appears that, so far, this has not been a constraint on tariff-setting. However, given the massive tariff increases in real terms witnessed over the past years, water bills are now edging closer toward the affordability threshold.

Table 5.10: Drinking water supply and wastewater tariffs for households in major towns, 2011

lei/m^3

Town	Drinking Water	Sewerage/ WWT	Total
Bucharest	3.57	0.79	4.36
Arad	2.65	2.65	5.30
Brasov	2.80	1.93	4.73
Cluj Napoca	2.39	2.05	4.44
Constanta	3.00	2.67	5.67
Galati	3.00	1.26	4.26
Iasi	2.94	1.97	4.91
Oradea	2.77	1.15	3.92
Pitesti	2.80	2.46	5.26
Ploiesti	3.00	1.21	4.21
Sibiu	2.51	1.28	3.79
Timisoara	2.12	1.85	3.97
Arithmetic average	2.80	1.77	4.57
Memorandum item			
Average tariff in Euros	0.66	0.42	1.08

Source: Romanian Water Association and Apa Nova (Bucharest).
Note: Tariffs for Bucharest as of 25 November 2011. Tariffs excluding VAT of 24 per cent.
Exchange rate: €1 = 4.2379 lei.
Status: 29 September 2011.

To illustrate, in Bucharest, tariffs for water supply and sewerage services rose by 37 per cent as of 25 November 2011. The new tariffs brought the affordability rate up to 3.4 per cent of average household income. The impact of higher tariffs on water bills has, however, been partly offset over the past five years by a decline in water consumption. In Bucharest, there is a social assistance programme that enables vulnerable persons to apply for exemption from payment for water supply and sewerage services. Income per family member is capped at 400 lei (€95) per month, and the funds available for this scheme would cover the water bills for some 3,000 persons for the first half of 2012. The subsidy programme is part of the concession contract between the municipality and the private water operator SC Apa Nova SA.

End-user tariffs for electricity and gas

A large part of the electricity and gas sector has remained in State ownership. This pertains notably to electricity generation, transmission and distribution as well as to domestic gas production and gas storage. Despite substantial modernization investments in recent years, a large share of energy sector assets is obsolete. Massive investments are required to ensure energy security, which will not be possible without substantial private sector capital injections. The bulk of electricity distribution and

supply to end users is already operated by private companies.

Electricity and gas markets are regulated by the National Energy Regulatory Authority (ANRE), which was established in 1998 as an independent public institution. Until December 2009, ANRE was fully financed by funds outside the State budget, namely licence fees. But this funding autonomy was taken away with Law No. 329 (2009), which stipulated that ANRE would be financed out of the State budget through the Secretariat General of the Government and that all ANRE income would go directly into the State budget. This is an infringement of EU rules, which is currently being dealt with by the European Commission. There was a separate regulatory authority for the gas sector, which was merged with ANRE in 2007.

The domestic retail market for electricity and gas supply was legally liberalized (through "market opening") as of 1 July 2007 (GD No. 638 (2007)), since which date all end users have been free to choose their own supplier in a competitive market. Consumers who do not want to choose this option (so-called "captive consumers") can stay in the market where prices are set by ANRE, the regulator. As regards electricity prices, the group of captive consumers has been restricted to residential users and small and medium-sized enterprises, based on Law No. 13 (2007) on Electricity. All other end users have to arrange for electricity supply in the competitive market segment. In contrast, in the gas sector, all consumer groups can opt to stay in the regulated market segment.

Electricity tariffs established by ANRE are national tariffs with no differentiation by distribution region. Private households can choose among six different tariff options. Average national electricity prices (excluding all taxes) for both households and small and medium-sized enterprises rose by some 11 per cent in 2011 compared with 2007, while regulated tariffs rose at roughly the same rate. Gas prices increased by around 8 per cent over the same period (table 5.11). These rate hikes were significantly lower than the cumulative consumer price inflation of some 25 per cent over this period. In the event, tariffs of energy suppliers were eroded by inflation.

Electricity prices in Romania are among the lowest in the EU. In 2010, the average electricity tariff for households in Romania was €0.085/kWh (excluding VAT and excise duty), some 30 per cent lower than the EU average tariff of €0.123. The difference is less pronounced for industrial end users (small and medium-sized enterprises), which were charged €0.083/kWh in Romania compared with an EU average of €0.092. In principle, given the higher supply costs, the tariffs should be significantly higher for households than for industry. Average household tariffs in the EU in 2010 were some 33 per cent higher than tariffs for industry (table 5.11). In contrast, in Romania, the difference is very small, pointing to the effective cross-subsidization of households by industrial end users, although such cross-subsidization has been legally forbidden for both electricity and gas supply since 1999.

There is a social electricity tariff for financially vulnerable consumers, which is set by ANRE. It is applicable to households with an average monthly wage per capita that is smaller than or equal to the official national monthly minimum wage. The social tariff is a so-called increasing block tariff with three consumption tranches. In 2009, 1.2 million of the 8.3 million household consumers (i.e. 13.5 per cent) benefited from the social tariff. There is also a similar social tariff for household gas supply. These proportions point to insufficient targeting of social assistance to those most in need.

As from the beginning of April 2011, electricity consumers have to pay, in addition to the normal tariff, a monthly surcharge amounting to 0.0185 lei (€0.0044)/kWh (excluding VAT). This corresponds to an increase in average tariffs of some 4-5 per cent in 2011 compared with the preceding year. This surcharge, which is shown separately on the bill, has to be collected by electricity suppliers and transferred into a special Government account.

Revenues from the surcharge are designed to support power plants that produce electricity in high-efficiency cogeneration (cogeneration refers to the joint production of electricity and heat at the same power plant using the same fuel). Producers of electricity from cogeneration will receive a so-called bonus payment, which depends on the corresponding quantity of electricity produced. The scheme is administered by the Romanian Power Grid Company Transelectrica and the national electricity market operator, OPCOM.

Gas prices in Romania were the lowest in the EU in 2010. Prices for households were only 35 per cent of the EU average, while industrial end user prices were half the EU average (table 5.12). On average, household gas prices in the EU were some 40 per cent higher than prices for industry. In Romania, however, prices were practically the same for both consumer groups. In a similar vein as for electricity prices, this reflects the significant cross-subsidization that is effectively taking place.

Romania meets the lion's share (83 per cent in 2010) of national gas demand from domestic production. The remainder is imported from the Russian Federation. Imports have to be paid at world market prices, which are significantly above domestic prices (exports of gas from Romania are officially forbidden.) The import price per 1,000 m^3 amounted to US$480 in July 2011, up from US$399 in January 2011. This compares with a price of locally extracted gas of only US$160, illustrating the huge opportunity costs of maintaining domestic prices far below international levels. The lower domestic prices are tantamount to considerable revenues foregone by the domestic gas sector, in addition to which the Government loses out due to foregone high tax revenues.

The overall low level of electricity and gas prices paid by private households is also illustrated by the comparative price level indices calculated on the basis of PPP. These suggest that electricity and gas prices combined came to only 55 per cent of the EU average (table 5.12).

The legal liberalization of the electricity and gas markets in 2007 has not led to a substantive increase in effective opening-up of the market. In 2010, the share of electricity consumption by users in the competitive market accounted for some 50 per cent of total final electricity consumption, broadly unchanged from 2007. These proportions are similar for the domestic gas market. This is indicative of a lack of financial incentives for end users to switch to suppliers operating in the competitive market, because prices in the regulated market segment are lower. To illustrate, in June 2010, the price of electricity for residential users in the lowest consumption category in the competitive market amounted to 0.568 lei/kWh. In contrast, the comparable regulated price was 0.433 lei/kWh.

Against this background, the European Commission launched infringement procedures in 2009 arguing that this violated the EU energy *acquis communautaire*, which stipulates that prices should primarily reflect the interaction of supply and demand. In fact, the Government has agreed with the IMF – within the framework of the IMF SBA – to progressively phase out regulated energy prices by 2015.

The full deregulation of electricity (and gas) tariffs will also have to involve a reform of the support provided to vulnerable consumers in line with EU directives relating to the creation of an internal market for electricity[26] and gas,[27] which assign the role of ensuring affordability of energy supply to the Government (by means of targeted income support) rather than to tariff-setting policy by the regulatory authority.

District heating tariffs

Romania has an extensive district heating system, which provides heat for about half the population in urban areas. The centralized heating systems are operated by companies owned by the corresponding municipalities. The district heating system in Bucharest, operated by the company RADET, is among the largest in the world with over 1,800 km of piping, and serves more than 1.2 million residents.

Owing to a lack of financial resources, many district heating systems are characterized by obsolete technology, with corresponding low energy efficiency, high production costs and energy losses.

Significant investments are needed to achieve adequate production and supply standards. A pervasive lack of funds for maintenance and repair of residential buildings has accentuated the problem of significant heat loss.

District heat tariffs are subject to a complex system of regulation at the national and local government levels. The energy regulator, ANRE, sets the price at which thermal electricity generating companies can sell heat to local district heating companies. In turn, the regulator for public utility services, NRAMS, determines a local reference price for heat sold to final consumers based on an assessment of distribution costs (this is based on GEO No. 36 (2006), as amended and supplemented). The local authorities can review the local tariff approved by NRAMS and modify it to reflect specific local circumstances.

In the past, tariffs paid by the population have been (often significantly) below the official local reference price. The difference between the actual and official local reference price was transferred directly as a subsidy from the central and local governments to the corresponding district heat suppliers.

[26] Directive 2009/72/EC of the European Parliament and of the Council of 13 July 2009 concerning common rules for the internal market in electricity and repealing Directive 2003/54/EC.

[27] Directive 2009/73/EC of the European Parliament and of the Council of 13 July 2009 concerning common rules for the internal market in natural gas and repealing Directive 2003/55/EC.

Table 5.11: Electricity and gas tariffs, 2007–2011

	2007	2008	2009	2010	2011
Electricity (lei/kWh)					
Households	0.319	0.333	0.345	0.357	0.354
Industrial end users	0.303	0.338	0.348	0.349	0.336
Gas (lei/GJ)					
Households	21.1	22.3	18.9	17.3	17.3
Industrial end users	21.6	23.2	18.2	17.2	17.7

Source: Eurostat database: http://ec.europa.eu/eurostat
Note: Prices excluding all taxes. Prices for 2007: second half of the year; for 2011: first half of the year. Industrial end users are small and medium-sized enterprises.
Exchange rate: €1 = 4.2379 lei

Table 5.12: Electricity and gas tariffs for households and industrial end users, 2010

	Electricity Euro per 100 kWh		Gas Euro per GJ		Memo item Comparative price level
	Households	Industry	Households	Industry	EU27=100
Bulgaria	0.068	0.065	9.24	7.54	57.50
Czech Republic	0.113	0.105	11.41	8.98	104.40
France	0.097	0.066	12.82	7.86	99.40
Germany	0.138	0.092	11.61	10.08	115.90
Hungary	0.130	0.103	12.10	8.80	89.20
Poland	0.107	0.093	10.59	8.71	71.10
Romania	0.085	0.083	4.10	4.09	54.90
Slovakia	0.133	0.117	10.29	9.29	97.30
Memorandum item					
EU-27	0.123	0.092	11.59	8.18	100.00

Source: Eurostat database (http://ec.europa.eu/eurostat).
Note: Average annual prices, excluding taxes. Industrial end users are small and medium-sized enterprises.
The comparative price level index pertains to final consumption expenditures of private households on "electricity, gas and other fuels". It is calculated by the ratio of the PPP for this product group and the market exchange rate

There are also significant subsidies from the central Government to heat producers, as regulated tariffs do not generally cover the costs of production. On average, subsidies accounted for some 45 per cent of actual heat production and distribution costs in recent years. Within the framework of the IMF SBA, central Government heat subsidies were abolished in 2011. Local governments are now required to fully budget and fund their heat subsidies. The previous practice was to accumulate budget deficits. Moreover, tighter eligibility criteria to achieve better targeting of heat allowances in combination with increased social inspections halved the number of beneficiaries of heating allowances in 2011 compared with 2010. The dominant feature is for heat consumption in residential buildings to be measured by a single shared meter, following which consumption is allocated to individuals on a pro rata basis. A programme launched in 2009 aims to increase individual billing of consumers via the installation of separate meters, which should also provide stronger incentives for rational heat consumption.

Municipal waste collection and disposal charges

The Romanian waste management sector has been undergoing thorough transformation against the backdrop of the need to progressively meet the EU waste standards (chapter 8). Law No. 101 (2006) on Sanitation Services establishes the legal framework for the organization and financing of municipal waste services. Besides the collection, sorting, transport and disposal of waste, sanitation services include street cleaning activities. Local administrative councils have exclusive authority for the organization of waste management. As is the case for water supply and sewerage services, municipal waste services can, in principle, also be organized within the framework of IDAs, which allows for the bundling of resources and benefits from economies of scale.

However, the extent to which this option has been used, if at all, appears to be quite limited. Actual collection, transport and disposal of municipal waste

are either carried out by specialized companies owned by local public administrations or delegated to private companies (so-called "operators"). The main tendency has been to delegate municipal waste management to private companies. Selection of firms is based on public tenders and an associated list of performance criteria. Operators require a special licence for waste-related activities from NRAMS (in line with Law No. 51 (2006)).

Waste collection charges are set based on the tariff/price methodology established by NRAMS. The waste operator submits a waste charge proposal, which is approved by the local authorities subject to the endorsement ("aviz") of NRAMS. The tariff methodology requires setting waste charge rates at levels that cover operating costs as well as the costs of repair and maintenance, and include an adequate margin for profit and the accumulation of funds for investments in the sanitation infrastructure by the waste company operator. Accordingly, there are provisions for adjustments of charge rates to take into account inflation and other factors that impact the waste companies' production costs. One constraint on the level of waste charge rates is the so-called "affordability rate" ("rata de suportabilitate"), which sets the maximum waste bill per family at 1 per cent of the average local/regional family income.

Waste charges for municipal and similar waste are, in general, differentiated for physical persons (i.e. households) and legal entities (such as commercial and industrial companies). There are large variations in waste charges among the different municipalities. Waste charges for households are typically a fixed amount per person per month, regardless of the volume of waste. In a recent survey done in major regions of Romania, charge rates ranged from 1.2 lei (€0.28) to 58 lei (€13.70). In Bucharest, the charge rate was 10 lei (about €2.40) for most of 2011, but it was reduced to 8.5 lei (€2) in November 2011. In Iasi, the second-largest city, the charge rate was much lower at 4.2 lei (€1) per person per month. In Oradea, which introduced a mandatory waste charge only at the beginning of 2010, the monthly payment was set at 14 lei (€3.30) per person.

People living in their own (individual) homes typically conclude special waste collection contracts with the operator. This is also the case for economic entities, which are generally charged for waste on a volume basis (either per cbm or per ton). The above-mentioned survey indicated waste charges ranging from 2 lei (€0.50) to 86 lei (€20.40) per cm^3 and 18 lei (€4.30) to 80 lei (€19) per ton. These charges normally cover the dumping of waste at landfills as well. It can be assumed that the wide range of waste charge rates for households as well as for firms among towns and regions reflects the differences in the quality of waste services, notably the use of older or more modern equipment by the waste operator for collecting and transporting waste.

Green stamp for waste electrical and electronic equipment

Romania is aiming to gradually move closer to meeting requirements of the EU waste electrical and electronic equipment (WEEE) Directive[28], which was transposed in Romania by GD No. 448 (2005). According to the latter, WEEE management is the responsibility of the producers and importers of electrical and electronic equipment (EEE). Producers have to finance and organize the collection, treatment, recovery and disposal of WEEE. In order to meet these obligations, they have inter alia set up special associations (such as ECO TIC for ICT equipment; CECED for white products; and RECOLAMP and GreenLamp for lighting products) for the collection of WEEE. Domestic producers and importers of EEE must register with NEPA. As from the beginning of 2011, these companies as well as collectors of the corresponding WEEE must place a financial deposit with the EF designed to create appropriate incentives for adequate waste management in respect of products placed on the market.

Consumers pay a contribution (the so-called "green stamp") for financing the management of WEEE. The "green stamp" is a special levy to be paid at the time of purchase of EEE, which represents the cost of collecting and recycling WEEE. The stamp and its value are visible on the packaging of each product. It is not an official levy but rather a voluntary scheme organized by the members (economic entities) that are part of the collective associations. The estimated value of the "green stamp" is calculated for each product category and included in the corresponding final sales price. The value of the stamp (excluding VAT) was set at 7 lei (€1.65) for ICT equipment in 2007; it was reduced to 5 lei (€1.18) in 2008 for products such as TVs, computers, monitors, etc., and to 1 lei (€0.25) for small EEE such as mobile phones. For industrial equipment such as surveillance equipment, antennas and transmitters, the net value of the stamp was set at 2 lei/kg.

There are free municipal collection points for WEEE; old products can also be deposited at stores selling

[28] Directive 2002/96/EC of the European Parliament and of the Council of 27 January 2003 on waste electrical and electronic equipment (WEEE).

EEE but only if a new product from the category is purchased at the same time. Other producers who decided to organize waste management themselves have also applied a green stamp. Producers of and companies engaged in WEEE collection must meet a specific quantitative target as regards the collection of WEEE from private households. Non-compliance with this target entails fines and can even lead to suspension of activity. It is estimated that, in 2008, WEEE collection amounted to 0.5 kg/capita, which is significantly below the EU recovery target of 4 kg/capita for that year.

Road user charges and retail prices of motor fuels

Romania applies a system of user charges for the motorways and national road network outside towns. The system is administered by the Romanian National Company of Motorways and National Roads, a joint stock company fully owned by the State. It operates under the Ministry of Transport and Insfrastructure (MoTI) but has full financial autonomy. It is responsible for the administration, operation, maintenance and development of national roads and motorways in Romania. Road user charges are fixed in euros and converted into national currency units at the corresponding prevailing official exchange rate. The tariff methodology was last revised by MO No. 244 (2008) of the MoTI on the Methodological Norms for Applying the Tariff for Using the National Road Network in Romania.

Charges are not related to the distance travelled. Road users have to purchase a road tax disc, the price of which depends on the type of vehicle and the duration for which the disc is valid. For a standard passenger car, the price is €3 for seven days, €7 for 30 days and €28 for a full year. There are fines for drivers who are found to be without a valid road tax disc. Revenues collected from road user charges amounted to some 965 million lei (some €228 million) in 2011, and are earmarked for funding the provision of the road infrastructure and maintenance works.

There is no explicit objective that road user charges should also cover the social costs arising from adverse externalities of road transport, namely accidents, noise and air pollution.

Fuel prices for road motor vehicles in Romania have increased significantly since 2005, primarily reflecting developments in respect of world market prices for crude oil, changes in rates of excise duties and VAT levied on fuels, and the cumulative significant depreciation of the lei against the United States dollar and the euro. In the case at hand, petrol prices (unleaded, Euro95) rose on average by 70 per cent in 2011 compared with 2005, while diesel prices increased by 74.5 per cent. It is noteworthy that diesel prices were above petrol prices in some years and below them in others (table 5.13).

The real, inflation-adjusted price of petrol rose by some 19 per cent in 2011 compared with 2005, while the corresponding price of diesel increased by 22 per cent. The increase in the real price of fuel can be considered to be one of the mechanisms for creating incentives for fuel savings. However, the period since 2005 contrasts significantly with the period 2000–2005, when the inflation-adjusted price of fuels actually fell sharply, by some 42 per cent for petrol and 30 per cent for diesel. In fact, the real price of petrol in 2011 was still 30 per cent below the corresponding price in 2000! The real price of diesel in 2011 was some 15 per cent below the corresponding level in 2000 (table 5.13).

Petrol prices (expressed in euros) in Romania have been among the lowest in the EU-27 over the years, which also reflects the depreciation of the national currency against the euro. In December 2011, the average monthly petrol price per litre in euros was €1.246, or 12.6 per cent below the EU-27 average price. The diesel price in euros was €1.276, or 8.3 per cent below the EU average. However, the fact that Romania's average real income per capita expressed at PPP, i.e. adjusted for differences in price levels across countries, was only some 46 per cent of the EU average in 2010 suggests that many private households will not find it easy to afford a motor car and use it extensively.

Liability for violations of environmental regulations

Persons or legal entities found liable for violations of environmental norms and regulations are subject to sanctions, which comprise:

- Payment of fines;
- Remediation of the damage caused to the environment and compensation of third parties affected (civil liability);
- Suspension or cancellation of the environmental permit; temporary or final closure of activity; imposition of specific measures designed to ensure compliance with environmental regulations (administrative liability).

The general legal basis for this is GEO No. 68 (2007) on Environmental Liability with Regard to the

Prevention and Remediation of Environmental Damage, which transposed Directive 2004/35/EC of the European Parliament and of the Council of 21 April 2004 on environmental liability with regard to the prevention and remedying of environmental damage.

Other relevant legislative instruments are GEO No. 195 (2005) on Environmental Protection, and GEO No. 152 (2005) on Integrated Pollution Prevention and Control. The imposition of fines and other sanctions is decided by NEG (chapter 2). In the event of criminal acts, the consequence can also be imprisonment, to be decided by a court. As regards non-compliance with water pollution standards, fines are mainly established and collected by NARW.

Water pollution fines have been progressively revised upwards in line with changes in effluent charge rates in recent years. In 2010, total fines imposed by NARW for accidental non-compliance with water pollution standards, illegal exploitation of gravel, non-compliance with permits for use of ponds, etc., amounted to some 6.16 million lei (about €1.46 million).

In 2010, the total amount of fines imposed by NEG for non-compliance with environmental regulations amounted to 77.3 million lei (some €18 million), an increase of 57 per cent compared with 2009 (table 5.14). Fines were imposed in 5,592 cases, which corresponds to about 9.5 per cent of the total number of inspections carried out in that year. The arithmetic average of fines per case amounted to 13,820 lei (€3,260) in 2010.

Violations of pollution norms accounted for the bulk of fines (83 per cent) in 2010, while the rest of the fines concerned sanctions imposed in the environmental domains of biodiversity, biosafety and PAs. However, only about one quarter of all fines imposed were actually collected in 2010. The collection rate was closer to 20 per cent in 2009 and 2005 (there are no data on fines available in the public domain for the years 2006–2008). Revenues collected from fines are allocated to the general State budget with the exception of water pollution-related fines, which are earmarked for water quality protection and monitoring.

There is no legal provision in Romania for mandatory insurance protection concerning civil liability for environmental pollution. There is no information pertaining to the demand for such insurance and the number of insurance companies offering such contracts. It was noted, however, that, so far, there do not seem to have been any insurance claims made in connection with environmental liability in Romania. It is noteworthy in this context that Law No. 260 (2008) provides a legal basis for the compulsory insurance of all dwellings against earthquakes, landslides or flooding.

Greenhouse gas emissions trading scheme

Romania has been participating in EU ETS for GHGs since 2007, which was the last year of the first phase of the scheme (EU ETS covers activities in the energy sector; iron and steel production and processing; the mineral industry; and the wood pulp, paper and board industry). The legal basis for this is GO No. 780 (2006), as further amended, which transposes EU Directives 2003/87/EC,[29] 2004/101/EC,[30] 2008/101/EC[31] and 2009/29/EC[32] (partially). The current, second phase (2008–2012) coincides with the first commitment period of the Kyoto Protocol.

The national emission limits and the allocation of emission allowances among the participating installations are specified in the national allocation plan. During the second allocation period (2008–2012), the maximum emission allowances allocated to Romania amount to 349.67 million tons, which works out at an average of 69.93 million tons/year, representing 3.7 per cent of the total allowance allocated under EU ETS for 2008–2012. There are some 230 installations in Romania which have the required permit to participate in emissions trading during 2008–2012. The 10 operators with the highest allocations account for more than half (53 per cent) of the total allocated emission allowances.

EU ETS is linked to the Kyoto Protocol and its project-based mechanisms, the Clean Development Mechanism (CDM) and Joint Implementation (JI).

[29] Directive 2003/87/EC of the European Parliament and of the Council of 13 October 2003 establishing a scheme for greenhouse gas emission allowance trading within the Community and amending Council Directive 96/61/EC.

[30] Directive 2004/101/EC of the European Parliament and of the Council of 27 October 2004 amending Directive 2003/87/EC establishing a scheme for greenhouse gas emission allowance trading within the Community, in respect of the Kyoto Protocol's project mechanisms.

[31] Directive 2008/101/EC of the European Parliament and of the Council of 19 November 2008 amending Directive 2003/87/EC so as to include aviation activities in the scheme for greenhouse gas emission allowance trading within the Community.

[32] Directive 2009/29/EC of the European Parliament and of the Council of 23 April 2009 amending Directive 2003/87/EC so as to improve and extend the greenhouse gas emission allowance trading scheme of the Community.

Table 5.13: Petrol retail prices for motor fuels, 2000, 2005–2011

Year	Petrol	Diesel	Petrol	Diesel	Petrol	Diesel
	Lei/litre		Index 2005=100		Real price index 2005=100	
2000	2.25	1.84	74.26	61.74	171.70	142.80
2005	3.03	2.98	100.00	100.00	100.00	100.00
2006	3.56	3.44	117.49	115.44	110.20	108.20
2007	3.72	3.55	122.77	119.13	109.60	106.70
2008	4.22	4.53	139.27	152.01	115.50	126.00
2009	3.45	3.43	113.86	115.10	89.30	90.30
2010	4.31	4.18	142.24	140.27	105.20	103.80
2011	5.15	5.20	169.97	174.50	118.90	122.00

Source: Europe's Energy Portal: www.energy.eu; ECE calculations.
Note: Petrol = unleaded 95, E95, Euro 95 or Super 95.
Average annual prices. Prices include all duties and taxes.
The real price index is calculated by deflating the nominal fuel price indices with the total CPI.

This means that emissions reduction units (ERUs) from the CDM and JI are equivalent to EU emission allowances with the exception of credits generated from Land Use, Land Use Change and Forestry (LULUCF) and nuclear installations.

On 1 November 2011, Romania had registered 15 JI projects with the UNFCCC Joint Implementation Supervisory Committee. The projected ERUs amount to 17.3 million by the end of the commitment period on 31 December 2012. The JI/CDM limit for 2008–2012 for Romania is 10 per cent of its annual emissions cap under EU ETS. In other words, this is the maximum share of total allowed emission reductions that can be accounted for by emissions-saving projects under the CDM and/or JI mechanism.

In late August 2011, the UNFCCC Committee on Kyoto Protocol compliance found that Romania's NGHGI for 2010 did not meet the reporting rules for emissions and decided to suspend Romania from participation in the market-based mechanisms of the Kyoto Protocol. The direct implication is that Romania can no longer trade emission reduction credits generated under Track 1 of the JI.[33] This also means that Romanian companies cannot transfer EU emission allowances under EU ETS to and from other EU member countries. However, trading within the domestic market is not affected by this measure. At the time of writing, the time frame required for addressing the problems found with the NGHGI (notably, lack of accuracy) was uncertain.

Under the Kyoto Protocol, Romania has a GHG emissions reduction target of 8 per cent for the commitment period 2008–2012 compared with the base year, 1989. Meeting this target is not expected to pose a problem, given that the massive process of deindustrialization during the 1990s led to a significant decline in GHG emissions compared with the base year. The upshot is that Romania has a very large surplus of so-called AAUs under the Kyoto Protocol, which amounted to some 300 million at the end of 2010. So far, Romania has not exploited the possibility of trading some of this surplus on the international carbon markets.

The World Bank has, in fact, proposed to use these revenues for a Green Investment Scheme facility. A good opportunity for doing this may have been missed in the past, given the recent decline in global average prices of carbon allowances against the background of global economic crisis. The average annual global price of carbon allowances was €11.20 per ton in 2011. If Romania had been able to sell all its AAUs at that price, the total revenues would have amounted to some €3 billion in 2011.

Environmentally friendly subsidies

Motor vehicles scrapping programme

The Government has been implementing a national car fleet renewal programme that is known under the name "Rabla" ("Jalopy" in English).[34] The

[33] The JI track I procedure requires that a host party meets all the eligibility requirements for verifying emission reductions or enhancements of removals from JI projects as being additional to any that would otherwise occur. Countries that do not fully meet the eligibility requirements have to follow the JI track 2 procedure, which involves the assessment of the "additionality" issue by an independent entity.

[34] Jalopy is a slang term from the 1930s for a decrepit automobile.

programme was launched in 2005 and has since been extended on an annual basis.

Owners of motor cars (mainly passenger cars and light commercial vehicles) receive a voucher for the scrapping of their old car, which in turn entitles them to a corresponding reduction of the sales price when purchasing a new car from an accredited retailer. The purchase of the new car has to take place within a given period of time, after which the voucher loses its value. The scrapping premium was 3,000 lei (about €710) per car between 2005 and 2008 and the minimum age of eligible cars scrapped was 12 years. A person could only participate in the programme with a single car. Since 2009, the minimum age of eligible cars was lowered to 10 years, and the subsidy per car was increased to 3,800 lei (about €900). Since 2010, car owners have been able to participate in the programme with up to three old cars for the purchase of a new car. In practice, this has meant that the vouchers for scrapping a car could be sold to persons who wanted to buy a new car.

Between 2005 and 2011, some 415,000 cars were scrapped within the framework of the car fleet renewal programme and some 211,000 new cars were purchased (table 5.15). The official environmental objective of the Rabla programme has been to improve air quality with attendant favourable health impacts, due to, *ceteris paribus*, lower exhaust emissions (g/km) from new cars, in line with EU exhaust emission standards. Another benefit of the scrapping programme has also been to raise the overall safety quality of the car fleet. The organized scrapping of old cars has also allowed systematic waste recovery and recycling of parts of obsolete vehicles. Overall, however, estimating the environmental benefits of scrapping schemes is not straightforward in terms of the impact on exhaust emissions. This is because total emissions depend on the effective use of the car, and the acquisition of a new car may well lead to driving more kilometres compared with the old car, which may well largely offset the lower emissions per kilometre.

An important objective of the programme, notably after 2008, was also to boost the domestic motor vehicle production sector against the background of the sharp fall in overall economic activity. However, the overall fiscal stimulus was relatively limited, amounting to a cumulative 0.3 per cent of GDP during the period 2005–2011. The programme has been financed by EFA, which allotted 1.63 billion lei (some €385 million) to it over the period 2005–2011. Actual expenditures amounted to 1.52 million lei (some €360 million), equivalent to 93 per cent of the allotments (table 5.15). In fact, the Rabla programme has been the dominant expenditure item in the budget of the EF in recent years (chapter 6). EFA has also been financing a scrapping programme for tractors and other self-propelled agricultural machinery, which was launched in 2009.

This programme provides a scrapping premium up to 17,000 lei (some €4,040) per vehicle, which has to be used for the purchase of a new vehicle. However, the total subsidy may not exceed 40 per cent of the sales price (excluding VAT) of the new equipment purchased.

Support for renewable energy sources: quotas and green certificates

Romania's main instrument for promoting the use of electricity based on renewable energy sources (RES) is a system of quota obligations that is combined with tradable renewable energy certificates (called green certificates, or GCs).[35] Additional incentives for shifting away from fossil fuels are provided by EU ETS.

The scheme was established in 2004, but was overhauled in 2008 (Law No. 220 (2008)) in order to strengthen incentives required for meeting the EU mandatory renewable energy target for 2020.[36] The target set for Romania is a 24 per cent share of RES out of total final energy consumption. Moreover, the Energy Strategy for the period 2007–2020 (GD No. 1069 (2007)) established national targets of a 35 per cent share of RES out of final electricity consumption by 2015 and 38 per cent by 2020.

Law No. 220 (2008) was, however, in legal limbo because of questions by the European Commission as to whether the support scheme was in line with EU State aid regulations. In July 2011, the European Commission communicated its decision that the support scheme was indeed in line with EU State aid regulations. Some necessary revisions and amendments of Law No. 220 (2008) were introduced with GEO No. 88 (2011). Secondary legislation (MOs Nos. 42, 43 and 45) for regulating the GC scheme developed by ANRE was published in November 2011. As a result, the amended scheme only became fully operational in late 2011.

[35] Similar schemes have been operated in Belgium, Italy, Poland, Sweden and the United Kingdom of Great Britain and Northern Ireland.

[36] Directive 2009/28/EC of the European Parliament and of the Council of 23 April 2009 on the promotion of the use of energy from renewable sources and amending and subsequently repealing Directives 2001/77/EC and 2003/30/EC.

Table 5.14: Revenues from fines for non-compliance with environmental regulations, 2005–2010

million lei

Environmental domain	2005	2006	2007	2008	2009	2010
Pollution control	..	54.99	..	..	..	64.10
Biodiversity, biosafety, protected areas	..	6.73	..	..	..	13.20
Total fines imposed	20.07	61.71	..	..	49.28	77.30
Revenues collected	4.05	..	..	..	10.45	18.89
Collection rate (per cent)	20.20	..	..	..	21.20	24.40
Memorandum item						
Total fines imposed (€ million)	4.74	14.56	..	..	11.63	18.24
Revenues collected (€ million)	0.96	..	..	..	2.47	4.46

Source: National Environmental Guard, annual activity reports for 2005, 2006, 2010.
Note: Data in euros were calculated using the average annual exchange rate for 2011 (€1 = 4.2379 lei).

Table 5.15: "Rabla" old motor cars scrapping programme, 2005–2011

	Unit	2005	2006	2007	2008	2009	2010	2011	Total
Budget allotment	million lei	45.0	49.5	49.5	120.0	190.0	722.0	450.0	1,626.0
Actual expenditures	million lei	43.8	45.3	49.3	91.4	122.8	719.4	443.2	1,515.2
Actual expenditures	per cent of GDP	0.015	0.013	0.012	0.018	0.025	0.140	0.082	..
Subsidy per car	lei	3,000	3,000	3,000	3,000	3,800	3,800	3,800	..
Cars scrapped	number	14,607	15,110	16,444	30,466	32,327	189,323	116,641	414,918
New cars purchased	number	14,607	15,110	16,444	30,466	32,327	62,550	39,216	210,720
of which:									
Cars produced in Romania	number	..	..	..	..	..	25,263	15,005	..

Source: Environmental Fund Administration (direct communication); ECE calculations.
Note: Since 2010, up to three vouchers can be used for the purchase of a single car.

RES covered by the scheme are hydropower (only plants with less than 10 MW capacity), wind, solar, biomass, landfill gas, sewerage treatment plants gas, and geothermal energy. The scheme obliges electricity supply companies to meet an annual quota of their total electricity supply to end users by purchasing of electricity from RES on the wholesale market.

These annual mandatory quotas are determined by ANRE. The quota, i.e. the percentage share of electricity from RES out of total electricity supply, was 8.3 per cent for 2010, 10 per cent for 2011 and 12 per cent for 2012. There will be further annual increases in this quota, which is forecast to reach 20 per cent by 2020.

For each MWh of electricity sold to a supplier, producers of electricity from RES receive a number of GCs from the national grid operator (Transelectrica), which can be traded. In turn, electricity suppliers are obliged to acquire the number of GCs corresponding to their annual quota for RES electricity. They can purchase the GCs either directly from RES producers based on bilateral contracts or on a special central trading platform administered by OPCOM, the national electricity market operator.

ANRE has established a minimum and maximum sales price for GCs, which in 2012 can be neither lower than €25 nor higher than €55. These prices are indexed annually to the CPI and guaranteed until 2025. The minimum price is designed to protect investors in RES, while the upper limit is to shield end users from excessive increases in electricity prices. It is noteworthy that the regulatory framework for Government support of electricity from RES does not reflect developments in fossil fuel prices, the benchmark for gauging the competitiveness of RES.

This system is an alternative to feed-in tariffs,[37] which have been widely used in Europe for supporting the development of RES electricity. GCs are tradable assets with a guaranteed minimum price that provide additional income for renewable energy

[37] A feed-in tariff obliges energy suppliers in the retail market to buy any electricity produced from renewable sources and to do so at a fixed price over a specified period. The feed-in tariff is significantly above that paid for electricity from non-renewable sources. The tariff rates can vary for different sources of renewable energy. In general, there is no amount or proportion specified, though a cap or quota on how much has to be purchased overall or from particular sources may be applied.

generators in addition to the price of electricity sold in the wholesale market. The creation of a market for GCs will, moreover, create competition between renewable energy producers, who have to define their pricing strategies in the wholesale electricity market and on the market for GCs.

In Romania, the quota system is not technology neutral, because the number of certificates issued per MWh of electricity depends on the type of RES technology. Producers of electricity from solar energy (photovoltaic installations) receive six certificates per MWh of electricity delivered, compared with two for wind power and three for biomass installations. Electricity from new hydropower plants is awarded three certificates, refurbished plants receive two certificates, while other small hydropower plants receive only one. The underlying rationale is to promote mainly the development of solar power, which, so far, has hardly played a role in Romania. In fact, the higher number of certificates issued for solar power is designed to compensate for the higher risks concerning the profitability of such investment.

In 2010, there were 48 RES electricity producers registered under the GC scheme with an installed capacity of 469.5 MW, of which nearly 78.9 per cent was wind power, 16.2 per cent was small hydro, and 5 per cent was biomass. The share of photovoltaics was negligible (0.002 per cent). The total number of GCs issued was about 677,000.

Electricity suppliers which do not meet their annual mandatory quota of GC purchases have to purchase the corresponding number so as to meet their quota, but at a penalty rate of €110 (this compares with a maximum trading price that was set at €55 for 2011). The corresponding revenues will be collected by the operator of the electricity transmission system (Transelectrica) and transferred to the EF. These revenues are earmarked for supporting investments of small individual producers of electricity from renewable sources.

Green Home (Casa Verde) programme

GO No. 25 (2008) provides for the establishment of a programme for installing heating systems using renewable energy in private homes, including replacing and supplementing conventional heating systems. This programme, called Casa Verde, was launched at the beginning of July 2010. Only individuals are eligible for receiving financial support, which is non-reimbursable. Grants can amount to, for example, up to 6,000 lei (some €1,420) for solar panels and up to 8,000 lei (some €1,890) for installation of heat pumps and air conditioners. The programme is financed by EFA using part of the revenues from the car pollution tax, which are earmarked for this and other purposes. Expenditures under this programme amounted to some 36 million lei (€8.5 million) in the second half of 2010. The budget for 2011 was 100 million lei (€23.5 million), and it has been increased to 150 million lei (€35 million) for 2012.

Promotion of high-efficiency combined heat and power generation (cogeneration)

This State-aid support scheme became effective at the beginning of April 2011. It is planned to be operational until 2023 and has an allocated budget of 20.3 million lei (€4.8 million). The scheme provides a bonus for high-efficiency cogeneration power plants that save at least 10 per cent fuel compared with alternative production technologies. The bonus is intended to make up for the difference between the production costs of high-efficiency cogeneration and sales prices. The amount of the bonus is established by ANRE based on the electricity (MWh) produced in high-efficiency mode and delivered to the national energy system. The bonus is financed by extrabudgetary funds, namely, a monthly surcharge on the electricity bills of final consumers and from electricity suppliers who are exporting electricity.

Energy efficiency of buildings

The energy efficiency of residential buildings is very low and the energy savings potential is correspondingly considerable. In fact, the savings potential is probably the highest among all major sectors in the country. It is noteworthy that this was hardly considered in Romania's First National Action Plan for Energy Efficiency (2007–2010). The Government has now established the legal basis for support schemes designed to improve the energy performance of residential buildings (GEO No. 18 (2009) and GEO No. 69 (2010)). The scheme involves either direct cofinancing of the corresponding works (up to 50 per cent from the State budget and another 30 per cent from other public sources) and State guarantees, or subsidized interest rates for bank loans. There is no information on implementation so far.

Eco-labels

Romania has taken the first steps towards the promotion of eco-labelling of products by means of information and awareness-raising campaigns targeted at consumers, producers, retail and wholesale traders, public institutions and the media.

At the end of 2011, only four eco-label licences had been granted, compared with a total of some 1,100 in the EU-27.

In a similar vein, the participation of companies and other legal entities in EMAS is still quite modest. MoEF conducts regular market surveillance activities on energy labelling to verify compliance with requirements for energy efficiency labelling of household appliances such as refrigerators, dishwashers, light bulbs, laundry machines and electric ovens.

Green public procurement

The main institution regulating, monitoring and controlling public procurement is the National Authority for Regulating and Monitoring of Public Procurement, a public institution established by the Government in 2005. The EU legal framework for GPP[38] was introduced at national level via GEO No. 34 (2006). GD No. 925 (2006) provides further rules for the implementation of GEO No. 34. This gives contractors (purchasers) the right to apply, under certain conditions, environmental criteria or technical specifications related to environmental standards in public sector tenders. In 2008, the Government adopted the National Plan for Environmentally Friendly Public Procurement for the period 2008–2013. The Plan, which entered into force in 2009, fixes a target of 7 per cent for green procurement by public authorities.

The implementation of GPP is still at an embryonic stage, which may partly reflect the impact of the global economic crisis. The development of a National Action Plan on GPP has been delayed. There are no mandatory GPP targets as yet. In order to create and expand the market for GPP, MoEF has developed projects for dissemination, promotion and implementation of GPP policies. These projects, which aimed inter alia at building up a critical mass of GPP specialists in public sector institutions, were supported by Norway (through the EcoEmerge project) with a grant amounting to €2 million over a period of two years (2009–2011). It also involved informing the business sector about the ecological criteria for the product groups covered by the GPP.

[38] Directive 2004/17/EC of the European Parliament and of the Council of 31 March 2004 coordinating the procurement procedures of entities operating in the water, energy, transport and postal services sectors; subsequent amending acts of this Directive; and Directive 2004/18/EC of the European Parliament and of the Council of 31 March 2004 on the coordination of procedures for the award of public works contracts, public supply contracts and public service contracts.

5.3 Conclusions and recommendations

Romania applies a system of taxes for emissions of air pollutants and water pollutants. Emissions above the limits established in permits are subject to fines per kg of excess emissions in addition to the standard tax rate. Not all air pollutants that are subject to emission limit values, however, are also subject to a pollution tax. This holds notably for VOCs and fine particles (PM_{10}). Revenues collected from pollution taxes are earmarked for environmental protection projects. Some of the tax rates applied appear to be rather low, also when compared with rates applied in other countries. This suggests that their main purpose is to raise revenues. There is no publicly available evaluation of these taxes as regards their impact on the behaviour of polluters.

Recommendation 5.1:
The Ministry of Environment and Forests should:

(a) Review air and water pollution taxes with a view to ascertaining and strengthening their environmental effectiveness; and
(b) Consider applying air pollution taxes to further major pollutants and submit relevant proposals to the Government for adoption.

There is a system of waste taxes applied to waste generation by enterprises. In some cases, these taxes are also linked to recycling targets based on EU directives or national targets. In addition, there is a landfill tax on the deposit of potentially recoverable/recyclable waste and a new tax (effective 2011) to be paid by municipal administrations that fail to meet the established annual targets for reduction of waste collected and deposited.

Efforts to systematically organize municipal waste collection and disposal have only started in earnest in recent years. Waste collection fees for private households are typically applied on a per capita basis. It appears that there are many regions where municipal waste management is only at an embryonic stage. There is no published information on the degree of cost recovery of waste charges applied and on collection rates.

Recommendation 5.2:
The Government should:

(a) Monitor and evaluate the impacts of the waste management taxes and other waste charges on waste generation;
(b) Ensure that municipal waste collection charges are applied systematically across the country and that there are adequate incentives for waste sorting, deposit-refund schemes and waste recycling; and

(c) *Set waste taxes and charges for manufacturing waste.*

The water supply and sewerage sector has been undergoing a significant transformation with the establishment of regional water companies. Improvements in the water supply and sewerage infrastructure have gone hand in hand with a progressive increase in tariffs to cost recovery levels. However, the system of water abstraction charges does not appear to be generating sufficient revenue to cover adequate repair and maintenance of the corresponding infrastructure, including the need to cope with damage from weather hazards.

Recommendation 5.3:
The Government should review the system of water abstraction charges and water supply and sewage tariffs and adjust rates with the aim to ensure the implementation of the principle of full cost recovery.

Car owners are subject to a car pollution tax, which is basically a registration tax with an exhaust emission norm component. There is also an annual car ownership tax, levied by local authorities, which is based on engine capacity. Fuel excise duties have been set at or closely above EU minimum rates. There are, moreover, countrywide user charges for national roads and highways.

The car pollution tax (a one-off tax) and the annual ownership tax are not related to actual car use and are therefore unlikely to impact upon purchasing decisions concerning the fuel efficiency of cars, which are more likely influenced by the level of fuel excise duties. In turn, the overall price of petrol in combination with road user charges also plays an important role as regards the actual use of cars and the choice between public and private transport.

Recommendation 5.4:
The Government should explore the scope for strengthening the role of fuel taxes and road user charges for dealing with road transport pollution.

Legislation to liberalize the electricity and gas markets for end users entered into force in 2007. However, a large proportion of consumers (residential users and small and medium-sized enterprises) have preferred to stay in the regulated market segment, given a lack of financial incentives to switch to suppliers in the competitive market segment. Electricity prices in Romania are among the lowest in the EU, and gas prices have been the lowest for many years. There is evidence of cross-subsidization of residential users by industrial users. Low energy prices, in turn, stimulate demand not only from residential users but notably in energy-intensive industries. At the same time, they curb incentives for private investors to engage in the energy sector, which in principle has a strong need to attract private capital. In the district heating sector, the problem of subsidization of heat prices by the central and local governments has been addressed with the elimination of central Government subsidies and the need for local government to fully fund subsidies from current revenues.

Recommendation 5.5:
The Government should:
(a) *Gradually raise gas prices to levels that correspond to effective unit supply costs;*
(b) *Phase out regulated electricity and gas prices; and*
(c) *Retain effective support of vulnerable consumers by means of well-targeted direct income support.*

The main instrument employed by the Government to promote the increased use of renewable electricity is a mandatory quota system combined with tradable GCs, similar to the system applied in other European countries. It can be considered as an alternative to feed-in tariffs, which are also being widely used for promoting renewable electricity.

Each GC represents the value of renewable electricity at a given point in time, providing producers with market signals. On the other hand, the price range established for trading certificates is relatively wide and cannot therefore really remove risks concerning the current and future price of certificates. Compared with feed-in tariffs, producers of renewable electricity face price risks on the market for electricity, in addition to price risks on the certificates market. These risks are typically reflected by higher risk premiums and the cost of capital for investment projects, which will ultimately have to be borne by the final consumer.

More generally, given these price risks that investors are facing, such a quota obligation system is best suited to renewable technologies that are relatively mature and close to being competitive with fossil fuels (such as onshore wind and biomass). In contrast, feed-in tariffs are probably better for promoting less mature technologies, given that they provide more stable and low-risk price incentives.

At the same time, Romania still relies significantly on fossil fuels for producing electricity. The coal mining sector continues to be supported by considerable subsidies.

Recommendation 5.6:

The Government should:

(a) Closely monitor and regularly evaluate the effectiveness and efficiency of the quota obligation and green certificates system in achieving the renewable energy targets as well as the interactions with the EU emissions trading scheme (EU ETS);

(b) Consider phasing out support for renewable energy sources once they have become competitive with fossil fuels; and

(c) Establish a timetable for phasing out existing coal subsidies.

Chapter 6

EXPENDITURES FOR ENVIRONMENTAL PROTECTION

6.1 Introduction

Economic context

Romania is a small, open economy with an openness ratio (exports and imports relative to GDP) of some 75 per cent in 2008–2010. The EU is the major market for Romania's exports as well as the major origin of its imports, with a more than 70 cent share of its world exports (imports). As is the case in other countries with economies that underwent a process of transition, the services sector now accounts for the largest proportion of total gross value added (64.8 per cent in 2010), followed by industry (28.5 per cent) and agriculture, forestry and fishing (6.7 per cent). Yet the agricultural sector still occupies a very important role in the labour market, accounting for 30 per cent of total employment in 2010. This also reflects the very low productivity in the agricultural sector relative to the other sectors. The corresponding shares of industry and services are 28.7 per cent and 41.2 per cent respectively.

Romania experienced very rapid economic growth during 2000–2008, when real GDP increased at an average annual rate of 6.3 per cent. This economic boom was largely driven by domestic demand, which was fuelled by favourable financing costs for loans extended by banks to the private sector and an expansionary fiscal policy stance. Rapid growth in imports led to a deterioration of external balances, mirrored by high current account deficits (11.6 per cent of GDP in 2008). The structural Government budget deficit was estimated at 8.5 per cent of GDP in 2008. Against the backdrop of the global financial crisis of 2007 and the associated rise in risk aversion, there were also increasing concerns about Romania's domestic and external imbalances, reflected by a sharp fall in capital inflows and a sizeable deprecation of the national currency (leu) against the euro and other major currencies. In the event, the boom petered out into a sharp fall in real GDP of 7.1 per cent in 2009, followed by a further decline of 1.3 per cent in 2010. Economic activity edged up again in 2011, when overall economic growth amounted to some 1.5 per cent, but the short-term economic outlook is surrounded by a large margin of uncertainty, notably given the lingering problems in the eurozone.

The Government's efforts to correct economic and financial imbalances have been supported since May 2009 by a financial assistance programme from the EU, the IMF SBA and loans from the World Bank, EIB and EBRD. The major focus of Government policy is now medium-term fiscal consolidation and the pursuit of structural reforms in a wide range of areas.

Measures to consolidate public sector budget deficits have included an increase in the VAT rate from 19 to 24 per cent, a 25 per cent cut in the wages of civil servants and cutbacks in public sector employment. A Fiscal Responsibility Law was adopted in 2010, designed inter alia to improve medium-term fiscal planning and establish fiscal rules for public expenditures as well as limits on budget revisions during the course of the year. The austerity policy is complemented by a range of structural reforms aimed at boosting overall international competitiveness. The reform agenda includes reforms of the tax system, labour markets, education and health systems, social protection, elimination of red tape, and strengthening of administrative capacity as well as improvements in the regulatory environment. A new Law on Social Assistance, which entered into force in early 2012, has led to a significant tightening of eligibility criteria. The impact of the global economic crisis and the austerity policy on environmental protection expenditures in the public and private sectors is difficult to gauge. To cite one example, however, the budget allocation for thermal rehabilitation of buildings in 2009 and 2010 was slashed from a planned cumulative amount of 72.9 million lei (€17.2 million) to 34 million lei (€8 million)[39] due to budget constraints.

The IMF SBA has also focused attention once again on a number of large enterprises that had remained in State ownership until now. FDI, largely related to privatization of State-owned enterprises (SOEs), was the major source of financing of current account

[39] Figures in euros were calculated using the average annual exchange rate of 2011 (€1 = 4.2379 lei).

deficits between 2000 and 2007, when the privatization programme came to an end. The enterprises that have remained in State hands are largely concentrated in the energy, mining and transport sectors. Yet many companies are not economically viable and will now have to undergo restructuring to be followed by at least partial privatization and stringent changes in governance. Non-viable enterprises will be closed down. Unpaid bills of SOEs amounted to some 4 per cent of GDP in 2011. The EBRD estimated that in mid-2010, the private sector's share of GDP was some 70 per cent, broadly the same as in other countries with economies in transition.

Despite the recent economic setback, overall standards of living in Romania have improved significantly over the past decade. Real GDP per capita rose by nearly 60 per cent in 2011 compared with 2000. There has also been considerable progress in catching up with average living standards in the EU. GDP per capita (at PPP) was 46 per cent of the EU-27 average, up from 26 per cent in 2000. However, Romania has remained, with Bulgaria, the country with the lowest per capita income in the EU. As from the beginning of 2011, the monthly gross minimum salary was raised to 670 lei (about €159), up from 600 lei (€142.50).

Increased efforts for the greening of economic growth

Accession to the EU in 2007 has led to the need for compliance with the EU *acquis communautaire* in the area of environmental protection, viz. some 200 major legal acts relating to water and air quality, industrial pollution and risk management, waste management, chemicals and noise. While all pertinent EU directives concerning environmental protection have been transposed into national legislation, effective implementation has been more limited (chapter 1). The need to ensure compliance with the EU *acquis* will require considerable investment, which can be expected to generate significant environmental benefits and will therefore contribute to a further greening of economic growth. A prerequisite for this is to establish well-endowed and competent administrations at the central, regional and local government levels for the application and enforcement of the *acquis.*

The environmental upgrades required to meet EU standards are estimated at some €30 billion for 2004–2015, a large portion of which is to be funded by municipalities. Among the biggest challenges facing the country are the improvement and extension of transport, energy and water sector infrastructure. Although substantial EU financial and technical assistance has been made available, the absorption of these so-called structural funds has been very low thus far.

Efforts designed to promote the greening of economic growth are basically a subset of sustainable development policies. There is a wide range of measures at the macroeconomic and microeconomic levels that can promote the shift to a greener economy. These include the effective use of regulatory and market instruments for environmental protection; the removal of environmentally harmful subsidies; the promotion of energy efficiency and RES; and the promotion of eco-innovation, GPP and the cost-effective use of scarce private and public resources for environmental investments in all major environmental domains. In 2008, Romania adopted NSDS-2, the main focus of which is on compliance with EU environmental requirements. However, the Strategy is not underpinned by an implementation plan, and an interim report on implementation announced for June 2011 has been delayed.

One of the major challenges in Romania is to significantly improve the energy intensity[40] of economic activity. Energy intensity fell by some 36 per in 2009 compared with 2000, but was still significantly greater (by a factor of 3.5) than the EU average. There is also great scope for increasing the share of electricity produced from RES, which fell from 36 per cent in 2005 to 28 per cent in 2009. Resource productivity, defined as the ratio of domestic material consumption expressed in kg to GDP, has been stagnating at a low level since 2000; in 2007 (the last year for which data were available at the time of preparing this report), it came to some 20 per cent of the EU-27 average.[41]

Another key challenge is to step up R&D and innovation, which are strategic factors for improving international competitiveness. Total national gross expenditure on R&D has remained broadly stable at a level corresponding to some 0.5 per cent of GDP over the past decade. This level is significantly below the EU average of 2 per cent in 2010. The global economic crisis has, moreover, entailed cuts in public R&D funds. The Innovation Union Scoreboard 2010 classifies Romania as one of the modest innovators in the EU with a below-average performance. Romania

[40] As measured by the ratio of gross inland consumption of energy to real GDP.

[41] Based on GDP at PPS – PPS is the technical term used by Eurostat for the common currency in which national accounts aggregates are expressed when adjusted for price level differences using PPP.

has adopted a national road map for the implementation of the EU Environmental Technology Action Plan but, as with other national innovation polices, implementation has been slow and often held back by major weaknesses of the R&D system, such as a failure to attract human resources and insufficient enhancement of public–private partnerships. The Government's National Reform Programme for the period 2011–2013 notes, however, that a national innovation strategy will be developed to promote innovative enterprise clusters in sectors such as energy and transport.

6.2 Environmental expenditures and their financing

Romania has been confronting major challenges across all major environmental domains. Considerable investments have been made and more still are needed in areas such as water supply and wastewater treatment, waste management, and air, soil and groundwater pollution. There is also much to be done in other areas, such as energy efficiency. The financing of these investments requires the involvement of both the private and public sectors as well as foreign resources, notably EU structural funds and loans from international financial institutions.

Environmental Fund

The EF was established by Law No. 73 (2000) as an extrabudgetary legal entity. The legal basis for EF operations was overhauled by GEO No. 196 (2005), which effectively cancelled Law No. 73 (2000) and subsequent amendments.[42] The EF became operational in June 2002, but the first projects were financed only from 2004. The Fund is managed by EFA, a public institution coordinated by MoEF. The general mandate of the Fund is the financing of national priority projects in the area of environmental protection. EFA has set up regional offices in all counties. It had a total staff of 194 in 2011, up from 147 in 2010 and 82 in 2005.

The two main components of EFA's internal decision-making structure are the Management Board and the Endorsement Committee. The responsibilities of the Management Board notably include the execution of the annual budget, as endorsed by MoEF; preparation of the annual work plan; and submission of proposals for projects and financing details for review and approval by the Endorsement Committee. The Endorsement Committee is composed of: three high-level representatives of MoEF; two representatives of MoETBE; and a representative of each of the following; the ministry in charge of forestry (nowadays an additional representative of MoEF), the public health authority, the Ministry of Finance, the Ministry of Transport and Infrastructure, the Ministry of Administration and Interior, the Employers' Confederation, environmental NGOs; and the Office of the President.

EFA activities are fully self-financed from the various taxes and charges earmarked for the financing of environmental projects. EFA is responsible for collecting all the corresponding revenues, a certain quota of which is allocated for the financing of its operating and capital expenditures.[43]

This quota was raised to 5 per cent as from mid–2010, up from 3 per cent at the beginning of its operations. The quota increase was motivated by EFA's lack of adequate administrative capacity (human resources, office space, technical equipment) for carrying out its key functions, which notably include project selection, monitoring of project implementation and revenue collection. The increased resources allocated for financing of EFA current and capital expenditures are reflected by a sharp increase (more than 30 per cent) in the number of staff in 2011.

Environmental Fund revenue

The EF derives its revenues from a number of taxes and charges ("contributions") related directly or indirectly to polluting activities, waste management and natural resource use (chapter 5). More generally, these payments are intended to reflect the "polluter pays" principle, the principle of producer responsibility and the "user pays" principle. The legal basis for all but one of these levies is GEO No. 196 (2005), as amended and complemented subsequently. Revenue sources based on GEO No. 196 (2005) are:[44]

- A tax on emissions of certain air pollutants from stationary sources;
- A contribution of 2 lei/kg by economic operators who sell packaging and packaged goods on the domestic market, depending on the degree of achievement of official recycling objectives;

[42] GEO No. 196 (2005) has also been subject to several amendments and additions, the latest being GEO No. 150 (2010) which was approved by Law No. 167 (2010).

[43] The start-up of EFA activities was financed out of the State budget.

[44] Status at the end of 2011.

Photo 6.1: ASTRA Museum of Traditional Folk Civilization, Sibiu

- A fee of 1 lei/kg of tyre to be paid by producers and importers of new and/or reused tyres depending on the extent to which official recycling and recovery targets are achieved;
- A contribution of 2 lei/litre of waste oil (effective as of 1 January 2012) to be paid by economic operators who place these oil products on the market, depending on the achievement of the officially established oil waste management objectives;
- A fee ("ecotax") of 0.1 lei per piece of plastic shopping bags made available to clients in retail and wholesale trade shops;
- A fee collected from landfill operators who use correspondingly reclassified new land for storage of recyclable waste;
- A levy of 100 lei/kg to be paid by territorial administrative units, depending on the extent to which the official annual targets for reducing the collection and disposal of municipal waste are not achieved (effective as of January 2011);
- A share of 3 per cent of revenue (excluding VAT) from the sale of ferrous and non-ferrous metal waste obtained by corresponding companies engaged in the collection and/or recovery of metal waste;
- A contribution of 2 per cent of the sales value (excluding VAT) of substances classified as hazardous introduced by economic operators on the domestic market (except substances used for the production of pharmaceuticals);
- A contribution of 2 per cent of the sales value of timber received by the administrators or owners of forests;
- A contribution of 3 per cent of the annual fees to be paid by physical or legal entities that are managing hunting funds;
- Interest income from accrued, unspent EF revenue, which is deposited on account with the State Treasury;
- Fees for issuing environmental permits and licences.

Revenues from the above taxes and charges are earmarked for financing general environmental protection projects. In contrast, GEO No. 50 (2008), which established the car pollution tax and provided that the revenues collected should be allocated to the EF, stipulated that the amounts collected must be used for the financing of:

- The programme for stimulating the renewal of the national stock of motor vehicles (Rabla car-scrapping programme);
- The national programme for the creation of green spaces in urban areas;
- Projects for the replacement and improvement of traditional heating systems by means of solar, wind and geothermal energy;

- Projects for the production of energy from RES;
- Nature protection projects (such as afforestation);
- Construction of special bicycle lanes.

Total revenue from the various taxes and contributions allocated to EF amounted to some 1.15 billion lei (€270.6 million) in 2010, corresponding to some 0.2 per cent of nominal GDP and 0.8 per cent of total State tax revenue. Revenue was relatively modest up until 2007, when it amounted to only 0.04 per cent of GDP. However, the introduction of the car pollution tax has considerably boosted total EF revenue as from mid-2008. This tax accounted for some 70 per cent of total EF revenue in 2009–2010 (table 6.1).

There is no information on the collection rate of total tax and other payments due to the EF. However, resources for control and inspections and more stringent legal procedures for the recovery of unpaid dues have led to considerable recovery of arrears and unpaid charges. Revenue from debt recovery, including interest payments and fines, amounted to 200 million lei (some 5 per cent of total revenues) in 2004–2010.

Environmental Fund expenditure

Financial support of environmental projects can take the form of grants, loans or subsidies for interest payments on banking loans contracted for a particular project, or a mix of these three instruments. However, the bulk of financing has been provided on a grant basis.

Actual EF expenditure on environmental projects totalled 1.15 billion lei (some €270 million) in 2010, amounting to 0.22 per cent of GDP. Cumulative resources made available for project financing came to some 3 billion lei (€716 million) in 2005–2011, with the car-scrapping programme absorbing some 45 per cent of total expenditure. Other major areas to which resources were channelled were repairs made necessary by weather hazards (24.5 per cent), wastewater treatment (10 per cent) and promotion of renewable energy (9 per cent). To date, traditional environmental areas such as pollution abatement and control or waste management have played only a small role in the Fund's expenditure policy (table 6.2)

One striking feature is that actual EF expenditure corresponded to less than half of annual revenue in most years since the start of its operations, with the exception of 2010. Cumulative EF expenditure for 2004–2010 came to only 52.3 per cent of total revenue collected (table 6.2). The Fund's accumulated "reserves" amounted to some 1.8 billion lei (some €425 million) at the end of 2010. Actual payments for project financing represented less than 40 per cent of the corresponding annual budget appropriations in 2004–2010. To some extent, this can be explained by the fact that many projects are financed on a multi-annual basis and by unexpected delays in project implementation (however, the car-scrapping programme, which has been the largest expenditure item since 2008, is implemented on an annual basis). Yet the major factor behind the large gap between revenue and expenditure has been the lack of adequate administrative capacity, as reflected inter alia by long delays in the project approval process and the small number of projects that are approved every year.

Romanian Energy Efficiency Fund

The Romanian Energy Efficiency Fund, a public institution, was legally established in 2001 but only became operational in 2004. Its main mandate is to leverage cofinancing of energy efficiency projects financed from domestic and foreign sources. The Fund received start-up capital of US$10 million from GEF. Loans have been provided to enterprises and municipalities. Total loans provided from 2004 to August 2011 amounted to US$13.7 million.

Total environmental expenditure in the national economy

Overall environmental expenditure in the national economy (current and investment expenditure by the private and public sectors as well as subsidies and transfers from the Government sector) were on a rising trend between 2005 and 2010, amounting to 3 per cent of GDP in 2010, up from 1.9 per cent in 2005 (table 6.3). The bulk of environmental protection expenditure in recent years was incurred in the sector comprising specialized producers of environmental services. The manufacturing sector accounted for only some 12 per cent of total environmental expenditure, including the current cost of external environmental services, in 2010. More than half of total national environmental expenditure was allocated to waste management in 2007–2010. Water protection had an average share of some 20 per cent over the same period (table 6.4). Environmental investment expenditure has been broadly stable over the past few years, coming to 0.9 per cent of GDP in 2010 (table 6.5). Industry and the Government sector each accounted for some 40 per cent of total investment expenditure in 2010.

Table 6.1: Revenue and expenditure of the Environmental Fund, 2004–2010

	2004	2005	2006	2007	2008	2009	2010	Cumulative	
	million lei							million lei	€ million
Total revenues	**90.6**	**149.2**	**193.4**	**182.2**	**1,105.8**	**953.6**	**1,147.0**	**3,821.9**	**901.8**
Revenues based on 2005 GEO No. 196	90.6	149.2	193.4	182.2	201.8	266.6	344.3	1,428.2	337.0
Car pollution tax (2008 GEO No. 50)	..	..	..	..	904.0	687.0	802.7	2,393.8	564.9
Total expenditures	**37.9**	**69.2**	**105.0**	**97.8**	**215.6**	**315.9**	**1,159.0**	**2,000.4**	**472.0**
Environmental projects	36.1	65.9	100.3	91.7	207.8	306.0	1,149.0	1,956.8	461.7
EFA operating and capital costs	1.8	3.4	4.7	6.1	7.8	9.9	9.3	33.6	7.9
Memorandum items	per cent								
Total expenditures (per cent of revenues)	**41.79**	**46.40**	**54.28**	**53.67**	**19.50**	**33.13**	**101.05**	..	..
Total revenues (per cent of GDP)	**0.04**	**0.05**	**0.06**	**0.04**	**0.21**	**0.19**	**0.22**	..	..
Total expenditures (per cent of GDP)	**0.02**	**0.02**	**0.03**	**0.02**	**0.04**	**0.06**	**0.23**	..	..

Source: Environmental Fund, annual reports (available from www.amf.ro).
Note: Figures in euros were calculated using the average annual exchange rate of 2011 (€1 = 4.2379 lei).

Table 6.2: Major project areas financed by the Environmental Fund, 2005–2011

	2005	2006	2007	2008	2009	2010	2011	Total	Total	%
	million lei								€ million	shares
Wastewater treatment plants	43.8	49.4	64.9	43.0	41.7	64.1	..	306.9	72.4	10.1
Waste management	7.0	..	11.0	23.9	..	42.7	..	84.6	20.0	2.8
Weather hazard repairs	15.9	47.0	..	..	..	267.7	412.6	743.2	175.4	24.5
Green areas in municipalities	..	..	..	..	43.5	48.6	..	92.1	21.7	3.0
Renewable energy projects	..	..	..	..	..	115.3	..	287.3	67.8	9.5
"Jalopy" Programme	..	..	..	89.5	122.8	607.4	529.1	1,348.9	318.3	44.4
Other		3.9	15.8	51.4	98.0	3.2	0.0	172.3	40.7	5.7
Total above	**66.7**	**100.3**	**91.7**	**207.8**	**306.1**	**1,149.0**	**1,113.7**	**3,035.3**	**716.2**	**100.0**

Source: Environmental Fund Administration, 2012.
Note: Figures in euros were calculated using the average annual exchange rate of 2011 (€1 = 4.2379 lei).

Table 6.3: Total national environmental protection expenditure by major economic sector, 2005–2010

billion lei

Sector	2005	2006	2007	2008	2009	2010
Foresty, logging	..	..	0.037	0.143	0.049	0.037
Extractive industries	..	..	0.635	1.336	0.653	0.601
Manufacturing	..	..	1.479	1.873	1.752	2.246
Electricity, gas, water	..	..	0.468	0.819	1.060	1.422
Construction	..	..	0.124	0.345	0.264	0.077
Transport	..	..	..	..	0.152	0.147
Total industry above	..	2.461	2.743	4.517	3.930	4.530
Specialized producers	..	5.297	7.039	8.328	6.951	9.582
Public administration	..	1.978	2.915	3.633	3.358	4.293
Grand total	**5.500**	**7.855**	**11.469**	**14.302**	**12.188**	**15.535**
Memorandum item						
Grand total (€ billion)	..	1.854	2.706	3.375	2.876	3.666
Grand total (per cent of GDP)	1.9	2.3	2.8	2.8	2.4	3.0

Source: National Institute of Statistics.
Note: The value for the total economy is lower than the sum of expenditures by individual sectors, because the latter includes the purchases of environmental services (external current expenditures) from other sectors, mainly the specialized producers. Figures in euros were calculated using the average annual exchange rate of 2011 (€1 = 4.2379 lei).

Table 6.4: Total national environmental protection expenditures by major domain, 2007–2010

per cent

Domain	2007	2008	2009	2010
Air protection	8.9	9.8	15.8	7.5
Water protection	21.2	21.3	21.5	15.5
Waste management	53.0	54.2	56.4	50.9
Soil and groundwater protection	7.5	4.6	3.8	2.7
Nature protection, biodiversity conservation	2.0	1.3	0.6	8.8
Other	7.2	8.8	1.8	14.7
Total	**100.0**	**100.0**	**100.0**	**100.0**

Source: National Institute of Statistics, 2011.
Note: Environmental protection expenditures include investments, current environmental expenditures and other expenditures, such as Government subsidies and transfers.

European Union support

The EU already provided significant financial support for environmental protection projects in Romania before accession in 2007. Since 2007, funding has been made available within the SOPs framework for the period 2007–2013 (table 6.6).

Pre-accession EU support programmes (PHARE, ISPA)

Funds from the PHARE programme supported inter alia the transposition of the EU legislation into national environmental legislation. PHARE projects also contributed significantly to strengthening Government administrative capacity at the central, regional and local levels based on training seminars, endowment with adequate equipment, etc. In addition, PHARE projects supported the preparation of technical projects intended for financing environmental investments from structural funds and the CF.

ISPA aimed at addressing major environmental and transport infrastructure priorities for candidate countries in Central and Eastern Europe. The environmental protection measures financed by ISPA primarily concerned drinking water supply, wastewater treatment, solid waste management and air pollution projects. Eligible grant financing amounted, in general, to 75 per cent of eligible public expenditure. Many of the ISPA projects launched before EU accession are still ongoing. From 2007 onwards, ISPA support was automatically converted into the CF. In 2000–2006, the total ISPA budget allocation amounted to €2.02 billion for Romania, which was allocated in equal proportions between the environment and transport sectors. However, not all of the allocated funds were committed, reflecting the limited absorption capacity (coordination and administrative structures) for developing suitable projects. The total value of ISPA environmental projects reached some €1.45 billion in 2000–2005, of which €1.04 billion were ISPA grants. Cofinancing sources were loans from international financial institutions (mainly the EBRD and EIB) and bilateral funding agreements, as well as State and local budgets.

Sector Operational Programme on Environment 2007–2013

The EU has allocated considerable funds for Romania within the framework of its 2007–2013 cohesion policy, which are drawn from structural funds – the ERDF and the European Social Fund (ESF) – and the CF. Funding is organized within the SOPs framework for each of the following areas: (i) human resources development; (ii) administrative capacity; (iii) regional development; (iv) economic competitiveness; (v) transport; (vi) environment; and (vii) technical assistance.

The NSRF for the period 2007–2013 defines the priorities for the use of EU funds (structural and other funds) agreed with the European Commission. It also provides a synthesis of the various SOPs designed to promote the convergence objective. The total amount of potentially available EU funds came to €19.2 billion for the period 2007–2013, or 19 per cent of Romania's GDP in 2010. The funds allocated to SOP ENV amount to €4.51 billion, corresponding to 23.5 per cent of total EU funds allocated to the various OPs.

The allocation of EU structural funds is, however, conditional on national cofinancing from the Government budget and/or private sector beneficiaries. The rationale is to strengthen project ownership and ensure effective project management. SOP ENV has five major priority areas (table 6.6). Some 60 per cent of total funds is planned for the extension and modernization of water supply and wastewater systems.

Table 6.5: Total national environmental investment expenditures, 2007–2010

	2007	2008	2009	2010	2007	2010
Sector	billion lei				per cent	
Foresty, logging	0.013	0.117	0.022	0.012	0.3	0.3
Extractive industries	0.381	0.293	0.303	0.281	10.4	5.9
Manufacturing	0.668	0.788	0.718	0.497	18.2	10.4
Electricity, gas, water	0.241	0.312	0.656	0.965	6.6	20.3
Construction	0.028	0.040	0.083	0.011	0.8	0.2
Transport	..	..	0.066	0.078	..	1.7
Total industry above	1.330	1.550	1.773	1.843	36.2	38.8
Specialized producers	1.048	1.717	1.047	1.070	28.5	22.5
Public administration	1.297	1.635	1.518	1.840	35.3	38.7
Grand total	**3.675**	**4.902**	**4.338**	**4.754**	**100.0**	**100.0**
Memorandum item						
Grand total (€ billion)	0.87	1.16	1.02	1.12	..	..
Grand total (per cent of GDP)	0.90	1.00	0.90	0.90	..	..

Source: National Institute of Statistics; ECE calculations.

Table 6.6: European Union support for Romania: Sectoral Operational Programme on Environment, 2007–2013

Priority area	EU funds	National funds	Total	Per cent of total
	million Euro			
1. Extension and modernization of water and wastewater management systems	2,776.5	490.0	3,266.5	58.2
2. Development of integrated waste management systems and rehabilitation of historically contaminated sites	934.2	233.6	1,167.8	20.8
3. Reduction of pollution and mitigation of climate change by restructuring and renovating urban heating systems towards energy efficiency targets in the identified local environmental hotspots	229.3	229.3	458.5	8.2
4. Implementation of adequate management systems for nature protection	172.0	43.0	215.0	3.8
5. Implementation of adequate infrastructure of natural risk prevention in most vulnerable areas	270.0	59.1	329.1	5.9
6. Technical assistance	130.4	43.5	173.9	3.1
Total	**4,512.5**	**1,098.4**	**5,610.9**	**100.0**

Source: European Commission: ec.europa.eu/regional_policy/country
Note: Figures are rounded.

Another 21 per cent is allocated to the development of integrated waste management systems and rehabilitation of contaminated sites. Including the national cofinancing of €1.1 billion, all of which is to come from the State budget, the total funds for projects under SOP ENV amount to €5.6 billion.

There have been, however, considerable problems with the absorption of EU funds so far. At the end of 2011, 81.6 per cent of EU funds allocated for the period 2007–2103 were committed based on financing contracts concluded, but only 14.5 per cent of these EU commitments had actually been paid to beneficiaries. In the event, the overall absorption of EU funds allocated under SOP ENV was therefore only 11.9 per cent (table 6.7).

Yet this exaggerates the effective absorption rate, because the payments include advance cash transfers from the EU, which were unconditional and unrelated to the progress made with the implementation of individual projects. If these advance payments are excluded, the real absorption rate drops to 4.1 per cent. Thus, there appears to be a strong risk that a considerable share of the EU funds allocated to Romania will not be used by the end of 2013.

It is noteworthy that the problem of poor performance as regards the absorption of EU funds is not limited to SOP ENV but pertains to the other national SOPs as well. To illustrate, the average absorption across all the OPs was 15.1 per cent at the end of 2011. The absorption rate adjusted for advance payments was 5.5 per cent.

Table 6.7: Absorption of European Union funds for Sectoral Operational Programme on Environment, 2007–2013

	lei billion	Euro billion
(1) Total EU funds allocated for 2007-2013	**19.64**	**4.51**
Signed contracts with beneficiaries		
Total project value (eligible costs)	19.73	4.52
of which		
(2) EU commitments	16.03	3.68
State budget	3.28	0.75
Own contribution from beneficiaries	0.43	0.10
Payments made to beneficiaries	2.51	0.58
of which		
(3) EU contributions (Pre-financing and reimbursements)	2.33	0.53
State budget	0.18	0.04
Commitment ratio (per cent) (=2/1)	81.60	81.60
Payment ratio (per cent) (=3/2)	14.50	14.50
Absorption ratio (per cent) (=3/1)	11.90	11.90

Source: Ministry of Environment and Forests.
Note: Exchange rate: €1= 4.3518 lei.
There were 238 signed financing contracts at the end of December 2011.
Status: end of December 2011.

Low absorption of EU funds is a problem that has also been observed in many other new EU member States as well as old member States,[45] but the problem appears to be especially acute in Romania. There are a number of reasons for this poor performance as regards the absorption of EU funds, but the major overall cause is the lack of adequate administrative capacity. Project implementation has, moreover, been slowed down due to the stringent rules for public procurement procedures. It should be recalled that Romania joined the EU only in 2007, and the various central and local Government departments were not sufficiently familiar with many of the relevant and complex procedures for gaining access to EU funds.

In addition, the ongoing economic crisis in Romania and the need for fiscal consolidation may have adversely affected the scope for national cofinancing out of the State budget. The budgetary room to supply national cofinancing may have also been narrowed due to the global economic crisis and the imposed fiscal consolidation measures in the IMF adjustment programmes.

The main stages of the absorption of EU funds are project submission, project evaluation, contract/funding decision and payments to beneficiaries. There has been notable progress in Romania, however, as regards the efficiency of project preparation and selection procedures. This is reflected in a rise in the commitment ratio from 44 per cent in mid-2010 to 81.6 per cent at the end of 2011. The preparation of projects to be cofinanced by EU funds has been supported by Joint Assistance to Support Projects in European Regions (JASPERS), a technical assistance facility for countries that joined the EU in 2004 and 2007. It is a partnership of the European Commission, the EBRD and Kreditanstalt für Wiederaufbau (KfW) designed to increase the number and quality of major project submissions (normally with a value of more than €50 million) to be forwarded for approval to the Commission.

Environment-related expenditure of other sectoral operational programmes

The OP on increasing economic competitiveness (with total funds of €3.0 billion for 2007–2013, of which €2.6 billion was contributed by the EU European Regional Fund) has, among its five priority areas, investments aimed at enhancing energy efficiency in Romania and increasing the share of electricity supply provided by RES other than large hydropower plants. Total funds allocated to this area amount to €725.5 million, of which €638.5 million (88 per cent) was contributed by the EU and the remainder from national public sources.

Priority Axis No. 4 – Increasing energy efficiency and security of supply, in the context of combating climate change, supports the construction and

[45] The average absorption ratio of the Operational Programmes in the New Member States was 21.2 per cent and and 20.8 per cent in the EU-15 in 2010. Source: The European Bank Coordination ("Vienna") Initiative (2011), p. 8.

modernization of power plants. The funds allocated to this area amount to €200 million (non-reimbursable EU contribution and funds from domestic sources).

SOP-T (on transport) is a strategic instrument based on the objectives of the NSRF for the period 2007–2013. It establishes priorities, goals and the allocation of funds for the development of the transport sector in Romania. Its total budget for the programming period 2007–2013 is €5.7 billion, which represents about 23 per cent of the overall allocated funds for NSRF; this is allocated for the modernization and development of transport infrastructure. Within this framework, under Priority Axis No. 3, some €323 million (some 5.5 per cent) has been allocated to the modernization of the transport sector, with the main aim of achieving a higher degree of environmental protection, human health and passenger safety. The bulk (some €233 million or 71 per cent) is contributed by the CF and ERDF.

The Regional OP aims at supporting the economic, social and sustainable development of the country's regions. The total budget allocated for 2007–2013 is some €4.4 billion, of which €3.7 billion (85 per cent) consist of an EU contribution. One of the priorities is the sustainable development and promotion of tourism (€617 million, of which €559 million is from the EU).

The OP on fisheries 2007–2013 has a total budget of €307 million, of which 75 per cent is mainly funded by the European Fisheries Fund, established in 2006 for the period 2007–2013. One of the priority areas is the sustainable development of fishery areas. This includes helping fishing communities to diversify their economic activities and to improve the quality of life in fishing areas. Potential areas of intervention are the Danube delta and other areas along the Black Sea. Total funds allocated amount to €100 million, including €75 million in the form of an EU contribution.

LIFE programme

Considerable financial support to Romania has also been provided within the framework of the LIFE programme, the EU's financial instrument supporting environmental and nature conservation projects in EU member States as well as in some candidate and other countries. Within the framework of the LIFE+ programme for 2007–2013, the European Commission has to date approved 11 projects in Romania to the tune of €9.1 million, of which €5.1 million (some 64 per cent) is cofinanced by the EU. The main emphasis of the EU support is on the LIFE+ component Nature and Biodiversity, which accounts for some 70 per cent of total EU cofinancing.

European Investment Bank

Like the EBRD, the EIB has been engaged in recent years in providing loans for financing investments in the energy sector and improving energy efficiency. In 2010, these included a loan of €200 million for the construction of an onshore wind farm and €70 million for the energy-efficient renovation of multi-storey residential buildings. In 2009, the Bank also made a €25 million loan available for the upgrading of water supply and sewerage infrastructure.

European Bank for Reconstruction and Development

The EBRD has financed – with loans at market rates – private and public sector projects in energy generation, transmission and distribution as well as projects designed to improve Romania's transport and water sector infrastructure. Within the framework of the joint EBRD/EU Energy Efficiency Finance Facility, which was launched in 2008, the Bank has made funds available to domestic banks that are engaged in the financing of energy efficiency projects in the private sector. The total envelope of funds available amounts to €80 million. In 2010, the Bank also agreed to cofinance – with funds up to €200 million – a number of municipality investment projects for the rehabilitation of the water and wastewater sector, in conjunction with the CF. Lending on a commercial basis was made directly to regional water and wastewater companies. There was also lending to support municipal projects designed to improve streets, public urban transport, public lighting and solid waste management.

World Bank

A number of environment-related World Bank projects in Romania were active in 2011. The Project on Mine Closure, Environment and Socioeconomic Regeneration aims to strengthen the ability of the Government to reform the mining sector and close uneconomic mining facilities in an environmentally sustainable manner. By the end of 2011, nine mines had been successfully closed and closure of three others was ongoing. The project, which was planned to be terminated by May 2010, has been extended twice, first to November 2011 then to May 2012. It involved a loan of US$120 million to the Romanian Government, of which US$31 million was cancelled in late 2011 due to cost savings.

A municipal services project became operational in May 2007 and is scheduled to finish in March 2012. The objective is to support the Romanian authorities in their efforts to comply with environmental directives on the water and wastewater sector by means of supporting infrastructure development in the municipalities of Bucharest and Arad, and preparing water and wastewater projects in selected counties for submission for grant cofinancing from the EU structural funds amounting to about €1 billion.

The Romanian Integrated Nutrient Pollution Control Project, which became operational in December 2008, is designed to support the Government in meeting EU Nitrates Directive requirements by reducing nutrient discharges into water bodies, strengthening institutional and regulatory capacity and promoting behavioural change in consumers at the commune level. The project, which also involves the construction of a training centre, is supported alongside a World Bank loan by a GEF grant. Project implementation has been slowed down due to various factors such as problems with public procurement tenders.

Global Environment Facility

GEF has provided grant support to various projects in the area of biodiversity and climate change as well as for the implementation of the Stockholm Convention and the disposal of PCB wastes. Current projects were allocated grants of some US$11 million. The largest project in financial terms, which is implemented by the EBRD, aims at improving energy efficiency in public buildings.

Other

Norway has provided grant assistance to Romania under the umbrella of the financial assistance scheme which aims at reducing economic and social disparities within the enlarged EU. Aid has been provided since 2007, when Romania joined the EU. In the area of environment and sustainable development, a range of projects has been supported with total grants of €26.3 million under EEA and Norway Grants 2004–2009.

In a similar vein, Switzerland signed a bilateral framework agreement in 2009 for grant support to Romania totalling SwF 181 million, of which SwF 52.5 million was for projects in the area of environment and infrastructure over a 10-year disbursement period starting in December 2009.

6.3 Conclusions and recommendations

The EF has been financing a car-scrapping programme since 2005. The programme has both an environmental and an economic justification. From an environmental perspective, it was designed to stimulate the replacement of old cars by new, more energy-efficient cars with lower CO_2 emissions per km.

However, there has also been an economic motive for the car-scrapping programme, namely, to use it as an anti-cyclical measure for supporting domestic vehicle producers, although the overall fiscal stimulus was relatively small. Given that most of the new cars purchased were imported, there were, moreover, considerable demand leakage effects.

Car-scrapping programmes have been applied in many European countries in recent years. The general lesson from such programmes is that the demand for new cars is mainly brought forward from the future to the present, as a result of which the economic effects tend to wane over the medium and longer terms. Yet such a programme can still be a helpful instrument for supporting economic activity in the short term in vehicle-producing countries. It is also known that car-scrapping programmes create market distortions and delay necessary structural adjustments in the vehicle production sector. At the same time, the environmental impacts of vehicle-scrapping programmes are ambiguous and, in any case, difficult to gauge.

From an environmental perspective, the opportunity costs of the funds allocated to the car-scrapping programme by the EF are therefore quite high, given that they accounted for half of total expenditure in 2010/11. In general, such vehicle-scrapping programmes are likely to be less efficient than alternative instruments designed to reduce exhaust emissions from road transport, namely, fuel taxes, road user charges and other forms of vehicle taxation partly linked to pollution.

Recommendation 6.1:
The Government should evaluate the economic and environmental effects of the car-scrapping programme in order to decide whether it is really useful to continue with it.

The activities of the EF are financed out of various types of environment-related revenues that have been earmarked for environmental protection. In principle, earmarking reduces fiscal flexibility and can adversely affect the effective and efficient allocation of financial resources.

The resources available to the Fund have been increased considerably with the introduction of the car pollution tax in 2008. There appear, however, to be major bottlenecks in EFA, as reflected by the accumulation of considerable revenues in past years that are still to be used for the financing of the many priority environmental projects in the country.

Recommendation 6.2:
The Ministry of Environment and Forests should carry out periodic auditing of the activities of the Environmental Fund, its administrative procedures and technical capacities in order to ensure an effective and efficient use of its financial resources and accelerated decision-making.

Romania has faced considerable problems so far with the absorption of the sizeable EU structural funds made available for promoting the objective of convergence with the EU. There are a number of reasons for the very low effective fund absorption rate so far, which include a lack of adequate administrative capacities to deal effectively with areas such as project management, cofinancing, public procurement, audit and control.

In general, project preparation and cofinancing capacity are especially weak at the municipal/regional level, where the large bulk of infrastructure investments will take place.

Recommendation 6.3:
The Government should:

- *(a) Revise national regulations regarding EU funds in order to:*
  - *(i) Review criteria for the selection of projects to be submitted for EU environmental funding;*
  - *(ii) Simplify the process of decision-making;*
  - *(iii) Ensure a targeted division of responsibilities between project proposal assessment, implementation and supervision in order to avoid duplication and overlapping; and*
- *(b) Increase capacity, especially staff skills, for project proposal preparation at all levels.*

PART III: INTEGRATION OF ENVIRONMENTAL CONCERNS INTO ECONOMIC SECTORS AND PROMOTION OF SUSTAINABLE DEVELOPMENT

Chapter 7

SUSTAINABLE MANAGEMENT OF WATER RESOURCES AND PROTECTION OF THE BLACK SEA

7.1 Water resources

Romania's water resources comprise the Danube River (63 per cent), inland rivers (30 per cent) and groundwater (7 per cent). Although there are many (3,450) natural lakes, they account for an insignificant share of the country's total water resources. Inland rivers are the most accessible resources and are distributed relatively evenly throughout the territory. Under normal climate conditions, internal surface water resources from the Danube River total 85 km³/year and from the remaining surface water resources, 40 km³/year. Groundwater share is estimated to be 9.6 km³/year. Usable natural water resources came to some 2,660 m³/capita/year in 2009 including the Danube River, and 1,770 m³/capita/year excluding it. Compared with other European countries, Romania's upcountry natural and renewable water resources are small (Austria: 7,640 m³/capita/year; Croatia: 6,136; Lithuania: 3,818; Luxembourg: 2,727; Ukraine: 3,000). The total length of the water system in Romania is 78,905 km.

Owing to uneven rainfall during the summer and winter periods, it has been necessary to build river dams and water transfer systems. Romania is a country with a long tradition of dam building. At present, there are 238 large dams, which are generally multifunctional storage sites used for water supply, flood protection, irrigation, production of hydroelectric power and leisure facilities for the population.

Water quality

Coordination, reporting, development of measures and monitoring programmes are carried out by MoEF. Water quality in Romania is determined according to the structure and methodological principles of the National Integrated Water Monitoring System in Romania, reorganized in accordance with the requirements of EU directives (MO No. 31 (2006) on Approving the Manual for Modernization and Development of Integrated Water Monitoring in Romania. The National Integrated Water Monitoring System includes three types of monitoring (surveillance, operational and investigative), as required by Law No. 310 (2004) on the requirements of the Water Framework Directive and other EU directives amending and supplementing Law No. 107 (1996). Surveillance monitoring serves to evaluate the status of all water bodies within the river basin, while operational monitoring refers to water bodies where environment objectives are not likely to be achieved.

The development of a synthesis regarding running surface water quality in 2009, that was reviewed for this EPR, was based on primary data processing of the physico-chemical analysis of water data from over 818 monitoring stations. The laboratories of the 11 WBAs have the necessary equipment and personnel and are thus in a position to carry out chemical and biological analyses. Their responsibility is water quality monitoring and they regularly check quality management. New chemical compounds are analysed at the national reference laboratory, located in Bucharest.

In 2009, a new typology of watercourses in Romania was defined. The quality of watercourses in the 11 river basins from a biological point of view was based on monitoring of the following biological elements: macroinvertebrates, phytobenthos, phytoplankton and fishes. In addition to the requirements of Norm 161/2006, ichthyofauna and aquatic macrophytes were monitored. Evaluation of water quality based on monitoring of ichthyofauna was performed using the EFI (European Fish Index) method +. In all, 254 fish species were taken into consideration, grouped into 15 categories.

Data were processed statistically. Rivers were classified according to the Saprobe index, accounting especially for macrozoobenthos. For each of the items listed, biological valuation ratios were described, with typical values of the five ecological quality classes (very good, good, moderate, low, poor) and guidance value. Thus, for benthic macroinvertebrates in rivers, indicators were considered sensitive enough to reflect changes in the composition, structure and functioning of aquatic ecosystems and the main types of impacts (organic pollution and general degradation). For evaluation of

natural water bodies (rivers) by phytoplankton, a package of five indices has been selected.

Within the framework of the river basin management plans, the water courses typology was redefined and synthesized as a result of validation with biological parameters (available data and information from direct measurements of variability of macroinvertebrates communities). To assess the environmental status of water bodies for the first time, phytobenthos were factored in as well. Six indices were selected for the characterization of benthic algals. Since 2008, Romania has been participating in a European intercalibration exercise – the Eastern Continental and the Danube groups explore categories of phytoplankton, phytobenthos, benthic macroinvertebrates, ichthyofauna and macrophytes.

Surface water

The evaluation of water quality is carried out according to the specifications of the Romanian Water Law and the methodology of the EU WFD. The methodology for the identification and evaluation of biological, chemical and hydromorphological parameters has been developed by the National Institute for Research and Development in Environmental Protection. Until the introduction of the EU WFD, water quality was mainly evaluated on the biological Saprobe index and physico-chemical parameters. Monitoring of water quality was carried out in 2009, mainly in the middle and upper water runs over a length of 26,367 km, since the anthropogenic influences are felt most strongly there. Measurements were also performed in reference cross-sections of the rivers. Ecological status evaluations were performed in 2010 for 2,161 water bodies (table 7.1).

Table 7.1 shows that 1,719 water bodies (79.55 per cent) have good ecological status/potential. The environmental objectives in accordance with the water bodies natural/heavily modified/artificial – rivers were achieved at 38,579.24 km, which is 72.17 per cent of the evaluated total length of 53,453.81 km (table 7.2).

According to the 2010 evaluation of the 57 most important lakes categorized as natural water bodies, only 1 was found to be of very good quality; 9 were found to be of good quality, 44 of moderate quality, 3 of low quality and none of bad quality. According to the evaluation of 116 lakes categorized as heavily modified water bodies, 5 reached the maximum status, 61 were of good quality and 50 of moderate quality.

Table 7.1: Environmental status of water bodies, 2010

Category	Sub-system	Achieving environmental objectives		Not achieving environmental objectives		Total
		Number	per cent	Number	per cent	Number
Natural water bodies	Rivers	1,386	84.36	257	15.64	1,643
	Lakes	10	17.36	47	82.46	57
Heavily modified water bodies	Rivers	207	72.13	80	27.87	287
	Storage	66	56.90	50	43.10	116
Artificial water bodies	Rivers	50	86.21	8	13.79	58
Total		**1,719**	**79.55**	**442**	**20.45**	**2,161**

Source: National Administration "Romanian Waters", 2011, *Synthesis of Water Quality in Romania in 2010*.

Table 7.2: Environmental status of rivers, 2010

Category	Environmental objectives				Total
	Achieved at		Not achieved at		
	km	per cent	km	per cent	km
Natural water bodies	30,085.59	73.17	11,030.01	26.83	41,115.11
Heavily modified water bodies	8,493.65	68.84	3,844.56	31.16	12,338.21
	38,579.24	**72.17**	**14,874.57**	**27.83**	**53,453.81**

Source: National Administration "Romanian Waters", 2011, *Synthesis of Water Quality in Romania in 2010*.

Photo 7.1: Maracineni wastewater treatment plant

Groundwater

Groundwater quality monitoring is carried out in major river basins, morphological units and, within them, bodies of groundwater, by means of hydrogeological stations at observation wells, springs and drains. In 2009, 125 groundwater bodies were evaluated at 1,631 monitoring points. The evaluation of the chemical status of groundwater bodies was performed according to Law No. 107 (1996) on Water, amended and completed, GD No. 53 (2009) on the Protection of Groundwater against Pollution and Deterioration, and GO No. 137 (2009) on Establishing Threshold Values for Groundwater Bodies.

For groundwater, according to the preliminary methodology for assessing the chemical status of groundwater bodies prepared by NIHWM in Bucharest, the following chemical statuses are set: good, poor, good local and poor local. In accordance with NIHWM guidelines, the good chemical status of groundwater bodies is primarily in mountainous regions. If there are no sources of pollution, water bodies can be considered as having a good chemical status and the value exceeded is considered as being of a local nature.

Applying the methodology and criteria for assessment of groundwater bodies gives the following distribution for the year 2010: 102 bodies (81.60 per cent) have good chemical status, 21 (16.80 per cent) have poor chemical status and 2 (1.60 per cent) have good local chemical status.

When analysing the monitoring data from physico-chemical parameters in groundwater wells located in upper layers, it was observed that the threshold values were mostly exceeded for the following recorded indicators: nitrates, nitrites, ammonium, chloride and phosphates.

7.2 Pressures and impacts on water bodies

The geographical position of the country, in both the Danube River basin and the Black Sea region, made it necessary for Romania to declare its whole territory as a sensitive area. Accordingly, all municipalities with more than 10,000 p.e. must ensure a wastewater infrastructure with advanced (tertiary) treatment. Action plans for municipalities have been prepared, together with an assessment of the current wastewater infrastructure and investments in this field.

About 57 per cent of Romanian water bodies, particularly those from mountainous areas, remain undisturbed by major anthropogenic pressure. However, economic development between 1960 and 1989 resulted in a significant deterioration of the water quality of the Danube and domestic rivers.

Since that time, the situation has improved (due to reduced economic development and new regulations), but remains inferior to that in the 1950s.

The deadlines for the implementation of the Urban Wastewater Treatment Directive[46] vary depending on the size of the municipality and the impact on the receiving waters. It was agreed that transitional arrangements would run until 31 December 2018, with intermediate targets for the collection and treatment of urban wastewater. Council Directive 91/271/EEC, as amended by Commission Directive 98/15/EC,[47] was fully transposed into Romanian legislation through GD No. 188 (2002) on the Approval of Certain Norms Concerning the Conditions for the Discharge of Wastewater into the Aquatic Environment, as amended by GD No. 352 (2005).

Wastewater

Municipal wastewater

According to the Romanian *Statistical Yearbook 2010*, as of 1 January 2010, the total population of Romania was 21,462,186 inhabitants, of which 11,818,670 (55.07 per cent) were in urban areas and 9,643,516 (44.93 per cent) in rural areas. Of the 2,609 settlements with more than 2,000 p.e., 17 per cent have sewerage systems, while 263 settlements of more than 10,000 p.e require systems with advanced nutrient removal. In all, 56.9 per cent of the p.e. is linked to wastewater collection systems. In rural areas, however, only 4.1 per cent is connected to sewerage systems, which means that rural wastewater management remains the major challenge for coming years. Further efforts are needed to improve administrative efficiency and ensure good absorption of the CF during the period 2007–2013. The connection rate to urban wastewater treatment plants (UWWTPs) in 2009 was as follows:

- For agglomerations from 2,000 to 10,000 p.e., 5.25 per cent were connected to a UWWTP;
- For agglomerations larger than 10.000 p.e., 66 per cent were connected to a UWWTP.

Figure 7.1 shows the trends in wastewater discharges between 2005 and 2010, which in general can be seen to increase although not without yearly fluctuations.

Of the total volume of municipal wastewater collected in collection systems and requiring treatment, 23.36 per cent was appropriately treated, 35.58 per cent was insufficiently treated and 41.06 per cent was untreated wastewater discharged into natural receiving waters. In 2007, 80.57 per cent of the total volume of wastewater from municipalities was discharged into natural receiving waters without any or with insufficient treatment; this had declined to 76.64 per cent by 2009. Some 50 per cent of all pollutants discharged by municipalities into natural receivers come from municipalities with more than 100,000 p.e.

Public wastewater services are also mainly responsible for pollution involving nitrogen and phosphorus. For this reason, advanced treatment was introduced in UWWTPs in major cities (Cluj, Constanta, Iasi, Sibiu, Roman), which had benefited from ISPA funds for secondary treatment. Nitrates from urban sources and agriculture represent a major public health problem in the rural small municipalities because they pollute catchment areas used for groundwater drinking water supply.

Industrial wastewater

Enterprises discharge their industrial wastewater into the collection systems of urban sewerage networks under the conditions established in the corresponding water permit. NARW officials periodically monitor the implementation status of the measures from the compliance programme, which is annexed to the water permit.

In 2009, 12 agrifood enterprises were compliant with the provisions of the Urban Wastewater Treatment Directive, 2 enterprises were not under the provisions of this Directive due to their size (fewer than 4,000 p.e.) and 10 units were under the provisions of the IPPC Directive and were in a process of rehabilitation and modernization based on a compliance programme for which the enterprises received appropriate transition periods. The organic load of the industrial treated wastewater discharged into natural receiving waters represents 3.142 per cent of the organic load of urban wastewater discharged into natural receiving waters.

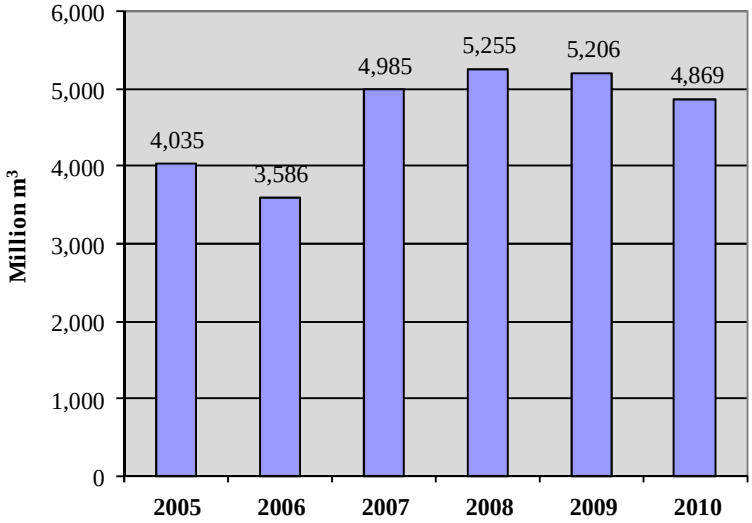
More than 500 industrial units have been registered as discharging dangerous substances into water resources/sewerage systems. Council Directive 76/464/EEC of 4 May 1976 on pollution caused by certain dangerous substances discharged into the aquatic environment of the Community has been

[46] Council Directive 91/271/EEC of 21 May 1991 concerning urban wastewater treatment.

[47] Commission Directive 98/15/EC of 27 February 1998 amending Council Directive 91/271/EEC with respect to certain requirements established in Annex I thereof.

transposed into Romanian legislation by MO No. 44 (2004) and GD No. 351 (2005).

Figure 7.1: Development of annual wastewater discharges, 2005–2010



Source: National Administration "Romanian Waters", January 2011.

GD No. 351 (2005) on Approving the Programme to Phase Out Discharges, Emissions and Losses of Hazardous Substances was amended by GD No. 1038 (2010). Annex 2 of this amending GD sets limit values for pollutants in surface waters which are highly toxic, persistent and bioaccumulative, in addition to stipulating environmental standards and quality standards.

Annex 5 names sectors and specific industrial processes that release highly toxic pollutants. Annex 6 contains guidelines for developing an inventory of emissions, discharges and losses of priority substances and specific pollutants. The inventory of emissions is reported annually and is established for each of the 11 river basins by the respective WBA.

The inventory includes all significant sources, discharge and loss of 33 priority substances and 8 other pollutants. All methods of analysis for priority substances are validated in accordance with SR EN ISO / IEC 17025 or other equivalent internationally accepted standards. Laboratories performing substances analysis apply quality management practices and have to provide proof of their professionalism at least annually.

In December 2011, there were 146 industrial units in Romania either suspected or known to be discharging the substances of List I (black list), and 654 industrial units inventoried to be suspected or known to be discharging substances of List II (grey list). The numbers refer to both units discharging into water bodies and those discharging into sewerage systems, according to water management permits.

Destination of sludge from sewerage treatment plants

The utilization of sewerage sludge in agriculture is regulated with the transposition into national legislation of Council Directive 86/278/EEC of 12 June 1986 on the protection of the environment. Pursuant to MO No. 344 (2005) on the approval of Technical Norms for the Protection of Environment and Especially of Soils when Sewerage Sludge is Used in Agriculture, only appropriately treated sludge originating from UWWTPs can be used in agriculture. In 2010, the quantity of sludge resulting from wastewater treatment plants amounted to 252,000 tons/year of dry matter and is estimated to grow to 520,000 tons/year of dry matter by 2018.

The rise in the number of UWWTPs will also increase the amount of sludge generated. Major investments are required to build adequate facilities for the treatment of sludge generated by wastewater treatment and to find new ways of using the sludge. There is currently no national strategy for sludge management.

At present, the bulk of sludge is stored in landfills or at treatment plants. Storage in landfills can be a solution imposed in the short term to allow for the transition before using sludge, but will result in increased costs. Sludge incinerators may be required where land use or incineration in cement plants does not provide sufficient capacity. Only a small percentage of sludge is reused in agriculture. Limits for the use of sludge in agriculture are even stricter than those currently used in the EU, which might warrant their review. With the drop in pollution from

industrial wastewater discharges, improved sludge quality is expected. Under the provisions of the MO, farmers are encouraged to make proper use of such sewerage sludge.

Nutrient pollution

The provisions of the Nitrates Directive[48] were transposed into Romanian legislation by GD No. 964 (2000) on the Approval of the Action Plan for Protection of Waters against Pollution by Nitrates from Agricultural Sources. At the national level, 42 areas with 1,963 settlements have been identified as being vulnerable to nitrate pollution. Agrochemical fertilizers are the main source of diffuse discharges. In rural areas, the most significant sources are agricultural activities. Sources include agricultural fertilizers, agricultural pesticides, domestic animals, and rural and urban settlements.

The Code of Good Agricultural Practice was introduced through MO No. 1182 (2005) by MoEF and MO No. 1270 (2005) by MoARD. It contains measures and guidelines to reduce water pollution from agricultural areas. MoARD is currently working on an action programme for protection of vulnerable areas against nitrate pollution from agricultural areas.

Impacts from hydromorphological alterations

Hydromorphological pressures affect a large proportion of watercourses in the river basins/hydrographical areas. These pressures come from reservoirs (255 in number), embankments (7,100 km in length – 80 per cent of the Danube River is embanked in Romania), river regulation works (6,600 km in length), water diversions (including channels), 138 large water abstractions and 147 water restitutions. It is mainly dams which produce the longitudinal continuity interruption. The reservoirs, each with a surface of less than 0.5 km², were built to serve multiple purposes: for industrial water supply, energy, flood protection, irrigation and fisheries.

River regularization and embankments cause changes in the morphology of watercourses, alterations of hydraulic characteristics and lateral connectivity interruptions. There are 107 water diversions with a length of approximately 550 km that are designed to supplement the tributary flow to accumulations and ensure the locality's water supply. As a result of these diversions, the outflow of the main watercourse is significantly altered. The annual average volume of interbasin transferred water is 2.4 km³.

Water abstractions and restitutions produce significant morphological alterations which are reflected in variations in the characteristics of the watercourse where water intakes and discharges of water are positioned. Thirty significant abstractions (of a total of 138) have been designated, as well as 48 significant restitutions (of a total of 147 restitutions). One significant impact is navigation on the Danube, which changes the morphology of the riverbed. Navigation, especially the dragging of the riverbed, determines a number of significant hydromorphological impacts on this ecosystem.

Flood and high discharge management

Key causes of flooding in Romania include heavy localized rainfall (around 100–200 l/m²), increased urban land use, ad hoc development in floodplains, reduced riverbed capacity due to embankments and deforestation of large areas. Water management infrastructure for flood protection includes:

- 217 perennial lakes and ponds located in all catchment areas with 893 million m³ of flood mitigation;
- 1,232 permanent lakes in addition to the volumes required to meet the water requirements of uses and volumes with flood mitigation totalling 2,017million m³;
- Dams, which measure 9,920 km total length;
- Regularization totalling 6,300 km of river beds and also flood protection works for 1,927 localities.

The national water management system includes a flood protection component. Strategy and coordination of preventive measures, surveillance operations, and analysis and evaluation of flood damage are managed by MoEF, together with NARW and its WBAs. In the eventuality of floods, there are flood action and intervention plans at all administrative levels.

The degree of silt accumulation in storages varies between 0 and 25 per cent and does not affect the useful water volume and the flood protection function. Of the large number of reservoirs, however, a few are heavily silted up. Detailed information is not available. Further studies on this issue have not yet been undertaken.

[48] Council Directive 91/676/EEC concerning the protection of waters against pollution caused by nitrates from agricultural sources.

Water use

In 2011, 7.7 billion m³ of water were used for anthropogenic activities. This includes 1.22 billion m³ of drinking water (16 per cent), 1.32 billion m³ for agriculture (17 per cent) and 5.16 billion m³ for industry (64 per cent). The water system is utilized for hydroelectric power (producing 29 per cent of the country's power supply), navigation, effluent receiving waters and the bulk of Romania's drinking water supply. Figure 7.2 shows that demand for water has declined continuously in the past years. The rate of water use by the population amounted to 52 m/capita³/year (142 l/capita/day) in 2009.

Calculations concerning industrial water demand are based on water demand in some countries presented by *The World's Water 2006–2007*: in 2013, industrial water demand in Romania will reach the rate achieved by Italy of 265 m³/year/capita, while the rate for 2020 is geared to industrial use of water in France in 2000 of 408 m³/capita/year . For the determination of the water requirements of livestock, only animals and birds bred in an industrial regime matter, and this figure is expected to grow by 30 to 40 per cent. It is predicted that the irrigation system will be rehabilitated and reformed, according to data from the National Administration of Land Improvements. Irrigated areas are expected to increase from 464,000 to 575,000 ha by the year 2020.

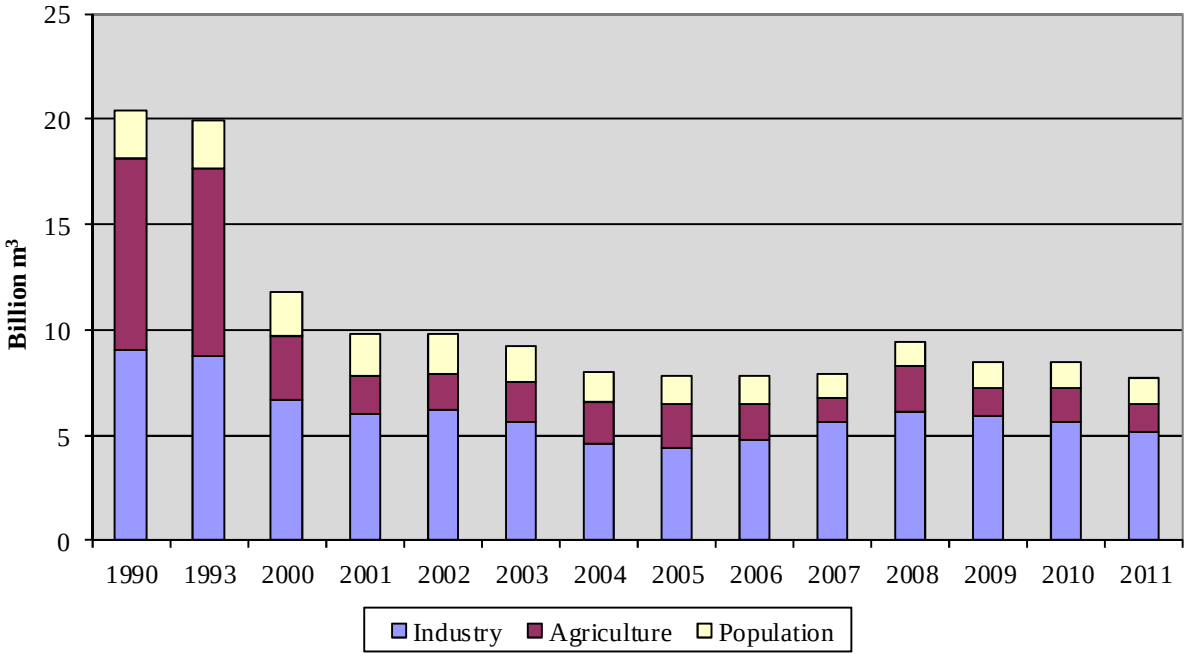
Water abstraction trends for agriculture cannot be clearly estimated, because they also cover irrigation, zootechnics and aquaculture. The largest share of water use in agriculture is for irrigation, which is heavily influenced by precipitation. Calculations were made by studies on the flow balance necessary to satisfy water needs. Balance calculations were performed for the time until the years 2015 and 2020, and in forecast sections considered as characteristic and with a potential for loss making (table 7.3). After balance calculations were made, there is no water scarcity in the forecast period in any of the hydrographic basins.

Water supply to households

Potable raw water is predominantly extracted from surface water (269 areas designated for abstraction, 60 per cent of which have protection zones). Where groundwater is used, it generally does not require treatment, unlike surface water. Within Romania's basins, 80 per cent of the 1,617 aquifers used for abstraction have protection zones.

Various strategies and programmes require the entire urban population to have access to public water networks and 70 per cent of the population to have access to centralized water supply systems in the regional system by 2015.

Figure 7.2: Water demand according to water intakes, 1990, 1993, 2000–2011



Source: National Administration "Romanian Waters", March 2011.

Table 7.3: Forecast water demand until 2020, million m^3

	2013			2015			2020		
	min.	**medium**	**max.**	**min.**	**medium**	**max.**	**min.**	**medium**	**max.**
Population				1,916	1,962	2,033	2,034	2,128	2,216
Industry	..	..	..	5,587	5,587	5,587	8,389	8,389	8,389
Irrigation	1,068	1,245	1,530	1,100	1,270	1,700	1,323*	1,750*	3,105*
Zootechnics	78	78	78	84	84	84	161	161	161
Aquaculture	1,150	1,150	1,150	1,150	1,150	1,150	1,150	1,150	1,150
Total	**..**	**..**	**..**	**9,837**	**10,053**	**10,554**	**13,057**	**13,578**	**15,021**
Share of water supply (%)				19.50	19.50	19.30	15.60	15.70	14.70
Share of industry (%)				56.80	55.60	52.90	64.20	61.80	55.80
Share of agriculture (%)				23.70	24.90	27.80	20.20	22.50	29.50
Population (million inhabitants)				20.561	21.082	21.614	19.608	20.498	21.371
Utilization rate per capita (m^3/year/inhabitant)				478.42	476.86	488.3	665.90	662.40	702.87

Source: National Institute of Hydrology and Water Management, 2011.

With regard to the rural population's access to centralized water supply systems, there are no specific requirements in national strategies. The proportion of the rural population with access to a public water network is expected to reach at least 50 per cent by 2015, and 80 per cent by 2020.

Often, water supply and sanitation networks are not introduced simultaneously in rural areas, due to varying financing plans and priorities. Water supply is frequently given higher priority than sanitation. However, households can only be connected to the water supply network if they are already hooked up to a sewerage disposal system. These discrepancies often lead to illegal household connections, in addition to which the lack of sewerage disposal places intense stress on groundwater and surface water. There is a need to enforce coordinated implementation of water supply and sewerage disposal.

Fresh water is often obtained from surface water that has been subjected to anthropogenic pollution. Sections of surface water intended for drinking water abstraction with an extracted volume of more than 100 m^3/day are monitored according to the manual for modernization and development of integrated water monitoring. The monitored parameters are listed in GD No. 100 (2002), while priority substances/priority hazards are indicated in GD No. 351 (2005).

In areas where the soil is affected by application of chemical fertilizers, nitrate concentrations are frequently in the 100 mg/l range, and can reach values over 1,000 mg/l and in many cases exceed microbiological indices. By 31 December 2015, Romania plans to have taken the necessary measures to ensure drinking water supply in accordance with the Drinking Water Directive,[49] by establishing requirements for drinking water, inspecting water systems, ensuring drinking water quality surveillance and monitoring, and arranging for information dissemination and reporting. Drinking water quality monitoring is the responsibility of the producer, distributor and county authority for public health (art. 7 of Law No. 458 (2002) on Drinking Water).

Navigation

Water transport pathways can be classified into two broad categories: river transport and maritime transport. Romania's network of waterways lies entirely in the south-east of the country and has a density of 6.5 km/1,000 km^2. Network length is 1,779 km; of this 1,075 km consists of the Danube international waterway; 524 km, navigable branches of the Danube River; and 92 km, channels of the Danube – Black Sea and Poarta Albă (White Gate) – Midia Năvodari.

The network of inland waterways and the Black Sea includes 35 nodes (ports) of which 3 are seaports, 6 are ports for both sea and rivers and 26 are river ports. Romanian ports have some 49 km for berthing facilities and hydrotechnical constructions, of which 18.1 per cent are more than 50 years old and require urgent reconstruction work. Trends for the transport of goods by inland waterways in Romania show a sharp decline after 1990, from 12 million tons in 1990 to 6 million tons in 1992 and some recovery after 1996, with an average of approximately 14 million tons/year.

[49] Council Directive 98/83/EC of 3 November 1998 on the quality of water intended for human consumption.

Navigation on the Danube River affects riverbed morphology and could increase the risk of accidental pollution. In 2011, on the Romanian stretch of the Danube River, there were six events involving accidental pollution from ships. All relevant events are registered at the Department of Transportation of the General Inspectorate of the Police (PGI Transport). A cooperation plan covering accidental pollution but also other events such as floods or drought has been signed and is implemented by the following parties: MoAI, PGI Transport, MoTI, the Romanian Naval Authority and MoEF (NEG and NARW).

Based on MO No. 223 (2006), an alarm system in case of accidental pollution is in place. Information on pollution accidents with a cross-border impact on the Danube River is sent to neighbouring countries in accordance with the requirements of the Accident Emergency Warning System of the Danube River Basin

Use of hydroelectric power

In 2009, the sources of Romanian power generation were coal (39 per cent), hydroelectric (27 per cent), oil and gas (15 per cent) and nuclear (19 per cent). The 363 national hydropower plants use 276,832 million m³/year of water and produce 1.88 TWh/year. Flood control measures are often superimposed on hydropower infrastructure.

Equipped hydropower potential is 17.5 TWh/year, while harnessed technical potential is 34 TWh/year. The SOE Hidroelectrica manages 307 power plants, including five energy pumping stations. Total installed power was 6,361.92 MW in 2007, providing the system with national energy to the tune of 15,807 GWh. The technical potential of the small hydropower plants installed is 416 MW, with an annual average energy of 1,200 GWh/year.

The country's energy development is based on the 2007 National Energy Strategy for the period 2007–2020 of MoETBE. According to this document, the amount of electricity from renewable energies is expected to have a hydropower intake of 35 per cent by 2015 and 40 per cent by 2020. Of gross domestic energy consumption, 24 per cent is forecast to come from renewable sources by 2020. Investment objectives are organized into two main programmes. For the period 2005–2025, Hidroelectrica envisages the investment objective of installing a capacity of 2,157.44 MW with an investment of €4.2 million, which is expected to generate energy input of up to 5,769.77 GWh/year. For the period 2009–2025, rehabilitation measures are planned to modernize existing hydropower plants with an energy input of 71 GWh/year and an investment of €623 million. For small hydropower plants, privatization is due to continue, as is the upgrading of facilities.

7.3 Protection of the Black Sea

The Romanian Black Sea coast is some 245 km long and the coastal zone is between 5 and 30 km wide on land, and between 3 and 18 km wide at sea. It has a surface area of around 3,400 km^2 and some 650,000 inhabitants, with an 80 per cent degree of urbanization.

The National Integrated Coastal Zone Management (ICZM) Committee of Romania was established in June 2004 by GD No. 1015 (2004) to ensure integrated coastal zone management. A MoEF Secretary of State chairs the Committee, on which approximately 40 authorities, institutions and stakeholders (NGOs) are represented. NIMRD serves as the technical secretary of the Committee. The ICZM Committee is responsible for the endorsement of all subjects related to integrated coastal zone management (e.g. spatial planning, environmental assessments and management plans).

The status of the Danube River, its delta and the Black Sea depends to a large extent on pollutant inputs from upstream countries (particularly for N and P loads). Diffuse agricultural sources, especially from chemical fertilizer use in upstream countries, along with inadequate operation of wastewater treatment plants, represent a major input. Future economic development in the Danube River basin region will increase nutrient loads from agriculture, industry and settlements and will produce a risk of failure to attain environmental objectives unless effective measures are taken.

Eutrophication is a phenomenon that occurs over wide areas of the Black Sea and concerns the entire Black Sea basin. Strategies and measures have been implemented within the framework of international cooperation with the countries bordering the Black Sea and in the context of the ICPDR. This includes in particular the implementation of the EU WFD as well as the adoption of the 2011 Law on the Integrated and Sustainable Development of the Coastal Area.

In the context of major restructuring of the economic and social system after 1990 in the countries of the Black Sea basin, dynamic changes in marine ecosystem components have been recorded, characterized by mild but continuous improvements in physical and chemical parameters. These

improvements notwithstanding, ecosystems have not reached a similar status as that seen in the 1960s, which is considered to be the reference period.

The trend is towards a new equilibrium for biodiversity and marine living resources. Against this background, there is a marked increase in the frequency and amplitude of extreme events caused by climate change, whose effect is often amplified by the impact of anthropogenic activities in the marine and coastal environment.

Pressures from land use on natural habitats have reached unprecedented levels in some sectors of the Romanian coastal zone. This is demonstrated by various research projects, studies and investigations summarized in the NIMRD report of 2009. A special problem is the coastal erosion that affects some 57 per cent of the length of the coastline, and which is mainly due to the reduction in the amount of silt carried by the Danube River as a consequence of the implementation of hydraulic works over the entire Danube River basin.

Bathing zones

The provisions of EU legislation[50] pertaining to control and surveillance, health inspection and supervision of natural bathing areas have been transposed into Romanian legislation by the adoption of various measures. On the Black Sea coast, 49 zones have been identified by the Public Health Authority Constanta and the Dobrogea–Litoral Water Basin Administration according to GD No. 459 (2000). Natural bathing zones are classified as:

- Improved natural bathing zones;
- Unimproved natural bathing areas, used traditionally.

Monitoring water quality in natural areas set aside for bathing is done in accordance with GD No. 88 (2004):

- The beach operator has an obligation to arrange for monitoring of bathing water quality by an accredited laboratory;
- The territorial public health authority establishes a compliance monitoring programme.

Monitoring of bathing water quality in unimproved natural areas (e.g. without specific equipment such as showers) is done by a public health authority according to article 16 of GD No. 88 (2004). If the territorial public health authority is unable to monitor water quality in unimproved natural areas, the local public administration authority has to inform the public of the absence of sanitary control.

7.4 Legal framework

The implementation of integrated water management in Romania is compliant with the EU WFD, aiming at achieving good status for all waters by 2015. The WFD was transposed through Law No. 310 (2004), which completes and amends Law No. 107 (1996) on Water. Romania has been granted a transitional period until 2018 for implementing the Urban Wastewater Treatment Directive.[51] The Directive, as amended by Commission Directive 98/15/EC,[52] was fully transposed into Romanian legislation via GD No. 188 (2002). Shorter transition periods were reached for compliance with the IPPC Directive.

Council Directive 75/440/EEC of 16 June 1975 concerning the quality required of surface water intended for the abstraction of drinking water in the member States, and Council Directive 79/869/EEC of 9 October 1979 concerning the methods of measurement and frequencies of sampling and analysis of surface water intended for the abstraction of drinking water in the member States, have been implemented into Romanian legislation via GD No. 100 (2002), GD No. 662 (2005), GD No. 567 (2006) and GD No. 217 (2007).

7.5 Institutional framework

The Water Management Administration in Romania is organized according to Law No. 107 (1996) on Water, as amended and supplemented in February 2010 (figure 7.3). The following institutions compose the core system: MoEF; NARW, which has 11 WBAs; NAM; the National Institute of Hydrology and Water Management (NIHWM); and NIMRD. NARW manages public waters of the State; the Infrastructure Water Management System consisting of lakes, flood protection dykes, canals, transbasin water diversions, water intakes and other hydraulic works; and infrastructure of hydrological warning

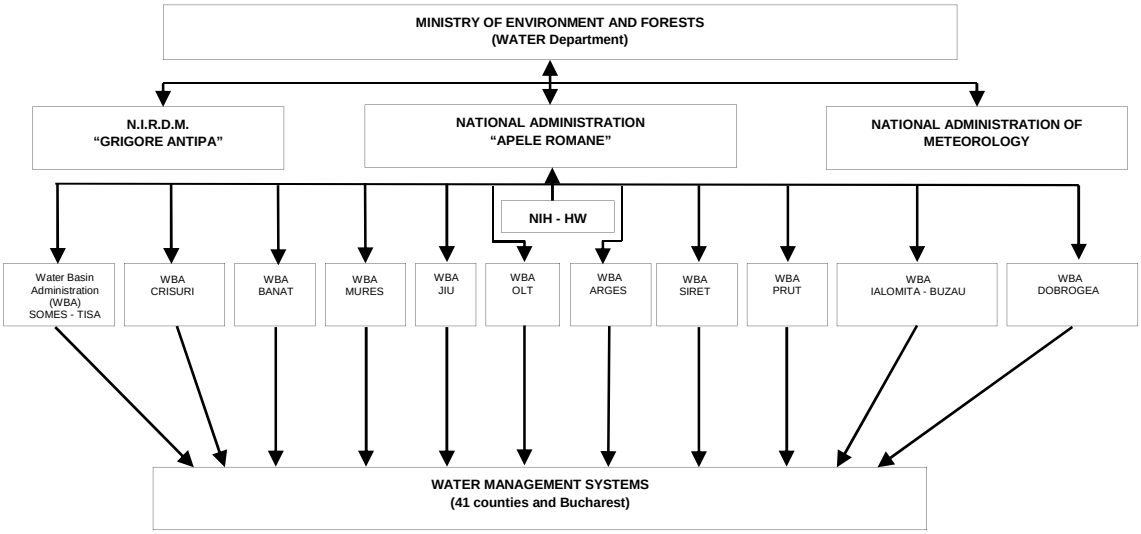
[50] Directive 2006/7/EC of the European Parliament and of the Council of 15 February 2006 concerning the management of bathing water quality and repealing Directive 76/160/EEC.

[51] Council Directive 91/271/EEC of 21 May 1991 concerning urban wastewater treatment.

[52] Commission Directive 98/15/EC of 27 February 1998 amending Council Directive 91/271/EEC with respect to certain requirements established in Annex I thereof.

systems and water quality monitoring resources in its patrimony.

Figure 7.3: Organigram on water management administration



Source: National Administration "Romanian Waters", 2012.

It takes preventive action against floods and drought, coordinates reservoir operations and development of the water system, and monitors the quantity and quality of the aquatic environment and of the water used.

The 11 WBAs (map 7.1) operating in the river basins have special responsibilities. They prepare plans on river basin management, issuing licences for all projects which have a qualitative or quantitative effect on water. They monitor whether such agreements and provisions of the licences and permits are respected by collecting water and wastewater charges and analysing them in their own laboratories. The WBAs prepare technical reports for REPAs with a view to the delivery of licences and permits, and approve the authorization of water works and water management activities.

According to Law No. 107 (1996) on Water, 11 basin committees are established at the level of WBAs. Each of them consists of 21 members drawn from environmental and water authorities, health and consumer protection authorities, local public administrations, mayors, prefects and presidents of counties, water users and NGO representatives. The basin committees have the following tasks:

- Classification of the quality of watercourses;
- Endorsement of the river basin development and management master schemes;
- Provision of public information;
- Endorsement of ecological reconstruction measures;
- Endorsement of vulnerability maps and flood risk maps.

NIHWM coordinates activities concerning hydrology and hydrogeology at the national level, providing both technical and specialized guidance regarding the hydrological network and helping to modernize the national hydrological forecasts.

NIHWM prepares research studies on hydrology, hydrogeology and water management, and performs studies for development schemes on river basin management for the implementation of national strategies geared to the sustainable development of water resources and flood risk management. It also elaborates syntheses of studies on guiding schemes for water management in each river basin, yearbooks and monographs, impact studies and ecohydrology studies.

According to GD No. 686 (1999), NIMRD conducts scientific research and promotes technological development in oceanography, marine and coastal engineering, marine ecology, environmental protection and management of living resources in the Black Sea area.

NIMRD informs local authorities and the public about bathing water quality and beaches, prepares studies on EIA, issues oceanographic forecasts for the north-western Black Sea area, participates in the elaboration and development of the Strategic Action Plan for the Rehabilitation and Protection of the Black Sea, deals with the fishery training centres and organizes international symposiums.

Map 7.1: Territories of river basins and water basin administrations

Source: National Administration "Romanian Waters", January 2012.
Note: The boundaries and names shown on this map do not imply official endorsement or acceptance by the United Nations.

In the summer of 2004, through the reorganization of the National Institute of Meteorology and Hydrology, NAM was established by Law No. 216 (2004) on establishing the National Administration of Meteorology. Available meteorological data is particularly important for anticipating and managing the extreme events of floods and droughts. NARW calculates outflows which are relevant for warning the population in case of extreme events and for protection against floods and droughts.

The National Commission on Dam Safety and Hydraulic Works, attached to MoEF, coordinates, guides and monitors the supervision of dams, reservoirs and other hydraulic works to guarantee their safe exploitation. Other ministries also have responsibilities regarding the water sector, for example MoH, MoAI, MoARD and MoRDT. In accordance with Law No. 241 (2006) on Water and Sewerage Services, responsibility for drinking water supply and wastewater disposal and treatment is entrusted to local authorities. Water users (municipalities and industries) are obliged to prepare and apply, if necessary, their own plans for prevention. Municipalities may delegate tasks regarding water supply and wastewater treatment to an operator via a concession contract or a public–private partnership contract approved by NRAMS.

Currently, there are 48 regional operators of sewerage systems and water supply facilities. Only the cities of Bucharest and Pitesti have signed these types of agreements with private operators. The Romanian Water Association has developed a strategic plan for water supply and wastewater treatment up to 2025.

7.6 Water permits and licences

Law No. 107 (1996) on Water, as amended by Law No. 310 (2004) on the requirements of the Water Framework Directive and other EU directives,

introduces an obligation for water users (except households) to request and obtain a water management permit, starting with the design stage. This permit regulates the regime of the works carried out on water or related to water, as well as socioeconomic activities with potential negative effects on the environment. The operationalization or operation of these works are contingent upon having a water management licence.

NARW and the WBAs are the competent authorities for issuing water management permits and licences. The procedure for issuing permits and licences for water management is regulated by MO No. 662 (2006), whereas MO No. 661 (2006) regulates the content of technical documentation required to obtain permits and licences for water management.

For wastewater discharges from municipalities of more than 2,000 p.e. and for industrial wastewater discharges from industrial sectors into natural receivers, permits/licences should contain conditions of compliance with the requirements of GD No. 352 (2005). These general requirements apply uniformly to all sectors.

As a result, the established limits are often too strict. NARW periodically monitors compliance status with the measures from the compliance programme which is annexed to the water licence, when such compliance programmes are relevant. NARW inspectors perform controls at UWWTPs for checking compliance with the conditions of the water licence. NARW inspectors also monitor industrial wastewater pre-treatment plants of industrial enterprises.

7.7 Conclusions and recommendations

Water demand for the supply of the population, industry and agriculture is declining. This is due to the installation of water meters, increased water prices, use of modern technology in industry, and a decline in the water needs of agriculture. However, according to a survey by NIHWM, water demand by households, the industrial sector, livestock and agriculture is expected to increase in the future.

Recommendation 7.1:
The Government should assess:

(a) Future drinking water needs in order to consider exploring additional water sources such as additional aquifers; and
(b) The impact of degradation of water reservoirs on water management.

The present level of connection to sewerage treatment plants leads to the conclusion that the targets for the implementation of the Urban Wastewater Treatment Directive will be difficult to achieve. This concerns rural areas in particular. Often, water supply and sanitation networks are not introduced simultaneously in rural areas, due to varying financing plans and priorities. Water supply is frequently given higher priority than sanitation. For wastewater discharges from industry, the current technical requirements are applied flatly to all industries. As a result, several industries (e.g. the food and the metalworking industries) are unable to comply with the limit values.

Recommendation 7.2:
The Government should:

(a) Consider providing additional funding for water infrastructure in rural areas;
(b) Review requirements of technical normative documents on industrial wastewater discharges, in order to set wastewater discharge limits for different branches of industry;
(c) Better coordinate measures of drinking water supply and sanitation; and
(d) Enhance training of qualified personnel of the water management administration and the water-management staff of regional environmental protection agencies.

The increase in the number of UWWTPs will generate an important amount of sludge. Only a small percentage of sludge is used in agriculture because the national limit values for pollutants in sludge are stricter that those in the rest of the EU. With the decrease of pollution from industrial wastewater discharges, improved sludge quality is expected. Nevertheless, limits for the use of sludge in agriculture might warrant their review.

Recommendation 7.3:
The Government should identify options for safe handling of sludge from wastewater treatment.

The selection of operators of water supply systems and wastewater systems takes place without any competition. The IDAs play a key role in terms of pricing strategy. In the short and medium terms, there is a need to train qualified staff for these associations to monitor the performance of regional operators.

Recommendation 7.4:
The Government should strengthen the institutional capacity of the Intercommunity Development Associations so that they can better exercise their function of supervising regional operators of water supply and wastewater systems.

Chapter 8

WASTE MANAGEMENT

8.1 Description of the current situation

Waste management is one of the major problems that Romania faces in terms of environmental protection. This refers to the collection, transport, treatment, recovery and disposal of waste. Past waste management practices remain prevalent in Romania today and have led to a great number of non-compliant waste landfills and to the inappropriate disposal of large amounts of waste. Furthermore, due to fact that significant economic activities in the past were carried out without due consideration for their environmental impact, Romania has inherited a large number of contaminated sites which generate high levels of emissions into the air and water, causing excessive soil and landscape degradation in numerous cases.

Starting in 2000, implementation of EU waste management legislation has resulted in improved waste management practices. Pursuant to the requirements of the Waste Framework Directive,[53] MoEF has developed and is currently implementing the NWMS, the NWMP and RWMPs, which are the reference documents constituting the main implementation tools for EU policies in this field.

8.2 Description of the current situation

General

The solid waste management system in Romania is in the process of transition from uncontrolled dumping in small and medium-sized disposal sites to large, regional, controlled landfills. The key driver of change in terms of waste management in Romania has been the need to achieve compliance with EU legislation. This process is supported by the development of strategies, RWMPs and EU funds for investment in new waste management infrastructure.

The need to achieve compliance with EU waste management targets drives the development of the waste management system in Romania. Conditions set out in the Accession Treaty include:

- Closure of non-compliant waste disposal sites;
- Decommissioning of non-compliant waste incineration facilities;
- Regulations for transboundary shipments of waste.

Romania has developed a solid system of waste management data collection, which receives input from waste collection companies, waste treatment facilities and industrial waste generators.

Generation and collection of municipal solid waste

Generation of MSW is estimated from reports on collected waste prepared by collection companies, while disposal facilities provide information on the amounts of waste delivered to managed disposal sites. Data on MSW generation published by NEPA show the structure of MSW generation by individual streams (table 8.1). Collected MSW is stable at around 7 million tons/year and estimations of uncollected waste are around 2 million tons/year. The growth of waste in individual categories reflects improvements in monitoring waste amounts more than actual higher waste generation.

Improvements in MSW management in the last decade can be also documented by an increase of registered employees in waste collection, treatment and disposal, whose numbers swelled from 24,300 in 2000 to nearly 50,000 in 2010.

The urban population is practically fully covered by collection services, but a large share of the rural population is not served. Available statistics on service coverage are based on individual contracts on collection, as a result of which actual coverage is probably higher in reality than reported figures (table 8.2).

The figures on collection coverage show that about 80 per cent of the urban population has individual contracts and that coverage of the rural population by these contracts has increased fourfold over the past five years.

[53] Directive 2008/98/EC of the European Parliament and of the Council of 19 November 2008 on waste and repealing certain Directives.

Photo 8.1: Waste collection

Table 8.1: Municipal solid waste generation, 2001–2009

tons

Type of waste	2001	2002	2003*	2004	2005	2006	2007	2008	2009
Total	**6,328,907**	**6,937,827**	**..**	**6,716,600**	**7,025,256**	**6,808,837**	**6,921,660**	**7,371,166**	**6,938,715**
1 Total household and similar waste	5,064,936	5,226,461	..	5,161,000	5,557,099	5,362,443	5,243,185	5,669,125	5,283,355
Mixed household waste	3,578,450	3,648,864	..	3,638,200	3,563,148	3,525,194	3,513,801	3,650,619	3,350,380
Similar waste from commerce, services and economic activities	1,486,486	1,577,597	..	1,458,600	1,688,603	1,752,368	1,578,227	1,814,438	1,683,365
Household and similar waste collected separately (excl. construction and demolition waste)	122,681	491,916	..	47,000	286,758	48,108	101,429	158,370	195,859
Bulky waste	34,982	56,174	..	17,200	18,590	36,773	49,728	45,698	53,751
2 Total waste from municipal services	856,396	1,090,113	..	840,200	1,001,264	972,048	944,758	889,217	981,423
of which:									
Street cleaning	612,558	752,446	..	657,300	784,201	735,090	730,660	655,576	702,733
Markets	106,891	124,922	..	84,200	104,314	99,734	84,884	98,550	122,390
Parks and gardens	136,947	212,745	..	98,700	112,749	137,224	129,214	135,090	156,300
3 Construction and demolition waste	407,575	621,253	..	646,400	466,893	474,346	733,717	812,824	673,937
4 Estimation of uncollected MSW**	2,189,062	1,945,694	..	..	..	..	..	..	..

Source: National Environmental Protection Agency, 2011.
* No data for 2003 were published.
** No estimates for uncollected MSW were published after 2002.

The ratio between the urban (53-55 per cent) and rural (45-47 per cent) populations remained stable in the period 2002–2009, so it is likely that coverage figures are not influenced by migration. There are significant variations between individual counties in the servicing of rural areas, which are caused by different levels of infrastructure development and living standards.

The quality of service is satisfactory in urban centres and main streets. However, collection services in side streets and outlying areas have to improve. Additionally, there must be better coverage of the rural population. Obviously, collection companies prefer to serve dense urban centres with high population density and avoid sparsely populated rural areas with a lower-income population. Municipalities need greater control over activities of private collection companies, but the prevailing system of individual contracts, where the house owner signs a contract directly with the collection company, makes things difficult for them.

Introducing municipal/regional contracts, for example where the municipality or regional administration signs a contract with the collection company and the municipality/region recovers the cost via a local/regional waste fee, would allow better planning of waste collection services for the entire municipality or region, including rural areas.

There are currently some 50 active larger authorized operators and several hundred smaller companies providing waste management services. The top 10 hold a market share of over 80 per cent, including collection, transport, disposal and the operation of sorting and transfer stations. The majority of these companies are Romanian; international operators have a relatively small market share. The market has no large international players who would introduce new service standards and integrated waste management schemes on a large scale.

The collection infrastructure was improved recently through the development of 36 transfer stations with a total capacity of 380,000 tons/year (around 7 per cent of MSW generated).

Treatment and disposal of municipal solid waste

The vast majority of MSW is disposed of via landfills and dumpsites. Less than 3 per cent of collected MSW is recycled. Separation of waste and recycling infrastructure are not yet sufficiently developed to achieve targets set by the EU.

Romania is currently developing a network of controlled landfills which comply with EU standards and closing old, uncontrolled dump sites. The EU Accession Treaty specifies a transition period for replacing 129 non-compliant dumpsites with landfills by July 2009. The last review in March 2009 concluded that Romanian authorities still had to close 65 dumpsites. The EU extended the deadline for closure of these sites to July 2017.

New treatment and disposal capacities are being continually developed. In all, 27 new landfills compliant with EU standards have replaced closed dumps and 56 sorting plants with an installed capacity of 700,000 tons/year were put into operation. Compared with the amount of reported recycled MSW, about one third of this capacity is actually used. Current projects for the construction of new landfills are connected to the obligation to close existing non-compliant landfills. Table 8.3 shows changes in the number and area of municipal waste landfills between 2006 and 2009.

Separate collection

More than 1,000 companies have been licensed nationally for the collection of packaging waste, 320 for collecting WEEE and 88 for used oils. Paper and metal scrap collection and recycling are well established in Romania, with thousands of collectors and a large network of processing companies. Even for PET collection and recycling, there are some important facilities.

Amounts of recycled secondary raw materials are growing fast, reflecting large investments in waste recycling infrastructure (table 8.4). Whereas only about 1 per cent of total household and similar waste was separately collected in 2004, this increased to 2 per cent in 2007 and reached 3.7 per cent in 2009. There is potential for further growth because not all installed capacity is fully utilized.

Table 8.2: Municipal solid waste collection coverage, 2004–2009

per cent of population

	Total	Urban	Rural
2004	47.50	83.40	6.50
2005	49.85	83.10	11.79
2006	48.84	79.53	11.44
2007	51.35	79.68	16.37
2008	54.00	79.92	22.13
2009	63.21	83.88	37.90

Source: National Environmental Protection Agency, 2011.

Table 8.3: Changes in landfill structure, 2006, 2009

Region	Number of municipal landfills		Area hectares	
	2006	2009	2006	2009
Northeast	29	23	93.8	89.8
Southeast	31	28	122.1	67.9
South Muntenia	31	14	116.9	43.5
South West Oltenia	31	27	64.4	51.1
West	31	26	132.8	196.8
Northwest	33	28	102.3	91.6
Center	50	31	139.2	69.2
Bucharest-Ilfov	3	3	27.2	46.1
Total	**239**	**180**	**798.7**	**655.9**

Source: National Environmental Protection Agency, 2011.

Table 8.4: Separate waste collection, 2004–2009

tons

Type of waste	2004	2005	2006	2007	2008	2009
Paper and cardboard	10,200	102,824	18,515	34,276	35,306	39,430
Glass	8,400	13,661	11,477	12,236	5,834	2,890
Plastic	800	156,904	7,048	9,742	9,594	16,255
Metals	2,100	2,174	3,246	1,988	3,594	762
Biodegradable	5,900	8,003	7,149	17,554	49,318	18,145
Other	12,400	3,192	673	25,633	52,068	115,457

Source: National Environmental Protection Agency, 2011.

Biodegradable waste is mostly composted: recent data indicate that about 60 composting plants are in operation with an installed capacity of 166,000 tons/year, although the reported quantities of separately collected biodegradable waste represent on average only about 10 per cent of this capacity

Use of composting plants is higher than this, because waste for composting can also be delivered by individuals or companies not included in the waste reporting system, e.g. park maintenance companies or farms.

In order to improve collection, buy-back schemes have been implemented for WEEE, but such schemes have been discontinued. The reason was that, at the start, larger quantities of WEEE were delivered to buy-back points, but subsequently the level declined substantially. Limited results were also achieved by the national campaign for the collection of WEEE, known as the Great Disposal campaign, launched in 2007 by MoEF and repeated periodically at regional level to collect WEEE from the population with the involvement of the sanitation companies.

The WEEE buy-back schemes and the Great Disposal campaign were launched in a period of strong economic growth for Romania, when consumer confidence was high, banks were keen on expanding consumer credit, and the incentive for consumers to replace their old home appliances was high. However, now that economic conditions have deteriorated and access to credit has been severely restricted, WEEE collection has diminished considerably. The development of MSW composition over time is given in table 8.5. Variations (e.g. increase of glass in 2006) may be explained by different methodologies used for estimation of waste fractions.

Industrial and hazardous waste

Before 1989, industry in Romania was based on the idea of full self-sufficiency. Consequently, the transformation of the economy to free-market principles resulted in significant structural changes. For example, the mining industry went through significant downsizing in the period 1997–2006, when the number of employees was reduced by 70-80 per cent. This not only had a socioeconomic impact, but also led to a change in the country's waste generation characteristics.

Waste generators are responsible for the organization of industrial waste management, through their own resources or by outsourcing such services to specialized firms. Landfilling has been the main form of disposal for industrial waste as well. Industrial

waste generated by enterprises is deposited on their own depositing premises, located inside or outside the sites.

Table 8.5: Composition of municipal solid waste, selected years

per cent

Type of waste	1998	2002	2006	2009
Biodegradable	53	51	46	57
Paper, cardboard	13	11	11	12
Glass	6	5	11	5
Metals	5	5	5	3
Plastic	9	10	3	10
Textiles	6	5	5	..
Other	8	13	19	13

Source: Atudorei, A., 2008, *Integrated Municipal Solid Waste Management in Romania: Case Study: Region 8 – Bucharest–Ilfov*.

Generation of industrial waste is monitored annually and data are categorized according to the European Waste Classification system and the Classification of Economic Activities in the European Community (NACE) classification. The NACE classification used changed from revision 1.1 to revision 2 in 2008. The mining industry is a key sector of the Romanian economy, and the differentiation between mining waste and other industrial waste is not clearly defined. According to MoEF, this creates a problem in terms of presenting and reporting on industrial waste data.

The decreasing trend in non-hazardous waste generation (table 8.6) can be explained by the restructuring of the economy, mainly as a result of the reduction in mining activities and the growth of new industries generating less waste due to modern technologies. Fluctuations in the annual amounts depend more on problems linked to the identification of the origin of waste (mining waste or not) than actual changes in generation.

Table 8.6: Non-hazardous industrial waste generation, 2003–2009

thousand tons

	Mining waste	Other industrial activities	Total
2003	329,804	29,808	**359,613**
2004	325,386	27,467	**352,854**
2005	194,433	126,885	**321,318**
2006	198,752	111,938	**310,690**
2007	215,054	56,831	**271,886**
2008	140,646	18,634	**159,280**
2009	160,106	94,282	**254,388**

Source: National Environmental Protection Agency, 2011.

The decline in generated hazardous waste in the mining sector (table 8.7) has been influenced by two major factors: first, the changes in waste classification following the adoption of GD No. 210 (2007) on Waste Management Records and Approval of the List of Waste, Including Hazardous Waste; and second, the decrease in the mining of ore and modernization of ore processing. Waste statistics may be influenced somewhat by the process of familiarization with a new waste classification relating to the reporting of waste generators, which may take about two years. This may explain the increase in hazardous waste from the mining sector in 2009.

Table 8.7: Hazardous industrial waste generation, 2003–2009

thousand tons

	Mining waste	Other industrial activities	Total
2003	1,530	730	**2,260**
2004	1,214	1,048	**2,263**
2005	997	737	**1,734**
2006	498	555	**1,053**
2007	11	408	**419**
2008	31	410	**442**
2009	88	351	**439**

Source: National Environmental Protection Agency, 2011.

The overwhelming majority (some 95 per cent) of industrial waste is sent for landfilling, while the remainder is incinerated or recovered as secondary raw material.

Landfills for industrial waste were inventoried in early 2004, resulting in a total of 169 landfills occupying an area of approximately 3,000 ha. These landfills are grouped together according to the type of waste they receive: 51 hazardous waste landfills, 116 non-hazardous waste landfills and 2 inert waste landfills.

Of the 169 landfills inventoried, 15 comply with the provisions of Council Directive 1999/31/EC of 26 April 1999 on the landfill of waste and will continue to be operational until exhaustion. The other 154 landfills will be closed down in a staggered manner, in accordance with the commitments undertaken by Romania through the EU Accession Treaty. After Romania acceded to the EU, many of the landfills which were not compliant with the requirements of the applicable legislation ceased their activity.

In addition to the landfills for industrial waste in operation, there are landfills which are no longer

used, either because their capacity has been exhausted or because the economic operators owning them have terminated their activity. In the vast majority of cases, the closure of such landfills did not take place in accordance with the applicable EU regulations, as a result of which these areas have become contaminated sites.

The network of hazardous waste incinerators is growing in Romania: MoEF currently registers:

- 11 companies operating specialized waste incinerators;
- 7 companies co-incinerating waste in cement kilns;
- 8 companies incinerating their own waste.

These incinerators are mainly geared to the incineration of hazardous waste from industries and health-care facilities, or of waste with a high calorific value as a replacement for fossil fuels in cement kilns.

Mining waste

In the early 1990s, Romania had an estimated 464 mines of various dimensions for coal and other minerals. Production has been terminated in 344 of the most economically unviable mines. Of these, 82 have been completely closed and the physical closure of 191 mines has been contracted; the remaining ones are currently under care and maintenance awaiting final closure. At the beginning of 2004, an estimated 120 mines were still in operation, and many were still not economically viable and depended on budget subsidies.

In the period 1999–2006, the Government, together with the World Bank, implemented the Pilot Project for Mine Closure and Social Mitigation with a budget of US$61 million. This consisted of three components:

- Closure of 29 economically unviable mines and the environmental remediation of mine sites;
- Financing of social mitigation initiatives to help diversify the local economy in support of the Government's restructuring programme for the mining sector;
- Technical and institutional assistance for modernizing the administration of mineral rights.

The first Mine Closure and Social Mitigation Project developed a legal and technical basis for mine closure in Romania that was utilized in the follow-up Mine Closure, Environmental and Socioeconomic Regeneration Project, with a budget of US$120 million, which was implemented in the period 2005–2010.

These resulted in the physical closure and clean-up of 31 mines in the first project and 20 in the second, including removal of unwanted buildings and contaminated soils, and the stabilization of tailing dams and waste dumps. In total, more than 600 ha of land were rehabilitated and restored for future use.

Closing three of every four mines and modernizing mines in operation in Romania has led to significant changes in waste generation. The amount of non-hazardous waste generated by mining has been halved (table 8.6), and hazardous waste generated from mining has decreased by 95 per cent (table 8.7).

Although some additional mines may be closed and remediation of closed ones continues, the transformation of the mining sector has been successful, with a positive impact on the environment.

Health-care waste

Modernization of health-care waste management in Romania started from a system of burning hazardous and infectious waste in small incinerators located at larger hospitals. There were 334 small incinerators identified in the MoH network in 2002. The actual number of these facilities may have been higher, as there were several incineration units at private health-care facilities and field checks also identified improvised small incinerators at smaller hospitals. For example, in Olt Prahova County, seven small incinerators were registered but an additional 18 improvised small incinerators were found during field checks.

In 2004, a protocol was signed between MoEF, MoH and NEG establishing, in accordance with the legislation in force, the environmental conditions for the operation of hospital small incinerators until their closure in 2008. This deadline was set in compliance with Directive 2000/76/EC of the European Parliament and of the Council of 4 December 2000 on the incineration of waste.

The objective of the protocol was to define methods for monitoring and checking existing small incinerators to be closed, regulating the small incinerators functioning during the transition period until 2008 and elaborating the selection criteria for sterilizers to ensure full inert status of the hazardous health-care waste treated.

In terms of implementation, there were 355 small incinerators in hospitals in Romania by the end of 2008. According to MoH, as a result of the implementation of the protocol, all small incinerators that burned hazardous medical waste were closed down in the period 2004–2008. MoEF currently has registered seven facilities for thermal sterilization of waste from health-care facilities and 101 companies licensed for transport of hazardous health-care waste.

The current system of health-care management is based on separate collection of health-care waste. Hazardous and infectious health-care waste is sent to thermal sterilization plants or hazardous waste incinerators, which are located in individual counties. Integrating incineration of health-care waste with hazardous waste is a good example of achieving safe destruction of infectious waste from hospitals, and minimizes the need for the development of specialized health-care waste incineration plants. Table 8.8 shows the decline in volumes of hazardous health-care waste in the period 2007–2010.

Table 8.8 Hazardous health-care waste, 2007–2010

tons

2007	2208	2009	2010
14,080	12,918	11,862	10,669

Source: National Institute of Public Health, 2011.

Obsolete pesticide waste

A nationwide inventory of obsolete pesticides in Romania was developed jointly by local phytosanitary authorities and LEPAs in 2001/02. In all, 133 storage facilities were identified, comprising different pesticides and chemicals estimated at 1,409 tons. As no treatment was possible in Romania, PHARE supported the Obsolete Pesticides Clean-up Programme in 2004/05, consisting of two phases. Reassessment of the situation resulted in identification of additional storage, resulting in the re-evaluation of programme actions.

Under Phase I of this programme, a total of 1.7 tons of pesticides waste were repackaged and transported for final disposal in Germany by the end of November 2005. Phase II of this programme started in 2006, with the cleaning of 747 tons at 127 sites. At the end of 2009, about 500 to 1,000 tons of obsolete pesticides remained in Romania.

The Romanian project was one of the largest obsolete pesticides clean-up operations in Europe to date. The project was based on a professional Contract Framework of the International Federation of Consulting Engineers and high-quality implementation routines.

Data collection on solid waste of municipal and industrial origin

Romania has introduced a detailed system of data collection, but the processing and presentation of these data do not meet the requirements for management of integrated waste management systems. There are discrepancies in the timelines of individual waste streams, especially in the separate collection of municipal waste. Data on incineration, co-incineration or composting of waste are not included in the annual reports on waste prepared by NEPA.

Data on waste are collected for sufficiently long periods to allow data verification and validation as well as the development of realistic timelines. These timelines are important for evaluating implementation of the current NWMS and plans, as well as for estimating future trends in waste management which will be used as the most important background information for the development of a new waste management strategy for 2014–2023. Knowledge of actual waste amounts by individual waste streams is important in terms of identifying future needs for new legislative regulations, waste treatment technologies and disposal capacities.

Radioactive waste

Romania has developed a complex nuclear sector, which includes uranium mining, nuclear fuel production and NPP operation. In addition, research facilities, some industries and health-care institutions are generating radioactive waste.

In the late 1970s, a five-unit NPP was planned at Cernavodă, on the Danube River. NPP Cernavodă was based on technology transfer from Canada, Italy and the United States of America, with CANDU[54]-6 heavy water reactors. The first reactor came on stream in 1996, followed by the second in 2007. Currently, NPP Cernavodă covers some 18 per cent of electricity demand in Romania. NPP Cernavodă has been using 210 tons of natural uranium oxide fuel per year.

The State-owned Uranium National Company S.A. operates three uranium mines in Bihor, Banat and Suecava districts and a UO_2 powder plant in

[54] Short for CANada Deuterium Uranium.

Feldioara for chemical conversion and purification of uranium ore. The company mines a small amount of uranium each year from 3100 tons of known uranium resources, with the help of a Government subsidy.

Processed uranium ore is transported to the nuclear fuel plant in Pitesti, where the fuel for CANDU reactors is produced. The nuclear research is also located in Pitesti, in the form of a TRIGA[55] reactor owned by the Romania Authority for Nuclear Activities (RAAN) through its nuclear research centre (RAAN/SNC). The Institute for Physics and Nuclear Engineering "Horia Hulubei" (IFIN-HH) in Magurele operates a VVR-S research reactor. This reactor is being decommissioned and spent nuclear fuel has been shipped back to the country of origin (the Russian Federation).

Radioactive waste is generated throughout the entire nuclear fuel cycle. Individual facilities are equipped with management facilities for spent nuclear fuel (table 8.9) and radioactive waste (table 8.10). NPP Cernavodă operates wet storages as part of the spent fuel handling systems at both reactors and the interim spent fuel dry storage facility. It also uses the solid radioactive waste system for pretreatment and storage of operational waste except resins, the organic liquids radioactive handling system, the gaseous radioactive waste system and the liquid radioactive waste system.

The nuclear research centre RAAN/SNC Pitesti operates a spent fuel storage pond for TRIGA fuel elements and dry storage pits for irradiated experimental nuclear fuel elements and fragments. The nuclear fuel production plant has specialized radioactive waste management systems for solid, liquid and gaseous waste.

IFIN-HH in Magurele operates a spent fuel cooling pond and a spent fuel storage pond for wet storage of VVR-S spent nuclear fuel assemblies of the type EK-10. It also operated the radioactive waste treatment plant for treatment and conditioning of waste from research facilities in Pitesti and recovery of uranium from effluents. The National Repository for Low- and Intermediate-Level Radioactive Waste under the control of IFIN-HH is located in Baita-Bihor.

The uranium mining sector uses tailing ponds in Cetatuia and Mittelzop, old trench-type storage and low-activity solid radioactive waste storage, all of which are under the control of the Uranium National Company. This firm is also responsible for various mining and prospecting sites in Suceava, Stei (Bihor) and Oravita (Banat), where radioactive rocks from mining are stored

[55] Acronym of Training, Research, Isotopes, General Atomics.

8.3 Financing of waste management

Waste fees

Financing of waste management services is based on the "polluter pays" principle, but waste tariffs are low compared with EU standards. The monthly waste fee for the population in Romania is on average about €2/capita/month, but depends on the service provider. For example, in Sibiu County, the waste fee varies from €0.5 to €2/capita/month. This is less than half of waste fees in the new EU member States and less than one quarter in the old member States. Commercial and industrial waste generators relying on the services of collection companies pay up to €8 per kg of waste. The price for this type of waste is higher than average, and collection companies are cross-subsidizing their operational costs to make up for low waste fees from the population.

Fee collection is handled directly by staff collecting waste, and its effectiveness is 75 per cent and more. However, the system of individual contracts between the collection company and the population serviced is not optimal, and MoEF is proposing to change the current system to municipal contracts, which are used by most EU countries.

Waste taxes

MoEF uses a range of economic instruments geared to the following areas of waste management (chapter 5):

- Minimization of waste generation is encouraged by a tax on plastic shopping bags and a tax on the sales value of hazardous chemical substances (except for those used in the production of medicines) placed on the market;
- Recovery and recycling are supported by tax on packaging materials, tyres and oil lubricants. This tax is due only if the annual targets stipulated in the relevant waste legislation for recycling are not met;
- Diversion from waste disposal is encouraged by a tax on land use as a disposal site, depending on the type of waste deposited, paid by landfill operators, and a disposal tax per ton of waste, paid by municipalities.

Table 8.9: Spent nuclear fuel, 2010

Nuclear Power Plant	Number	Amount (t U)
NPP Cernavoda - CANDU bundles	88,168	1679.8
RAAN/SCN Pitesti - TRIGA rods	103	<0,1
RAAN/SCN Pitesti - CANDU rods	123	<0,1
IFIN-HH - Magurele - EK-10 assemblies	153	0.2

Source: Fourth National Report to the Joint Convention on the Safety of Spent Fuel Management and on the Safety of Radioactive Waste Management, 2011.

Table 8.10: Radioactive waste, 2010

Company / Site	Facility type	Waste type	Stored volume m^3
Uranium Mining and Milling			
Feldioara processing plant	storage	Mill tailings	2,641,194
Suceava mine	storage	Sterile and radioactive rocks	711,663
Stei mine (Bihor)	storage	Sterile and radioactive rocks	4,257,962
Oravita mine (Banat)	storage	Sterile and radioactive rocks	2,057,000
Nuclear Fuel Production			
Pitesti Nuclear Fuel Plant	storage	Low activity	100
Nuclear Power Plant			
NPP Cernavoda	storage	LILW	538
Nuclear Research Centre			
RAAN/SCN Pitesti	storage	LILW-Long Life time	0.4
	storage	High Activity	< 0.1
IFIN-HH - Magurele	storage	Very low activity	212
	storage	LILW-Short life time	63
	storage	LILW-Long Life time	2
	disposal	LILW-Short life time	1,949

Source: Fourth National Report to the Joint Convention on the Safety of Spent Fuel Management and on the Safety of Radioactive Waste Management, 2011.
Note: LILW = Low- and intermediate-level radioactive waste

EU funds

SOP ENV is closely linked to the national objectives of the strategy laid down in the NDP for the period 2007–2013 and the NSRF for the period 2007–2013, which takes into consideration the EU supporting objectives, principles and practices. Priority Axis No. 2 – Waste, defines target areas for structural funds and the CF in waste management, namely:

- Development of sustainable waste management systems, by improving waste management and reducing the number of historically contaminated sites in a minimum 30 counties by 2015;
- New systems of integrated waste management in a minimum 15 counties;
- Extension of existing waste management systems in a minimum 15 counties;
- Rehabilitation of old ecological burdens.

For the financing of these target areas, €1.167 billion was allocated from the ERDF. Of this total, €177 million has been earmarked for cleaning up contaminated sites.

8.4 Policies and strategies

Current waste management policies and strategies are informed by the need to complete the full implementation of EU requirements defined during the accession discussions, and these are reflected in the current NWMP.

Transition period

In order to improve the existing situation and to achieve full compliance with the requirements of the EU legislation, Romania asked for a period of transition for chapter 22 – Environment. In the area of landfilling, the following targets must be achieved:

- Closure of 238 existing municipal landfills which are not compliant with EU regulations by 2013. These must be replaced by new, compliant facilities; accordingly, MoEF plans to build 65 regional municipal landfills each with a minimum capacity of 100,000 tons/year and supported by a network of transfer stations;
- Reduction in the quantity of solid waste disposed of in 101 municipal non-hazardous waste facilities which are not compliant with EU regulations by 2016;
- Reduction in the quantity of liquid waste disposed of in 23 facilities which are not compliant with EU regulations by 2013;
- Reduction in the quantity of liquid waste disposed of in five sedimentation ponds which are not compliant with EU regulations gradually in the period 2006–2011.

EU legislation requires member States to reduce biodegradable waste disposal to landfills. The following target dates for diversion from disposal compared with the quantities generated in 1995 were set for Romania:

- Up to 25 per cent by 2011;
- Up to 50 per cent by 2015;
- Up to 65 per cent by 2016.

For packaging and packaging waste, the following target levels must be achieved by 2013:

- Recovery target level – 62 per cent;
- Recycling target level – 55 per cent.

Directive 2002/96/EC of the European Parliament and of the Council of 27 January 2003 on waste electrical and electronic equipment (WEEE) set a target of 4 kg of WEEE/inhabitant/year collected separately by the end of 2008.

A transition period until 2009 was set for decommissioning 335 small incinerators located in hospitals and for building eight regional incineration plants for medical hazardous waste and one national incineration plant for industrial hazardous waste.

The following programme, which is necessary to meet legislative requirements, will be implemented in Romania in the period 2008–2016:

- Rehabilitation of 20 existing landfills and construction of 45 new landfills in compliance with EU and Romanian legislation;
- Construction of transfer stations at regional sorting plants, recycling and composting plants;
- Construction of eight incinerators for medical waste (one for each region);
- Construction of an industrial hazardous waste incinerator, with an estimated capacity of 62,000 tons/year;
- Co-incineration of some municipal waste categories in cement kilns;
- Construction of municipal incineration plants with a minimum capacity of 150,000 tons/year (each).

Implementation of transition measures is reportedly proceeding according to the programme. Old dump sites are being closed and new controlled landfills are being built and put into operation. The mining sector projects are also aiming at improvements in the disposal of liquid waste in tailing ponds. As for diversion of biodegradable waste from disposal, Romania reported that it achieved the target for 2011, but the total amount of MSW disposed of does not seem to confirm this statement. However, the share of biodegradable waste out of MSW is reported to have decreased from 72 per cent in 1998 to 57 per cent in 2009.

According to the *Flash Report on Recycling Results in the EU*, in 2006 and 2007, Romania achieved the recycling target for packaging waste but not the recovery target. The recycling target for end-of-life vehicles was also achieved. The report noted a decrease in recycling rates for plastics and metals.

Collection of WEEE resulted in 38,700 tons in 2009. This corresponds to 2 kg of WEEE/inhabitant/year, and represents half of the EU target. The development of waste infrastructure is continuing in line with the targets set for the transition period.

National Waste Management Strategy

Romania's NWMS was prepared first for the period 2004–2009, then updated and prolonged until 2013. It is based on EU priorities in waste management and focuses on transforming the existing system to meet these priorities. The Strategy presents progress made in implementing EU waste management legislation in the Romanian legislative system, and describes the baseline situation for formulating the national strategy.

The NWMS is formulated as a set of main objectives and subsidiary objectives, which are defined for each activity related to waste management. These objectives are divided up as follows:

- General Strategic Objectives for Waste Management – these are aimed at general modernization of waste management by defining actions in legislation, institutional strengthening, human resources, financing, awareness-raising, data collection and R&D, as well as waste minimization, collection, recycling, treatment and disposal;
- Specific Strategic Objectives for Certain Waste Flows – these target waste streams defined in the EU legislation and define actions for improving their management;
- General Strategic Objectives for the Management of Hazardous Waste – these have the same structure as for general waste management and require specific actions for modernization of hazardous waste management;
- Specific Strategic Objectives for Certain Flows of Hazardous Waste – these target PCB and polychlorinated terphenyl (PCT) waste, pesticide waste, chlorinated organic solvents waste, used oils, and health-care and research waste.

Waste management plans

The NWMS is implemented through national and regional waste management plans. The NWMP sets concrete target dates and defines the responsibilities of ministries and waste generators for implementing individual objectives defined in the Strategy.

The NWMP is a framework document, which provides a detailed analysis of the waste management situation in 2002 by individual waste streams and identifies capacities available for recycling and treatment of waste. This instrument also supplies key recommendations for implementing the NWMS and serves as a background document for RWMPs.

RWMPs were developed for all eight regions of Romania and approved in 2006. They set out the future structure of the facilities needed based on an integrated waste management approach. For example, the RWMP for Bucharest-Ilfov envisages the development of the following facilities and systems by 2013:

- Implementation of selective collection of household and assimilative waste;
- Construction of two sorting plants;
- Construction of one mechanical biological plant;
- Construction of two composting plants;
- Modernization of existing landfills;
- Construction of new cells at existing landfills;
- Construction of a treatment plant for recycling construction and demolition waste.

Implementing this proposed system in the Bucharest-Ilfov region will require an investment of €51.7 million.

The system of waste management plans is well designed in Romania and provides a solid basis for the modernization of waste management. The importance of these plans is strengthened by the use of EU funds, which requires clear and transparent information for the provision of investment grants.

Implementation of the National Strategy and waste management plans is in the phase of development of the necessary infrastructure (controlled landfills, transfer stations, sorting and composting plants). Tangible results have not yet been achieved, but conditions are being created to establish an integrated waste management system geared to waste recovery in the medium term.

Radioactive waste strategy

The National Strategy on Medium- and Long-term Management of Spent Nuclear Fuel and Radioactive Waste, Including the Disposal and the Decommissioning of Nuclear and Radiological Facilities, was prepared to create a framework for action to improve management of spent nuclear fuel and radioactive waste. It emphasizes the need to develop national legislation controlling management of radioactive waste, define its characterization, and set up a national database for record-keeping on radioactive waste. It requires defining specific strategies for safe management of low- and medium-level radioactive waste in low- and intermediate-level radioactive waste (LILW) treatment and storage facilities of IFIN-HH in Magurele, RAAN-SNC Pitesti and NPP Cernavodă. Interim storage of spent nuclear fuel should be improved by developing and implementing dry storage technology for spent nuclear fuel.

According to this Strategy, radioactive waste should be sent for final disposal to the National Repository for Low- and Intermediate-Level Radioactive Waste in Baita-Bihor, which is due to be replaced by a new National Centre for the disposal of LILW/SL waste by 2014.

A National Centre for the Disposal of High-Level Waste should be developed by 2055, and research into the proposed site in Saligny is well advanced.

Decommissioning of nuclear facilities is also included in the Strategy: for the VVR-S reactor at IFIN-HH, three stages are planned for the period 2007–2018; for the TRIGA reactor at RAAN-SNC Pitesti, decommissioning is planned for the period 2035–2055; and the Strategy and Preliminary Decommissioning Plan for NPP Cernavodă was planned for 2006–2009.

8.5 Legislation

Waste management legislation in Romania is based on EU legislation, which has been fully transposed to the national legal system. The structure of waste management legislation and targets are set by EU waste management policies and strategies, leaving relatively little room for national decisions. Thus, waste legislation in Romania covers all types of waste and waste streams. However, the key issue for Romania is to identify effective transition measures to achieve EU standards within given deadlines. Given the changes in waste management infrastructure, waste legislation is enforced and has a positive impact on the development of the waste sector.

The following list of legislation is a combination of the structure defined by the new Directive 2008/98/EC on Waste (for laws adopted after 2008) and the previous EU Framework Directive 2006/12/EEC (for laws adopted before 2008).

As a response to the new Directive 2008/98/EC on Waste, Romania adopted Law No. 211 (2011) on Waste, replacing the previous Law on Waste – GEO No. 78 (2000) and GEO No. 16 (2001) Regarding the Management of Recycled Industrial Waste. The 2011 Law creates a framework for waste management and defines the terms used in waste management law, strategic priorities, and the duties and responsibilities of persons involved in waste management activities.

According to Law No. 211 (2011) on Waste, waste is defined as any substance or object which the holder discards, intends to discard or is required to discard. Furthermore, hazardous waste must comply with specific requirements for inspection, transport and labelling. Types of hazardous waste include residues of substances reused as solvents, mineral oils and oily substances, inks, dyes, pigments, paints, lacquers and varnishes, resins, latex, plasticizers, glues/adhesives, rechargeable batteries, and battery or other electrical cells.

In addition to keeping waste records, waste producers and holders are required to draw up a characterization of hazardous waste generated from their activity and of waste that may be considered hazardous because of its origin or composition. A by-product is not considered waste if the substance or object resulting from a production process cumulatively meets certain conditions (e.g. the substance or object can be used directly, without being subject to further processing). In accordance with the “polluter pays” principle, the costs of waste management operations are borne by the original waste producer or by the current or previous waste holder.

The Law introduces the implementation of the “extended producer” responsibility, whereby the producer is required or encouraged to produce or sell products which are suitable for multiple use, design products with a minimum impact on the environment, and accept returned products and waste that remains after those products have been used. Violations by legal entities are punishable by a fine of between 15,000 and 40,000 lei. Some actions are considered crimes and are punishable by imprisonment of six months to five years. NEG and the local public administration authorities are responsible for identifying violations and imposing fines.

Hazardous waste management in Romania is also regulated by Law No. 211 (2011) on Waste, transposing the requirements of EC Directive 91/689/EEC on Hazardous Waste. Further regulations concerning hazardous waste management are included in GD No. 1470 (2004) on the NWMS and the NWMP, as amended by GD No. 358 (2007). This GD approves the NWMS for the period 2003–2013 and the NWMP for the period 2004–2009. It also establishes the responsibilities for waste management, whereby the local public administrations (municipalities) are responsible for municipal waste management and industrial waste generators are responsible for the environmentally sound management of their waste.

GD No. 235 (2007) on Waste Oil Management defines rules for the collection, recovery and safe disposal of waste oils in accordance with EC Directive 75/439/EEC on Waste Oils. This GD defines the necessary measures to ensure the safe collection and disposal of waste oils and give priority to the processing of waste oils by regeneration, i.e. by refining. It also prohibits any discharge of waste oils into internal surface waters, ground water, coastal waters and drainage systems; any deposit and/or discharge of waste oils harmful to the soil; any uncontrolled discharge of residues resulting from the processing of waste oils; and any processing of waste oils causing air pollution which exceeds the level prescribed by existing provisions.

GD No. 1132 (2008) on Batteries and Accumulators and Waste Batteries and Accumulators assigns responsibilities for producers and importers of batteries and accumulators together with MO No. 669/1304 (2009) on the Registration of Producers of Batteries and Accumulators, transposing relevant EU legislation.[56] This GD sets restrictions on the use of mercury in batteries, requires separate collection of batteries and defines collection targets. It also stipulates the requirement for recycling batteries and bans their landfilling and incineration.

GD No. 349 (2005) on Landfilling of Waste, as supplemented by GD No. 210 (2007) for amending and supplementing certain laws transposing the *acquis communautaire* on environmental protection, transposes Council Directive 1999/31/EC of 26 April 1999 on the landfill of waste into Romanian legislation. This GD defines the requirements for landfill development, the rights and responsibilities of landfill operators, and the control of leachate and landfill gas.

GD No. 128 (2002) on the Incineration of Waste, as amended by GD No. 268 (2005), reflects the requirements of Directive 2000/76/EC of the European Parliament and of the Council of 4 December 2000 on the incineration of waste. This GD defines operating conditions and technical requirements for waste incineration plants and waste co-incineration plants. Implementation of this GD is supported by MO No. 756 (2004) Approving Technical Norms for the Incineration of Waste.

Waste classification is regulated by GD No. 210 (2007) introducing into the Romanian legislative system the European Waste Classification system established by Commission Decision 2000/532/EC. This GD establishes the classification system for wastes, including a distinction between hazardous and non-hazardous wastes.

MO No. 1274 (2005) relating to Environmental Opinions on the Closure of Waste Disposal, Storage and Incineration Facilities, as supplemented by MO No. 636 (2008), is aimed at defining the process for closing waste management facilities.

Packaging waste management is regulated by GD No. 621 (2005) on the Management of Packaging and Packaging Waste, as amended by GD No. 1872 (2006), which transposes EC Directive 94/62/EC on Packaging and Packaging Waste, as amended by Directive 2004/12/EC. This GD introduces a system for packaging waste collection and sets targets for separate collection and recycling.

Hazardous chemicals waste, specifically PCBs and PCTs, are regulated by GD No. 173 (2000) on Special Provisions for the Management and Control of Polychlorinated Biphenyls and Other Similar Compounds, as amended by GD No. 291 (2005) and GD No. 975 (2007). GD No. 173 (2000) transposes EC Directive 96/59/EC on the Disposal of Polychlorinated Biphenyls and Polychlorinated Terphenyls, setting requirements for creating a national inventory of these chemicals, decontamination or disposal of equipment containing PCBs, and the disposal of used PCBs in order to eliminate them completely. It is supported by MO No. 1018 (2005) establishing the Directorate of Hazardous Waste and Chemical Compounds, with amendments stipulated in MO No. 257 (2006) and MO No. 1349 (2007).

GD No. 856 (2002) on Waste Management Records and Approving the List of Waste, Including Hazardous Waste, introduces into the Romanian legal system EC Decision No. 2000/532/EC Concerning the List of Waste, as amended by Decision No. 2001/119.

Transport of waste is regulated by GD No. 788 (2007) on Measures for Implementation of the European Parliament and Council Regulation (EC) No. 1013/2006 on Shipments of Waste, and by GD No. 1061 (2008) on Hazardous and Non-hazardous Waste Transport in Romania. Further details on establishing the responsible authority are set out in MO No. 1119 (2005) on the delegation to NEPA of the duties of MoEF relating to the import, export and transit of hazardous waste.

These decisions establish procedures and control regimes for the shipment of waste, depending on the origin, destination and route of the shipment, the type of waste shipped and the type of treatment to be applied to the waste at its destination. It sets up separate regimes governing shipments within the EU, imports to and exports from the EU, and transit shipments through the EU. Different requirements are laid down depending on the destination of the waste shipment, and on whether the waste is listed in the annexes on the Green List (non-hazardous waste intended for recovery) or Amber List (all waste intended for disposal and hazardous waste intended for recovery).

The utilization of sewage sludge as fertilizer is regulated by MO No. 344 (2005) on the approval of

[56] EC Directive 2006/66/EC on Batteries and Accumulators and Waste Batteries and Accumulators Containing Certain Dangerous Substances.

Technical Norms for the Protection of Environment and Especially of Soils when Sewerage Sludge is Used in Agriculture. This MO transposes relevant EU legislation.[57] The aim of these regulations is to define limit values for concentrations of heavy metals in the soil and in sludge, and for the maximum annual quantities of heavy metals which may be introduced into the soil.

GD No. 2406 (2004) on the Management of End-of-life Vehicles, as amended by GD No. 1313 (2006), transposes Council Directive 2000/53/EEC. The aim of this GD is to minimize the impact of end-of life vehicles on the environment by restricting the use of certain heavy metals in new vehicles from 1 July 2003. The objective is to ensure that 85 per cent of an end-of-life vehicle by weight will be recycled by the year 2006, increasing to 95 per cent by the year 2015.

Directive 2002/96/EC on WEEE, as amended by Directive 2003/108/EC,[58] is transposed through GD No. 1037 (2010) on Waste Electrical and Electronic Equipment, and supported by implementing regulations, which define the system for WEEE collection, treatment and disposal, including registration of producers, authorization of collective organizations, financial guarantees for producers of electrical and electronic equipment, and specific marking applied to electrical and electronic equipment.

In addition, GD No. 992 (2005) to Limit the Use of Certain Hazardous Substances in Electrical and Electronic Equipment, as amended by GD No. 816 (2006), implements Directive 2002/95/EC of the European Parliament and of the Council of 27 January 2003 on the restriction of the use of certain hazardous substances in electrical and electronic equipment. The purpose of these two GDs is prevention of WEEE and, in addition, the reuse, recycling and other forms of recovery of such waste so as to reduce the disposal of waste. They also seek to improve the environmental performance of all operators involved in the life cycle of EEE.

MO No. 751/870 (2004) on Management of Waste from the Titanium Dioxide Industry transposes Council Directive 78/176/EEC of 20 February 1978 on waste from the titanium dioxide industry. Its purpose is the prevention and progressive reduction of pollution caused by waste from the titanium dioxide industry. Any discharge, dumping, storage, accumulation or injection of this type of waste requires prior authorization. It also introduces the need for programmes for the gradual reduction, and ultimate elimination, of pollution caused by waste from TiO_2 manufacturing facilities.

GD No. 124 (2003) on the Prevention and Control of Environmental Pollution by Asbestos, as amended by GD No. 734 (2006), transposes Council Directive 87/217/EEC of 19 March 1987 on the prevention and reduction of environmental pollution by asbestos. The objective of this GD is to reduce exposure to asbestos so as to lessen the risk of diseases occurring and to establish limit values and specific harmonized minimum requirements for the protection of workers.

MO No. 2042/2934/180 (2010) on the Approval Procedure for Waste from Extractive Industries, and GD No. 856 (2008) on the Management of Waste from Extractive Industries, transpose the requirements of relevant EU legislation.[59] This legislation creates a legal framework for managing mining waste.

Management of spent nuclear fuel and radioactive waste in Romania is regulated in accordance with international requirements, as set out by Law No. 105 (1999) on Ratification of the Joint Convention on Safe Management of Spent Fuel and on Safe Management of Radioactive Waste. The key legislation includes GO No. 11 (2002) on Management of Spent Nuclear Fuel and Radioactive Waste, Including Final Disposal, and GD No. 1080 (2007) on the Constitution and Management of the Necessary Financial Resources for the Safe Management of Waste.

8.6 Institutional framework

Management of solid waste in Romania is the responsibility of agencies at three levels:

- MoEF, NEPA and MoAI;
- REPAs and county councils;
- Municipalities.

[57] Council Directive 86/278/EEC of 12 June 1986 on the protection of the environment, and in particular of the soil, when sewage sludge is used in agriculture.

[58] Directive 2003/108/EC of the European Parliament and of the Council of 8 December 2003 amending Directive 2002/96/EC on waste electrical and electronic equipment (WEEE).

[59] Directive 2006/21/EC of the European Parliament and of the Council of 15 March 2006 on the management of waste from extractive industries and amending Directive 2004/35/EC; and Directive 2004/35/EC of the European Parliament and of the Council of 21 April 2004 on environmental liability with regard to the prevention and remedying of environmental damage.

MoEF is responsible for drawing up Romania's waste management policy and strategy, for preparing and enacting legislation, and for providing overall coordination. MoEF is also responsible for monitoring progress and the level of compliance with waste management laws. This includes ensuring (and reporting to the EC) that timely progress is being made towards meeting the commitments made by Romania in the field of waste management within the negotiation process of chapter 22 of the *acquis communautaire*.

NEPA provides technical support to MoEF, mainly in the following areas:

- Drafting normative documents, strategies and sectoral environmental policies harmonized with EU acquis;
- Coordinating implementation of waste management legislation strategies and policies at national, regional and local levels;
- Providing national reference laboratory staff in the fields of waste and radioactivity.

The Directorate for Relations with Local Communities of MoAI supports municipalities in the development and provision of municipal services, including municipal waste management. This includes assistance in service tender preparation and evaluation as well as facilitation of access to EU funding.

Eight REPAs prepare RWMPs, while county councils prepare county-level waste management plans. Regional associations which consist of municipalities and county councils are responsible for managing final disposal facilities and transfer stations. This function is delegated to the county councils, including contracting for investments and operation.

Municipalities are responsible for collection of MSW. They perform this function directly, through specialized departments within the local authorities, or indirectly, by contracting this service out to private companies.

Municipalities use two types of legal documents for ensuring waste collection. The first is a licence authorizing a collection company to provide collections in a given area. After a collection company obtains such a licence, it starts to sign individual contracts with the population. The second is a contract for the cleaning of public places, which includes collection of waste from the population without a collection contract.

In accordance with the "polluter pays" principle, industrial and commercial sector waste generators are responsible for proper management of their waste.

MoH is responsible for management of health-care waste, mainly by introducing waste separation schemes in health-care facilities and ensuring collection of waste by licensed companies and appropriate disposal.
MoARD is responsible for pesticides in use, while stocks of obsolete pesticides are under the responsibility of MoEF.

The following bodies are responsible for proper radioactive waste management. The National Commission for Nuclear Activities Control (CNCAN) is the regulatory body responsible for issuing authorizations and permits in the radioactivity field and for monitoring the enforcement of legislation in the nuclear sector. IFIN-HH in Magurele currently operates the National Repository for Low- and Intermediate-Level Radioactive Waste in Baita-Bihor. MoEF and the MoH regulatory bodies are responsible for issuing permits and authorizations in the environment and sanitary fields. The Nuclear Agency is a specialized Government agency which reports to the Prime Minister and whose main objectives are to assist the Government in formulating policy in the nuclear sector as well as promoting and monitoring nuclear activities in Romania. The Ministry of Finance, through the General Directorate of Customs, coordinates and ensures the arrival and departure in the country, on the basis of authorization issued by CNCAN, of all goods which require authorization under Law No. 111 (1996) on the Safe Development of Nuclear Activities, as amended by Law No. 193 (2003).

8.7 Conclusions and recommendations

The changes in waste management in Romania resulting from EU accession have had a positive effect on the provision of waste management services and have reduced the impact on the environment, although the coverage of rural areas remains limited. Approximation of legislation to EU standards has set stringent requirements for Government, municipalities and waste management companies. These new standards open up a number of investment opportunities for the private sector to develop the necessary infrastructure, and the requisite financing is also coming through EU funding according to priorities formulated in SOP ENV.

Recommendation 8.1:
The Ministry of Environment and Forests and the Ministry of Administration and Interior should

analyse possibilities to foster full coverage of rural areas by waste collection services and draft a relevant plan of action.

The dependence on landfilling as the main waste disposal method and the resulting low recycling levels are caused by low waste tariffs, which do not generate sufficient income for future investments. Individual contracts for waste collection limit municipalities in terms of effectively monitoring the quality of the collection services provided, requiring the service provider to introduce (more expensive) separate collection systems and develop integrated waste management schemes. Expanding collection services to rural areas is hardly possible without municipal contracts, and this is the challenge for the near future in Romania.

Recommendation 8.2:
The Ministry of Environment and Forests, in cooperation with county councils and municipalities, should support and widely introduce contracts for municipal solid waste collection services between municipalities and collection companies.

The development of new waste management infrastructure will result in increased costs, and rises in waste tariffs are unavoidable. A lack of funding in the future may lead to deterioration of waste management facilities and a decline in service availability.

Recommendation 8.3:
The Government should ensure that the competent authorities introduce waste tariffs based on the principle of full cost recovery.

The system of data collection on waste generation, collection, treatment and disposal is well developed but its potential is not fully utilized. In view of the need to develop a new waste management strategy and plans for the period after 2013, detailed and well-structured statistical information will be necessary to assess the success and impact of the current waste management strategy and develop baselines for the new one. Attention should be given to the waste stream defined by the legislation and identification of waste amounts from generation, collection, separate collection, recycling, incineration and disposal.

Recommendation 8.4:
The Ministry of Environment and Forests should ensure that detailed, verified background information is made available for the development of a new integrated waste management strategy for the period 2014–2023.

Chapter 9

FORESTRY, BIODIVERSITY AND PROTECTED AREAS

9.1 Introduction

The management of forestry, biodiversity and PAs in Romania has changed considerably since the first EPR, due to the country's accession to the EU in 2007. The need to comply with the EU nature directives, i.e. the Habitats Directive and the Birds Directive,[60] and affiliation with the Natura 2000 network, has provided Romania with the framework and legislative requirements necessary to address shortcomings in previous legislation regarding the conservation and sustainable use of biodiversity, as well as the designation and management of PAs.

While forest policy is within the sphere of competence of each member State, (i.e. there are no EU forest directives), an EU forest strategy and action plan provide guidance to member States and sustainable forest management is indirectly promoted through the nature directives. For example, Romania has made progress by adopting new forest laws to be further coordinated with European Community policy and harmonized with those of other EU member States participating in the Forest Europe Ministerial Conference for the Protection of Forests in Europe, the FAO Committee on Forestry and the ECE Timber Committee.

9.2 Forestry

The Government's vision for forests is to increase their contribution to the improvement of environmental conditions and to ensure the availability of timber, other forest products and forest-specific services for the national economy.

Romanian forests have some of the richest biodiversity in Europe. Animal and plant species of great significance at all levels, national, regional and global, are more abundant in these forests than in any others in Europe. Particularly in the Carpathian Mountains located in Romania, where most of the country's forests are located, ideal habitats are found for a number of large carnivores, such as wolves, lynxes and bears, which are of special importance to the pan-European region and are protected by regional environmental agreements and EU directives. The forest sector (forestry, wood and paper products) contributes 1.8 per cent to the gross value added of the national economy, but only 5 per cent of forests have recreational use as a main management goal. Recent reports by UNEP, *The Green Economy* (2011) and *The Economics of Ecosystems and Biodiversity*, (2010) emphasize that natural capital, such as forests and the ecosystem services they provide, offer important benefits and could be considered a significant component of national economies. Romania should seek ways to benefit further from its natural wealth and invest in the maintenance of forest ecosystem services and the development of recreation and tourism.

Forests and forest cover

Romania has reported total forest area coverage of 6,573,000 ha, which is equivalent to 29 per cent of the total land area. Other wooded land makes up 160,000 ha and consists of meadows, marshes and ponds. Forest composition (in 2009) is shown in table 9.1. Romania did not report on net annual increment of forest available for wood supply for 2010, but did report that fellings on forest available for wood supply in 2010 amounted to 17,232,000 m^3. According to the General Directorate for Forests, forest area is growing through natural regeneration by leaving some areas to grow while others are cut, and total forest area coverage was actually 6,350,000 ha. *The State of Europe's Forests 2011* reports that, during 2005–2010, Romania's forest coverage increased slightly, by 0.56 percent.

In December 2011, MoEF agreed to place virgin forests under PA status and to work with WWF to identify, map and protect virgin forests. WWF launched a campaign to save Romania's virgin forests, and more than 100,000 supporters signed a petition for their protection (primary forests in Romania represent 65 per cent of primary forests remaining in Europe, outside of the Russian Federation).

[60] Directive 1992/43/EEC on the conservation of natural habitats and of wild fauna and flora (the Habitats Directive); Directive 2009/147/EC of the European Parliament and of the Council of 30 November 2009 on the conservation of wild birds (the Birds Directive).

Photo 9.1: Pelican (Pelecanus onocrotalus) in the Danube Delta Biosphere Reserve

Table 9.1: Forest composition

Type of forest	Tree Species	Percentage
Coniferous	Spruce (*Picea*)	22.5
	Fir (*Abies*)	5.1
Deciduous	Beech (*Fagus*)	30.4
	Oak (*Quercus*)	19.3
	Maple (*Acer*), Ash (*Fraxinus*), Acacia (*Robinia*) and Hornbeam (*Carpinus*)	14.3
	Poplar (*Populus*), Alder (*Alnus*), Willow (*Salix*)	5.7

Source: Fourth National Report to the United Nations Convention on Biodiversity: Romania. 2009.

The availability of compensation for private forest owners is a main goal of the initiative. It is planned to submit a proposal to the European Commission for financial support for virgin forest owners in the 2014–2020 programming period. Meanwhile, the Ministry and WWF will explore alternative financial mechanisms for compensating virgin forest owners.

Forest use and management

Currently, the volume of timber that is cut from forests is between 16.5 and 17 million m^3/year, but MoEF claims that the potential for timber extraction in forests could be as high as 22.3 million m^3 given the growth rate of 34.4 million m^3/year. The State removes 10 million m^3 of timber per year from public forests and keeps some wood for its own use. Ninety per cent of the revenue obtained from sales of the other wood goes into the State Treasury, and some of these funds are used for the building of forest roads and erosion control.

With regard to national forest management plans, there are 325 State forest management units and 138 private management units, each of which is obliged to prepare a forest management plan. Minimum size limits which require management plans are 3,000, 5,000 and 7,000 ha, depending on the type of geomorphology (hill or mountain), and the maximum size is between 25,000 and 30,000 ha. Some 95 per cent of forests in Romania are covered by a forest management plan.

The current national forest policy was drafted in 2005 and the last Romanian national forest programme ran from 2001 to 2010, but no new national forest programme has been developed since 2010. The General Directorate for Forests stresses, however,

that since almost 100 per cent of forests are covered by management plans, it is not essential to have a national programme.

Of the total forested area, according to the General Directorate for Forests, 51.3 per cent is State owned, 16.8 per cent is owned by local authorities and 31.9 per cent is privately owned by individuals and legal entities. *The State of Europe's Forests 2011*, however, only breaks down ownership into public and private, with public ownership accounting for 52 per cent of forests and private ownership accounting for 48 per cent of forests. Depending on the ecological, economic and social functions performed by forests, some 53 per cent of forests are designated as part of "functional Group I", which means they are forests with special protective functions for water, soil, climate and industrial damage protection, recreation, biodiversity conservation and improvement of environmental conditions. A total of 1.75 million ha of forests are included in PAs, and around 10 per cent of the forest PAs are in the category of "strict protection".

The change of ownership of part of the country's forests from public to private in recent years seems to have led to an increased harvest and wood supply from these forests, when compared with the management practices of NFA Romsilva, which underscore the protective functions of the forests. It is claimed that, in general, private forest owners do not follow sustainable forest management techniques. They sell their forested land or harvest wood for economic gain, which in turn causes forest fragmentation and degradation as forested land is logged more intensively or converted for other uses. There has also been an increase in illegal logging overall, possibly due to lack of compliance with (and sometimes lack of awareness of) Natura 2000-related legislation. At the same time, Government authorities claim that there is a problem because private citizens whose forested land was identified as a SPA or an SCI with forest restricted sites have not yet been appropriately compensated for economic losses associated with the land use changes stipulated under the Natura 2000 criteria.

According to the Forest Code, in order to ensure the sustainable management of forests, compensation schemes are annually allocated from the State budget in connection with restrictions on timber harvesting, to maintain the protective functions of forests established by forest management plans. The Natura 2000 legislation assigns 12 types of compensation, but the affected private citizens have not had adequate access to this compensation. The main reason is that compensation is not automatic; in other words, those affected have to know how to file a claim with the State to be able to obtain compensation. In 2011, an allocation of 3 million lei (about €0.7 million) for compensation was disbursed, but for requests addressed to MoEF in previous years. An amount of 20 million lei/year (about €4.6 million/year) has been estimated as necessary for such compensation.

It is important to emphasize that Natura 2000 site designation does not necessarily mean that all these sites are strictly protected. Some will have the status of strict protection but others will be available for a variety of uses, including that of commercial forest exploitation. However, the owner must take into account the values of the species and habitats for which the site was designated and implement sustainable management practices, some relatively easy and others more complicated. Accordingly, it is important to ensure that Romanian foresters are provided with the necessary tools (including financial tools) to make these changes and that management decisions involve all stakeholders.

Afforestation and reforestation activities

According to 2011 data from the General Directorate for Forests, forest regeneration has occurred on the surface of 30,766 ha, of which:

- 11,277 ha are of natural regeneration;
- 11,162 ha are on plantations, of which 1,524 ha were on degraded land;
- 5,494 ha are current additions;
- 2,833 ha restore plantations after the effects of natural hazards.

For the period 2012–2040, Romania intends to carry out regeneration activities on some 30,000 ha of forests annually. Moreover, it is proposed to increase the forest area through afforestation of degraded lands and the establishment of protection forest belts of around 16,500 ha annually.

In response to a request from MoEF, the Forestry Regime and Hunting Territorial Inspectorates performed inspections in 2010, checking compliance with the regulations regarding reforestation and natural regeneration activities, which require two growing seasons from the single or final cut.

Within the State-owned forest managed by NFA Romsilva, the non-regenerated areas identified totalled 4,042 ha. The largest areas were identified in the Forest Directorates of Tulcea, in the Danube delta (2,590 ha), and of Constanta (464 ha), Braila (321 ha), Dolj (123 ha), Ialomita (114 ha) and Olt (98), all

located in the Danube meadow. The reasons for non-regeneration are that these areas are isolated by water, low lying and repeatedly flooded, there is a lack of equipment adapted to such conditions, and there is die-back of acacia plantations in degraded land established as reclamation perimeters before the 1990s.

In many of these non-regenerated areas, and in some regenerated areas that have been nevertheless affected by natural hazards, certain species are naturally regenerated, e.g. species of willow, white poplar, alder and Pennsylvania ash, in close formation, and, occasionally, elm, mulberry and shrubs. In gaps and clearings in forest areas in the Danube meadow, dispersed in small and repeatedly flooded areas, natural shrub species have taken root instead of tree species which should have taken hold according to the natural forest type.

In other forests not managed by NFA Romsilva, a total area of 13,679 ha has been identified on which activities of reforestation and supplementing natural regeneration were not carried out. The counties most affected by this phenomenon, which overlaps with the phenomenon of illegal clear-cutting of trees, are Moldova (8,561 ha), Suceava (5,451 ha), Bacau (1,976 ha), Harghita (1,587 ha), Maramures (1,107 ha), Dolj (818 ha), Teleorman (800 ha), Neamt (436 ha), Arges (427 ha), Iasi (287 ha), Botosani (239 ha) and Vaslui (172 ha). The overwhelming majority of these areas are in the counties of Moldova (63 per cent of the area identified to date), Harghita (11.6 per cent) and Maramures (8.1 per cent).

From the findings of previous years, most of the original owners of these lands are individuals who sold forest land or just the wood on it without recorded contracts (especially in the counties of Arges, Bacau, Maramures and Suceava), and a number of municipalities and legal entities with shared forest property which sold wood at low prices or did not establish the Conservation and Regeneration Fund, according to legislative provisions.

One reason often cited for the lack of reforestation in due time in forests that are not managed by NFA Romsilva is the shortage of planting material (seedlings) with certified genetic origin, mainly resinous and oak species.

Illegal forest activities

Government statistics show that, in the last five years, between 170,000 and 180,000 m^3 of timber have been extracted by illegal logging. From 1991 to 2001, illegal logging was higher (about double the previous volume) as a result of the restitution of forests to private citizens. According to WWF (2005), a lack of enforcement of regulations regarding the protective and ecological functions of forests, confusion about ownership and a desire for economic gain seem to have caused this rise in illegal logging. In 2008, a new Forest Code was adopted, followed by Law No. 171 (2010) on the Establishment and Application of Penalties for Forest Violations. Romania did not score well on the Government Barometer 2012 on illegal logging and trade based on compliance with the Forest Law Enforcement, Governance and Trade (FLEGT) Action Plan. The WWF (2012) survey argues that "interdepartmental collaboration is at an early stage, penalties and sanctions are very weak and sustainable procurement is not specifically addressed". Romania is working on the adoption of the EU Timber Regulations, and the plan is to create more stringent penalties and sanctions than those of the FLEGT Regulations. FLEGT and consumer forces in import countries such as the United Kingdom of Great Britain and Northern Ireland, Italy, Germany and France are increasing the interest of Romanian forest companies in forest certification. The WWF-Danube Carpathian Programme aims to increase the number of Forest Stewardship Council (FSC)-certified companies so that 2.6 million ha of forests are FSC certified.

On an institutional level, eight local units (plus one in Bucharest) work with specialized forest inspectorates subordinated to MoEF to enforce the law in collaboration with police and the constabulary. The forest authorities work together with the local communities using specific procedures for action in the event of illegal activities in forests (table 9.2), and these procedures work quickly. There are still people in the rural areas who use fuelwood (approximately 4-5 million $m^{3/}$year) for their energy needs.

There have been several NGO-initiated attempts to estimate the amount of illegal logging in forests, but MoEF states that these estimates cannot be accepted because of the criteria on which they were based. These estimates can be as high as 10 times the official rates. The latest Government-approved evaluation of the indicative size of forest areas affected by illegal logging of trees was made in early 2006 by the territorial structures subordinated to the central public authority responsible for forestry, when identifying areas of forest land to be regenerated. MoEF has decided that the best way of disclosing the annual dynamics of illegal logging is by referencing the annual volume of illegally cut trees identified via controls carried out by forestry staff.

In this respect, the structures established in May 2005 and responsible for control in the field identified the following volumes of illegally cut trees for the period from 2007 to October 2011: 2007: 175,743 m^3; 2008: 173,858 m^3; 2009: 185,278 m^3; 2010: 192,236 m^3; 2011 (first 10 months): 171,200 m^3.

These volumes represent an estimated area of about 1,000 ha, around 0.015 per cent of the national forest, which is being illegally logged each year. Part of this surface is naturally regenerated by seeds and/or vegetative regeneration.

Nevertheless, NGOs argue that there are gaps in the Government's figures, it is difficult to make estimates based on existing statistics and illegal logging continues to pose an environmental threat. Legislative violations seem to be the major cause of illegal wood harvesting in Romania, for example, fraudulent permit use, registration of high-quality wood as low-quality timber to avoid taxes, false records on real harvested volumes, evasion of controls and logging in PAs. As reported by NEG, there are problems with illegal economic activities (such as illegal constructions) underlying illegal logging, as well as a shortage of financial, human and material resources to address illegal logging.

9.3 Biological diversity

Management of biological diversity

Some of the biodiversity-related conventions to which Romania is a party include the CBD, the Convention on the Conservation of Migratory Species of Wild Animals (CMS), the Convention on International Trade in Endangered Species of Wild Fauna and Flora (CITES), the Convention on Wetlands of International Importance (Ramsar Convention), the Convention on the Conservation of European Wildlife and Natural Habitats (Bern Convention) and the Framework Convention on the Protection and Sustainable Development of the Carpathians (Carpathian Convention).

Given its importance as a range state for migratory bird, mammal and bat species, Romania participates in many other smaller agreements under the CMS in order to further efforts to conserve globally and regionally important migratory species.

The most recent overall assessment of the status of biological diversity in Romania was presented in its fourth National Report to the CBD in 2009, covering the period 2004–2008. Other, more sector-specific reports (on mountain ecosystems, for example) have also been submitted to the CBD. Further, CMS and CITES require national reporting in order to assess the manner in which Romania is meeting its obligations to fulfil the objectives of these conventions. These reports were submitted in 2011.

Romania has just finalized its new NBSAP, which is awaiting approval by the Government. MoEF officials did note that no evaluation of the implementation of the previous NBSAP has been carried out. Currently, Romania is working on an evaluation of the implementation of the EU nature directives, which is due to be completed by 2013.

Threats to biodiversity

Romania has experienced impacts on its biodiversity due to the changes brought about by the transition to a market economy (privatization of State land, land conversion to intensive agriculture and forestry to promote economic activity, restitution of private property, transition from a centrally planned economy to a market economy, urbanization, transport, etc.).

At the same time, integration into the EU has opened up an opportunity for improved management of biodiversity as well as for greater involvement by civil society in addressing the impacts of economic activities so that the rich natural heritage of Romania is conserved for future generations.

It is recognized in various assessments that a number of threats and challenges exist that have a negative impact on biodiversity:

- The conversion of grasslands, native steppe and steppe-associated wet meadows to cropland and pastures for agricultural use;
- The restitution of standing forests to the families of former landowners;
- The draining of wetlands, elimination of native riparian vegetation, and impoundment and channelling of streams and rivers, which have the most significant impact on the lower Danube River, the Danube delta and the Black Sea coastal ecosystem;
- Climate change, pollution (air and water) and contamination due to improper waste management;
- Soil loss and soil deterioration due to erosion and salinization;
- Fertilizers, pesticides, mechanization and man-made drainage systems in the agricultural sector;
- The introduction and presence of invasive species which have a negative impact on agriculture, forests and fisheries;

Table 9.2: Control of forestry and hunting activities 2009, 2010 and first 11 months of 2011

Specifications	2009	2010	30.11.2011
No. of controls on forestry regime and wood materials	60,963	67,000	79,923
No. of complaints of criminal nature	2,824	3,218	2,494
No of forestry violations found	34,572	32,918	18,064
Amount of fines for contraventions (lei)	28,771,303	32,014,416	26,571,006
Confiscated wood (m^3)	38,730	56,048	60,483
Volume of illegally cut trees (m^3)	185,278	192,236	171,200
Confiscated illegally obtained Christmas trees (pieces)	19,047	18,700	3,048
No. of hunting criminal complaints	..	47	92
No. of hunting violations found	164	236	618
Value of penalties/fines for hunting violations (lei)	..	66,375	98,200

Source: Ministry of Environment and Forests, 2011.

- General destruction of habitats due to human encroachment, deforestation, reed burning, and burning of vegetation;
- General mortality of species due to the expansion of roads, consumption (as a result of poaching), illegal hunting and illegal collection of live species (to be used as pets, for example);
- Illegal construction and the installation of low-capacity water drainage pipes in the PAs in the mountains. These drainage pipes capture used water which then flows into waterways, impacting upon the fish and damaging the habitats, thus resulting in damage to the PA.

Hunting

Hunting is a popular sport in Romania, and the variety of big game such as bears, wolves, lynxes, chamois, wildcats and wild boar also attracts hunters from outside Romania. Added to the big game attraction is the availability of wild birds and migratory and game species, such as geese, woodcocks, ducks and quail, which are plentiful in the Danube delta region.

Hunting is regulated by Law No. 407 (2006) on Hunting and Game Protection, which reflects the country's obligations under the EU nature directives. The Birds Directive views hunting as a legitimate activity, and a comprehensive system has been developed for the management of hunting (limited to species listed in annex II – annex II/1 allows hunting in all member States, whereas annex II/2 allows hunting in listed member States) to ensure that this practice is sustainable. There are stricter measures under the Habitats Directive for wolves, bears and lynxes, for example, but these can be hunted as part of the national derogation system (e.g. damage to crops, livestock, and forests by large carnivores) with a permit. These permits are provided by CITES, as these large carnivores are also in appendix II of that Convention, which lists species which are not necessarily now threatened with extinction but which may become so unless trade is closely controlled. A quota must be established to ensure that the number of species does not decrease and good conservation status is maintained.

There are 2,150 hunting sites in Romania, and all the units providing services at these sites have signed a 10-year contract with the State. On an annual basis, the Forest Research and Management Institute (the scientific body) evaluates the population of a given hunted animal through an assessment carried out in collaboration with the manager of the site (NEG and an NGO), after which the proposal is submitted to the MoEF Biodiversity Directorate for approval. Once it has been approved, the Biodiversity Directorate issues an MO declaring how many animals of each species may be hunted and grants the corresponding number of permits. MoEF staff state that they lean towards conservative numbers in order to ensure a good conservation status for the various species.

A system for tagging animals has been established so that only as many tags per species as allowed by the quota are created annually to clearly identify the animal killed by the hunter holding a permit. The tagging is done twice – by the Biodiversity Directorate with the CITES tags and by the General Directorate for Forests with its own tagging system for all the species to be hunted (not necessarily CITES-protected species). The number of the tag is placed on the CITES permit to be provided to the hunter for identification purposes. NGOs are involved in tagging, and they do it voluntarily with

their own funding as well as for the quota evaluation study.

Proceeds from hunting fees accrue to the General Directorate for Forests, as it handles contracts with hunting clubs. It has been estimated that 90 per cent of all hunters paying hunting fees are from outside Romania because these fees are very high. Hunting has become a tourism industry, with hunting clubs organizing hunting parties and providing lodges inside the hunting areas. It is a lucrative business for private landowners, who are able to keep some 80 per cent of the hunting fees. When hunting is managed by the General Directorate for Forests, about 60 per cent of the fees remain with the Directorate.

Table 9.2 also shows the number of cases of illegal hunting or hunting violations recorded by the authorities. MoEF is aware that there are indeed some violations and cases of corruption related to the hunting of large carnivores, but these are difficult to trace. It claims that there has been a decrease in illegal hunting. In statistical terms, however, from table 9.2 it would appear that there has at least been an increase in the number of hunting-related criminal complaints and hunting violations recorded.

As part of the permit system, and in order to allow the monitoring of violations, hunters must show the CITES permit when they leave the country with their hunting trophy. While the CITES management authority is at MoEF, enforcement is carried out by both NEG and the customs authorities. CITES receives the information on the permit-issuing system in the national report prepared by Romania.

The Law on Hunting and Game Protection strictly forbids hunting in national parks, and in some other PAs, such as scientific reserves, where there are quiet zones. However, hunting is allowed in nature parks, but in accordance with legislation and the quotas. Based on personal interviews with PA rangers, it is clear that criminal activity related to hunting is difficult to monitor in the national parks, as poachers are not easily caught. Moreover, enforcement is highly challenging, given the low numbers of PA personnel available to monitor such large areas. MoEF also claims that it is difficult to impose fines for activities that are carried out on private property; for example, in 2006, of 22,000 infractions reported, only four led to prosecution. WWF and TRAFFIC[61] claim that poaching still goes on in a number of EU countries, including Romania, and have launched campaigns in recent years to urge Governments to take action in this area. Furthermore, there seems to be a problem of coordination in terms of enforcement and compliance. A number of different laws regulate hunting (and fishing), and these should be harmonized and their application coordinated between MoEF and other institutions such as NEPA, NEG, NARW and NIMRD. In the Danube delta, for example, there are eight institutions which control illegal fishing or illegal hunting. The large number of oversight structures may inhibit, rather than facilitate, the proper enforcement of legislation.

There are no real incentives for local communities to assist in combating illegal hunting, but MoEF and its partners conduct awareness-raising programmes in counties where hunting is prevalent. MoEF participates in meetings of the CoP to CITES and takes part in CITES capacity-building seminars carried out annually in Romania with the customs authorities and NEG.

Ecosystem management

As mentioned in the section on PAs, the integration of the EU nature directives into national policy as well as participation in the Natura 2000 network has provided Romania with the means to maintain a favourable conservation status for major habitats. Some of these well-known habitats are national treasures, such as the largest stretch of non-fragmented European forest ecosystem in the Carpathian Mountains, the largest and best- preserved of Europe's deltas in the Danube region, and a critical transit area for large populations of migratory birds in the Black Sea region. These ecoregions constitute valuable natural capital: they are important on all levels; and they provide significant ecosystem services, such as food and fibre, opportunities for tourism and recreation, flood protection and carbon sequestration.

Carpathian Mountain range

The Carpathian Mountain range is one of Europe's largest mountain ranges, shared by eight Central and Eastern European countries, including Romania. It is recognized as a unique mountain ecosystem providing a number of provisioning and regulating ecosystem services and a valuable biodiversity reservoir. Large mammals such as the brown bear, wolf, and lynx, European bison, moose, wildcat, chamois, golden eagle, eagle owl and black grouse, as well as rare insect species, can be found in the Romanian part of the Carpathians. But just as important are the cultural ecosystem services which the Carpathians provide to the Romanian people, who draw their livelihoods and well-being from this

[61] Acronym of Trade Records Analysis of Flora and Fauna in Commerce.

valuable natural resource that generates a flow of benefits, often unrecognized in decision-making processes.

Romania signed the Carpathian Convention in 2003 and, in 2008, hosted the Second Meeting of the Parties to the Carpathian Convention where the Biodiversity Protocol of the Convention was signed and adopted. The Biodiversity Protocol further strengthens the country's commitments "to enhance the conservation, restoration and sustainable use of biological and landscape diversity of the Carpathians, bringing benefits to present and future generations". More recently, a Biodiversity Strategic Action Plan was adopted to accompany the Protocol, and two other Carpathian protocols have been adopted which also support the conservation and sustainable use of biodiversity: the Protocol on Sustainable Forest Management and the Protocol on Sustainable Tourism.

Danube delta

The bulk of the Danube delta is located in Romania. Romania has been participating in the Danube Delta Environmental Programme as well as other initiatives to conserve and use sustainably the resources of the Danube delta region. The Danube Delta Biosphere Reserve is one of the most biodiverse and largest wetlands in the world (with over 5,500 flora and fauna species). It is a wetland of international importance under the Ramsar Convention and a UNESCO World Heritage site. There are some 15,000 people living in the delta region but more than half of the Delta Biosphere Reserve is undisturbed.

The delta provides a breeding site for hundreds of bird species and is a unique habitat comprised of numerous lakes, ponds, canals and reed beds (occupying 240,000 ha). It contains some 60 per cent of the global population of pygmy cormorants (*phalacrocorax pygmeus***) –** a globally threatened species, 50 per cent of red-breasted geese **(***branta ruficollis*) in the winter season, and the largest number of great white pelicans (*pelecanus onocrotalus*) and Dalmatian pelicans (*pelecanus crispus*).

Romania participated in the development of the first Danube River Basin Management Plan (2009) under the ICPDR. In addition, transboundary cooperation has improved due to better relations between Romania and Ukraine, resulting in an agreement on the collaborative monitoring and management of migratory birds and fisheries in the transboundary PA and the development of a vegetation map of the entire delta. This agreement has been expanded to the lower Danube green corridor, and the environment ministries of Bulgaria, the Republic of Moldova, Romania and Ukraine have agreed to conserve and manage the wetland and floodplain habitats of the region.

The international NGO, Friends of Nature, through its local partner, Friends of Nature of Romania, implemented the project entitled Danube Delta – Landscape of the Year 2007–2009. The objective of the project was to promote ecologically friendly development with a view to conserving the unique habitat of the Danube delta while providing livelihoods for the local population. The project recognized the need to implement public education and outreach activities to boost civil society participation, and local communities and local NGOs were involved through a small grants programme.

The Black Sea region

Romania has been participating in the Black Sea Environmental Programme. The country is crossed by bird populations that mainly migrate through the eastern part of the Mediterranean basin – from Greece through the Bosphorus and on to the Nile Valley. The country's main migratory flyway is located in the east, between the Carpathian Mountains and the Black Sea. This zone is used by the red-breasted goose, swans, black stork, great white and Dalmatian pelicans, and the glossy ibis. There is also a flyway through the West Plain, part of the Tisa Plain, shared with Hungary and Serbia, which is used by cranes and Passeriformes. The secondary flyroute passes through the Transylvanian basin, from northwest to southwest.

The Convention on the Protection of the Black Sea against Pollution was signed in 1992 by Bulgaria, Georgia, Romania, the Russian Federation, Turkey and Ukraine, and entered into force in 1994. The most recent CoP adopted the Protocol on the Protection of the Marine Environment of the Black Sea from Land-Based Sources and Activities and a revised Strategic Action Plan. The entry into force of the Protocol is still pending and there are implementation problems related to financing. High priority has been given to the creation of new and/or expansion of existing PAs, the implementation of integrated coastal zone management principles, and the development/improvement of the monitoring network. A Black Sea Biodiversity and Landscape Conservation Protocol signed in 2002, has not yet entered into force.

Romania participates in a regional project on Environmental monitoring of the Black Sea Basin and a common European framework programme for development of the Black Sea region, of importance for the protection of Black Sea biodiversity, namely, the EU-funded Monitoring and Information Systems for Reducing Oil Pollution. The first phase aimed at strengthening institutional cooperation and preparing a concept for a common monitoring and information platform. The second phase intends to enhance capacities to manage information, improve the safety of oil transfer, and increase the effectiveness of response to accidents and of joint interventions.

Biodiversity: ecosystems and species

According to the fourth National Report to the CBD in 2009, there are, or were, 3,700 species of plants present in Romania. Among these, 23 species have been declared natural monuments, 74 species are extinct, 39 species are endangered, 171 species are vulnerable and 1,253 species are rare. Grassland species account for 37 per cent of the total species represented. Some 600 algae species and over 700 species of marine and coastal plants exist. A very high percentage of the plant species (4 per cent) are endemic. In all, there are 57 endemic taxa (species and subspecies) and 171 sub-endemic taxa (with their territory mostly in Romania).

To meet the CBD obligations regarding the global strategy for plant conservation, 276 important plant areas (IPAs) have been identified in Romania, covering 5 per cent of the country, of which 210 are located within PAs. Areas selected under these criteria must harbour exceptional botanical wealth, the protection of which is important for the global conservation of plant diversity.

The same report states that there are 33,802 species of animals, of which 33,085 are invertebrates and 717 are vertebrates. Among vertebrates, 191 species of fish (9 endangered species) have been identified, 20 species of amphibians (9 endangered species), 30 species of reptiles (6 endangered species), 364 species of birds (including 312 migratory species) and 102 species of mammals.

Romania is represented by a high diversity of groundwater fauna, the origin of which is fully preglacial. These organisms can be found living in subterranean water-filled karst cavities and in water bodies in above-ground caves. This life comprises many ancient species of crustaceans, such as *Microcharon, Microcerberus, Stygasellus* and the archiannelid, *Troglochaetus*.

Monitoring and indicators

Romania has not set up a holistic system for biodiversity monitoring to support decision-making at the national level and most databases on some wild species and habitats are a result of initiatives taken by universities, museums, research institutes and NGOs. To strengthen the data and information management system for biodiversity conservation, Romania participated in the UNDP/GEF project entitled Support to Alignment of the National Biodiversity Strategy and Action Plan (NBSAP) with the CBD and Development of a Clearing House Mechanism.

Cooperation with other sectors

The fourth National Report to the CBD maintains that it is of utmost importance to MoEF to cooperate with other sectors of the Government to mainstream biodiversity and ecosystem service values and considerations into other sectoral policies. Nevertheless, little progress has been noted in advancing cooperation, except for the work with the forestry sector and some joint efforts with MoARD on Natura 2000 sites. For example, MoRDT is developing a strategy for SPAs and ecotourism, but is not working in collaboration with MoEF in this respect.

Conflicting regulations pose a more difficult challenge: MoARD has measures by which owners of meadows may receive funding under the EU Common Agricultural Policy for activities that are in conflict with Natura 2000 management measures. It is possible to receive funding for cutting small bushes for agricultural purposes, for example, but the owners could subsequently be fined under Natura 2000 regulations.

9.4 Protected areas

Romania has built a network of PAs that covers 19 per cent of the national territory, including Natura 2000 sites with species and habitats of European importance. The system includes 3 biosphere reserves, 13 national parks (table 9.3), 14 nature parks, 5 Ramsar sites, 1 World Heritage site, 2 geoparks, and many nature reserves, strict reserves, nature monuments and Natura 2000 sites.

Under the EU nature directives, member States are obligated to establish and maintain a PA network, which is called Natura 2000. Through GD No. 1284 (2007) on the Designation of Special Protection Areas as Part of Romania's Natura 2000 Ecological Network, Romania designated 108 sites as SPAs, equivalent to 12 per cent of the country's surface.

Table 9.3: Romanian national parks

Name	Area km²
Domogled-Valea Cernei	601.0
Rodna	464.0
Retezat	380.5
Cheile Nerei-Beusnita	371.0
Semenic-Cheile Caraşului	366.6
Călimani	240.4
Cozia	171.0
Piatra Craiului	148.0
Munţii Măcinului	113.2
Defileul Jiului	111.3
Ceahlău	84.0
Cheile Bicazului-Hăşmaş	65.8
Buila-Vânturăriţa	41.9
Total	**3,158.6**

Source: Natura 2000.

Under the Habitats Directive, member States have to designate sites (both on land and at sea) for animals (other than birds), plants and habitats and identify SCIs according to the criteria of the Directive. Through MO No. 1964 (2007) on the Establishment of a Protected Areas Regime for Sites of Community Importance, as Part of Romania's Natura 2000 Ecological Network, Romania designated 273 SCIs, equivalent to 13 per cent of the country's surface.

In Romania at present, there are only three approved management plans and one in the process of securing approval. Without a management plan, the PA administrators have to comply with the laws for PAs in general. The benefit of the management plan is to make the regulations clearer and more specific. There was previously a proposal to establish a National Protected Areas Agency with dedicated staff, but this body was not set up due to the financial crisis in Romania.

Consultations with a wide range of stakeholders are obligatory on issues related to PAs. Every regulation regarding the PA or the management plan has to be made based on these consultations. At the county level, NEPA must ensure that consultations take place, and acts as the first filter through which documents must pass.

PAs are financed from the State budget and EU structural funds. In the case of forested PAs, income received from the use of the forests (for hunting, timber extraction, recreation) may be used for administration of the parks. Whereas sustainable tourism could be a major sector for economic development in and around PAs, the appropriate infrastructure is not well established. Brochures are available in Romanian describing the national and nature parks but more could be done to attract tourism, as administrators are responsible by contract for establishing a tourism strategy and a communication strategy with the local communities on tourism.

Piatra Craiului National Park (box 9.1) is an example of a park with a management plan. This plan allows the Park to mobilize resources for financing its activities. It has already made progress in building the necessary infrastructure to receive more visitors. The construction of a visitor centre is in progress and there are small structures for hikers who come to walk across the famous north-to-south limestone ridge.

MoEF does not maintain an ecological inventory of all PAs, but managers have the ecological information concerning their own PA. MoEF does maintain electronic database files that use software for visualization with a geographic information system (GIS shape files). These are publicly available on the MoEF website.

9.5 Legal framework

Since the first EPR, Romania has had to transpose the European Community nature directives into national legislation, as a result of joining the EU. In addition, there are a number of national laws in Romania related to the management of biological diversity that have been put in place since 2001. The overall forestry law for Romania is the Forest Code (Law No. 46 (2008) on the Forest Code); in addition, there are a number of supporting legislative instruments and GDs. These instruments are presented in annex IV.

9.6 Institutional framework

Forestry

The Forest Public Authority moved from the then Ministry of Agriculture, Forests and Rural Development to MoEF in 2009. MoEF is now the legal public central authority responsible for land use and forests. Within MoEF is the General Directorate for Forests, which has three directorates under it:

- Directorate for Forest Policy and Silviculture Strategies;
- Directorate for Forest and Forest Development;
- Directorate for Forestry Control.

Box 9.1: Piatra Craiului National Park

Piatra Craiului National Park is located in the Meridional Carpathians and includes parts of the neighbouring mountain passes Rucar-Bran and Rucar-Zarnesti. Currently, the entire park area covers 14,773 ha. A special conservation area has been established inside the national park, including a scientific reserve. The special conservation area includes four karst areas: the Zarnesti Gorges in Brasov County, the Dambovicioarei and Brusturet Gorges in Arges County and a 1.5 ha protection area with the status of natural monument (the Bats Cave). There is another area of 1,189 ha, where grazing is forbidden, located inside the special conservation area. The rest of the area constitutes the national park area.

The Piatra Craiului National Park Administration is a subunit of the NFA-Brasov County Branch. At the central level, park administration activities are coordinated by a Protected Area Service at NFA Romsilva headquarters, which also coordinates the activities of an additional 23 national and natural parks in Romania. To supervise park administration activities, there is a Scientific Council, composed of representatives from the National Academy of Sciences, ministries and environmental agencies, NFA Romsilva and scientific researchers. Main stakeholders (institutions, agencies, organizations and persons affected by the park presence or who are developing activities within and nearby the park border) are represented on the Consultative Council, which holds biannual meetings.

The public central authority is represented in the field by nine subordinated Forestry Regime and Hunting Territorial Inspectorates.

According to the 2008 Forest Code, management of forests or forest services should be ensured by forest districts for all forests, without regard to ownership type, that is, through authorized forest management structures with certified forestry staff.

The forest districts could be State forest districts – under NFA Romsilva, or private forest districts, set up by public local administrations, individuals or legal entities owning forests or by associations of such entities. Optionally, forest owners could also contract forest management from NFA Romsilva.

NFA Romsilva is responsible for administering State-owned forests. It operates under the authority of MoEF and carries out forestry-specific public and commercial services, implementing the National Forest Strategy in the field. Among other tasks, NFA Romsilva is responsible for developing and implementing national forest policies, ensuring the sustainable management of forest resources, and conducting forest resource monitoring. It also deals with nature protection, preservation, nature tourism and sustainable development issues. Subordinate to it are 41 forest directorates, one directorate in each county and the Forest Research and Management Institute.

There are also 136 forest management structures, either private or belonging to public local administrations. Every year, a contract is signed with each party, and a minimum amount of the profits, fixed on an annual basis, goes to the State. The national Forest Research and Management Institute, as part of its forest management activities, manages the National Forest Inventory Database. Romania reports regularly on the status of its forests for ECE and FAO's *State of Europe's Forests* reports as well as for FAO's *State of the World's Forests.*

Private forest owners have come together either under the Association of Private Forest Land Owners of Romania or under the Romanian Forest Owners' Association.

Biodiversity

The Biodiversity Directorate of MoEF is in charge of managing biological diversity at the national level.

At the local level, NEPA is the institution that works most closely with the PAs. NEPA is tasked with the implementation of the Habitats Directive and the Birds Directive, national legislation regarding hunting permits, and flora and fauna harvesting for commercial purposes, and runs awareness-building campaigns in the communities close to Natura 2000 sites. It works through its local and regional offices in the 27 national parks and nature parks, and controls the rules and management of the PAs. NEPA local authorities conduct SEAs on the PA management plans.

Also at the local level, each county in Romania has an environment commissioner who oversees implementation of environmental regulations. These officials review the four-year plan for each county to consider projects with an impact on the environment (biodiversity, pollution, water), and investments in PAs. The environment commissioners also review management plans.

The Institute of Biology of the National Academy of Sciences handles monitoring and reporting. The National Institute for Research and Development in Environmental Protection is the scientific body that controls the use of sturgeon, to ensure its good conservation status.

Numerous other actors are involved in biodiversity conservation and sustainable use activities in the Romanian mountain, freshwater and coastal ecosystems. For example, the Romanian Ornithological Society has identified over 44 avifauna areas covering 3 per cent of the country's total area, in accordance with the national provisions regarding the conservation of wild birds.

9.7 Conclusions and recommendations

Romania's accession to the EU has brought a number of changes to the management of forests, and this has had an economic impact on private forest landowners. Private forest landowners need to be better informed as to how to file a claim to the State in respect of compensation for the restrictions imposed on them.

Recommendation 9.1:
To support the protective functions of forests, the Ministry of Environment and Forests should explore the development of innovative financing mechanisms to compensate private forest landowners for the restrictions imposed on them.

Romania has established a solid network of PAs. National legislation on PAs provides a framework for the management of these sites, but there are obstacles to implementation in terms of compliance and enforcement, public awareness and communication with local communities, and availability of adequate funding for their management. Specifically, there is insufficient capacity for enforcing the laws regarding hunting and other illegal activities (such as illegal construction) within the PAs.

Recommendation 9.2:
The Government should:

(a) Evaluate the current system of compliance and enforcement related to the existing legislation on protected areas and take necessary steps to correct its shortcomings;
(b) Ensure that adequate financial resources are made available for training environmental guards and increasing their numbers to control illegal hunting in protected areas.

To further strengthen the management of PAs, improve the conservation of rich biodiversity and develop sustainable economic activities such as tourism in the national parks, there is a need to develop management plans for all PAs as a matter of urgency. Given that PAs are financed from the State budget and EU structural funds, improving absorption capacity of EU funds, which at the moment is rather low, could significantly aid the efforts of responsible authorities.

Recommendation 9.3:
The Ministry of Environment and Forests should provide:

(a) Resources and capacity-building necessary to produce protected area management plans for all protected areas for which these are required; and
(b) Necessary tools and better capacity to access the available EU funds to the management authorities of protected areas in order to set up required activities for their management and develop mechanisms to support the livelihoods of the surrounding communities.

MoEF appears to be working in isolation from other ministries and this is affecting the desired goal of mainstreaming the values of biodiversity, forests and PAs into decision-making processes at national level. Particularly in the management of SPAs and SCIs, it is important to work with the agricultural, water, industry and transportation sectors. Studies that appraise and communicate the economic contribution of biodiversity and ecosystem services to human well-being are generally lacking in the country.

Recommendation 9.4:
The Ministry of Environment and Forests should:

(a) Include intersectoral activities and consultations in the new National Biodiversity Strategy and Action Plan in order to mainstream the values of nature into national planning and financing, and avoid further biodiversity losses and the degradation of ecosystem services; and
(b) Carry out a national valuation of ecosystems and ecosystem services with the assistance of the European Union and other interested donors and institutions.

Chapter 10

CLIMATE CHANGE

10.1 Legal, policy and institutional framework

Legal and policy framework

By signing the UNFCCC in 1992 at the United Nations Conference on Environment and Development in Rio de Janeiro, and ratifying it by Law No. 24 (1994), Romania has been part of the GHG mitigation effort since the inception of international cooperation on climate change. Romania's commitment to tackle climate change continued. It was the first annex I country, i.e. a developed country or a country in transition, to ratify the Kyoto Protocol, via Law No. 3 (2001).

By ratifying the Kyoto Protocol, Romania undertook to reduce its GHG emissions by 8 per cent during the first commitment period of 2008–2012 compared with the country's emissions in the base year of 1989. The year of 1989 was selected instead of the standard 1990 because it was thought to better reflect Romania's potential economic output and hence its potential emissions. GHG emissions levels decreased dramatically after 1989. However, emissions levels recorded in 1990 and immediately thereafter, rather than being real reductions in emissions, were actually due to economic decline, which caused GHG emissions to fall sharply.

To implement the GHG reduction targets, the first NSCC, for the period 2005–2007, was approved by GD No. 645 (2005). The Strategy was meant to be a general framework for climate change policies and measures during the brief period of 2005–2007, outlining Romania's policies in meeting the international obligations under the UNFCCC and the Kyoto Protocol, as well as the country's national priorities such as EU integration and possible participation in EU ETS.

In order to meet the overall objective, the NSCC established a set of national objectives. NSCC implementation was the first step towards a targeted and coordinated national effort to limit GHG emissions and mitigate the expected climate change impacts. However, when the NSCC was adopted in 2005, its goal of meeting the Kyoto Protocol GHG emissions reduction target of 8 per cent was not ambitious at all. The economic decline, combined with the choice of 1989 as the base year, had already led to a drop of GHG emissions levels by some 10 per cent by 1990, and by 2005 Romania's GHG emissions without LULUCF had fallen to 54.4 per cent of their 1989 levels (table 10.3).

The activities defined in the NSCC were developed further in the NAPCC, which was approved by GD No. 1877 (2005). It assigns tasks and responsibilities for all stakeholder institutions and identifies the main actors for each specific action and relevant task. The NAPCC establishes how implementation progress is reported, provides deadlines for measures to be implemented, and identifies potential funding sources for specific actions.

GHG mitigation efforts are by nature a dispersed task related to the energy, transport, agriculture, forestry and waste sectors, and are covered by several legal instruments associated with energy efficiency, energy production from renewable sources, landfill emissions and forestry/sink issues. These include:

- Law No. 46 (2008) on the Forest Code, as amended;
- Law No. 199 (2000) on Efficient Energy Use;
- GEO No. 124 (2001) on the Establishment, Organization and Operation of the Energy Efficiency Fund, as approved with amendments by Law No. 287 (2002);
- Law No. 318 (2003) on Electrical Energy;
- GD No. 443 (2003) on the Promotion of Energy Produced from Renewable Sources (transposing Directive 2009/28/EC of the European Parliament and of the Council of 23 April 2009 on the promotion of the use of energy from renewable sources and amending and subsequently repealing Directives 2001/77/EC and 2003/30/EC);
- GD No. 541 (2003) on the Limitation of Emissions from Large Combustion Plants, as amended by GD No. 322 (2005) (transposing Directive 2001/80/EC of the European Parliament and of the Council of 23 October 2001 on the limitation of emissions of certain pollutants into the air from large combustion plants);
- GD No. 349 (2005) on Landfilling of Waste (transposing Council Directive 1999/31/EC of 26 April 1999 on the landfill of waste);

- Regulations regarding EU ETS in Romania adopted between 2006 and 2009.

The relatively short period of validity from 2005 to 2007 for both the NSCC and NAPCC was originally chosen because of the rapid changes that were expected in the global economic situation, particularly with Romania's then imminent accession to the EU in 2007. Although the originally intended applicable timeframe has passed, the NSCC is still used as a guiding strategy document and the NAPCC as an action plan. A new strategy was under preparation at the end of 2011, whereas the new NAPCC is expected to be finalized within a year after the adoption of the strategy.

In order to ensure continuity in national climate change policies and actions, both the NSCC and NAPCC need a long-term time horizon. It is also important to note that Romania has experienced discontinuity in its strategies and actions on climate change and that neither the NSCC nor the NAPCC incorporates adaptation components. Both documents deal only with GHG mitigation and the establishment of a national framework to manage climate change.

While GHG mitigation legislation covers several economic sectors, the development of legislation to tackle climate change adaptation issues is weak. Currently, there is neither a climate change adaptation strategy nor a climate change adaptation action plan. The only attempt to undertake adaptation is MO No. 1170 (2008) for Approval of the Guide on Adaptation to Climate Change Effects.

Although its legal basis is only a relatively low-level MO, the Guide is a helpful document in bringing together adaptation-related topics and providing insight into the adaptation component of the future climate change strategy.

The Guide identifies the adaptation measures, within the constraints of existing economic resources, which can limit the negative climate change effects forecast by the medium- and long-term climate scenarios. It also suggests that the adaptation measures identified should be implemented through cooperation with local authorities and provision of appropriate technical assistance.

The conclusions of the Guide include a proposal to revise it every two years, based on the results of research studies. There has not been any revision since 2008, but MoEF aims to strike a balance between the mitigation and adaptation components in the next climate change strategy.

Institutional framework and institutional capacity

The main authority for climate change governance is MoEF, which is responsible for climate change policymaking through the development of national policy on climate change and coordination of implementation activities at central, regional and local levels. MoEF coordinates NSCC and NAPCC development, implementation and updating through the Climate Change Unit in the Climate Change and Sustainable Development Directorate, which has a unit head and 11 staff.

MoEF also acts as the UNFCCC national focal point, representing the Government in UNFCCC negotiations and other international meetings on climate change. It ensures the integration of GHG emissions reduction policies into other sectoral policies. In addition, it coordinates both the national inventory system for estimating GHG emissions and removals and the implementation of the flexible mechanisms of the Kyoto Protocol. MoEF participates in the transposition and coordination of the implementation of EU emissions trading legislation with its amendments, and chairs the NCCC.

A need for better coordination of interministerial policies and work on climate change policies arose early, leading to the establishment of the NCCC in 1996 by GD No. 1275 (1996), which was subsequently amended by GD No. 658 (2006) on the Reorganization of the National Commission on Climate Change. NCCC is a consultative body that supports the integration of climate change policy into sectoral policies and also provides advisory services related to the approval of the National Communications on climate change under the UNFCCC and GHG inventories. It further participates in the approval processes of JI projects and emissions trading activities. NCCC acts as the main advisory body to MoEF in the JI approval process, although final decisions are taken by MoEF. NCCC convened about three times a year before 2011, but its meetings were less frequent in 2011. NCCC has a secretariat with two staff hosted in the MoEF Climate Change Unit.

The Working Group on Adaptation (WGA) was established by MO No. 82 (2007) to develop, monitor and coordinate the implementation of climate change adaptation actions stipulated in the NAPCC. Following MO No. 953 (2009), the WGA currently has 27 members from all ministries, research institutes and NGOs competent in this field. NCCC and the WGA have partially overlapping

membership, but they are separate, independent bodies.

One of the main tasks of the WGA was to prepare the Guide on Adaptation to Climate Change Effects. It has also been active in preparing the adaptation component for the forthcoming new climate change strategy. An even more extensive collection of interest groups is the climate change adaptation network which, in addition to all WGA members, includes Romanian municipal associations and local authorities.

NEPA provides technical support for MoEF in the area of climate change. Its main responsibilities related to climate change are:

- Preparation, maintenance and updating of the NGHGI;
- Compliance with reporting requirements;
- Management of the National Registry on GHG emissions, which plays an important role in the implementation of the flexible mechanisms and EU ETS;
- Coordination of the relevant activities developed at regional and local levels by REPAs and LEPAs.

Other important actors in climate change administration and governance include EFA, which administers the database on GHG emissions reduction projects and acts as the administrator for the Green Investment Scheme fund; NAM, which assesses climate change vulnerability, impact and adaptation measures; and LEPAs.

10.2 National Greenhouse Gas Inventory system

GD No. 1570 (2007) established the NGHGI system to estimate the volume of anthropogenic GHG emissions and removals. The instrument's main objective was to ensure fulfilment of Romania's obligations under the UNFCCC, the Kyoto Protocol and relevant EU legislation.

Several MOs (issued by MoEF) and GDs (issued by NEPA) address the institutional and procedural aspects of GHG emissions estimation, reporting and archiving. These include:

- MO No. 1376 (2008) for approving the procedure on NGHGI reporting and the modalities for answering the observations and questions raised following the NGHGI review;
- MO No. 1474 (2008) for approving the procedure on processing, archiving and storage of data specific to the NGHGI;
- GD No. 23 (2009) for approving the procedure on selection of the estimation methods and of the emission factors needed for the estimation of GHG levels;
- GD No. 24 (2009) for approving the quality assurance/quality control procedure related to the NGHGI.

NIS is the main data supplier for the inventory system through the *Statistical Yearbook* and the *Energy Balance* (figure 10.1). MoEF and NIS signed a protocol of cooperation in 2002 under which NIS agreed to provide, in addition to its annual publication, additional data required for the inventory preparation.

MoEF submits the NGHGI to the UNFCCC Secretariat, European Commission and EEA. The NGHGI system's structure (figure 10.1) is well organized and Romania has regularly prepared and annually submitted its NGHGI, most recently in 2011. Nevertheless, in its own report on the fifth national communication which Romania submitted in 2010, the UNFCCC Expert Review Team found that the system did not collect sufficient activity data and that some estimates for emission and Kyoto Protocol LULUCF activities were not prepared in accordance with the Intergovernmental Panel on Climate Change (IPCC) Guidelines and IPCC good practice guidance for LULUCF.

10.3 National situation regarding climate change

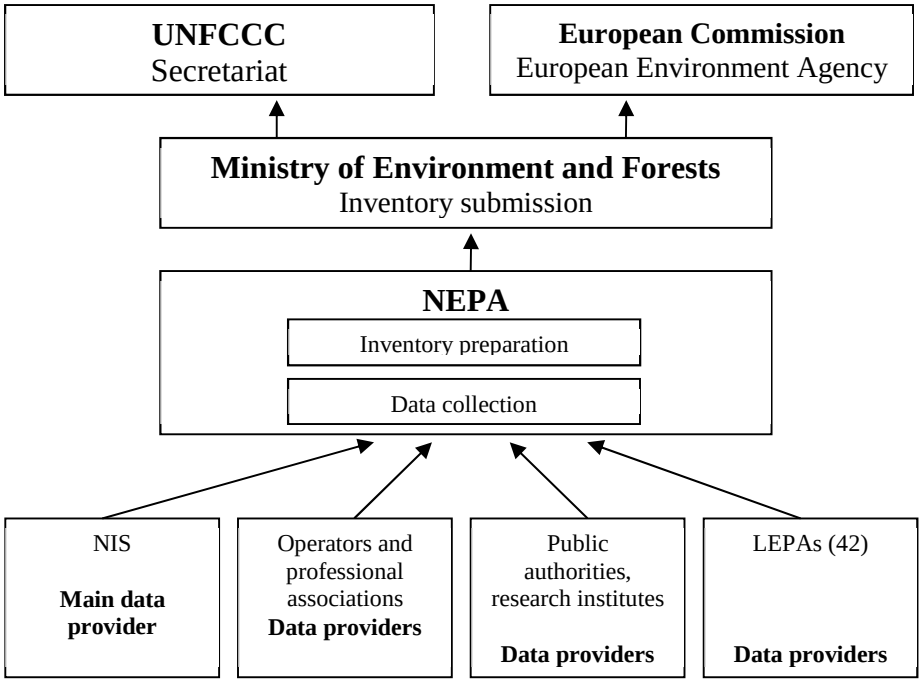
Current situation with climate change

During the period 1906–2005, Romania's annual average temperature increased by 0.5° C, which was slightly less than the global average increase of 0.74° C. Within the country, however, there are regional differences: stronger warming in the south and the east of the country (up to 0.8° C at the Bucureşti-Filaret, Constanţa and Roman stations) and minor change in the intra-Carpathian regions, except Baia Mare monitoring station, where the effect of the local anthropogenic activities led to warming of 0.7° C.

Changes in average temperatures have accelerated since 1961. There has been an increase in the annual frequency of tropical days (daily maximum temperature > 30° C) and a decrease in the annual frequency of winter days (daily maximum temperature < 0° C).

Photo 10.1: Vidra Lake

Figure 10.1: Data flow of National Greenhouse Gas Inventory system



Source: Fifth National Communication of Romania to the United Nations Framework Convention on Climate Change, January 2010.

Further, there has been a significant increase in the average summer temperature (of up to 2° C in the south and south-west).

In addition to the general warming trend, extreme weather events have multiplied. Since 2000, Romania has had several opposite-extreme precipitation and temperature weather events: the droughts in 2000 and 2007 and the floods in 2005 and 2010. The summer of 2007 was extremely hot, while the winter of 2006–2007 was the warmest since measurements started in Romania.

Scenarios on future climate change

According to the forecasts of the 2007 Fourth Assessment Report of the IPPC, Romania's annual average temperature is expected to increase along with that of Europe as a whole. There are small variances between the results of the models concerning the first decades of the twenty-first century and somewhat higher variances concerning the end of the century. Annual countrywide average temperatures are forecast to increase between 0.5° C and 1.5° C within the period 2020–2029; and between 2.0° C and 5.0° C from 2090 to 2099.

The Fourth Assessment Report compares the mean maxima and mean minima air temperatures of 1961–1990 to the estimates of the period of 2070–2099. Mean minimum winter temperature increases are expected to be greater in the Carpathian area (from 4.0° C to 6.0° C) and smaller in the rest of the country (from 3.0° C to 4.0° C).

Observation data over the period 1961–2000 (a 0.8° C to 0.9° C warming in the north-east and north-west of the country) provide evidence that this climatic pattern is already in place. Mean maximum summer temperatures are expected be higher in the south of the country (from 5.0° C to 6.0° C) than in the north (from 4.0° C to 5.0° C). The maximum temperature development has also already been identified from observation data. Over the period 1961–2000, the July temperature increase was 1.6° C to 1.9° C in the south and centre and in southern Moldavia, and between 0.4° C and 1.5° C in the rest of the country.

Over 90 per cent of the climate models forecast serious droughts during the summers for the period 2090–2099, especially in south and south-east Romania. Winter precipitation deviations are smaller, and the uncertainty of the forecast is higher.

Rainfall is expected to be heavier but lasting for shorter time periods and affecting smaller areas. This will lead to more frequent flash floods, but also to more intense drought periods. Drought will cause increased water scarcity, forest fires, loss of biodiversity, soil and ecosystem degradation, and desertification. While the regime of precipitations patterns may not change significantly in the winter, there will likely be an overall decrease in precipitations in the summer (up to 40 per cent, especially in the south and south-east). The average daily rate of precipitations for Romania is set to decrease by some 20 per cent.

Current GHG emissions situation

General trends

GHG emissions trends can be split into two main periods – from the base year 1989 to 1999 and from 1999 onwards – within which there are minor fluctuations. The decline in economic activity, especially in the energy-intensive industries, and diminishing overall energy consumption during the period 1989–1994, together led to a drop in total emissions. The revitalization of the economy in 1995 and 1996 increased emissions somewhat up to 1996, but the start-up of the first reactor at NPP Cernavodă in 1996 pushed GHG emissions back onto a downward trend in 1997, which continued until 1999, when a trough was reached in terms of emissions.

The tendency towards an increase after 1999 generally reflects GDP growth trends. However, the lower GHG emissions in 2005 compared with the 2004 and 2006 levels were caused by the record-breaking hydrological year, which impacted positively upon energy produced in hydropower plants, whereas the drop in 2009 emissions can be attributed to the 6.6 per cent decline in GDP caused by the economic downturn.

According to the NGHGI, total GHG emissions in 2009 without sinks were 128,745.9 Gg of CO_2 equivalent. Total GHG emissions excluding net emissions and removals from LULUCF (measured with CO_2 equivalent) decreased by 54.7 per cent during the period 1989–2009, while net GHG emissions including net emissions and removals fell by 60.4 per cent over the same period. It is clear that Romania will meet its commitments to reduce GHG emissions in the first commitment period, 2008–2012. The bulk of the emissions reductions came between 1989 and 1999, and although some progress has been achieved since then, it has not been on the same scale. The emissions trend reflects the economic and political changes during the period, characterized by a process of transition to a market economy.

Population-related GHG indicators have developed very positively since the base year 1989. TPES diminished from 2.99 toe/capita in 1989 to 1.83 toe/capita in 2009. Over the same time period, GHG emissions per capita more than halved, from 12.3 tons of CO_2 equivalent to 5.9 tons of CO_2 equivalent, while emissions per produced GDP unit (i.e. the productivity of energy use) decreased from 1.71 kg

CO_2 per PPP US$ of 2000 to 0.59 kg CO_2 per PPP US$ of 2000. There has also been a decoupling of GDP growth and energy consumption. In the 20 years from 1989 to 2009, GDP per capita increased 41.1 percent, while the use of energy (TPES in toe/capita) fell by 38.7 per cent.

Emission trends by gas

All GHG emissions have decreased compared with the base year emissions (table 10.1). The proportions of total emissions by different GHGs did not change significantly during the period. In 2009, the largest GHGs contributing to total national GHG emissions were CO_2 (66.9 per cent), followed by CH_4 (18.6 per cent) and nitrous oxide (N_2O) (14.4 per cent), whereas in the base year 1989, the proprtions of GHG emissions were CO_2 (67.9 per cent), CH_4 (16.8 per cent) and N_2O (14.0 per cent), and perfluorocarbons (PFCs) (1.2 per cent).

The proportion of total GHG emissions accounted for by ozone-depleting substances (ODS) used in refrigerating and air conditioning systems was negligible: 0.0195 per cent hydrofluorocarbons (HFCs) and 0.0057 per cent sulphur hexafluoride (SF_6).

CO_2 is the most significant anthropogenic GHG. The drop in CO_2 emissions (from 193,282.8 Gg in 1989 to 86,180.0 Gg in 2009) was mainly due to the decline of the amount of fossil fuels burnt in the energy sector as a consequence of diminished activity in the sector. Public electricity and heat production was especially affected, but the economic downturn played a part in the decline of the manufacturing industries and construction sectors, contributing to the drop in emissions.

CH_4 emissions, related to fugitive emissions from fossil fuels extraction and distribution and to livestock, also declined. Estimated CH_4 emissions in 2009 were down by 49.9 per cent compared with 1989. N_2O emissions mainly come from agricultural soil in the agriculture sector and the chemical industry in the industrial processes sector. The decline of these activities is reflected by the N_2O emissions trend, as N_2O emissions in 2009 were 53.6 per cent lower than in the base year.

Table 10.1 shows that the biggest emissions reductions took place between 1989 and 1999, during the first 10 years of the transition period. Since then, the changes have been relatively small in almost all gas categories.

Emission trends by sector

GHG emissions by sector for base year 1989 and 2001–2009 are shown in tables 10.2 and 10.3.

Energy sector

The energy sector, which accounted for 68.3 per cent of total national GHG emissions in 2009, posted a very significant 44.79 per cent drop in GHG emissions compared with the base year. The emissions trends of the energy sector have reflected the challenges of the transition to a market economy. At the beginning of the economic transition (1989–1996), the decline in economic activity and energy consumption, especially in the energy-intensive industries, was directly responsible for a drop in total emissions.

These started to increase after 1996 because of the economic recovery, but this uptick in emissions was halted by the start-up of the first reactor at NPP Cernavodă in 1996. The emissions decrease continued until 1999, after which changes in economic activity are reflected in emissions patterns.

In addition to the impact of economic growth and the use of nuclear energy, weather events are visible in energy emissions trends. The heavy precipitation in 2005 increased energy production by hydropower, leading to a decline in emissions from thermal power production. A dry summer in 2006 caused the opposite effect – a decrease in hydropower and an increase in thermal power produced. The launch of the second unit of NPP Cernavodă in late 2007 resulted in a noticeable decrease in emissions. It is too early to estimate the impact of the 2008 economic downturn on GHG emissions, but it is very likely that emissions will continue to follow GDP growth patterns. The transport sector has changed dramatically since 1989. The number of registered motor vehicles increased by 231.8 per cent between 1989 and 2006. This factor, combined with the growth in transport in general, led to an increase in overall emissions by the transport subsector of 162.6 per cent from the base year 1989 to 2009.

Industrial processes

The industrial processes sector contributed 8.8 per cent of total GHG emissions in 2009, recording an even greater GHG emissions decrease than the energy sector (73.4 per cent from 1989 to 2009) due to the decline in or termination of certain production activities, which mainly took place within the chemical, mining and metal industries as a result of restructuring and privatization.

Table 10.1: Greenhouse gas emissions without the land-use, land-use change and forestry sector, 1989, 2001–2009

Annual greenhouse gas (GHG) emissions, in Gg CO_2 equivalent

	Base year (1989)	**2001**	**2002**	**2003**	**2004**	**2005**	**2006**	**2007**	**2008**	**2009**
CO_2	193,283	101,077	107,367	112,427	111,485	106,225	111,484	110,231	103,506	86,180
CH_4	47,907	25,826	26,441	27,422	26,881	26,835	26,612	25,699	25,658	23,995
N_2O	39,939	20,052	20,318	21,179	19,897	21,651	20,904	18,972	20,683	18,532
HFCs	..	4	4	6	9	7	23	18	21	25
PFCs	3,350	1,044	718	262	133	82	55	24	15	7
SF_6	..	0	0	18	23	50	68	58	16	7
Non-CO_2	91,195	46,926	47,481	48,886	46,942	48,624	47,661	44,771	46,393	42,566
Total GHG	**284,478**	**148,003**	**154,848**	**161,314**	**158,427**	**154,849**	**159,145**	**155,003**	**149,899**	**128,746**

Source: United Nations Framework Convention on Climate Change: http://unfccc.int/di/DetailedByParty/Event.do?event=go (accessed 02 December 2011.

Metal production contributed 42.8 per cent of total GHG emissions from industrial processes in 2007. The proportion of total GHG emissions of the sector by the mineral products and chemical industries were 35.3 per cent and 21.8 per cent respectively. The proportion of the sector total accounted for by halocarbons and SF_6 was a very low 0.09 per cent.

Romania does not produce any halocarbons or SF_6. However, actual emissions of SF_6 have fluctuated significantly because of the production level fluctuations of the goods that need SF_6 in their manufacturing processes – especially in the manufacturing of parts and accessories for motor vehicles.

Solvents

Emissions from solvents follow the general trend of industrial production. Emissions decreased after 1989, remained relatively stable from 1992 to 2002 then started to increase because of the recovery of certain economic activities such as automobile production and construction. Solvents account for a mere 0.1 percent of total GHG emissions.

Agriculture

In 2009, one fifth (19.6 per cent) of total GHG emissions came from the agriculture sector and GHG emissions were 49.3 per cent lower than in 1989. Of the sector's CO_2 equivalent GHG total emissions in 2007, almost 60 percent (59.2 per cent) was N_2O while the rest was CH_4. In 2007, CH_4 emissions had decreased by almost half (down 46.9 per cent) compared with the base year. Because CH_4 emissions are mainly produced by domestic livestock breeding, such a drop reflects the declining number of domestic livestock.

Land use, land-use change and forestry sector

Total removals of CO_2 by sinks were 13.1 per cent higher in 2009 than in the base year. Overall LULUCF variations over the period 1989–2009 have been relatively mild. Emissions from LULUCF comprise CO_2, CH_4 and N_2O, which are emissions from biomass burning. The long drought period during 1999–2003 set off wildfires, leading to a rise in emissions levels. Decreasing emissions from all other sectors caused the proportion of net emissions/removals from LULUCF related to Romania's total GHG emissions to increase from 7.6 per cent in 1989 to 19.1 per cent in 2009.

Waste

The contribution of the waste sector to total GHG emissions was 3.5 per cent in 2009, while over the period 1989–2009, the sector's GHG emissions increased by 54.6 per cent, due to the population's rising consumption patterns producing more waste, the growing number of waste management sites and the increase in the percentage of the population connected to sewerage systems.

10.4 Strategies and sectoral policies

Mitigation

The country's approach to climate change mitigation has been shaped by the harmonization of national policies and legislation with EU standards. The Government Programme for the period 2009–2012 stipulated specific priorities for climate change mitigation and the adoption of specific policies and measures in order to stabilize GHG emissions. These include promoting the decrease of energy consumption through the use of efficient energy

technologies, thermal insulation of building stock, use of less polluting vehicles, promotion of affordable and clean energy production from renewable sources, and identification and implementation of feasible measures for carbon capture and storage (CCS).

Since energy use is the main GHG emissions source in Romania, mitigation efforts are geared to reducing energy consumption. According to the fifth National Communication, most of the mitigated GHG emissions until now have been an outcome of the consequences of Romania's economic transformation process. Mitigation efforts have had a much smaller impact on GHG emissions than the transition process itself. Most of the fifth National Communication is a wish list or a road map of what should be done in the future.

European Union Climate and Energy Package

As an EU member State, Romania is an implementing partner of the Climate and Energy Package, which is the EU framework for post-2012 emissions reductions. The 2008 Climate and Energy Package is also called the "20-20-20 plan". It sets EU climate and energy targets for 2020 compared with the base year of 1990. The goal of the plan is to achieve a 20 per cent reduction in GHG emissions, achieve a 20 per cent improvement in energy efficiency, and attain a 20 per cent share of renewable energy in the EU's energy mix.

One component of the 20-20-20 plan is directed to reducing emissions and comprises four pieces of legislation. The first is a revision and strengthening of EU ETS via the amendment of Directive 2003/87/EC[62] by Directive 2009/29/EC[63] so as to improve and extend the GHG emission allowance trading scheme of the Community. Romania is taking part in EU ETS. The second piece of legislation is an Effort-Sharing Decision governing GHG emissions from sectors not covered by EU ETS, such as transport, housing, agriculture and waste management.

The legally binding target for Romania is to cap emissions from sectors not covered by EU ETS at a level 19 per cent higher than emissions for the base year of 2005.

The third piece of legislation, Directive 2009/28/EC,[64] consists of binding national targets for renewable energy which will collectively lift the average renewable energy share across the EU to 20 per cent by 2020. The National Plan on Renewable Resources, which was adopted in 2010, set a legally binding target for Romania of 24 per cent of gross final consumption of energy coming from renewable sources by 2020. The share of energy from renewable sources of gross final consumption of energy in 2005 was 17.8 per cent, according to annex I of the Directive.

The fourth piece of legislation relates to the promotion of the development and safe use of CCS. Directive 2009/31/EC[65] was transposed by GEO No. 64 (2011) regarding the geological storage of CO_2. After studies had shown that Romania has considerable geological storage capacity, the Romanian Government approved a demonstration CCS project in 2010.

The other component of the 20-20-20 plan relates to energy efficiency. During the period of centralized economy, economic development was based on the development of the major energy-intensive industrial branches. Industry is still the biggest energy-consuming sector, although the restructuring from a centralized to a market economy has led to a major decrease in the industry's share of energy consumption compared with the other sectors.

Energy efficiency

Energy intensity in 2005 was three times higher than the European average. The comparison with developed countries, in particular European countries, is more favourable for Romania if energy intensity is calculated using the PPP method. When this is done, primary energy intensity in 2005 was 0.243 toe/€1,000, about 1.6 times higher than the EU-25 average.

[62] Directive 2003/87/EC of the European Parliament and of the Council of 13 October 2003 establishing a scheme for greenhouse gas emission allowance trading within the Community and amending Council Directive 96/61/EC.

[63] Directive 2009/29/EC of the European Parliament and of the Council of 23 April 2009 amending Directive 2003/87/EC so as to improve and extend the greenhouse gas emission allowance trading scheme of the Community.

[64] Directive 2009/28/EC of the European Parliament and of the Council of 23 April 2009 on the promotion of the use of energy from renewable sources and amending and subsequently repealing Directives 2001/77/EC and 2003/30/EC.

[65] Directive 2009/31/EC of the European Parliament and of the Council of 23 April 2009 on the geological storage of carbon dioxide and amending Council Directive 85/337/EEC, European Parliament and Council Directives 2000/60/EC, 2001/80/EC, 2004/35/EC, 2006/12/EC, 2008/1/EC and Regulation (EC) No. 1013/2006.

Table 10.2: Greenhouse gas emissions by sector, 1989, 2001–2009

Annual greenhouse gas (GHG) emissions, in Gg CO_2 equivalent

	Base year (1989)	2001	2002	2003	2004	2005	2006	2007	2008	2009
Energy	188,410	102,455	106,644	112,927	110,485	104,000	107,327	104,869	101,500	87,542
Energy industries	106,310	49,997	50,918	52,641	49,172	46,431	48,972	48,614	46,245	39,338
Manufacturing industries and construction	37,551	18,441	20,288	21,417	21,778	20,762	19,386	18,584	17,198	11,822
Transport	5,815	12,092	13,213	13,336	14,025	12,432	12,909	13,508	15,328	15,269
Other sectors	10,541	8,454	8,925	11,487	12,150	11,635	13,395	12,107	10,865	10,550
Fugitive emissions	28,193	13,472	13,300	14,045	13,359	12,740	12,665	12,056	11,865	10,563
Industrial processes	42,751	16,490	17,661	17,344	18,444	19,087	20,197	21,615	18,128	11,361
Solvents	646	201	222	280	277	270	208	138	135	122
Agriculture	49,751	24,945	25,812	26,266	24,817	26,570	26,600	24,109	25,643	25,206
LULUCF	-21,723	-31,840	-32,070	-36,333	-29,092	-29,135	-29,888	-30,280	-26,873	-24,568
Waste	2,920	3,912	4,508	4,497	4,404	4,922	4,813	4,272	4,492	4,514
Other	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Total										
with LULUCF	**262,755**	**116,163**	**122,778**	**124,980**	**129,336**	**125,714**	**129,257**	**124,722**	**123,026**	**104,178**
without LULUCF	**284,478**	**148,003**	**154,848**	**161,314**	**158,427**	**154,849**	**159,145**	**155,003**	**149,899**	**128,746**

Source: United Nations Framework Convention on Climate Change: http://unfccc.int/di/DetailedByParty/Event.do?event=go (accessed 02 December 2011).

Table 10.3: Grenhouse gas emissions by sector, 1989, 2001–2009 (1989 = 100)

	Base year (1989)	2001	2002	2003	2004	2005	2006	2007	2008	2009
Energy	100	54.4	56.6	59.9	58.6	55.2	57.0	55.7	53.9	46.5
Energy industries	100	47.0	47.9	49.5	46.3	43.7	46.1	45.7	43.5	37.0
Manufacturing industries and construction	100	49.1	54.0	57.0	58.0	55.3	51.6	49.5	45.8	31.5
Transport	100	207.9	227.2	229.3	241.2	213.8	222.0	232.3	263.6	262.6
Other sectors	100	80.2	84.7	109.0	115.3	110.4	127.1	114.9	103.1	100.1
Fugitive emissions	100	47.8	47.2	49.8	47.4	45.2	44.9	42.8	42.1	37.5
Industrial processes	100	38.6	41.3	40.6	43.1	44.6	47.2	50.6	42.4	26.6
Solvents	100	31.0	34.4	43.3	43.0	41.8	32.3	21.3	20.9	18.9
Agriculture	100	50.1	51.9	52.8	49.9	53.4	53.5	48.5	51.5	50.7
LULUCF	100	146.6	147.6	167.3	133.9	134.1	137.6	139.4	123.7	113.1
Waste	100	134.0	154.4	154.0	150.8	168.6	164.9	146.3	153.9	154.6
Other	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Total										
with LULUCF	**100**	**44.2**	**46.7**	**47.6**	**49.2**	**47.8**	**49.2**	**47.5**	**46.8**	**39.6**
without LULUCF	**100**	**52.0**	**54.4**	**56.7**	**55.7**	**54.4**	**55.9**	**54.5**	**52.7**	**45.3**

Source: United Nations Framework Convention on Climate Change: http://unfccc.int/di/DetailedByParty/Event.do?event=go (accessed 02 December 2011).

The goal of the 2004 National Strategy for Energy Efficiency for the period 2004–2015 is to decrease energy intensity by 40 per cent by 2015 compared with the 2001 level by implementing improvements in industry, residences, transport, the tertiary sector and energy production. In the period 2004–2015, improvements are expected to lead to a reduction of 25.4 Mtoe (approximately 60 Mt CO_2 equivalent) at a cost of €2.7 billion.

The 2007 National Energy Strategy for the period 2007–2020 established energy security, sustainable development and competitiveness as the strategic objectives of the energy sector. The Strategy was followed immediately by an action plan, when in 2007 the EU Energy Efficiency Directive 2006/32/EC[66] provisions were transposed into

[66] Directive 2006/32/EC of the European Parliament and of the Council of 5 April 2006 on energy end-use efficiency and energy services and repealing Council Directive 93/76/EEC.

national legislation and the first National Energy Efficiency Action Plan was submitted to the European Commission. Romania committed itself to decreasing energy consumption by 2.8 million toe by 2016, which corresponds to a 1.5 per cent annual average decrease between 2008 and 2016.

The Romanian economy has experienced a clear decoupling of energy consumption from GDP growth. Between 2000 and 2009, GDP increased by 64.9 per cent while TPES only rose by 8.8 per cent (table 10.4). Thus, the economy is using less energy to produce. GHG emissions per capita and per produced GDP unit decreased during the same period by 6.7 and 45.8 per cent respectively.

Green certificate system

Romania elaborated a GC incentive scheme to support renewable energy production in 2004. The scheme, which became operational in 2005, is a mandatory quota system combined with the trading of GCs, using national quotas for RES and individual quotas for the GCs.

The GC system applies to electricity produced from wind, solar, biomass, wave energy and hydrogen produced from renewable energy, as well as the electricity produced in hydropower units with installed power under 10 MW which started operation or were refurbished during or after 2004. All production technologies are treated equally: the system does not establish fractions coming from given technologies.

For each MWh of renewable electricity delivered to the grid, the electricity producer receives a GC from the system and transport operator. With a tradable GC programme in place, electricity generation from green RES produces two separate commodities: electricity, which is sold on the traditional electricity market, and GCs, which are traded on a GC market. Thus, green electricity producers receive supplementary revenue from GCs, in addition to that from the sale of electricity.

Electricity suppliers and distributors have an obligation to purchase a certain mandatory quota of renewable electricity set by ANRE in proportion to their annual amount of electricity sold to final consumers. The target of the energy share from renewable sources that had to be attained at national level was 0.7 per cent in 2005, increasing each year to reach 8.3 per cent in 2012. Completion rates are proved by holding a corresponding number of GCs acquired under the law.

The GC market is a parallel market, separate from the electricity market, and is organized and administered by OPCOM. The value of the certificates is determined by market mechanisms, either through bilateral contracts negotiated between producers and suppliers or on the OPCOM Centralized Green Certificate Market. In January 2011, 21,750 GCs were traded by OPCOM on the centralized market at an average price of €56.15 per certificate and with a total value of €1.2 million.

Adaptation

Romanian climate change policy is undergoing a change of focus, shifting from mitigation to vulnerability assessment and adaptation measures. Since there is no real adaptation strategy available at the moment, adaptation measures and actions to cover various vulnerable sectors are applied to different strategies and projects.

NAM took part in the EU-cofinanced European Project, Interreg IIIB CADSES[67]: ACCRETe,[68] developing the *Code of Action for Reducing the Impact of Climate Change in Agriculture*, which can be considered as a farmers' handbook. The Code of Action presents recommendations on the adaptation of agricultural technologies and production processes to climate change. It also gives examples of best practices that can lead to a decrease in GHG emissions.

The 2010 National Strategy of Flood Risk Management establishes the duties of those involved in flood risk management, clarifies prevention actions and measures, and organizes operational intervention as well as rehabilitation and return to normality after a flood. In order to increase the efficiency of local emergency flood management, a prefects' handbook and a mayors' handbook were prepared.

Several plans and studies have been developed with regard to water management. The Ecological and Economic Resizing of the Danube Floodplain in Romania is a study of the Danube floodplain – an instrument for strategic coordination at the water level of the whole Romanian sector of the Danube, with a view to flood prevention.

[67] Acronym of Central, Adriatic, Danubian and South-Eastern European Space.

[68] Acronym of Agriculture and Climate Changes: how to Reduce human Effects and Threats.

Box 10.1: UNDP/GEF's Energy Efficiency Financing Team in Romania, 2003–2006

In 2003, UNDP and GEF set up an Energy Efficiency Financing Team in Romania. The Team's mission was both to lower GHG emissions by convincing companies as well as municipalities to invest in energy efficiency, and to build local capacity for GHG-friendly investment to continue in the future. The Team was composed of experts in energy efficiency policy, engineering, banking, finance, communications and administration. The agreed target for the project was to help finance 20 energy efficiency investment projects with a combined value of US$12.5 million. This target was substantially exceeded. By the end of the project:

- 68 municipalities, public utilities and private companies had received substantive support from UNDP/GEF;
- 34 investments with a combined value of almost US$70 million were in progress or complete, with several more expected to follow.

The project had combined economic and environmental targets. The main economic benefits for the companies and municipalities which participated in the project were savings through lower electricity and fuel bills. The project produced a number of social benefits, such as warmer public buildings (typically schools), safer streets through better lighting, more efficient water utilities, improved community heating and a boost for job creation. The main environmental benefit according to a team of independent evaluators was the successful reduction of CO_2 emissions by more than 120,000 tons/year.

Source: Fifth National Communication of Romania to the United Nations Framework Convention on Climate Change, January 2010.

Table 10.4: Indicators relevant to greenhouse gas emissions and removals, 1989, 2000, 2009

Indicator				Change (%)		
	1989	2000	2009	1989-2000	2000-2009	1989-2009
Population (million)	23.15	22.44	21.51	–3.1	–4.1	–7.1
GDP (2000 US$ billion using PPP)	166.36	132.28	218.09	–20.5	64.9	31.1
TPES (Mtoe)	69.18	36.19	39.38	–47.7	8.8	–43.1
GDP per capita (2000 US$ thousand using PPP)	7.19	5.89	10.14	–18.0	72.0	41.1
TPES per capita (toe)	2.99	1.61	1.83	–46.0	13.5	–38.7
GHG emissions without LULUCF (Mt CO_2 eq)	284.48	143.95	128.75	–49.4	–10.6	–54.7
GHG emissions with LULUCF (Mt CO_2 eq)	262.76	113.97	104.18	–56.6	–8.6	–60.4
GHG emissions per capita (t CO_2 eq)	12.29	6.41	5.98	–47.8	–6.7	–51.3
GHG emissions per GDP unit (kg CO_2 eq per 2000 US$ using PPP)	1.71	1.09	0.59	–36.4	–45.8	–65.5

Source: United Nations Framework Convention on Climate Change, 2011, *Report of the In-depth Review of the Fifth National Communication of Romania*.

The Improvement Plan of the Hydrographic Basin and the Management Plan of the Hydrographic Basin relate to how climate change can affect the quality and quantity of water, specifying measures to ensure good quality surface and underground water resources.

The National Strategy to Reduce Long-term Effects of Drought lays down procedures at the national, regional and local levels for the management of emergency situations caused by droughts. The severe drought in 2007 made clear the need to make provision for urgent drought management measures (e.g. the allotment of funds for performing deep drilling).

Because the outcomes of the different impacts triggered by climate change could be very expensive or costly in terms of human life, there is a need to prioritize adaptation efforts. Both the Guide and the fifth National Communication stress the need for studies on adaptation policies in order to identify and prioritize measures aimed at reducing the negative impact of climate change. In the fifth National Communication, a plan for the climate adaptation research programme is mentioned. The current resources of the Climate Change and Sustainable Development Directorate might be not sufficient to manage such a programme. The research programme is not operational but, according to MoEF, a database containing all national level climate change adaptation programmes and projects is about to be established.

10.5 Emissions trading

Joint Implementation

JI is a "project-based" investment mechanism through which investors can achieve their own GHG emissions reduction commitments by developing JI projects in other countries. The host country acquires

financing for its environmental improvement project, while investors acquire emissions reduction units (ERUs). JI projects are developed under the umbrella of memoranda of understanding (MoUs). At present, Romania has signed 10 MoUs with various developed countries including Austria, Denmark, Finland, France, Italy, The Netherlands, Norway, Sweden and Switzerland, and it has a host country agreement with the World Bank's Prototype Carbon Fund. In addition, a cooperation agreement has been signed with Japan, and future cooperation is anticipated with Canada, Germany and Spain.

At the end of 2011, 42 JI projects had been submitted, 19 of which have been approved and are in different stages of development. No data on the amounts invested are available, but according to the fifth National Communication, the total quantity of emission reductions to be generated by these projects for the period 2008–2012 is some 14 million tons of CO_2 equivalent. The transfer of emissions reduction is carried out by MoEF and is based on the monitoring reports of the effective emissions reductions verified by accredited independent entities.

The JI projects provide Romania with financing/investments for modernization, rehabilitation, energy efficiency and new technology projects in many areas, such as cogeneration installations, fuel-switching in energy production or industrial installations, district heating systems, creation of clean energy production installation (hydroelectric, geothermal, wind, solar, and biogas and biomass installation) and recovery of CH_4 generated by urban waste landfills. JI projects can also include the thermal rehabilitation of buildings, reduction of GHG emissions from the transport and agricultural sectors, and afforestation and reforestation schemes.

International emissions trading

Parties with commitments under the Kyoto Protocol (annex B parties) have accepted targets for limiting or reducing emissions over the commitment period 2008–2012. These targets are expressed as levels of allowed emissions, called assigned amounts, which are divided into units (AAUs). International emissions trading allows countries included in annex B of the Kyoto Protocol to trade their AAUs. For the first commitment period under the Kyoto Protocol, Romania was given an allotment of 1.279 billion tCO_2 AAUs. Transfers and acquisitions of these units are tracked and recorded through the registry systems under the Kyoto Protocol. An international transaction log ensures secure transfer of emissions reduction units between countries.

Romania's CO_2 emissions have decreased massively compared with the base year, as a result of which emissions trading with the available AAUs offers an attractive possibility for acquiring investment financing. However, the potentially lucrative trading was halted by a process that started with the report of the UNFCCC ERT submitted in 2010. This body found that Romania's inventory system had several problems and concluded that it did not perform some of the specific functions required of the systems. In particular, it failed to prepare emissions estimates in accordance with the methods described in the Revised 1996 IPCC Guidelines and collect sufficient Activity Data. In particular, the activity data, processing of information and emission factors were found insufficient for the preparation of a complete inventory of emissions and removals for the forest management activity, and several pools were not reported.

At the end of September 2010, the Expert Review Team formally asked Romania to provide information on how it planned to correct the situation. Romania submitted its response to the ERT on 5 November 2010 with a list of planned studies, officially approved by MoEF, aimed at increasing the methodological tier level of the inventory and obtaining the necessary data and information. It also provided an implementation schedule with deadlines for each planned study and information on how it planned to maintain an effective and properly functioning national system by allocating funds.

However, the Expert Review Team report, published in May 2011, concluded that "the Party has elaborated improvement plans for several years, but almost all problems and recommendations from previous review reports remain unaddressed. The Expert Review Team notes that, given the scope of the work planned, the short period of time available for its completion and implementation in the 2012 submission, and the Party's failure to implement the previous improvement plans, it may be difficult for the Party to carry out such activities as scheduled. The Expert Review Team also notes that the Party did not indicate any specific changes to the national system that are likely to ensure its proper functioning in the near future."

Because Romania failed to show convincing progress in correcting its NGHGI system within the deadlines, in August 2011, the Compliance Committee of the Kyoto Protocol suspended Romania's right to trade its AAUs. The reasons for the suspension were the

deficiencies in the NGHGI and the failure to comply fully with the requirements of the inventory methodology approved by the UNFCCC Secretariat.

At the end of 2011, the Romanian authorities had started to correct the non-compliance situation of the inventory with a set of measures. The institutional capacity of NEPA was increased, via GD No. 674 (2011), by strengthening the unit in NEPA dealing with the NGHGI from 5 to 16 employees. At the same time, the dialogue and information flow between NEPA and the EEA was improved and reinforced in order to enhance the expertise of the staff in the NEPA unit. MoEF initiated a set of studies to improve late collection and development, and to identify and develop parameters and emission factors in the national inventory. Finally, training opportunities were increased for employees dealing with inventory-related issues.

European Union emissions trading scheme

EU ETS limits or "caps" the total amount of certain GHGs which can be emitted by the factories, power plants and other installations in the system. Within this cap, companies receive emissions allowances which they can sell to or buy from one another as needed. By 30 April each year, each company must surrender allowances to cover all its emissions, otherwise heavy fines are imposed. If a company reduces its emissions, it can keep the spare allowances to cover its future needs or else sell them to another company that is short of allowances. The number of allowances is reduced over time so as to ensure a decline in total emissions. By 2020, emissions are set to be 21 per cent lower than in 2005.

Romania began participating in EU ETS in 2007, and the country's National Allocation Plan (NAP) for 2007 and 2008–2012 was prepared by a working group coordinated by MoEF. In October 2007, the European Commission decided on NAP 2007 and 2008–2012 allowances after rounds of consultation with the Romanian authorities regarding allocation principles and amounts. The total amount of allowances for 2007 was 10 per cent less than the national cap proposed by the Romanian authorities (74 million allowances), while the total amount of allowances for 2008–2012 was 20.7 per cent less than the national cap proposed by the Romanian authorities (349 million allowances).

The European Commission's decisions were implemented by the Government through GD No. 60 (2008), which approved the NAP and established that:

- Allocation of allowances will be free of charge;
- The New Entrants Reserve (NER) will be established only for the second period of the scheme and not for 2007;
- Project credits, i.e. ERUs and Certified Emissions Reduction credits (CERs), can be used for up to 10 per cent of the total quantity allocated to an installation;
- No auction will be used as an allocation methodology for 2007 and 2008–2012; the Government will auction only the unused allowances from NER at the end of 2012;
- The Early Action Reserve for 2008–2012 was established at 4.48 per cent of the total amount of allowances;
- A JI set-aside for JI projects for 2008–2012 (as requested by Commission Decision 2006/780/EC[69]) was established at 1.91 per cent of the total amount of allowances;
- A Cogeneration Reserve for 2008–2012 for combined heat and power installations with overall efficiency higher that 65 per cent was set up at 0.95 per cent of the total amount of allowances.

10.6 Conclusions and recommendations

Both the NSCC and the NAPCC for the period 2005–2007 currently in use are in effect outdated and focused on mitigation efforts only. Romania has neither a climate change adaptation strategy nor a climate change action plan, and the only document on adaptation is the Guide on Adaptation to Climate Change Effects. It is important to ensure that the new, long-overdue strategy on climate change which is under preparation gives adequate weight to both mitigation and adaptation issues.

Recommendation 10.1:

The Government should:

(a) Finalize and adopt the new strategy on climate change;
(b) Follow this up with a climate change action plan; and
(c) Draft and adopt a strategy on adaptation to climate change and its action plan.

[69] Commission Decision of 13 November 2006 on avoiding double counting of greenhouse gas emission reductions under the Community emissions trading scheme for project activities under the Kyoto Protocol pursuant to Directive 2003/87/EC of the European Parliament and of the Council.

Romania's emissions trading was halted when the Compliance Committee of the Kyoto Protocol suspended the country's right to trade its AAUs in August 2011. The reasons for the suspension were the deficiencies in the NGHGI and the failure to comply with the requirements of the inventory methodology. At the end of 2011, the authorities took some measures to fulfil compliance requirements.

Recommendation 10.2:
The Government should clear out the irregularities and deficiencies of the National Greenhouse Gas Inventory System to be able to return to the European Union emissions trading scheme.

NCCC is an interministerial consultative body that supports the integration of climate change policy within sectoral policies and provides advisory services related to the approval of the National Communications on climate change under the UNFCCC, and GHG inventories. It also acts as the main advisory body to MoEF in the JI approval process. NCCC's consultative and advisory role is central in facilitating interministerial and inter-agency work and dialogue on climate change issues. NCCC, which usually meets three times a year, met even less frequently in 2011. This reflects underutilization of NCCC's role as a Government-wide climate change cooperation body.

The WGA was established in 2007 to develop, monitor and coordinate the implementation of climate change adaptation actions mentioned in the NAPCC for the period 2005–2007. Currently, the WGA has 27 members from all ministries, research institutes and NGOs. It took part in the preparation of the Guide on Adaptation to Climate Change Effects and has also been active in preparing the adaptation component for the forthcoming new strategy on climate change. At present, there are no other working groups on other climate change issues such as energy efficiency, transport or waste emissions. Combating climate change requires information-sharing and cooperation within Government and between Government and other relevant stakeholders, such as research institutions and civil society.

Recommendation 10.3:
To improve and reinforce cooperation, the Government should:

(a) Strengthen the role of the National Commission on Climate Change in interministerial cooperation by increasing the frequency and regularity of the gatherings of the Commission;
(b) Strengthen the capability of the secretariat serving the National Commission on Climate Change; and
(c) Use the Working Group on Adaptation as a model for establishing climate-change-related working groups in other relevant areas such as energy efficiency, transport and waste emissions.

In some economic sectors, GHG emissions have increased even though total GHG emissions have decreased. The increase in the number of motor vehicles and the growth of road transportation caused overall GHG emissions of the transport subsector to almost triple from the base year 1989 to 2009. A similar development took place in the waste sector where, during the same period, GHG emissions increased by 54.6 per cent due to the population's rising consumption.

In 2009, the agricultural sector produced 19.6 per cent of total GHG emissions. Agriculture-related GHG emissions were 49.3 per cent lower than in 1989. Of the sector's CO_2 equivalent GHG total emissions in 2007, some 40 per cent was CH_4, which had decreased by almost half (46.9 per cent) compared with the base year. Most of this was due to the declining number of domestic livestock.

Recommendation 10.4:
The Ministry of Environment and Forests should develop appropriate projects and programmes to:

(a) Counter the rising GHG emissions trends in the transport and waste sectors; and
(b) Anticipate and respond to the potential future increases in particular sectoral GHG emissions, e.g. in the livestock farming sector.

ANNEXES

Annex I: Implementation of the recommendations in the first review

Annex II: Participation of Romania in multilateral environmental agreements

Annex III: Key data and indicators available for the review

Annex IV: List of major environment-related legislation

Annex I

*IMPLEMENTATION OF THE RECOMMENDATIONS IN THE FIRST REVIEW**

PART I: ENVIRONMENTAL POLICY AND MANAGEMENT

Chapter 1: Legal and policy framework, institutional arrangements and environmental regulations

Recommendation 1.1(a):
The implementation of the National Environmental Action Plan, the Environmental Strategy and other sectoral environmental strategies and plans needs to be backed up by concrete programmes (including legislative, technical and organizational measures) with defined financing and clear institutional arrangements.

Recommendation partially implemented. Current policy documents do not represent the continuation of the former strategies and plans but, rather, were developed according to the new rules and requirements. The key policy document currently in force is the NDP for the period 2007–2013, which provided the foundation for the NSRF for the period 2007–2013. Sectoral strategies were developed and adopted mainly in 2007. NSDS-2 was approved by the Government in 2008.

The second part of the recommendation referring to the requirements for concrete programmes is still valid and provides important guidance for the future.

Recommendation 1.1(b):
The Ministry of Development and Planning should carry out the function of systematically following up on progress in implementing the plans related to MWEP in the "Government Action Plan 2000-2004". The function should form the practical framework for mobilizing the other Ministries and Directorates involved, ensure that action is taken, by the responsible agent, at the planned time, with the foreseen result, identify and assist in solving problems especially as regards a lack of inter-sector coordination. De facto progress should be reported periodically, to all stakeholders, highlighting problems, delays, and need for official and political action or decisions.

Recommendation is no longer valid. The Ministry of Development and Planning no longer exists. A new Government Programme for the period 2009–2012 was prepared and adopted. The part of the recommendation that is still relevant, i.e. progress monitoring, should be applied in coming years.

Recommendation 1.2:
To improve its current structure, the Ministry of Waters and Environmental Protection should:

- *Create a specific unit for air protection to promote policies and strategies, including programmes for implementation, on air protection.*
- *Designate ICIM as the executive agency for the environment, taking into account that*

Romania is now a member of the European Environment Agency.

Recommendation was partially implemented. The responsibilities of MoEF have been extended since the first EPR and now cover forestry. Consequently, the internal structure of the Ministry has also been changed.

Currently, NEPA is the agency providing professional support to the work of MoEF in strategic environmental planning, developing normative documents and environmental monitoring. NEPA is responsible for preparation of regular National Environmental Reports of Romania. In cooperation with the national focal point in MoEF, NEPA prepares information and reports for the EEA. As a member of the Management Board, NEPA participates in EEA meetings.

* The first EPR of Romania was carried out in 2001. During the second review, progress in the implementation of the recommendations in the first review was assessed by the EPR Team based on information provided by the country.

Recommendation 1.3:
The Inter-ministerial Committee for Implementation of the NEAP and the National Commission on Sustainable Development should strengthen their collaboration; the NEAP should be used as a guiding plan for determining the responsibilities and the role of all institutions concerned and defining the deadlines for the measures to be taken.

Recommendation implemented. The National Committee on Sustainable Development has resumed its operations after a three-year period of inaction, and met in October and November 2011 with the intention of strengthening the cooperation of the ministries and institutions concerned with implementation of NSDS-2.

Recommendation 1.4:
A clarification of the public and private environmental monitoring network is essential. The connection between the central administration and the research institutes, currently under a self-financing status, should also be formalized with regard to public data production. The participation of the Ministry of Health and the Family should be reinforced, probably through a legal obligation to cooperate with the Ministry of Waters and Environmental Protection for the tasks prior to data production. (See also Recommendations 6.3, 7.5, 9.2, 14.2).

Status of implementation of this recommendation is unknown.

Recommendation 1.5:
The Ministry of Waters and Environmental Protection should review carefully the environmental impact assessment process as far as the implementation of the procedures is concerned, in order to determine effectiveness and to identify areas where improvement is needed.

Recommendation implemented, although improvements are still needed. Romania has fully transposed the EU's EIA Directive. National legislation has additional categories in comparison with annex I of the Directive and has the same scope in comparison with annex II. A case-by-case assessment is made for each project to determine whether it needs EIA. Guidance documents are available on the EIA procedure. Implementation is checked by NEG. Authorities judge their capacity insufficient for effective EIA implementation.

Recommendation 1.6:
The Ministry of Waters and Environmental Protection should include in the environmental audit the compliance programmes of the enterprises, approved by them as part of their overall investment programmes to make the operation of the industrial facilities comply with environmental legislation and standards. Special attention should be given to the preparation and implementation of self-monitoring plans as a basis for effective monitoring and control.

The audit procedure may be both voluntary and mandatory in Romania, but MoEF does not have direct responsibility in any of these cases (similarly to other countries). Compliance programmes are part of environmental permits; in particular, they are mandatory for integrated environmental permits. Self-monitoring and self-reporting requirements are among the core permit conditions.

Chapter 2: Spatial planning

Recommendation 2.1:
The Romanian Government should draw up a legislative framework for spatial planning that integrates and reconciles all fragmented planning legislation.

Status of implementation of this recommendation is unknown.

Recommendation 2.2:
The Ministry of Public Works, Transport and Housing, in cooperation with relevant ministries and regional and local authorities, should make a greater effort to implement the Spatial Plan for Territorial Management (PATN). The development of a structured plan, allocating responsibilities to all authorities, should form the basis of the implementation of the PATN. Furthermore, this implementation plan should contain realistic and achievable goals, taking the current financial and technical constraints into consideration.

Status of implementation of this recommendation is unknown.

Recommendation 2.3:
To minimize the constraints on the renewal of spatial and environmental legislation and the workings of the land market, the Ministry of Agriculture, Food and Forests should give a higher priority to the registration of ownership, situation, use and valuation of land by improving the technical, financial and managerial capacity of the cadastre.

In accordance with GEO No. 70 (2001) amending and supplementing Law No. 7 (1996) on the Cadastre and Real Estate Advertising, activity regarding the agricultural cadastre and land planning was transferred from the Ministry of Agriculture, Food and Forests to the responsibility of MoAI, starting in 2002. In 2004, according to GD 1210 (2004) regarding the organization and functioning of the Cadastre and Land Registration, the National Agency for Cadastre and Land (ANCPI) was founded as a public institution subordinated to MoAI. According to Law No. 7 (1996) on the Cadastre and Real Estate Advertising (republished), ANCPI is the only authority in the area that coordinates and controls the execution of the land cadastre and ensures the registration of the real estate properties in the register of advertising throughout the country. According to GEO No. 81 (2011), ANCPI is subordinated to MoRDT.

Recommendation 2.4:
Under the direction of the Ministry of Development and Planning, inter-ministerial cooperation and coordination between spatial planning and environmental protection should be improved in the administration of the design and protection of physical features (public infrastructures, land use including protected areas) and human habitat.

Recommendation is no longer valid. The Ministry of Development and Planning no longer exists.

Recommendation 2.5:
Decisions about programmes and projects should be taken jointly by the national, regional and local levels through a consultative process. All three administrative levels should participate in regional development initiatives; the central level should stimulate, coordinate and facilitate initiatives; the regional level should operationalize, implement and control plans and programmes; and the local level, implement and execute the individual projects.

The context of regional development has changed since the first EPR due to the country's accession to the EU. Within the NSRF, the Regional OP was prepared and the implementation of different projects was cofinanced by the ERDF. Its priorities include:

- Supporting sustainable urban development/integrated urban development plans;
- Rehabilitating unused polluted industrial sites and preparing them for new activities;
- Developing and modernizing specific infrastructure for sustainable use of natural resources with tourism potential.

Chapter 3: Economic instruments and privatization – their impact on environmental protection

Recommendation 3.1:
When defining 'an environmental economic instrument' the Ministry of Waters and Environmental Protection should put far more focus on how to apply the instrument and how to implement the measures: at which level, with which tools, the efficiency of collection and enforcement procedures, various alternatives, etc. The analysis should be used to design feedback mechanisms so that the instrument will achieve the intended reaction by the target groups, without endangering or being counterproductive to other aspects of economic recovery.

Recommendation implemented. A range of economic instruments (air and water pollution taxes, taxes on waste generation, fees for waste collection and disposal, etc.) is employed, in combination with environmental performance standards, to ensure adequate environmental protection. There must be regular and systematic evaluation of the efficiency and effectiveness of these economic instruments.

Recommendation 3.2:
The Ministry of Public Finance and the Ministry of Waters and Environmental Protection should analyse the existing environment-related instruments and – where relevant – adjust them to market conditions and to true cost to ensure sustainable resource use. Rather than basing charges on the lowest income level, the charges should (gradually) rise to levels of consumer affordability, with subsidies for lower income groups if required. The 'polluter-pays principle' should be adjusted to include all costs of remedying both permitted and illegal pollution, including the clean-up of specific damage.

Recommendation implemented. Considerable progress has been made in ensuring that tariffs for water supply and sewerage are cost reflective. Electricity and gas are still supplied at regulated prices for households and enterprises. The notable feature is cross-subsidization of household consumers by industrial consumers. Progress has been made to establish more cost-reflective tariffs for district heating, with the abolition of central Government subsidies and stringent rules for local government financing of heating subsidy schemes.

Recommendation 3.3:
It is necessary that industry becomes an integrated part of environmental protection and management in Romania, fully bearing its responsibility. In particular:
(a) Enterprises should be required to insure themselves against environmental damage and accidents;
(b) The charge structures should be deterrent, forcing and inviting industry to consider environmental and clean technologies, including waste recycling and reuse, as new industrial possibilities.

See Recommendation 3.1.

Recommendation 3.4:
The Government should immediately take the necessary steps to fully establish and implement the environmental fund. Its statutes, management and operational procedures, and organizational and logistical set-up should be set out. The fund should aim at generating and managing funds, from national, international and bilateral sources, and not be simply a disbursing mechanism The structure, objectives and operations of the fund should comply with the 'St. Petersburg Guidelines' on Environmental Funds in the transition to a market economy, prepared by the Organisation for Economic Co-operation and Development (OECD).

Recommendation implemented. The EF became fully operational in 2004. EF expenditure on environmental projects is financed from a number of earmarked domestic revenue sources. A fixed quota of total annual revenues is allocated to financing the activities of EFA, which manages the EF.

Recommendation 3.5:
The Government should disseminate and make appropriate use of the USAID and IRIS 'Red Tape Analysis' and the 'Administrative barriers to investment' as identified by the Foreign Advisory Service and the World Bank, in particular in order to improve the country's environmental performance.

Recommendation partially implemented. There has been progress in cutting back excessive bureaucratic procedures, but there appears still to be considerable "red tape". There is an urgent need to address administrative issues related to the effective and efficient use of foreign assistance. A major priority is to accelerate the absorption of EU structural funds.

Recommendation 3.6:
It is recommended that the Government should analyse the possibility of increasing to 20 per cent the maximum ceiling of revenue from the privatization of assets devoted to environmental damage analysis in order to ensure that damage originating from the company's previous operations is fully identified and documented. Alternatively, this percentage should not be decreased until the State Ownership Fund (SOF) has created a working 'fund' sufficiently large to enable it to meet its legal environmental obligations.

Recommendation largely implemented. Romania accomplished the privatization of most industrial SOEs by 2007. All enterprises slated for privatization were subject to an environmental assessment, based on which the companies had to draw up a compliance plan to manage potential environmental liabilities and mitigate health risks. Specific remediation measures and targets were included in the privatization contract and investors were

held responsible for implementing the clean-up. There is no information on the extent to which the financing of the environmental damage analysis was constrained by the ceiling mentioned in recommendation 3.6.

Recommendation 3.7:
Buyers of State-owned companies should be required to arrange for a bank guarantee for their environmental obligations (e.g. 20-30 per cent of the cost) to be deposited with the Ministry of Finance. The guarantee will be released when the Environmental Protection Inspectorate (EPI) confirms that the company has complied with its environmental commitments as per sales or purchase contract.

The recommendation was not implemented.

Chapter 4: Environmental information and public participation in decision-making

Recommendation 4.1:
The Ministry of Waters and Environmental Protection should, in cooperation with other relevant Ministries and NGOs, (a) systematically assess the legal requirements which will apply from 30 October 2001 following the entry into force of the Aarhus Convention and (b) develop and implement a strategy introducing the necessary measures to ensure full compliance with the Convention as soon as possible.

Since the first EPR, additional secondary legislation has been developed to ensure proper implementation of the provisions of the Aarhus Convention. GEO No. 195 (2005) on Environmental Protection, as approved by Law No. 265 (2006), introduces relevant principles such as access to environmental information, public participation in environmental decision-making processes and access to justice. Based on the provisions of this Law, it is the duty of the local and central public authorities to ensure that the public is informed and participates in the decision-making process, in compliance with the Aarhus Convention.

Recommendation 4.2:
The Ministry of Waters and Environmental Protection should improve the management of the integrated environmental monitoring system, at least by consolidating the present unit in its Directorate for Ecological Control and Monitoring. This unit should be given the specific administrative, personnel and budgetary means it requires.

The context of environmental monitoring has changed since the first EPR due to Romania's accession to the EU. NEPA, along with its eight REPAs and 34 LEPAs, is responsible for environmental monitoring and reporting to the EEA on the following areas: air quality, climate change, PAs, soil contamination and water (data are available on both the Romanian and EEA websites).

Recommendation 4.3:
The Ministry of Waters and Environmental Protection should provide proper conditions for the Information and Documentation Centre (IDC) and its personnel, and together with its associated institutes define a clear strategy for the production and dissemination of environmental information.
The IDC could be integrated into the Ministry or into the ICIM, with budgetary support for its public information activities.

The context of environmental information has changed since the first EPR. Environmental data (e.g. annual reports for 2006–2010) are available on both the Romanian and EEA websites. Sections for monthly reports have also been designed; however, there is no information available as yet.

NIS regularly publishes environmental statistics focusing on water quality and use, PAs and environmental protection investment expenditures in Romania. The Romanian Sustainable Development Indicators database is available online on the NIS website: it includes 103 indicators and will be updated as new indicators are developed/made available.

Recommendation 4.4:
The central environmental administration should demonstrate openness and transparency in its relation with civil society in general and environmental NGOs in particular. The relevant units of the MWEP should keep the environmental NGO community informed on all relevant national and international programmes.

Recommendation partially implemented. NGOs are involved in the procedures governing the formulation of opinions necessary in the environmental decision-making process, and have signed partnership agreements with local environmental authorities to promote implementation of measures for sustainable development.

Nonetheless, cooperation between environmental authorities and NGOs remains limited in scope. In light of the existence of several active NGOs in the country, and given that NGOs are pillars for the implementation of a range of sustainable development goals, cooperation between authorities and the NGO community needs to be strengthened and take place on a regular basis in order to utilize the knowledge and expertise of the NGO community.

Recommendation 4.5:
The Ministry of Waters and Environmental Protection should reinforce public participation in EIA procedures. In particular, the development of specific ways to organise public participation (hearings, additional public platforms) should be given particular attention (possibly through regulatory obligations).

NGOs and individual members of the public are part of the regulatory EIA and SEA procedures and part of the procedures by which environmental permits are issued. Apart from giving written comments and opinions, they are also involved in the compulsory public hearings (EIA, SEA and environmental authorization) which are developed within these procedures.

Recommendation 4.6:
The MWEP should encourage the environmental NGOs to form a national forum to participate in the current reform of legislation for EU approximation.

Recommendation no longer valid.

Recommendation 4.7:
The Ministry of Education and Research should ensure that:
(a) The national education programme would contain a clear definition of environmental education requirements. Cooperation with the Ministry of Waters and Environmental Protection (MWEP) on this topic is recommended. An agreement between the Ministry of Education and the Ministry of Waters and Environmental Protection on environmental education, followed by joint action and evaluation, would be needed.
(b) The training of trainers in environmental matters is strengthened.

As part of the EU integration effort, Romania approved the ECE Strategy for Education for Sustainable Development (which has been translated into Romanian) and actively joined the United Nations Decade of Education for Sustainable Development. MoERYS serves as a focal point for the implementation of the Strategy. A working group has been set up in order to elaborate National Implementation Reports (one was submitted at the end of 2010). However, Romania has not yet adopted a national strategy on sustainable development or national implementation plan on ESD, as recommended by the ECE Strategy.

Chapter 5: International cooperation

Recommendation 5.1:
Romania should accede to the ECE Convention on the Transboundary Effects of Industrial Accidents. Romania should strengthen its capacity for early warning and emergency planning, prevention and response in cooperation with international organizations, including the European Commission, the ECE secretariat, the United Nations Development Programme, the United Nations Environment Programme's Regional Office for Europe and its Division of Technology, Industry and Economics, and the International Commission for the Protection of the Danube River.

Recommendation implemented. Romania acceded to the ECE Convention on the Transboundary Effects of Industrial Accidents ratifying Law No. 92 (2003). The Romanian Government has enhanced and strengthened its capacity for early warning and emergency planning, prevention and response, also through the transposition and implementation of Seveso II Directive provisions. At regional level, Romania's participation in the Accident Emergency Warning System established under the Convention on Co-operation for the Protection and Sustainable Use of the Danube River further increased its capacity to prevent and respond to accidents.

Recommendation 5.2:
Romania should ratify and implement the three Protocols to the ECE Convention on Long-range Transboundary Air Pollution that it has signed and ratify the EMEP Protocol.

Recommendation implemented. In 2003 Romania ratified and fully implemented the three protocols to CLRTAP through Law No. 271 (2003). Romania ratified the EMEP Protocol in 2003, but there is a clear gap between its ratification and its proper implementation due to the absence of a clear indication in the ratification law of the specific sources of funding in the State budget to comply with the financial contributions.

Recommendation 5.3:
The Ministry of Waters and Environmental Protection should cooperate in establishing international river basin management plans for transboundary rivers following the provisions of the EU Water Framework Directive. These plans for "sub-basins" should be complementary to the future international river basin management plan for the Danube (see Recommendation 7.3).

Recommendation implemented. At the Ministerial Meeting of Parties to the Danube River Protection Convention, hosted in Vienna by the ICPDR on 16 February 2010, Romania, along with the other Danube River basin countries, endorsed the Danube Declaration and adopted the Danube River Basin Management Plan, which addresses key requirements of the EU WFD. Flood action plans for the 17 sub-basins in the Danube catchment area were also adopted at the Ministerial Meeting.

Recommendation 5.4:
The Ministry of Waters and Environmental Protection in cooperation with the Ministry of Foreign Affairs should promote the active implementation of the partnership among all riparian States that are Parties to the Convention on Cooperation for the Protection and Sustainable Use of the Danube River through the Joint Action Programme for the Danube River Basin, January 2001-December 2005.

Recommendation implemented. The Joint Action Program Final Implementation Report (2007) highlighted that there has been important progress in establishing the necessary mechanisms for coordination and cooperation under the framework of the Danube River Protection Convention. The EU water-related directives (i.e. the EU WFD and directives related to floods, nitrates and drinking water) have added strength to efforts to coordinate actions in support of integrated river basin management and pollution control and reduction in Romania. The Integrated Tisza River Basin Management Plan (ITRBM Plan) was developed (through a UNDP/GEF medium-sized project) and finalized in 2009, and it includes the measures indicated by the Joint Action Programme.

Recommendation 5.5:
The Ministry of Waters and Environmental Protection together with the Ministry of Industry and Mineral Resources should make all efforts to duly implement the recommendations contained in the report of the International Task Force for Assessing the Baia Mare Accident. The Ministries should also find ways to make industry assume their respective responsibilities.

Recommendation implemented. Most of the recommendations of the Baia Mare Task Force have been implemented through the implementation of the related ECE conventions as well as the EU legislation concerned. In particular, within the framework of the Convention on the Transboundary Effects of Industrial Accidents, Romania developed two projects with its neighbouring countries in order to put its national regulations on industrial safety into practice. Moreover, in 2003, Romania signed the Protocol on Civil Liability and Compensation for Damage caused by the Transboundary Effects of Industrial Accidents on Transboundary Waters.

Recommendation 5.6:
The Ministry of Waters and Environmental Protection should develop a strategy for strengthening the capacity to draft, negotiate and implement co-financing agreements for environmental projects. A strategy for coordinating the approach to donors and for information exchange should also be developed.

The recommendation is still valid.

PART II: MANAGEMENT OF POLLUTION AND OF NATURAL RESOURCES

Chapter 6: Air pollution

Recommendation 6.1:
The Government should ensure that sufficient staffing to deal with air management issues is secured within the Ministry of Waters and Environmental Protection (MWEP) and ICIM, and that the creation of an air protection unit in the MWEP is considered. (See also Recommendation 1.2)

See implementation of recommendation 1.2.

Recommendation 6.2:
The Ministry of Waters and Environmental Protection should immediately draw up the necessary implementing regulations for the Urgent Ordinance on the Protection of Atmospheric Air (No. 243/2000), and submit them for adoption and step-by-step implementation in accordance with the Sectoral Approximation Strategies on Air and Climate Change and Industrial Pollution Control.

Status of implementation of this recommendation is unknown.

Recommendation 6.3:
The Ministry of Waters and Environmental Protection and the Ministry of Health and the Family should jointly work at establishing a unified air quality monitoring network, providing comparable and complementary data, in compliance with EU requirements. Automatic continuous measuring devices should be combined with supplementary methods whenever possible. Sufficient financial resources for maintenance, service and continuous use should be secured before new devices are purchased. (See also Recommendations 1.4, 14.4)

Status of implementation of this recommendation is unknown.

Recommendation 6.4:
The Ministry of Waters and Environmental Protection should ensure that the presently insufficient emission measurement capacities (both staff and equipment) in the local Environmental Protection Inspectorates as well as in industry are improved. The obligation on industry to monitor its own emissions should be more strictly enforced. The air monitoring stations of the national network should be better equipped in order to fulfil the monitoring plan and its targets. (See also Recommendation 1.6.)

Status of implementation of this recommendation is unknown.

Recommendation 6.5:
In the light of the increase in the car fleet and road transport over the past years and in anticipation of a further increase, the reduction of atmospheric emissions should be regarded as a high priority. Closer cooperation must be ensured between the Ministry of Waters and Environmental Protection and the environmental focal point of the Ministry of Public Works, Transport and Housing. In this respect, some of the measures to be envisaged and implemented are:

- *Improving and strengthening technical control of all road vehicles (including cars, trucks and buses);*
- *Improving the maintenance and quality of technical services for vehicles;*
- *Speeding up the drawing-up and implementation of a national programme relating to fuels.*

Status of implementation of this recommendation is unknown.
Recommendation 6.6:
The Ministry of Waters and Environmental Protection should initiate the inclusion in the environmental legal framework of the prohibition of the open burning of waste at waste disposal sites, as well as the obligation to collect and treat (flare) or utilize the landfill gas generated in situ as a result of biological degradation of organic waste. (See also Recommendation 8.2.)

Status of implementation of this recommendation is unknown.

Chapter 7: Water management

Recommendation 7.1:
The reduction of excessive drinking-water use caused by water wastage and losses should be a priority in the rationalization of water use in Romania. To solve this problem, it is necessary to:

- *Rehabilitate the water supply system and ensure continuous supply of drinking water and hot water where centralized hot water supply systems exist. This implies the rehabilitation, upgrading and automation of hot water supply systems and household installations;*
- *Install individual cold and hot water metering;*
- *Increase drinking-water and waste-water tariffs so as to cover the full cost of water supply and waste-water disposal and treatment, incorporating the cost of renovation investments;*
- *Develop economic incentives to encourage owners of buildings and flats to repair their water infrastructures. See also recommendation 14.1*

Recommendation largely implemented. Water demand by households, industry and agriculture is declining. This is as a result of the installation of water meters, increased water prices, use of modern technology in the industry and a decline in the water needs of agriculture. Although the demand for water for the population has declined continuously in past years (figure 7.2), according to NIHWM, future water demand is expected to increase (table 7.3). An important aspect of pricing is the delineation of the population's limits of supportability. Financial contributions of environmental service users can be increased until they reach the limits of supportability.

Recommendation 7.2:
The Ministry of Waters and Environmental Protection should urgently update the implementing regulations for water legislation, and implement them effectively. Implementation should be accompanied by an action programme for hot spots, in particular industrial sites discharging hazardous substances directly into waters further used for drinking-water supply.

Recommendation implemented. The implementation of Romanian integrated water management is in compliance with the EU WFD, aiming at the achievement of good water status for all waters by 2015. The Directive was transposed in 2010 through amendment of Law No. 107 (1996) on Water.

The country has been granted a transitional period until 2018 for implementing the Urban Wastewater Treatment Directive. Shorter transition periods were reached for complying with the IPPC Directive. Council Directive 91/271/EEC concerning urban wastewater treatment, as amended by Commission Directive 98/15/EC of 27 February 1998 amending Council Directive 91/271/EEC with respect to certain requirements established in Annex I thereof, was fully transposed into Romanian legislation through GD No. 188 (2002) on the Approval of Certain Norms Concerning the Conditions for the Discharge of Wastewater into the Aquatic Environment. Law No. 458 (2002) on Drinking Water contains detailed provisions on the conditions of water quality, water quality monitoring, restrictions on water use and water treatment quality assurance processes. Council Directive 75/440/EEC of 16 June 1975 concerning the quality required of surface water intended for the abstraction of drinking water in the member States, and Council Directive 79/869/EEC of 9 October 1979 concerning the methods of measurement and frequencies of sampling and analysis of surface water intended for the abstraction of drinking water in the member States, have been transposed into Romanian legislation by GD No. 100 (2002), HG No. 662 (2005), HG No. 567 (2006) and HG No. 217 (2007).

Recommendation 7.3:
River basin authorities should be brought into line with the EU concept as self-sufficient and self-managed institutions entrusted with managing the water and protecting the surface and groundwater in their respective basin areas. Apele Romane Headquarters should be seen as a water agency entrusted with administrative power by the MWEP to supervise the functioning of water management systems and the river basin authorities.

Recommendation implemented. The National Water Administration (Apele Romane) is organized according to Law No.107 (1996) on Water, as amended and supplemented in February 2010. The 11 WBAs operating in the river basins have special responsibilities. They prepare plans on river basin management, issuing approvals for all projects which have a qualitative or quantitative effect on water. They supervise whether such agreements and licence and permit provisions are respected, by collecting water and wastewater charges and analysing them

in their own laboratories. The WBAs prepare the technical reports to REPAs with a view to the delivery of licences and permits, and approve the authorization of water works and water management activities.

Recommendation 7.4:
On the initiative of the Ministry of Waters and Environmental Protection, Apele Romane and municipalities should reconsider drinking-water and waste-water charges and pricing, increasing them and differentiating them according to the type of use and taking social aspects into account. This income should be used together with other sources of funds for financing the development of national and local water systems and new investments in water infrastructures. New investments, especially in municipal water supply and waste-water treatment plants, should take into account the likely drop in water consumption which should be brought about by an improvement of the water supply network, water metering and pricing system.

Recommendation implemented. Law No. 107 (1996) on Water regulates the economic mechanism by which NARW is financed. Economic mechanisms specific to the quantitative and qualitative management of water resources include system contributions, payments, bonuses, fees and penalties as part of the financing of the development and operational fields of NARW. Payments depend on GD No. 1202 (2010) to update the amount of the specific contributions for water resources management. Payment rates for water and sewerage services are calculated based on production and operating costs, maintenance costs and the related capital amortization, and include interest rates, loan repayments and operator profit. These rates constitute the final price paid by the consumer. As part of this rate, the financial cost of resource management is around €0.010/m³ and the financial cost of the activity receiving wastewater resources is around €0.033/m³. A rate of around €0.043/m³ must be paid to NARW.

Recommendation 7.5:
The self-monitoring of waste-water discharges and pollution loads should be regulated by law and carried out by accredited laboratories. The monitoring of emissions and immissions performed by the local Environmental Protection Inspectorates (EPIs) and Apele Romane should be harmonized. The quality of measurements by Apele Romane and EPIs should be improved by strengthening the laboratory accreditation process.

Recommendation implemented. Directive 76/464/EEC of 4 May 1976 on pollution caused by certain dangerous substances discharged into the aquatic environment of the Community has been transposed into Romanian law by MO No. 44 (2004) and GD No. 351 (2005). GD No. 1038 (2010) amends GD No. 351 (2005) approving the programme to phase out discharges, emissions and losses of hazardous substances. For wastewater discharges from municipalities of more than 2,000 p.e., and for industrial wastewater discharges from industrial sectors into natural receivers, permits/licences should contain conditions in compliance with the requirements of annex 1 and annex 3 of GD No. 352 (2005), namely Technical Normative NTPA-011 and NTPA-001/2002.

All methods of analysis for priority substances are validated in accordance with SR EN ISO / IEC 17025 or other equivalent standards accepted internationally. Laboratories performing the analysis of substances apply quality management practices and have to give proof of their professionalism at least annually. The 11 WBA laboratories are equipped with chemical and biological tests and with the necessary personnel. They regularly run quality management tests. Special tests will be done in the central laboratory in Bucharest.

NARW officials have periodically monitored the implementation of the measures from the compliance programme, which is annexed to the water permit.

Chapter 8: Waste management

Recommendation 8.1:
The modernization of industry, the introduction of cleaner production technologies during the privatization process and the implementation of the principles of industrial sustainable development should be promoted by the Government and industry over a long-term period. This involves:

- *Further developing the appropriate legal and regulatory bases to encourage industry to use cleaner production;*
- *Introducing economic incentives and instruments for this purpose, including financial resources;*
- *Further developing the institutional framework, in particular cleaner production centres;*

- *Creating favourable conditions for transferring cleaner production technologies from other countries when there is no domestic alternative.*

Recommendation partially implemented. Cleaner production technologies were/are implemented through the process of privatization and modernization of the national economy, and are necessitated by stricter environmental legislation.

Recommendation 8.2:
Under the guidance of the MWEP, the local governments together with the local EPIs should:

- *Develop and set up an infrastructure for improving the overall municipal waste management system, including the collection, separation, recycling and environmentally sound disposal of municipal waste; provide special means for the separate collection of municipal waste (bags, containers) to the public; build facilities for the reprocessing of separated waste;*
- *Assess through environmental impact assessment the state of existing landfills and evaluate a clear phase-out strategy for old landfills, including the use of economic instruments to support it;*
- *Assess the environmental impact of building new landfills and maintain them according to the requirements of environmental safety and standards, including monitoring;*
- *Raise public awareness and use educational and training programmes through all the mass media to encourage municipal waste reduction.*

Recommendation partially implemented. Specifically:

- Infrastructure development is under implementation. The process of modernization of MSW infrastructure started with the support of Government and EU funding and is on track. Due to the need for heavy investment, the process is taking considerable time;
- Phase-out is near completion. Old sites are closing and are being replaced by modern, EU-compliant landfills. The process of closing old sites should be completed in 2012;
- Action on landfills is near completion. Development of a new network of landfills is ongoing. A decision to develop 17 landfill sites was only made in 2011, with finances allocated under SOP ENV;
- Waste reduction strategies are under implementation. Public awareness and training programmes are implemented but changing the behaviour of the population is a long-term process.

Recommendation 8.3:
The Ministry of Industry and Resources in cooperation with the Ministry of Waters and Environmental Protection and industrial enterprises should improve and develop overall industrial waste management systems at local, regional and national levels which should include the following:

- *An increase in industrial waste recycling, recovery and reuse by introducing new processes and new technologies into industrial facilities;*
- *Improvement in the treatment and environmentally sound disposal of those industrial wastes that cannot be recycled or reused;*
- *The modernization of thermal power plants with the introduction of processes for the reuse of ash and slag;*
- *The creation of mutual interests between companies involved in the recycling and reuse of industrial waste, including economic and financial incentives.*

Recommendation partially implemented. Specifically:

- Industrial waste recycling, recovery and reuse not implemented. There is no significant increase of recycled waste amounts;
- Waste treatment and disposal partially implemented. Incineration and co-incineration of industrial waste was introduced. There is progress in improving landfilling standards, although a number of old disposal sites are still in operation;
- Modernization of thermal power plants and reuse of ash and slag partially implemented. Some fly ash is used in cement production, but the main method is still disposal. No economically viable solution is available;
- Creation of mutual interests not implemented. Recycling and reuse of industrial waste have developed according to market principles, so no Government incentives were introduced.

Recommendation 8.4:
The National Commission for the Control of Nuclear Activities in cooperation with other parties should take urgent action to achieve the overall technical modernization of the radioactive waste treatment plant and the national repository to improve their operational performance and meet IAEA and EU standards and norms.

Recommendation partially implemented and under implementation. Modernization works in radioactive waste treatment plants Pitesti and Magurele are in progress. Repository in Baita-Bihor started works on safety improvements.

Recommendation 8.5:
The Ministry of Waters and Environmental Protection in cooperation with other ministries and institutions should speed up the development of waste management regulations in order to implement existing legislation that complies with EU legislation, and create economic and financial mechanisms to enforce them.

Recommendation implemented. The current waste management legislative framework is in full compliance with the EU legislation.

Recommendation 8.6:
The Ministry of Waters and Environmental Protection in cooperation with the Ministry of Industry and Resources and all institutions and private and governmental bodies dealing with waste management should seek all possible ways to attract financial and other resources at local, national and international levels for the implementation of national programmes and projects.

Recommendation partially implemented and under implementation. EU accession process enabled the use of EU pre-accession funds and, later, structural funds and the CF. These are actively used for waste management system modernization.

Recommendation 8.7:
The Ministry of Public Administration, the Ministry of Development and Planning together with the Ministry of Waters and Environmental Protection, in cooperation with the municipalities and regions, as well as their associations, should promote intermunicipal cooperation for a more cost-efficient management of municipal waste. The Ministry of Industry and Mineral Resources, together with the Ministry of Waters and Environmental Protection, should promote the involvement of business associations and industrial associations in the management of industrial waste from small and medium-sized enterprises.

Recommendation under implementation. The process of integration of waste management is supported by the Government, but low waste fees and a fractured waste market do not allow effective cooperation and integration of waste management services.

Chapter 9: Nature and biodiversity conservation

Recommendation 9.1:
The Ministry of Waters and Environmental Protection should strengthen the implementing capacities, in terms of both skills and number of staff, in biodiversity protection at every level – national, regional and local – and seek a leading role in inter-ministerial cooperation. The departments for nature conservation in the local Environmental Protection Inspectorates should be strengthened in order to fulfil the new obligations regarding monitoring and compliance under the future law on the protection of natural areas.

Recommendation implemented. The Government has established a Biodiversity Directorate within MoEF, with staff dedicated to the conservation and sustainable use of biodiversity, and with focal points working on the various biodiversity-related conventions as well as EU legislation. For the implementation of legislation and monitoring, MoEF has a specialized agency (NEPA) with local agencies at county level. For the monitoring of legislation and enforcement, MoEF has a specialized structure (NEG), which also has county-level agencies. Also subordinated to MoEF are the forestry and hunting inspectorates (further details on these can be obtained from the Forests Directorate).

Recommendation 9.2:
Based on the lessons learnt from the recent GEF projects, the Ministry of Waters and Environmental Protection should establish as soon as possible a national monitoring system for biodiversity as a high priority.

Recommendation implemented. An up-to-date PAs database has been established, which contains some information about species and habitats within these PAs. However, there are no existing databases regarding habitats and species within the territory of Romania.[70] There are also two major projects, financed from EU structural funds, which are conducting an assessment of flora, fauna and habitats. One is for the purpose of compliance with the Habitats Directive and the other in compliance with the Birds Directive. Both projects will be finished in 2013, having produced the relevant country reports.

Recommendation 9.3:
The Ministry of Waters and Environmental Protection should develop a national information exchange network – like the Clearing House Mechanism in the Convention on Biological Diversity – to facilitate access to information, exchange of research information and data.

Recommendation partially implemented. Romania took some initial steps to establish a CHM. However, despite the existence of national databases for biodiversity and a CHM national focal point, there is no programme providing integrated data or an information management system for biodiversity conservation in Romania. UNEP noted that there was a need to increase cooperation among stakeholders, increase the involvement of the scientific community and establish more partnerships. As a result, UNDP is currently implementing a GEF project in Romania entitled Support to Alignment of the National Biodiversity Strategy and Action Plan (NBSAP) with the CBD and Development of a Clearing House Mechanism. It is expected that the existing CHM will be strengthened by an information system and a fully operational website of common biodiversity and CHM at the national level.

Romania also takes part in the European Biodiversity Clearing House Mechanism which is now integrated within the Biodiversity Information System for Europe (BISE) run by the EEA.

Recommendation 9.4:
The Ministry of Agriculture, Food and Forests should draw up implementation plans, including financial resources, and cooperate with the Ministry of Waters and Environmental Protection in order to achieve the objectives for the afforestation of degraded land and the creation of shelter belts in agricultural areas.

Recommendation implemented. The Government of Romania introduced two laws related to afforestation: Law No. 289 (2002) on the Creation of Protective Forest Belts and Law No. 100 (2010) on the Afforestation of Degraded Lands. According to data collected by MoEF, forest regeneration and restoration activities took place on 30,766 ha of land in 2011. A draft afforestation plan for 2012–2040 has been drawn up; during this period, it is intended to achieve regeneration works on some 30,000 hectares of forests annually and increase the forest area through afforestation of degraded lands and the establishment of protection forest belts on some 16,500 ha annually.

Recommendation 9.5:
The Ministry of Waters and Environmental Protection should start establishing the network of protected areas according to the IUCN categories on the whole territory of the country, incorporating all the different types of habitats. The protected areas should comprise at least 10per cent of the country, in accordance with the Convention on Biological Diversity, which Romania has ratified.

Recommendation implemented. According to the Government of Romania, the national PA network includes 3 biosphere reserves, 13 national parks, 14 nature parks, 5 Ramsar sites, 1 World Heritage site, 2 geoparks, and a number of nature reserves, strict reserves, nature monuments and Nature 2000 sites. It is estimated that the national network of PAs covers 19 per cent of Romanian territory, almost double the percentage suggested by the CBD. Within this PA system, Romania complies with the EU nature directives though the Natura 2000

[70] Maps are available from www.biodiversity.ro/n2000/;
http://mmediu.ro/protectia_naturii/protectia_naturii.htm has shapefiles and standard dataforms.

network, which includes 273 SCIs covering 13 per cent of the national terrirory, and 108 SPAs covering 12 per cent of the territory.

Recommendation 9.6:
The Ministry of Waters and Environmental Protection should issue regulations to protect biodiversity in agro-ecosystems. The sustainable use of herbaceous species with medicinal, melliferous or fodder value must be ensured (for instance in Bucovina).

Recommendation implemented. MoARD has reported that in the National Strategic Plan of Rural Development for the period 2007–2013 (which is expected to be extended), some measures have been included on environmental quality improvement in rural areas. There is a regulation on agri-environmental measures and some incentive packages are provided to farmers (these have been approved by the European Commission as part of the EU Common Agricultural Policy):

- Package 1: for farmers using pastures with high nature value who respect some special agricultural practices;
- Package 2: for farmers using traditional agricultural practices (in combination with package 1) if they implement best practices;
- Package 3: for farmers using pastures important for birds (species important for Europe) with application of certain measures;
- Package 4: for farmers using green fertilizers (using the crop itself as fertilizer);
- Package 5: in 2011 five incentives were available for farmers practising organic farming, viz. crops on arable land, including land to produce fodder; vegetables, including mushrooms and potatoes; orchards; vineyards; medicinal and aromatic plants).

There is also support provided to farmers in the less-favoured mountainous areas as well as those in less-favoured areas other than in the mountains (the Danube delta, for example). Eligible areas are established in consultations between MoEF, MoARD and NGOs. Farmers apply in the early spring and declare all their lands and agree to respect some special conditions regarding the environmental measures.

The Biodiversity Directorate of MoEF cooperates with the General Department of Rural Development in MoARD (on management of the National Strategic Plan of Rural Development for the period 2007–2013). A special programme on melliferous plants for bees has not been established in either MoEF or MoARD.

Recommendation 9.7:
The Ministry of Waters and Environmental Protection should broaden and strengthen the cooperation with NGOs and local communities at all stages – from design to implementation – of biodiversity conservation programmes. The modalities for collaboration and coordination between MWEP and NGOs should be clearly defined (See also Recommendation 4.4).

Recommendation implemented. MoEF confirmed that the private sector and civil society play a major part in the conservation of nature in Romania. The management of PAs is ensured by the private sector, public institutions or NGOs on the basis of a contract between the Ministry and the manager of the PA (whether an NGO, private sector entity or public institution). In addition, in order to comply with the requirements of the EU nature directives, civil society, as stakeholders, must be involved in the decision-making processes related to biodiversity conservation programmes. The local authorities and the local and regional environmental protection agencies are tasked with consulting with all stakeholders, including those in the private sector. It is true, however, that in some areas, for example with the CHM, there is a need to improve the participation of some sectors as well as to create better networks of partners.

Chapter 10: Mineral resources

Recommendation 10.1:
The Ministry of Industry and Resources should accelerate the implementation of projects selected in the National Environmental Action Plan for the mining sector. Every effort should be made to obtain the necessary funds and reach targets within an established timeframe for each project. This process requires a rapid development of mechanisms to implement and operate an environmental fund. (See also Recommendation 3.4).

Status of implementation of this recommendation is unknown.

Recommendation 10.2:
The Ministry of Waters and Environmental Protection should approve new mining plants based on international mining standards and practices. The Ministry should encourage the introduction of environmental management systems in existing plants. It should also promote ISO 14000 and EMAS systems, in particular for mining activities, through the creation of national procedures and schemes. In cooperation with the Ministry of Industry and Resources, environmental management training should be regularly provided to professionals working in the mining industry, thus contributing to industry-wide best practices harmonized with EU standards.

Status of implementation of this recommendation is unknown.

Recommendation 10.3:
The introduction of cleaner technologies in mining and metallurgy, with realistic targets and timeframe for their implementation, and staff training in the new practices should be seen as a matter of priority. Cleaner production centres specializing in the mining and metallurgy sectors should also be established. See also Recommendation 8.2.

Status of implementation of this recommendation is unknown.

Recommendation 10.4:
The Ministry of Waters and Environmental Protection together with the Ministry of Industry and Resources should undertake a detailed assessment of abandoned and active mining sites and tailings in Romania. It should include a risk study for each mining and tailing pond hot spot in order to identify short- and medium-term priorities. (See also Recommendation 11.4)

Status of implementation of this recommendation is unknown.

Recommendation 10.5:
Romanian laboratories should be accredited and current analytical standards harmonized with European regulations. The Ministry of Waters and Environmental Protection should furthermore strengthen cooperation among the institutions involved in monitoring. The development of a modern information system is necessary to facilitate the exchange of environmental information that could be used for decision-making.

Status of implementation of this recommendation is unknown.

Recommendation 10.6:
An extensive follow-up study of the long-term pollution from mining and smelting activities should be developed as a joint initiative of the Ministry of Industry and Resources and the Ministry of Waters and Environmental Protection. In parallel, the APELL process (Awareness and Preparedness for Emergencies at Local Level) should be introduced and an emergency preparedness plan, based on fail-safe and contingency concepts, should be adopted.

Status of implementation of this recommendation is unknown.

PART III: SECTORAL INTEGRATION

Chapter 11: Environment and agriculture

Recommendation 11.1:
The adverse environmental effects of agricultural practices should be reduced to a two-tier approach:
(a) Larger farms and companies that invest in inputs and produce for the market should keep a record of the application of fertilizers and the use of pesticides on their land. These records can be controlled by inspectors from the local EPIs. The practice could be introduced by law following the model already applied in those areas of the Danube Delta Nature Reserve (Sireasa and Padurina) that are still farmed.

(b) The agricultural extension service (Consultanta agricola) should promote on a large scale correct organic farming practices.

Recommendation largely implemented. In order to reduce the adverse effects of agricultural practices on the environment, including on water quality, the following measures were taken:

1. Adoption of an "Action Plan for waters protection against pollution with nitrates from agriculture". The main objectives are:
- Reduction and prevention of water pollution caused by nitrates from agricultural sources;
- Streamlining and optimizing the use of chemical fertilizers and organic compounds containing nitrogen.

2. Development and implementation of a Code of Good Farm Practice with steps, methods and agricultural techniques on sustainable use of natural agricultural resources. Its objectives are:
- Improving soil quality and soil conservation;
- Natural resource management at farm level;
- Plant protection; use of phytosanitary products;
- Use of veterinary products in agribusiness holdings;
- Management of waste and residues on agribusiness farms.

3. Development and implementation of a Code of Good Agricultural Practice (2005 ed.), with practical and binding rules for farmers engaged in agricultural activities, in the areas vulnerable to the pollution of soil and water with nitrates from agricultural sources. The measures cover the following main aspects:
- Agricultural systems (sustainable, conventional or organic);
- General and specific rules on the use of organic and chemical fertilizers;
- Management of agricultural holdings;
- Land management – nitrogen dynamics;
- Planning and recording of farm fertilizers.

In addition, as an EU member State since 2007, Romania has been implementing the single area payment scheme (SAPS), pillar I of which provides for area-based payments to farmers, on the condition that the land is kept in good agricultural and environmental condition. Based on the legislative framework and taking into account national circumstances, "good agricultural and environmental conditions" (GAECs) have been established that must be met by Romanian farmers requesting support under the scheme. Failure to comply with GAECs leads to exclusion from, or reduction of, payments to non-complying farmers. In these cases, appropriate non-statutory requirements (RMS-urilor1) apply. These requirements constitute cross-compliance rules in the schemes and support measures for farmers regarding environmental concerns and the identification and registration of farm animals.

Recommendation 11.2:
The agricultural extension service should demonstrate various technical options (with or without irrigation, seed quality, use of inputs and soil tillage), their effect on the environment (water pollution, soil conservation) and the expected yield and profitability, in order to be able to advise farmers in different regions of the country. They should train subsistence farmers who cannot afford inputs to allow them to increase the profitability of their farms and sell their products better. These farmers should be encouraged not to use costly agrochemicals.

Status of implementation of this recommendation is unknown.

Recommendation 11.3:
To ensure the protection of water bodies, large animal farms should deposit the slurry on agricultural land according to good agricultural practice. The slurry spreading and manure distribution should be monitored through contracts and records maintained with large crop farms, which are probably the most suitable to ensure the correct disposal of large quantities of manure. The disposal of animal dung in landfills should not be authorized.

See implementation of recommendation 11.1.

Recommendation 11.4:
The Ministry of Agriculture, Food and Forests together with the Ministry of Waters and Environmental Protection should list and precisely map at a national level (regional and local data are available) all agricultural soils severely contaminated by heavy metals, oil or pesticides in order to exclude agricultural products produced in those soils from any certification and export. In the long term, such products should also be excluded first from local markets and finally from consumption.

Recommendation partially implemented. MoEF realized the national monitoring system for agricultural soil/land and the implementation of the national plan for improvement of acidic and alkali soils. The national system for monitoring agricultural soil/land includes two programmes:

- The development of agrochemical studies for the period 2002–2011;
- The creation/updating of the agricultural soil monitoring system at the national and county levels for the period 2002–2011.

MoARD's 2011 MO No. 278 was approved to ensure the continuity of the activities referred to in these programmes, for the period 2012–2021.

Recommendation 11.5:
The appropriate institutions of the Ministry of Waters and Environmental Protection should assess the environmental impact of all large afforestation projects and other "rehabilitation" projects (see "Green Corridor for the Danube"), and in particular their influence on the biodiversity of the site. Moreover, their influence on the economic and social status of the local land users involved (private or local communities) should be studied and other alternatives, even for abandoned land, evaluated (on the model of the study on Peris).

Status of implementation of this recommendation is unknown.

Recommendation 11.6:
The draft law on cultivated plants and pesticides should include the obligation to obtain a treatment permit subject to a course and an exam for all companies and private individuals using large quantities of pesticides, such as large crop farms and agricultural machinery services ("Agromec"). All entities should be made liable for the pollution caused by their practices.

Status of implementation of this recommendation is unknown.

Recommendation 11.7:
The Ministry of Agriculture, Food and Forests and the Ministry of Waters and Environmental Protection should cooperate to regulate the use of grasslands (especially on the steep hills) and protect them from inappropriate cultivation and overgrazing.

Status of implementation of this recommendation is unknown.

Chapter 12: Environment and transport

Recommendation 12.1:
The Ministry of Waters and Environmental Protection together with the Ministry of Public Works, Transport and Housing should introduce a reporting system to monitor the environmental performance of the transport system, using the Transport Environment Reporting Mechanism (TERM) as a framework.
Status of implementation of this recommendation is unknown.

Recommendation 12.2:
Specific environmental targets for the transport sector should be set jointly by the Ministry of Public Works, Transport and Housing and the Ministry of Waters and Environmental Protection.
The National Road Administration should strictly follow the emission targets set for the transport sector.

Status of implementation of this recommendation is unknown.

Recommendation 12.3:
The Ministry of Industry and Mineral Resources should (1) accelerate the total phase-out of lead in petrol, in particular making the tax difference more attractive; (2) improve the quality of all fuels, in particular reducing their sulphur content; and (3) effectively enforce the implementation of Government Decision No. 1336/2000 on sulphur content in fuels.

Status of implementation of this recommendation is unknown.

Recommendation 12.4:
The Ministry of Public Works, Transport and Housing and the local authorities should promote public transport through attractive pricing, the introduction of disincentives for the use of cars and public awareness campaigns.

Status of implementation of this recommendation is unknown.

Recommendation 12.5:
The Ministry of Public Works, Transport and Housing should apply strategic environmental assessment (SEA) to the next review of the transport chapter of the National Plan for Territorial Planning.

Status of implementation of this recommendation is unknown.

Recommendation 12.6:
The Ministry of Waters and Environmental Protection and the focal point on environmental matters in the Ministry of Public Works, Transport and Housing should cooperate on a regular and practical basis on transport issues.

Status of implementation of this recommendation is unknown.

Chapter 13: Energy and environment

Recommendation 13.1:
The Government should encourage the development and introduction of more efficient clean coal technologies, flue-gas cleaning, and the use of residuals and, when environmentally acceptable and economically feasible, continue using domestic resources to avoid social conflicts.

Status of implementation of this recommendation is unknown.

Recommendation 13.2:
The Ministry of Waters and Environmental Protection should start implementing the EU Directives on the limitation of emissions of volatile organic compounds (1999/13/EC) and on the limitation of emissions from large combustion plants (88/609/EEC, 94/66/EEC and proposal 599PC064)

Status of implementation of this recommendation is unknown.

Recommendation 13.3:
To draw maximum benefit from its use, natural gas should be used in new, decentralized and highly efficient combined heat and power (CHP) plants designed according to the heat demand.
Status of implementation of this recommendation is unknown.

Recommendation 13.4:
To establish a framework for feasible energy savings, the following measures should be introduced by the Ministry of Public Administration, the Ministry of Industry and Mineral Resources and the Ministry of Public Works, Transport and Housing:
(a) Replacement of consumer subsidies in the form of reduced energy tariffs by subsidies for energy saving measures;

(b) The application of modern heating concepts with low temperatures, flow and temperature control and the control of heat distribution in buildings and to the consumers;
(c) The installation of household meters to promote energy saving and fair payment;
(d) The establishment of energy auditing procedures for industry as well as building codes and standards.

Status of implementation of this recommendation is unknown.

Recommendation 13.5:
A national strategy for the use of renewable energy sources and biofuels should be implemented under the guidance of the Ministry of Industry and Mineral Resources. Favourable conditions (e.g. priority in production, attractive tariffs, and smoother approval processes) to attract private investments should be created to facilitate the investments in renewable energy sources and biofuels.

Status of implementation of this recommendation is unknown.

Recommendation 13.6:
The Ministry of Industry and Mineral Resources should draw up an energy saving policy to stabilize total energy consumption at the current level by removing subsidies on energy and introducing energy taxes and subsidies for socio-economically feasible energy saving measures. Subsidies for social reasons should be considered separately, as they belong among the social policies for people in need (pensioners, the disabled, the unemployed, etc.).

Status of implementation of this recommendation is unknown.

Recommendation 13.7:
To speed up the establishment of a financing scheme (revolving fund) for energy saving, the Romanian Government should consider the possibility of (a) obtaining financial support from international financing institutions and other potential donors; and (b) supporting building owners, flat owners' associations, small and medium-size enterprises, etc., through banks so that they can finance the most feasible energy saving measures identified during energy audits.

Status of implementation of this recommendation is unknown.

Recommendation 13.8:
The Government should ensure that the ministries and agencies involved are given sufficient resources to develop and respectively implement the approved energy policies and strategies, especially the agencies involved in the implementation of the Energy Efficiency Law. Reporting and auditing tools should be used to monitor the agencies' performance.

Status of implementation of this recommendation is unknown.

Recommendation 13.9:
Standard energy saving measures similar to those applied in EU countries should be urgently introduced in Romania. These measures should be widely promoted through television, newspapers and other media.

Status of implementation of this recommendation is unknown.

Recommendation 13.10:
The authorities should draw up energy plans based on socio-economic criteria and should open concessions to tender for a minimum of 20 years offering a reasonable guarantee that the power and heat produced can be sold.

Status of implementation of this recommendation is unknown.

Chapter 14: Human health and the environment

Recommendation 14.1:
The comprehensive programme contained in the NEHAP to improve the availability and quality of drinking water should be implemented jointly by the Ministry of Health and the Family and the Ministry of Waters and Environmental Protection. The aim should be to protect drinking-water sources from contamination (mainly in rural areas), improve the safety and reliability of water distribution systems (mainly in cities), and increase the access of the rural population to piped water from safe sources.

Council Directive 98/83/EC on the quality of water intended for human consumption has been transposed into national law by Law No. 458 (2002) on Drinking Water. Rules of supervision, sanitary inspection and water quality monitoring distributed in centralized and individual water use facilities are provided in GD No. 974 (2004). Monitoring of the quality of public drinking water which reaches the consumer is undertaken by MoH through the CPHDs.

Recommendation 14.2:
The Ministry of Health and the Family and the Ministry of Waters and Environmental Protection should jointly improve information on the availability and quality of drinking water from the water monitoring system as well as from the registration of (possible) water-borne disease outbreaks and ensure that it is complete and accessible. This information is necessary, both at local and at national levels, to stimulate, guide and evaluate the effectiveness of investments in water processing and supply systems. See also Recommendation 1.4.

Public information regarding the quality of water distributed in a centralized system is managed according to Law No. 458 (2002) on Drinking Water, as republished, GD No. 974 (2004) and MO No. 299 (2010). County-level reports are posted on the website of the CPHDs, and a national report is posted on the NIPH website, annually.

Recommendation 14.3:
Action to reduce urban air pollution from particulate matter should focus on road transport, as well as on specific industrial pollution sources. Related information should be disclosed by the Ministries of Health and the Family, of Waters and Environmental Protection and of Public Works, Transport and Housing to the public and the need to prevent exposure explained, as it may help reduce the health impact on the most vulnerable individuals.

See implementation of recommendation 14.4.

Recommendation 14.4:
PM10 (and PM2.5) should be monitored where needed as they have potential adverse health effects.

The legal framework and exposure limits to air pollutants such as PM_{10} and $PM_{2.5}$, and other pollutants arising from various industrial sources, transportation, etc. (nitrogen oxides, sulphur oxides, benzene, lead), were regulated by MO No. 592 (2002) and then by Law No. 104 (2011) on Ambient Air Quality. Such monitoring levels of these pollutants at different points is the responsibility of MoEF and its subordinated LEPAs.

On request, through collaboration at the local level, the LEPAs transmit the monitoring results to the CPHDs. NIPH has created a database on air pollution levels in the capital cities of the counties considered to be the most polluted, which includes actual monitoring points and different health indicators which can be influenced by the concentration of particulate matter and other regulated air pollutants. These indicators include respiratory disease, mortality, morbidity, total respiratory diseases, morbidity due to respiratory disease categories, and morbidity-malignant respiratory diseases. This database continuously monitors the health of the population, insofar as it can be influenced by ambient air quality, and can track trends in this field.

Recommendation 14.5:
The Ministry of Health and the Family should assess the population's exposure to lead in highly polluted regions in order to determine if the information provided to the public and to decision makers in the early and mid-1990s has been efficiently used. If exposure levels are still above the acceptable limits, action should be taken to further reduce population exposure. Such action should include a cut in emissions of lead to the

atmosphere, changes in the behaviour of the residents of the contaminated areas, and re-cultivation of the contaminated land to avoid re-suspension of the pollution.

The legislative framework has been created by MO No. 1727 (2006) to approve the programme of biological screening of exposure of the population to lead, and MO No. 41 (2008) regarding the approval of specific methodology for biological screening of population exposure to lead. These two MOs are implementing Directive 77/312/CEE of 29 March 1977 on the biological screening of the population for lead.

In 2008 and 2009 the programme on biological screening of the population for lead exposure was conducted. The research was done on the population of Baia Mare, an area with known historical pollution. Critical groups which entered the study, according to WHO 41/2008, were pregnant women (2008) and children aged 0 to 6 years (2009).

The population screening programme for biological research regarding lead exposure continued in 2010 and 2011 in Baia Mare and Bucharest with these target groups (pregnant women and children aged 0 to 6). The results fall in reference levels 1 and 2

Recommendation 14.6:
The Ministry of Industry and Mineral Resources in cooperation with the Ministry of Waters and Environmental Protection should inventory existing (industrial) waste sites and the Ministry of Health and the Family should assess the public health risk. This assessment should be a basis for action to manage the wastes guided by the priority of protecting public health.

MoH, through NIPH and the CPHDs, as the competent authority regarding waste from medical activities, oversees and monitors the production of such waste. This has resulted in a national database that allows regular assessment of the waste management system, determination of the quality and quantity of waste produced in hospitals with beds, identification of the risks which may arise from this category of waste, minimization of the quantity of medical waste generated by hospitals, and for proposing measures aimed at improving waste management in public health products. Specific technical regulations for the management of waste generated from medical activities are specified in MO No. 219 (2002), as amended and supplemented by MO No. 997 (2004) and MO No. 1029 (2004) along with data collection methodology for the national database on waste from medical activities.

During the period 2004–2008, actions were initiated for the gradual closing of 355 small incinerators which were used to destroy hazardous waste from medical activities by burning. Following these actions, the medical institutions have opted for outsourcing services for treatment/disposal of such waste. Final disposal conditions (by incineration or neutralization station waste heat sterilization) are stipulated in a contract signed with a specialized company in the field. Another alternative is represented by neutralization through thermal sterilization of medical hazardous waste at the health unit level (using its own equipment), followed by storage in a landfill. In addition, through the implementation by MoH in 2009 of a PHARE project on waste from medical activities, 28 pieces of neutralization equipment by thermic sterilization were purchased. These will help with the smooth running of the low-temperature thermal treatment of infectious waste from medical activities.

Recommendation 14.7:
Occupational health services should adopt the health, environment and safety management at the enterprise (HESME) approach to better integrate the concerns for the health of workers, local residents and the environment.

According to occupational health and safety legislation in Romania (GD No. 1425 (2006), GD No. 355 (2007), GD No. 955 (2010) and GD No. 1169 (2011)):

- Occupational health physicians are members of workplace health and safety committees and monitor how the legal regulations regarding health hazards at work are being applied;
- Analyses also cover claims brought by employees regarding working conditions.

Preventive health services which ensure the health surveillance of workers in Romania include medical examination on employment, periodical examinations, special surveillance and health promotion at work. These

checks are based on risk factors and results are presented in the professional medical record of individual workers. Employers are required to ensure necessary funds and the conditions for preventive health services and the health surveillance of workers.

In order to raise workers' awareness concerning health and safety at work, employers involve occupational health physicians who perform specific health promotion activities in the workplace. To promote measures for workers' adaptation to working conditions, and in order to improve working and environmental conditions, occupational health physicians give occupational health and hygiene advice to workers and their representatives from business and health and safety committees.

Recommendation 14.8:
Under the responsibility of the Ministry of Health and the Family, LEHAPs (Local Environmental Health Action Plans) should be developed urgently, giving sufficient funding and staff to the local administration responsible for their preparation and implementation. Tools and methods for local actions under the NEHAP should be prepared. The NEHAP secretariat should be responsible for describing the LEHAP situation and publicizing the results of local experiences.

MoH runs the national monitoring programme of the determinant factors in living and working environments. Its objective is to protect public health by preventing risk factors associated with illnesses associated with such within these environments. This programme is conducted by bodies subordinated to MoH, namely NIPH and the CPHDs. Technical coordination of the programme is carried out by NIPH.

Recommendation 14.9:
The Government should ensure that the expertise and resources of the Institutes of Public Health are strengthened and used (i) to assess the health impact of existing environmental conditions and of implemented, or planned, actions and policies, which should be part of any planning process, and (ii) to communicate the results to the public. An efficient information system with data on environmental health hazards, on population exposure and on local projects, should be established. It will help set local and national priorities.

Through the national monitoring programme of the determinant factors in living and working environments, MoH establishes the strategic direction of programme activities, providing financial resources for organizing and carrying out those actions and, in collaboration with NIPH, ensuring the development and transmission to national and international bodies of periodic reports, according to legal provisions and EU obligations.

Annex II

PARTICIPATION OF ROMANIA IN MULTILATERAL ENVIRONMENTAL AGREEMENTS

Worldwide agreements		Romania	
Year		**Year**	**Status**
1971	(RAMSAR) Convention on Wetlands of International Importance Especially as Waterfowl Habitat 1977 1982 (PARIS) Amendment 1987 (REGINA) Amendments	1991	Ac
1971	(GENEVA) Convention on Protection against Hazards from Benzene (ILO 136)	1975	Ra
1971	(LONDON, MOSCOW, WASHINGTON) Treaty on the Prohibition of the Emplacement of Nuclear Weapons and Other Weapons of Mass Destruction on the Sea-bed and the Ocean Floor and in the Subsoil thereof	1972	Ra
1972	(PARIS) Convention concerning the Protection of the World Cultural and Natural Heritage	1990	Ac
1972	(LONDON) Convention on the Prevention of Marine Pollution by Dumping of Wastes and Other Matter 1978 (TORREMOLINOS) Amendments (incineration) 1980 Amendments (list of substances)	1993	Ra
1972	(LONDON, MOSCOW, WASHINGTON) Convention on the Prohibition of the Development, Production and Stockpiling of Bacteriological (Biological) and Toxin Weapons, and their Destruction	1979	Ra
1972	(LONDON) International Convention on the International Regulations for Preventing Collisions at Sea		
1972	(GENEVA) International Convention for Safe Containers	1975	Ra
1973	(WASHINGTON) Convention on International Trade in Endangered Species of Wild Fauna and Flora 1979 (BONN) Amendment 1983 (GABORONE) Amendment	1994 2007	Ac Ac
1973	(LONDON) International Convention for the Prevention of Pollution from Ships (MARPOL, 73/78) 1978 (LONDON) Annex I on Prevention of Pollution by Oil 1978 (LONDON) Annex II on Control of Pollution by Noxious Liquid Substances in Bulk 1978 (LONDON) Annex III on Prevention of Pollution by Harmful Substances Carried by Sea in Packaged Form 1978 (LONDON) Annex IV on Prevention of Pollution by Sewage from Ships 1978 (LONDON) Annex V on Prevention of Pollution by Garbage from Ships 1978 (LONDON) Protocol (segregated ballast) 1997 (LONDON) Annex VI on Prevention of Air Pollution from Ships	1993	Ac
1979	(BONN) Convention on the Conservation of Migratory Species of Wild Animals	1994	Ac
	1991 (LONDON) Agreement Conservation of Bats in Europe	2000	Ac
	1992 (NEW YORK) Agreement on the Conservation of Small Cetaceans of the Baltic and North Seas (ASCOBANS)		
	1995 (THE HAGUE) African/Eurasian Migratory Waterbird Agreement (AEWA)	1999	Ra
	1996 (MONACO) Agreement on the Conservation of Cetaceans of the Black Sea, Mediterranean Sea and Contiguous Atlantic Area (ACCOBAMS)	2000	Ra
1980	(NEW YORK, VIENNA) Convention on the Physical Protection of Nuclear Material	1993	Ra
1982	(MONTEGO BAY) Convention on the Law of the Sea	1996	Ac
	1994 (NEW YORK) Agreement related to the Implementation of Part XI of the Convention	1996	Ac
	1994 (NEW YORK) Agreement for the Implementation of the Provisions of the United Nations Convention on the Law of the Sea of 10 December1982 relating to the Conservation and Management of Straddling Fish Stocks and Highly Migratory Fish Stocks	2007	Ac

Ac = Accession; Ra = Ratified.

Worldwide agreements		Romania	
Year		**Year**	**Status**
1985	(VIENNA) Convention for the Protection of the Ozone Layer	1993	Ac
	1987 (MONTREAL) Protocol on Substances that Deplete the Ozone Layer	1993	Ac
	1990 (LONDON) Amendment to Protocol	1993	Ac
	1992 (COPENHAGEN) Amendment to Protocol	2000	At
	1997 (MONTREAL) Amendment to Protocol	2001	Ra
	1999 (BEIJING) Amendment to Protocol	2005	At
1986	(VIENNA) Convention on Early Notification of a Nuclear Accident	1990	Ac
1986	(VIENNA) Convention on Assistance in the Case of a Nuclear Accident or Radiological Emergency	1990	Ac
1989	(BASEL) Convention on the Control of Transboundary Movements of Hazardous Wastes and their Disposal	1991	Ac
	1995 Ban Amendment	2002	Ac
	1999 (BASEL) Protocol on Liability and Compensation		
1990	(LONDON) Convention on Oil Pollution Preparedness, Response and Cooperation	2000	Ac
1992	(RIO) Convention on Biological Diversity	1994	Ra
	2000 (CARTAGENA) Protocol on Biosafety	2003	Ra
1992	(NEW YORK) Framework Convention on Climate Change	1994	Ra
	1997 (KYOTO) Protocol	2001	Ra
1993	(PARIS) Convention on the Prohibition of the Development, Production, Stockpiling and Use of Chemical Weapons and on Their Destruction	1995	Ra
1994	(VIENNA) Convention on Nuclear Safety	1995	Ra
1994	(PARIS) United Nations Convention to Combat Desertification	1998	Ac
1997	(VIENNA) Joint Convention on the Safety of Spent Fuel Management and on the Safety of Radioactive Waste Management	1999	Ra
1997	(VIENNA) Convention on Supplementary Compensation for Nuclear Damage	1999	Ra
1998	(ROTTERDAM) Convention on the Prior Informed Consent Procedure for Certain Hazardous Chemicals and Pesticides in International Trade	2003	Ac
2001	(STOCKHOLM) Convention on Persistent Organic Pollutants	2004	Ra

Regional and subregional agreements		Romania	
Year		**Year**	**Status**
1979	(BERN) Convention on the Conservation of European Wildlife and Natural Habitats	1993	Ra
1979	(GENEVA) Convention on Long-range Trans-boundary Air Pollution	1991	Ra
	1984 (GENEVA) Protocol - Financing of Co-operative Programme (EMEP)	2003	Ac
	1985 (HELSINKI) Protocol - Reduction of Sulphur Emissions by 30%		
	1988 (SOFIA) Protocol - Control of Emissions of Nitrogen Oxides		
	1991 (GENEVA) Protocol - Volatile Organic Compounds		
	1994 (OSLO) Protocol - Further Reduction of Sulphur Emissions		
	1998 (AARHUS) Protocol on Heavy Metals	2003	Ra
	1998 (AARHUS) Protocol on Persistent Organic Pollutants	2003	Ra
	1999 (GOTHENBURG) Protocol to Abate Acidification, Eutrophication and Ground-level Ozone	2003	Ra
1991	(ESPOO) Convention on Environmental Impact Assessment in a Transboundary Context	2001	Ra
	2003 (KIEV) Protocol on Strategic Environmental Assessment	2010	Ra
1992	(HELSINKI) Convention on the Protection and Use of Transboundary Watercourses and International Lakes	1995	Ra
	1999 (LONDON) Protocol on Water and Health	2001	Ra
1992	(HELSINKI) Convention on the Transboundary Effects of Industrial Accidents	2003	Ac
	2003 (KIEV) Protocol on Civil Liability and Compensation for Damage Caused by the Transboundary Effects of Industrial Accidents on Transboundary Waters	2003	Si
1994	(SOFIA) The Convention on Co-operation for the Protection and Sustainable Use of the River Danube	1998	Ra
1994	(LISBON) Energy Charter Treaty	1997	Ra
	1994 (LISBON) Protocol on Energy Efficiency and Related Environmental Aspects	1997	Ra
	1998 Amendment to the Trade-Related Provisions of the Energy Charter Treaty		
1998	(AARHUS) Convention on Access to Information, Public Participation in Decision-making and Access to Justice in Environmental Matters	2000	Ra
	2003 (KIEV) Protocol on Pollutant Release and Transfer Register	2009	Ra
2000	(FLORENCE) Convention on European Landscape	2002	Ra

Ac = Accession; At=Acceptance; Si = Signed; Ra = Ratified.

Annex III

KEY DATA AND INDICATORS AVAILABLE FOR THE REVIEW

Air pollution	**2001**	**2002**	**2003**	**2004**	**2005**	**2006**	**2007**	**2008**	**2009**	**2010**	**2011**
Emissions of SO_2											
- Total (1,000 t)	525.1	521.2	600.2	572.5	642.6	697.4	577.2	566.2	459.9	372.0	..
- by sector (1,000 t)											
Energy production and distribution	465.3	455.9	530.7	490.2	522.5	570.0	453.0	455.4	396.3	300.6	..
Industry and industrial processes	37.1	41.4	44.0	54.3	110.0	117.7	113.9	92.4	56.8	65.3	..
Transport	6.5	6.8	5.9	4.3	2.1	2.2	0.5	9.4	0.2	0.2	..
Other	..	..	..	..	..	..	..	..	..	..	..
- per capita (kg/capita)	23.7	23.9	27.6	26.4	29.7	32.3	26.8	26.3	21.4	17.4	..
- per unit of GDP (kg/1,000 US$ (2005) PPP)	3.2	3.1	3.3	2.9	3.2	3.2	2.5	2.3	2.0	1.6	..
Emissions of NO_X											
- Total (1,000 t)	337.1	347.3	360.8	357.6	309.1	309.2	325.5	287.0	252.0	272.2	..
- by sector (1,000 t)											
Energy production and distribution	126.7	125.5	142.9	129.2	106.9	112.6	95.2	92.4	69.1	59.6	..
Energy use in industry	60.9	64.6	61.7	63.0	50.4	51.4	50.7	45.7	23.0	33.0	..
Industry and industrial processes	5.3	5.5	2.6	3.2	7.0	9.0	6.6	6.6	5.0	6.8	..
Transport	122.9	131.5	130.4	133.3	119.0	107.8	146.6	115.6	126.7	144.7	..
- per capita (kg/capita)	15.2	15.9	16.6	16.5	14.3	14.3	15.1	13.3	11.7	12.7	..
- per unit of GDP (kg/1,000 US$ (2005) PPP)	2.1	2.0	2.0	1.8	1.5	1.4	1.4	1.1	1.1	1.2	..
Emissions of ammonia NH_3											
- Total (1,000 t)	164.0	156.0	182.0	191.0	198.5	196.7	203.5	187.2	187.7	161.3	..
- by sector (1,000 t)											..
Energy production and distribution	0.1	0.1	0.1	0.1	0.1	0.1	0.2	0.1	0.0	0.0	..
Energy use in industry	0.0	0.0	0.0	0.0	0.0	0.0	0.1	..	..	..	..
Industry and Industrial processes	0.9	0.8	1.0	1.0	1.1	1.0	0.9	1.0	0.6	0.4	..
Transport	0.5	0.5	0.5	0.6	0.6	0.6	1.3	..	1.8	2.0	..
- per capita (kg/capita)	7.4	7.2	8.4	8.8	9.2	9.1	9.4	8.7	8.7	7.5	..
- per unit of GDP (kg/1,000 US$ (2005) PPP)	1.0	0.9	1.0	1.0	1.0	0.9	0.9	0.7	0.8	0.7	..

Air pollution (cont'd)	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011
Emissions of total suspended particles (TSP)											
- Total (1,000 t)	..	..	..	..	126.0	124.3	126.8	142.2	..	..	..
- by sector (1,000 t)											
Energy	..	..	..	..	..	..	..	..	..	..	..
Industry	..	..	..	..	..	..	..	..	..	..	..
Transport	..	..	..	..	..	..	..	..	..	..	..
- per capita (kg/capita)	..	..	..	..	5.8	5.8	5.9	6.6	..	..	..
- per unit of GDP (kg/1,000 US$ (2005) PPP)	..	..	..	..	0.6	0.6	0.5	0.6	..	..	..
Emissions of non-methane volatile organic compounds (NMVOC)											
- Total (1,000 t)	245.7	237.5	261.8	282.7	424.8	434.1	443.6	465.3	432.7	445.4	..
- by sector (1,000 t)											
Energy production and distribution	9.7	10.3	9.9	10.6	58.5	60.9	59.5	59.4	53.0	57.5	..
Energy use in industry	2.7	3.2	3.3	3.1	12.5	13.3	13.5	10.5	6.7	8.1	..
Industry and Industrial processes	15.9	15.3	16.8	17.5	21.4	17.1	17.6	21.9	13.9	15.8	..
Transport	96.5	84.8	78.2	87.1	83.4	81.0	85.1	87.0	100.8	106.8	..
- per capita (kg/capita)	11.1	10.9	12.0	13.0	19.6	20.1	20.6	21.6	20.1	20.8	..
- per unit of GDP (kg/1,000 US$ (2005) PPP)	1.5	1.4	1.5	1.5	2.1	2.0	1.9	1.9	1.9	1.9	..
Emissions of persistent organic pollutants (PCBs, dioxin/furan and PAH)											
- Total (1,000 t)	..	..	..	..	..	..	..	..	..	..	..
- by sector (1,000 t)	..	..	..	..	..	..	..	..	..	..	..
Energy	..	..	..	..	..	..	..	..	..	..	..
Industry	..	..	..	..	..	..	..	..	..	..	..
Transport	..	..	..	..	..	..	..	..	..	..	..
Other	..	..	..	..	..	..	..	..	..	..	..
- per capita (kg/capita)	..	..	..	..	..	..	..	..	..	..	..
- per unit of GDP (kg/1,000 US$ (2005) PPP)	..	..	..	..	..	..	..	..	..	..	..
Emissions of heavy metals											
- Total cadmium (t)	..	..	..	..	..	..	..	..	..	..	..
- Total lead (t)	..	..	..	..	..	..	..	..	..	..	..
- Total mercury (t)	..	..	..	..	..	..	..	..	..	..	..

Climate Change	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011
Greenhouse gas emissions (total of CO2, CH4, N2O, CFC, etc.) expressed in CO2 eq.											
- Total aggregated emissions (1,000 t) without LULUCF	143,112.0	147,166.3	153,057.9	150,703.5	148,889.4	152,791.9	150,245.3	146,668.4	123,382.3	121,354.5	..
- Total aggregated emissions (1,000 t) with LULUCF	114,166.3	124,868.5	136,730.0	127,829.9	120,891.3	124,972.6	125,045.0	122,370.2	95,118.2	95,545.3	..
Climate Change (cont'd)	**2001**	**2002**	**2003**	**2004**	**2005**	**2006**	**2007**	**2008**	**2009**	**2010**	**2011**
- by sector (1,000 t)											
Energy	103,916.7	106,774.0	112,242.1	108,963.3	105,492.3	108,604.2	105,210.7	103,825.5	88,004.3	86,038.0	..
Energy industries	44,375.3	43,976.0	49,007.2	44,421.4	42,243.0	44,714.8	44,324.1	42,676.2	35,885.4	33,352.8	..
Manufacturing industries and construction	25,382.3	27,009.4	26,083.0	26,910.6	26,492.2	26,257.9	25,394.7	24,838.3	17,151.1	18,576.7	..
Transport	12,055.3	13,158.1	13,233.0	14,016.7	12,465.8	12,957.2	13,858.1	15,801.0	15,619.7	15,132.6	..
Other sectors	8,345.0	8,415.3	9,958.7	10,756.8	11,057.1	12,781.2	10,908.9	9,998.7	10,193.6	10,191.5	..
Other	477.0	345.2	439.9	735.1	1,302.0	641.2	993.7	862.9	311.0	312.8	..
Fugitive emissions	13,281.9	13,870.0	13,520.4	12,122.6	11,932.2	11,251.9	9,731.2	9,648.4	8,843.5	8,471.6	..
Industry	16,110.0	16,983.9	16,728.2	17,825.5	18,552.3	19,517.9	21,296.2	18,703.7	11,541.1	12,731.9	..
Solvent and other product use	200.5	222.3	279.9	277.4	269.7	208.5	137.8	135.1	122.3	124.7	..
Agriculture	17,497.0	17,727.9	18,203.3	17,974.3	18,713.2	18,619.1	17,907.5	18,415.7	18,136.2	16,776.6	..
Land use, land use change and forestry	-28,945.7	-22,297.8	-16,327.9	-22,873.5	-27,998.1	-27,819.3	-25,200.4	-24,298.2	-28,264.1	-25,809.2	..
Waste	5,387.8	5,458.2	5,604.3	5,663.0	5,862.0	5,842.3	5,693.1	5,588.3	5,578.4	5,683.3	..
Other	..	..	..	..	..	..	..	..	..	..	..
- per capita (t CO2 eq/capita)	6.5	6.7	7.0	6.9	6.9	7.1	7.0	6.8	0.6	0.6	..
- per unit of GDP (t CO2 eq/1,000 US$ (2005) PPP)	0.9	0.9	0.9	0.8	0.7	0.7	0.6	0.6	0.5	0.5	..
Total emissions											
- Carbon dioxide (CO_2) (1,000 t)	100,589.2	106,660.4	111,773.0	112,570.4	106,369.0	111,654.5	111,493.0	104,811.7	..	..	..
- Methane (CH_4) (1,000 t)	1,189.1	1,227.5	1,277.0	1,249.9	1,260.1	1,275.1	1,236.0	1,224.1	..	..	..
- Nitrous Oxide (N_2O) (1,000 t)	47.2	46.0	48.5	53.3	53.4	50.3	48.8	51.1	..	..	..
- Perfluorocarbons (PFCs) (1,000 t CO2 eq.)	1,054.3	731.0	472.0	513.4	569.6	609.6	625.6	630.9	..	..	..
- Hydrofluorocarbons (HFCs) (1,000 t CO2 eq.)	3.5	4.2	6.4	8.9	6.6	22.6	17.7	20.5	..	..	..
- Sulfur Hexafluoride (SF_6) (1,000 t CO2 eq.)	0.0	0.0	17.8	22.6	49.6	67.8	58.4	16.3	..	..	..

Ozone layer	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011
Consumption of ozone-depleting substances (ODS) (t of ODP)	230.6	418.6	647.2	320.9	228.9	42.0	..	..	..	..	..

Water	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011
Renewable freshwater resources (million m^3/year)	38,342.0	39,878.0	30,154.0	39,950.0	63,760.0	55,950.0	37,805.0	39,406.0	34,480.0	..	..
Gross freshwater (surface and groundwater) abstracted (million m^3/year)	7,343.0	7,239.0	6,500.0	5,850.0	5,301.0	5,330.0	6,884.0	7,220.0	6,876.0	..	..
- Share of water losses in total water abstraction (%)	..	..	..	..	..	..	..	..	..	..	..
Water exploitation index (water abstraction/renewable freshwater resources X 100)	19.2	18.2	21.6	14.6	8.3	9.5	18.2	18.3	19.9	..	..
Total water use by sectors (million m^3)											
- Agriculture (ISIC 01-33)	1,018.0	1,192.0	1,283.0	704.0	495.0	526.0	1,099.0	1,078.0	1,171.0	..	..
- Households	..	1,860.4	1,690.0	..	..	..	1,690.0	..	1,505.2	..	..
- Industry (ISIC 10-33)	..	6,169.6	5,639.9	..	..	..	5,639.8	..	4,199.9	..	..
of which water used for cooling	..	..	..	..	..	..	..	..	..	..	..
- Services (ISIC 45-96)	29.0	28.0	34.0	24.0	31.0	30.0	21.0	44.0	40.0	..	..
Household water use per capita (l/capita/day)	..	..	..	..	..	..	..	..	..	..	..

Biodiversity and living resources	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011
Protected areas											
- Total area (1,000 ha)	14,482.7	14,482.7	15,114.2	20,207.9	20,319.1	19,616.9	88,665.2	93,256.8	93,484.8	93,020.3	108,620.2
- Biosphere reserves (1,000 ha)	6,644.5	6,644.5	6,616.6	6,644.5	6,644.5	6,644.5	6,644.5	6,644.5	6,644.5	6,644.5	6,644.5
- National parks (1,000 ha)	3,005.4	3,005.4	3,028.0	3,047.3	3,158.6	3,158.6	3,158.6	3,158.6	3,162.7	3,162.7	3,168.7
- Natural parks (1,000 ha)	2,516.3	2,516.3	3,263.1	7,282.7	7,282.7	7,282.7	7,374.3	7,374.3	7,638.9	7,638.9	7,728.1
- Scientific reserves (1,000 ha)	1,012.1	1,012.1	1,012.1	1,112.8	1,112.8	1,005.7	1,005.7	3,102.3	3,102.3	3,105.4	2,181.5
- Nature monuments (1,000 ha)	21.8	21.8	21.8	77.1	77.1	182.2	182.2	962.3	962.3	844.5	154.1
- Natural reserves (1,000 ha)	1,282.7	1,282.7	1,172.7	2,043.6	2,043.6	1,343.2	1,365.4	3,080.3	3,080.3	2,730.6	3,469.3
- Wetlands of international importance	..	..	..	..	..	..	6,165.7	6,165.7	6,165.7	6,165.7	6,808.6
- Special avifaunistic protection area	..	..	..	..	..	..	29,928.0	29,928.0	29,887.1	29,887.1	36,943.9
- Sites of community interest (1,000 ha)	..	..	..	..	..	..	32,840.9	32,840.9	32,840.9	32,840.9	41,521.5
Area of forest land fund by land category, forest species											
Total area (1,000 ha)	6,366.8	6,387.8	6,368.5	6,382.2	6,390.6	6,427.7	6,484.6	6,469.9	6,494.7	6,515.1	..
- Total area (% of total land area)	27.7	27.8	27.7	27.7	27.8	27.9	28.2	28.1	28.2	28.3	..
of which											
Forest land area (1,000 ha)	6,225.1	6,239.5	6,221.3	6,222.5	6,233.0	6,272.3	6,314.9	6,308.9	6,334.0	6,353.7	..
of which											
Resinous tree forests (1,000 ha)	1,852.8	1,856.3	1,839.0	1,852.5	1,872.7	1,892.8	1,920.2	1,938.4	1,934.8	1,940.9	..
Broad-leaved tree forests (1,000 ha)	4,372.2	4,383.2	4,382.3	4,370.0	4,360.3	4,379.5	4,394.7	4,370.5	4,399.2	4,412.8	..
Other land (1,000 ha)	141.7	148.3	147.2	159.6	157.6	155.4	169.6	161.0	160.7	161.4	..

Biodiversity and living resources (cont'd)	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011
Share of threateaned species (IUCN categories) in total number of species:											
- mammals (number)	..	..	..	..	..	..	..	..	..	7	7
- birds (number)	..	..	..	..	..	..	..	..	..	12	11
- fish (number)	..	..	..	..	..	..	..	..	..	18	19
- reptiles (number)	..	..	..	..	..	..	..	..	..	..	..
- vascular plants (number)	..	..	..	..	..	..	..	..	..	1	4

Land resources and soil	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011
Land area (km^2)	229,710.0	229,870.0	229,950.0	230,000.0	229,980.0	229,980.0	229,890.0	229,900.0	230,060.0	230,060.0	..
Agricultural land (1,000 ha)	14,798.0	14,818.0	14,800.0	14,130.0	14,180.0	14,039.0	13,546.0	13,546.0	13,523.0	..	..
Built-up and other related area (% of total land area)	..	..	..	..	..	..	..	..	..	..	..
Soil erosion	..	..	..	..	..	..	..	..	..	..	..
- % of total land	..	..	..	..	..	..	..	..	..	..	..
- % of agricultural land	..	..	..	..	..	..	..	..	..	..	..
Total consumption of mineral fertilizers per unit of agricultural land (kg/ha)	..	34.8	38.6	42.6	51.4	40.6	45.3	45.6	48.5	..	..
Total consumption of organic fertilizers per unit of agricultural land (kg/ha)	..	..	..	..	..	..	..	..	..	..	..
Total consumption of pesticides per unit of agricultural land (kg/ha)	..	..	..	..	..	..	..	..	..	..	..

Energy	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011
Total final energy consumption (TFC) (Mtoe)	35.5	37.0	38.6	37.5	36.9	38.5	38.2	38.1	33.6	34.0	..
- by fuel (Mtoe)											
Solid fuel (Coal etc)	1.0	1.2	1.3	1.6	1.6	1.6	1.5	1.3	0.8	0.9	..
Petroleum products	6.3	6.5	6.3	6.6	6.9	6.6	7.1	7.0	6.5	6.1	..
Gas	7.2	7.4	8.1	7.9	7.8	8.3	7.1	7.2	6.1	6.2	..
Nuclear	1.4	1.4	1.3	1.4	1.4	1.5	2.0	2.9	3.0	3.0	..
Renewables	2.1	2.3	2.8	3.1	3.2	3.1	3.3	3.9	3.9	4.0	..
- by sector (Mtoe)											
Industry	9.9	10.7	10.4	10.4	10.2	9.7	9.3	9.0	6.5	6.9	..
Transport	4.1	4.2	4.4	4.6	4.3	4.4	4.7	5.3	5.4	5.0	..
Agriculture/Forestry	0.3	0.3	0.2	0.2	0.2	0.3	0.3	0.3	0.4	0.4	..
Services	1.1	0.6	1.1	1.3	1.7	2.4	2.0	1.7	1.8	1.9	..
Households	7.3	7.2	7.8	8.0	8.0	7.9	7.5	8.1	8.0	8.1	..

Energy (cont'd)	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011
Electricity consumption (in GWh)	36294.0	35587.0	37501.0	38775.0	38859.0	40965.0	40974.0	41813.0	37607.0	41317.0	..
Energy intensity TPES/GDP (PPP) (toe/1,000 US$ (2005) PPP)	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.1	0.1	..

Transportation	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011
Passenger transport demand (million passenger km)											
by mode:											
road transport public [1]	8,997.8	8,739.0	..	9,437.8	11,811.6	11,735.0	12,156.0	20,194.0	17,108.0	15,812.0	
rail [2]	10,965.0	8,502.0	8,528.0	8,633.0	7,985.0	8,093.0	7,476.0	6,958.0	6,128.0	5,438.0	
inland waterways	..	..	..	..	24.0	13.0	23.0	21.0	20.0	15.0	..
air transport	..	..	..	..	..	..	..	..	..	..	..
Freight transport demand (million ton km)											
by mode:											
road [2]	18,544.0	25,350.0	30,854.0	37,220.0	51,531.0	57,278.0	59,517.0	56,377.0	34,265.0	25,883.0	..
rail [2]	17,757.0	17,197.0	16,584.0	15,767.0	16,582.0	15,790.0	15,757.0	15,236.0	11,088.0	12,375.0	..
pipelines [1]	1,769.6	1,780.0	..	1,897.9	2,211.0	2,027.0	1,850.0	1,720.0	1,243.0	996.0	..
inland waterways	..	..	..	..	8,436.0	8,158.0	8,195.0	8,687.0	11,765.0	14,317.0	..
Number of passenger cars [2]	..	..	3,087,366	3,231,049	3,363,779	3,220,682	3,554,404	4,027,367	4,244,922	4,319,701	..
Average age of passenger cars	..	..	..	..	..	..	..	..	..	..	..

Waste	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011
Total waste generation (1,000 t)	..	..	..	369,300.4	..	344,356.9	..	189,310.5	..	..	..
of which:											
- Hazardous waste (1,000 t)	..	..	..	2,293.5	..	1,054.3	..	524.2	..	..	..
- Non-hazardous industrial waste (1,000 t)	..	..	..	..	..	..	..	..	..	..	..
- Municipal waste (1,000 t)	7,539.0	8,365.0	7,611.0	7,483.0	8,173.0	8,392.0	8,161.0	8,439.0	7,768.0	7,830.0	..
of which from households (1,000 m^3)	..	..	..	..	..	..	..	..	..	..	..

Demography and Health	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011
Total population (million inhabitants)	22.1	21.8	21.7	21.7	21.6	21.6	21.5	21.5	21.5	21.4	21.4
Birth rate (per 1,000)	10.0	9.7	9.8	10.0	10.2	10.2	10.0	10.3	10.4	9.9	..
Total fertility rate	1.3	1.3	1.3	1.3	1.3	1.3	1.3	1.4	1.4	1.4	..
Mortality rate (per 1,000)	12.3	12.3	12.3	11.7	11.7	11.8	11.8	11.8	11.9	11.8	11.8
Infant mortality rate (deaths/1,000 live births)	21.6	20.7	19.6	18.6	17.3	16.0	14.7	13.5	12.4	11.3	..
Female life expectancy at birth (years)	74.9	74.8	75.1	75.3	75.6	75.8	76.1	76.1	77.1	77.3	..
Male life expectancy at birth (years)	67.6	67.4	67.7	68.0	68.4	68.7	69.2	69.2	69.7	69.8	..
Life expectancy at birth (years)	71.2	71.0	71.3	71.6	71.9	72.2	72.6	72.6	73.3	73.5	..

Demography and Health (cont'd)	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011
Population ages 0-14 years (% of total)	17.9	17.2	16.6	16.0	15.6	15.3	15.2	15.2	15.2	15.2	15.2
Population ages 15-64 years (% of total)	68.4	68.7	69.0	69.3	69.6	69.8	69.9	69.9	69.9	69.9	69.8
Population 65 or above (% of total)	13.8	14.1	14.4	14.6	14.8	14.9	14.9	14.9	14.9	14.9	15.0
Population with access to safe drinking water, total (%)	85.0	86.0	87.0	88.0	89.0	89.0	89.0	89.0	..	..	..
- Urban (%)	97.0	98.0	98.0	99.0	99.0	99.0	99.0	99.0	99.0	99.0	..
- Rural (%)	71.0	73.0	74.0	76.0	76.0	76.0	76.0	76.0	..	..	..
Population with access to improved sanitation, total (%)	72.0	72.0	72.0	72.0	73.0	73.0	73.0	73.0	..	..	..
- Urban (%)	88.0	88.0	88.0	88.0	88.0	88.0	88.0	88.0	..	..	..
- Rural (%)	54.0	54.0	54.0	54.0	54.0	54.0	54.0	54.0	..	..	..

Macroeconomic context	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011
GDP	..	..	..	..	..	..	..	..	..	..	..
- change over previous year (% change over previous year; in 2005 prices and PPPs)	5.7	5.1	5.2	8.5	4.2	7.9	6.3	7.3	-6.6	-1.6	2.5
- in current prices and PPPs, (million US$)	143,503.0	153,454.0	166,881.0	190,234.0	203,059.0	240,420.0	274,798.0	319,870.0	311,488.0	311,668.0	..
- in prices and PPPs of 2005 (million US$)	162,511.0	170,761.0	179,704.0	194,961.0	203,059.0	219,049.0	232,887.0	250,001.0	233,561.0	229,710.0	235,348.0
Registered unemployment (% of labour force, end of period)	6.6	7.5	6.8	8.0	7.2	7.3	6.4	5.8	6.9	7.3	7.4
Net foreign direct investment (FDI) (million US$)	1,157.0	1,144.0	1,844.0	6,443.0	6,482.0	11,393.0	9,925.0	13,883.0	4,846.0	2,941.0	2,744.0
Net foreign direct investment (FDI) (as % of GDP)	0.8	0.7	1.1	3.4	3.2	4.7	3.6	4.3	1.6	0.9	..
Cumulative FDI (million US$)	7,711.0	8,839.0	10,644.0	17,017.0	23,529.0	34,500.0	44,147.0	57,753.0	62,687.0	65,438.0	..

Income distribution and poverty	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011
GDP per capita at current prices and PPPs (US$)	6,493.0	6,972.0	7,611.0	8,708.0	9,327.0	11,077.0	12,696.0	14,816.0	14,463.0	14,505.0	..
Consumer price index (CPI) (% change over the preceding year, annual average)	34.5	22.5	15.3	11.9	9.0	6.6	4.8	7.8	5.6	6.1	5.8
Population below national poverty line											
- Total (%)	30.6	28.9	25.1	18.8	15.1	13.8	..	..	..	..	..
- Urban (%)	18.8	17.6	13.8	11.6	8.1	6.8	..	..	..	..	..
- Rural (%)	44.7	42.4	38.0	27.3	23.5	22.3	..	..	..	..	..

Telecommunications	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011
Telephone lines per 100 population	18.6	19.2	19.8	20.1	20.1	19.3	20.4	22.0	21.8	20.9	21.9
Cellular subscribers per 100 population	17.4	23.2	32.1	46.8	61.3	73.7	94.3	113.3	116.5	113.6	109.2
Personal computer in use per 100 population	3.6	8.2	9.6	11.3	12.9	14.9	19.3	..	..	..	..
Internet users per 100 population	4.5	6.6	8.9	15.0	21.5	24.7	28.3	32.4	36.6	39.9	44.0

Education	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011
Literacy rate (%)	..	..	..	..	..	..	..	..	..	..	..
Literacy rate of 15-24 years old, men and women (%)	..	97.8	..	..	..	..	..	..	..	97.3	..

Gender Inequality	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011
Share of women employment in the non-agricutlural sector (%)	45.7	45.2	45.3	46.5	46.2	46.6	46.1	45.8	45.7	45.8	..
Gender Parity Index in											
- Primary education enrolment (ratio)	0.98	0.98	0.98	0.99	0.99	0.99	0.99	0.99	0.99	0.99	..
- Secondary education enrolment (ratio)	1.01	1.02	1.02	1.01	1.01	1.00	0.99	0.99	0.99	0.99	..
- Tertiary education enrolment (ratio)	1.20	1.24	1.24	1.26	1.26	1.30	1.33	1.34	1.34	1.35	..

Sources:
ECE statistical database: http://w3.unece.org/pxweb/
UNFCCC website: http://unfccc.int
MDG database 10.7.2012
World Bank World Development Indicators 10.7.2012
World Bank Country Policy and Institutional Assessment (CPIA) database 2.7.2012
Worldbank Databank, http://data.worldbank.org/country/romania
Romanian Statistical Office
Eurostat statistics 2012.07.13 (http://epp.eurostat.ec.europa.eu/portal/page/portal/statistics/search_database
Notes:
1) Eurostat database data up to 2004. 2005 and onwards Romanian Statistical Yearbook 2011.
2) World Bank database data up to 2004. 2005 and onwards Romanian Statistical Yearbook 2011

Annex IV

LIST OF MAJOR ENVIRONMENT-RELATED LEGISLATION

1991
Law No. 18 on Land

1996
Law No. 7 on the Cadastre and Real Estate Advertising
Law No. 107 on Water
Law No. 111 on the Safe Development of Nuclear Activities

1999
Law No. 105 on Ratification of the Joint Convention on Safe Management of Spent Fuel and on Safe Management of Radioactive Waste

2000
Law No. 1 on the Restoration of Property Rights to Agricultural Land and Forest Land, required under the provisions of Law No. 18 (1991) and Law No. 169 (1997)
Law No. 73 on Establishing the Environmental Fund
Law No. 86 on the Ratification of the Convention on Access to Information, Public Participation in Decision-making and Access to Justice in Environmental Matters
Law No. 199 on Efficient Energy Use
GD No. 173 on Special Provisions for the Management and Control of Polychlorinated Biphenyls and Other Similar Compounds
GD No. 964 on the Approval of the Action Plan for Protection of Waters against Pollution by Nitrates from Agricultural Sources (transposes aspects of Council Directive 91/676/EEC concerning the protection of waters against pollution caused by nitrates from agricultural sources)
GEO No. 59 on Forestry Staff
GEO No. 243 on Protection of Atmospheric Air

2001
Law No. 251 transferring responsibility from the State to the local public administrations for the provision of drinking water, sewerage and wastewater services
Law No. 544 on Free Access to Public Information
Law No. 655 establishing tax on emissions of air pollutants from stationary sources, which approved the corresponding GEO No. 243 (2000) on Protection of the Atmosphere
Law No. 662 ratifying Romania's membership of the EEA
GEO No. 70 amending and supplementing Law No. 7 (1996) on the Cadastre and Real Estate Advertising
GEO No. 124 on the Establishment, Organization and Operation of the Energy Efficiency Fund

2002
Law No. 289 on the Creation of Protective Forest Belts
Law No. 458 on Drinking Water
Law No. 652 on the Transposition of the Protocol on Long-Term Financing of the Cooperative Programme for Monitoring and Evaluation of the Long-range Transmission of Air Pollutants in Europe (EMEP) to the Convention on Long-range Transboundary Air Pollution in National Legislation
GD No. 100 (transposes aspects of Council Directive 75/440/EEC of 16 June 1975 concerning the quality required of surface water intended for the abstraction of drinking water in the member States and Council Directive 79/869/EEC of 9 October 1979 concerning the methods of measurement and frequencies of sampling and analysis of surface water intended for the abstraction of drinking water in the member States)
GD No. 128 on the Incineration of Waste

GD No. 188 on the Approval of Certain Norms Concerning the Conditions for the Discharge of Wastewater into the Aquatic Environment
GD No. 856 on Waste Management Records and Approving the List of Waste, Including Hazardous Waste
GEO No. 107/2002 on the Establishment of the National Administration "Apele Romane". (Updated on January 13, 2006)
MO No. 592 on the Approval of the Norms Regarding the Establishment of the Limit Values, of the Threshold Values and of Criteria and Methods of Assessment for Sulphur Dioxide, Nitrogen Dioxide and Nitrogen Oxides, Particulate Matters (PM_{10} and $PM_{2.5}$), Lead, Benzene and Carbon
MO No. 745 establishing the agglomerations and the classification of agglomerations and zones for the assessment of air quality in Romania

2003
Law No. 52 on Transparency in Decisions of the Public Administration
Law No. 85 The Mining Law
Law No. 193 for the completion of Law No. 111 (1996) on the Safe Development of Nuclear Activities
Law No. 318 on Electrical Energy
Law No. 404 setting up the National Administration "Romanian Waters"
Law No. 571 on the Fiscal Code
GD No. 124 on the Prevention and Control of Environmental Pollution by Asbestos
GD No. 443 on the Promotion of Energy Produced from Renewable Sources GD No. 541 on the Limitation of Emissions from Large Combustion Plants
GO No. 11 on Management of Spent Nuclear Fuel and Radioactive Waste, Including Final Disposal
MO No. 818 for the Approval of the Procedure of Integrated Environmental Permit Issuing
MO No. 1072 (transposes aspects of Council Directive 91/676/EEC concerning the protection of waters against pollution caused by nitrates from agricultural sources)

2004
Law No. 216 on establishing the National Administration of Meteorology
Law No. 238 on Petroleum
Law No. 310 on the requirements of the Water Framework Directive and other EU Directives amending and supplementing Law No. 107 (1996)
Law No. 315 on Regional Development in Romania
Law No. 554 on Administrative Disputes
GD No. 280 concerning a mechanism for monitoring greenhouse gas emissions trading within the Community and implementation of Kyoto Protocol GD No. 543 on Establishing the Procedure for the Elaboration and Implementation of Air Quality Management Plans and Programmes in order to Attain the Limit Values During a Certain Period
GD No. 586 on the Setting up and Organization of the National System for Integrated Assessment and Management of Air Quality
GD No. 731 on the Approval of the National Strategy for Atmospheric Protection
GD No. 738 on the Approval of the National Action Plan for Atmospheric Protection
GD No. 1076 on the Establishment of the Procedure for Environmental Assessment for Plans and Programmes
GD No. 1229 on the methodological norms concerning the issuing of certificates and approvals
GD No. 2406 on the Management of End-of-life Vehicles
GO. Implementation plan for Council Directive 91/271/EEC concerning urban waste water treatment, as amended by Commission Directive 98/15/EC of 27 February 1998 amending Council Directive 91/271/EEC with respect to certain requirements established in Annex I thereof, Annex No.3
MO No. 56 on approval of rules for safe management of radioactive waste
MO No. 751/870 on Management of Waste from the Titanium Dioxide Industry
MO No. 756 Approving Technical Norms for the Incineration of Waste
MO No. 844 on Approval of the National Strategy for Medium and Long Term Management of Spent Nuclear Fuel and Radioactive Waste, including the Disposal and Decommissioning of Nuclear and Radiological Facilities

2005
Law No. 246 adopting Ordinance No. 26 (2000) on Associations and Foundations, regulating NGO registration, their nature and scope, and their mission and activities

GD No. 321 (transposes Directive 2002/49/EC of the European Parliament and of the Council of 25 June 2002 relating to the assessment and management of environmental noise)
GD No. 322 (transposes Directive 2001/80/EC of the European Parliament and of the Council of 23 October 2001 on the limitation of emissions of certain pollutants into the air from large combustion plants)
GD No. 349 on Landfilling of Waste (transposes Council Directive 1999/31/EC of 26 April 1999 on the landfill of waste)
GD No. 621 on the Management of Packaging and Packaging Waste
GD No. 662 (transposes aspects of Council Directive 75/440/EEC of 16 June 1975 concerning the quality required of surface water intended for the abstraction of drinking water in the member States and Council Directive 79/869/EEC of 9 October 1979 concerning the methods of measurement and frequencies of sampling and analysis of surface water intended for the abstraction of drinking water in the member States**)**
GD No. 878 on Public Access to Environmental Information
GD No. 992 to Limit the Use of Certain Hazardous Substances in Electrical and Electronic Equipment,
GEO No. 196 on the Environmental Fund
GEO No. 198 on the establishment, sources of revenues and use of a fund for maintenance, repair and development of public utility services infrastructure that benefits from EU grant financial support
MO No. 87/527/411 approving the form and terms of issue of the certificate of destruction of end-of-life vehicles
MO No. 95 on establishing the criteria for acceptance and preliminary waste acceptance procedures to store and national lists of waste accepted in each class of landfill
MO No. 156 on approval of rules for classification of radioactive waste
MO No. 242/197 setting up the National Integrated Water Monitoring System (transposes aspects of Council Directive 91/676/EEC concerning the protection of waters against pollution caused by nitrates from agricultural sources)
MO No. 344 on the approval of Technical Norms for the Protection of Environment and Especially of Soils when Sewerage Sludge is Used in Agriculture
MO No. 400 on approval of rules for near-surface storage of radioactive waste
MO No. 901 on approving specific measures to collect waste electrical and electronic equipment minimizing risk to staff health and safety at the collection points
MO No. 927 on the procedure for reporting data on packaging and packaging waste
MO No. 1018 establishing the Directorate of Hazardous Waste and Chemical Compounds
MO No. 1223/715 on the procedure for registration of producers, recording and report data on electrical and electronic equipment and electrical and electronic equipment waste
MO No. 1224/722 approving the authorization procedure and conditions for legal persons to take over responsibility for annual objectives for reuse, recycling and energy recovery of end-of-life vehicles
MO No. 1225/721 on the procedure and criteria for evaluation and authorization of collective organizations to take over responsibility for achieving the annual collection, reuse, recycling and recovery of waste electrical and electronic equipment
MO No. 1258 for the elaboration of noise mapping, strategic noise maps and their corresponding action plans
MO No. 1229/731/1095 for the approval procedure and criteria for authorizing operators to take over responsibility for achieving the annual recovery and recycling of packaging waste
MO No. 1274 relating to Environmental Opinions on the Closure of Waste Disposal, Storage and Incineration Facilities
MO No. 1281/1121 regarding identification of different types of containers for the purposes of separate waste collection

2006

Law No. 51 on requirements for a special licence for operators of waste-related activities
Law No. 84 approving GEO No. 152 (2005) on Integrated Pollution Prevention and Control (transposes IPPC Directive 96/61/CE, as amended by Directive 2003/35/CE)
Law No. 101 on Sanitation Services, establishing the legal framework for the organization and financing of municipal waste services
Law No. 241 on Water and Sewerage Services
Law No. 265 on Environmental Protection on the Approval of GEO No. 195 (2005) on Environmental Protection
Law No. 407 on Hunting and Game Protection
GD No. 246 approving the National Strategy for Accelerating the Development of Public Utilities Services

GD No. 567 (transposes aspects of Council Directive 75/440/EEC of 16 June 1975 concerning the quality required of surface water intended for the abstraction of drinking water in the member States and Council Directive 79/869/EEC of 9 October 1979 concerning the methods of measurement and frequencies of sampling and analysis of surface water intended for the abstraction of drinking water in the member States**)**
GD No. 658 on the Reorganization of the National Commission on Climate Change
GD No. 780 regarding the establishment of emissions trading of greenhouse gas emissions. Transposition of the Council Directive 2003/87/EC of 13 October 2003 establishing a scheme for trading greenhouse gas emission trading within the Community and amending Council Directive 96/61/EC
GD No. 1213 on Establishing the Framework Procedure for the Impact Assessment of Certain Public and Private Projects on the Environment
GD No. 1586 on the Inclusion of Some Protected Areas as Wetlands of International Importance
GEO No. 85 on the Assessment of Damage to Forests and Forest Vegetation Outside
GO No. 23 on Fisheries and Aquaculture
MO No. 31 on Approving the Manual for Modernization and Development of Integrated Water Monitoring in Romania
MO No. 66 establishing the commission for evaluation and authorization of collective organizations to take over responsibility for achieving the annual collection, reuse, recycling and recovery of electrical and electronic equipment waste
MO No. 493 establishing the commission for evaluation and authorization of operators to take over responsibility for achieving the annual recovery and recycling of packaging waste
MO No. 556/435/191 on specific marking applied to electrical and electronic equipment put on the market after 31 December 2006
MO No. 662 for the Procedure and Competences for Granting Water Permits and Licences
MO No. 678/1344/915/1397 on the Approval of the Guide for Interim Computation Methods
MO No. 775 approving the list of isolated localities collecting municipal waste in existing landfills which are exempt from the provisions of GD No. 349 (2005) on the landfill of waste
MO No. 816 establishing the commission for evaluation and authorization of legal entities to take over responsibility on annual objectives for reuse, recycling and energy recovery of end-of-life vehicles

2007
Law No. 13 on Electricity
GD No. 210 on Waste Management Records and Approval of the List of Waste, Including Hazardous Waste
GD No. 217 (transposes aspects of Council Directive 75/440/EEC of 16 June 1975 concerning the quality required of surface water intended for the abstraction of drinking water in the member States and Council Directive 79/869/EEC of 9 October 1979 concerning the methods of measurement and frequencies of sampling and analysis of surface water intended for the abstraction of drinking water in the member States)
GD No. 235 on Waste Oil Management
GD No. 788 on Measures for Implementation of the European Parliament and Council Regulation (EC) No. 1013/2006 on Shipments of Waste
GD No. 1080 on the Constitution and Management of the Necessary Financial Resources for the Safe Management of Waste
GD No. 1143 on the Establishment of New Protected Areas
GD No. 1284 on the Designation of Special Protection Areas as Part of Romania's Natura 2000 Ecological Network
GD No. 1570 on establishing the national system for estimating anthropogenic emissions of greenhouse gas emissions from sources and removals by sinks of carbon dioxide, regulated by the Kyoto Protocol
GEO No. 68 on Environmental Liability With Regard to the Prevention and Remediation of Environmental Damage
GO No. 57 on the Protected Natural Areas Regime and the Conservation of Natural Habitats, Wild Flora and Fauna
MO No. 65 on the methodology for the establishment and revision of prices/tariffs for public water supply and sewerage
MO No. 255 on the Adoption of Measures for the Enforcement of EU Regulations on Trade in Wild Species and the Approval of New CITES-EU Documents
MO No. 625 on Methodology for economic operators in achieving the objectives set out in article 15 paragraphs (1) and (2) of GD No. 2406 (2004) on the Management of End-of-life Vehicles
MO No. 1710 on the Establishment of the Regime of Protected Areas of National Interest

MO No. 1798 for the Approval of the Procedure of Environmental Permit Issuing
MO No. 1830 for the Approval of the Guide Regarding the Elaboration, Analysis and Evaluation of Strategic Noise Maps
MO No. 1964 on the Establishment of a Protected Areas Regime for Sites of Community Importance, as Part of Romania's Natura 2000 Ecological Network

2008
Law No. 46 on the Forest Code
Law No. 220 strengthening incentives required for meeting the EU mandatory renewable energy target for 2020
Law No. 260 on the compulsory insurance of all dwellings against earthquakes, landslides or flooding
GD No. 60 of 16 January 2008 approving the national allocation plan for emission allowances for greenhouse gases for 2007 and 2008-2012 period
GD No. 561 on the Establishment of Measures for the Implementation of Regulation (EC) No. 850/2004 on persistent organic pollutants
GD No. 803/2008 on updating the amount of specific contributions for water resources management, fees and fines
GD No. 856 on the Management of Waste from Extractive Industries
GD No. 996 approving the norms concerning the origin, circulation and marketing of wooden materials, the regime of woody material storage areas and roundwood processing plants
GD No. 1061 on Hazardous and Non-hazardous Waste Transport
GD No. 1132 on Batteries and Accumulators and Waste Batteries and Accumulators
GD No. 1320 on the National Agency for Protected Areas
GD No. 1460 National Sustainable Development Strategy of Romania 2013-2020-2030
MO No. 152/558/1119/532 on the Approval of the Guide for Noise Limits for Action Planning
MO No. 244 on the Methodological Norms for Applying the Tariff for Using the National Road Network in Romania
MO No. 410 on Approval of the Authorization Procedure for Harvesting, Capture and/or Acquisition Activities and Commercialization in the Internal Market, Import or Export of Mineral Samples, Plants and Vertebrates and Invertebrate Fossils, and Wild Specimens of Flora and Fauna
MO No. 831/1461 on the Establishment of Technical Commissions to Analyse the Action Plans
MO No. 1170 for Approval of the Guide on Adaptation to Climate Change Effects
MO No. 1376 for approving the procedure on NGHGI reporting and the modalities for answering the observations and questions raised following the NGHGI review
MO No. 1474 for approving the procedure on processing, archiving and storage of data specific to the NGHGI
MO No. 1533 on Approval of the methodology for assigning the management of PAs

2009
Law No. 226 on the collection, treatment, transmission, publication and recordkeeping for environmental information
Law No. 329 on the Romanian National Energy Regulatory Authority (ANRE) modifying funding autonomy of ANRE
GD No. 23 for approving the procedure on selection of the estimation methods and of the emission factors needed for the estimation of GHG levels
GD No. 24 for approving the quality assurance/quality control procedure related to the NGHGI
GD No. 53 on the Protection of Groundwater against Pollution and Deterioration
GD No. 445 on Establishing the Framework Procedure for the Impact Assessment of Certain Public and Private Projects on the Environment
GD No. 522 on updating the amount of specific contributions for water resources management and fees and fines
GD No. 861 approving the methodological norms for the granting, use and control of annual sums for sustainable forest management of private individuals and legal entities and public and private ownership of administrative units and the procedure for implementing forest services and performing background checks
GD No. 1076 on Approval of a Forest Guard
GEO No. 137 on Establishing Threshold Values for Groundwater Bodies, both amending and completing Law No. 107 (1996) on Water
MO No. 203/14 on Procedures for Establishing Derogations from Measures for the Protection of Wild Flora and Fauna

MO No. 669/1304 on the Registration of Producers of Batteries and Accumulators

2010
Law No. 56 on National Forest Accessibility
Law No. 100 on the Afforestation of Degraded Lands
Law No. 171 on the Establishment and Application of Penalties for Forest Violations
Law on fiscal responsibility to improve medium-term fiscal planning and establish fiscal rules for public expenditures and for budget revisions
GD No. 328 on updating the amount of specific contributions for water resources management and fees and fines with the inflation index
GD No. 432 from 28 April 2010 concerning the setting up and development of green investment schemes
GD No. 1037 on Waste Electrical and Electronic Equipment
GD No. 1202 to update the amount of specific contributions for water resources management
GEO No. 3 amending Law No. 107 (1996) on Water
GEO No. 29
concerning the trade of the Romanian Assigned Amounts Units under the Kyoto Protocol
MO No. 135 on Implementing Methodology for Assessing Environmental Impact on Public and Private Projects
MO No. 1659 on the Establishment of a Joint Working Group on Synergies among the Basel, Rotterdam and Stockholm Conventions in order to Ensure their Proper Implementation
MO No. 2042/2934/180 on the Approval Procedure for Waste from Extractive Industries

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Law No. 104 on Ambient Air Quality
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GEO No. 64 regarding the geological storage of carbon dioxide
GEO No. 88 amending Law No. 220 (2008) strengthening incentives required for meeting the EU mandatory renewable energy target for 2020 (in relation to Directive 2009/28/EC of the European Parliament and of the Council of 23 April 2009 on the promotion of the use of energy from renewable sources and amending and subsequently repealing Directives 2001/77/EC and 2003/30/EC)
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