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NOTE

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Foreword

Environmental Performance Reviews (EPRs) for countries in transition were initiated by Environment Ministers at the second Ministerial Conference "Environment for Europe" held in Lucerne, Switzerland, in 1993. As a result, the UNECE Committee on Environmental Policy decided to make the EPRs a part of its regular programme.

Ten years later, at the fifth Ministerial Conference "Environment for Europe" (Kiev, 2003), the Ministers confirmed that the UNECE EPR Programme had made it possible to assess the effectiveness of the efforts of countries with economies in transition to manage their environment. The Programme has addressed tailor-made recommendations to the Governments concerned on improving environmental management to reduce their pollution load, to better integrate environmental policies into sectoral policies, and to strengthen cooperation with the international community. The Ministers also reaffirmed their support for the EPR Programme as an important instrument for countries with economies in transition, and decided that the Programme should proceed with a second cycle of reviews. This second round, while taking stock of the progress made since the first review, puts particular emphasis on implementation, integration, financing and the socio-economic interface with the environment.

Through the Peer Review process, EPRs also promote dialogue among UNECE member countries and harmonization of environmental conditions and policies throughout the region. As a voluntary exercise, the 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, including the United Nations Development Programme, and with the Organisation for Economic Co-operation and Development.

This is the second EPR of Serbia published by the UNECE. The report takes stock of the progress made by Serbia in the management of its environment since the country was first reviewed in 2002, when the country was part of Yugoslavia. While looking closely at the implementation of the recommendations of the first review, the report also covers seven issues of importance to Serbia concerning policymaking, planning and implementation, the financing of environmental policies and projects, and the integration of environmental concerns into economic sectors, and the promotion of sustainable development. Issues receiving special attention during the review included compliance and enforcement mechanisms, economic instruments and environmental funds, and the integration of environmental concerns in energy and in water management.

I hope that this Review will be useful in supporting policymakers and representatives of civil society in their efforts to improve environmental management and further promote sustainable development in Serbia, and that the lessons learned from the Peer Review process will also benefit other countries of the UNECE region.

Marek Belka
Executive Secretary
Economic Commission for Europe

Preface

The second Environmental Performance Review (EPR) of Serbia began in May 2006 with a preparatory mission, during which the final structure of the report was discussed and established. The team of international experts included experts from the Czech Republic, Germany and Italy, and from the secretariats of the European Environmental Agency and the United Nations Economic Commission for Europe (UNECE).

The review mission took place from 23 to 27 October 2006. The draft EPR report was submitted to Serbia for comments in April 2007. In May 2007, the draft was submitted for consideration to the Ad Hoc Expert Group on Environmental Performance. During this meeting, the Expert Group discussed the report in detail with expert representatives of the Government of Serbia, focusing in particular on the conclusions and recommendations made by the international experts.

The EPR report, with suggested amendments from the Expert Group, was then submitted for peer review to the fourteenth session of the UNECE Committee on Environmental Policy on 29 May 2007**.** A high-level delegation from Serbia participated in the peer review. The Committee adopted the recommendations as set out in this report. The report will be translated into the national language with support from the United Nations Development Programme Country Office in Belgrade.

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

UNECE would also like to express its deep appreciation to the Governments of the Czech Republic, Estonia, Germany, Italy and the Netherlands, as well as the European Environmental Agency and the United Nations Development Programme, for their support to the Environmental Performance Review Programme and to this review.

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The mission for the project took place from 23 to 27 October 2006. The peer review was held in Geneva on 29 May 2007. The ECE Committee on Environmental Policy adopted the recommendations set out in this document.

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ACRONYMS AND ABBREVIATIONS

AP	Autonomous Province
BAT	Best available techniques
BERCEN	Balkan Environmental Regulatory Compliance and Enforcement Network
CAF	Common Assessment Framework
CARDS	Community Assistance for Reconstruction, Development and Stabilisation
CBD	Convention on Biological Diversity
CDM	Clean Development Mechanism
CEPA	Classification of Environmental Protection Activities and Expenditures
CER	Certified Emission Reduction
CFC	Chlorofluorocarbon
CHP	Combined heat and power
CITES	Convention on International Trade in Endangered Species of Wild Flora and Fauna
CLRTAP	Convention on Long-range Transboundary Air Pollution
CO_2	Carbon dioxide
COFOG	Classification of the Functions of Government
CPI	Consumer Price Index
CSD	Serbian dinar
DABLAS	Danube Black Sea Task Force
DACU	Development and Aid Coordination Unit
DEP	Directorate for Environmental Protection
DHS	District heating system
DW	Directorate for Water of the Ministry of Agriculture, Forestry and Water Management
EAR	European Agency for Reconstruction
EBRD	European Bank for Reconstruction and Development
ECENA	Environmental Compliance and Enforcement Network for Accession
EEA	European Environmental Agency
EIA	Environmental Impact Assessment
EIB	European Investment Bank
EIONET	European Environment Information and Observation Network
EMEP	Co-operative Programme for Monitoring and Evaluation of the Long-range Transmission of Air Pollutants in Europe
EMS	Electric Power Network Serbia (Elektromreža Serbie)
ENVSEC	Environment and Security Initiative
EPA	Environmental Protection Agency
EPC	Energy performance contracting
EPR	Environmental Performance Review
EPS	Electric Power Industry of Serbia
ESCO	Energy saving company
ESIP	Energy Strategy Implementation Programme
est.	estimate
EU	European Union
FAP	Flood Action Programme
FRY	Federal Republic of Yugoslavia
GDP	Gross domestic product
GEF	Global Environment Facility
GFDP	General Flood Defence Plan
GHS	Globally Harmonized System of Classification and Labelling of Chemicals
GIS	Geographical information system
GMO	Genetically modified organism
HMI	Hydrometeorological Institute
HPP	Hydro Power Plant
ICPDR	International Commission for the Protection of the Danube River
IDP	Internally displaced person
IEC	International Electrotechnical Commission

IFI	International financial institution
IPA	Instrument for Pre-Accession Assistance
IPPC	Integrated pollution prevention and control
ISDACON	Inter-Sectoral Working Group for Coordination of Humanitarian and Development Assistance
ISO	International Organization for Standardization
ISRBC	International Sava River Basin Commission
JUS	Yugoslav Standard
KfW	Kreditanstalt für Wiederaufbau
KS	Norwegian Association of Local and Regional Authorities
LCP	Large combustion plants
LEAP	Local environmental action plan
LEP	Law on Environmental Protection
MAC	Maximum allowable concentration
MAFWM	Ministry of Agriculture, Forestry and Water Management
MDG	Millennium Development Goal
MEA	Multilateral environmental agreement
MIER	Ministry of International Economic Relations
MoU	Memorandum of Understanding
MoME	Ministry of Mining and Energy
MOH	Ministry of Health
MSEP	Ministry of Science and Environmental Protection
NATO	North Atlantic Treaty Organisation
NCBS	National Council for Biological Safety
NCSD	National Council for Sustainable Development
n.e.c.	Not elsewhere classified
NEPP	National Environmental Protection Programme
NES	National Environmental Strategy
NGO	Non-governmental organization
NIP	National Investment Plan
NOx	Nitrogen oxide(s)
NSSD	National Strategy for Sustainable Development
ODS	Ozone-depleting substance(s)
OG	Official Gazette
OSCE	Organization for Security and Co-operation in Europe
PAH	Polycyclic aromatic hydrocarbon
PCB	Polychlorinated biphenyl
PE	Population equivalent
PE	Public enterprise
PHARE	EU Poland and Hungary assistance for restructuring of the economy
PHI	Public Heath Institute
PIC	Prior informed consent
PM	Particulate matter
PMU	Project Management Unit
POP	Persistent organic pollutant
PRS	Poverty Reduction Strategy
PRTR	Pollutant Release and Transfer Register
PWC	Public water company
REC	Regional Environmental Center
REReP	Regional Environmental Reconstruction Programme
RS	Republic of Serbia
SAA	Stabilization and Association Agreement
SAP	Stabilization and Association Process
SEA	Strategic environmental assessment
SEE	South-Eastern Europe
SEEA	Serbian Energy Efficiency Agency
SEIO	European Integration Office of the Government of Serbia

SERIEE	European System for the Collection of Economic Information on the Environment
SFRY	Socialist Federal Republic of Yugoslavia
SIDA	Swedish International Development Cooperation Agency
SKGO	Standing Conference of Towns and Municipalities
SO_2	Sulphur dioxide
SRS	Socialist Republic of Serbia
SUSM	State Union of Serbia and Montenegro
UNCCD	United Nations Convention to Combat Desertification
UNDP	United Nations Development Programme
UNECE	United Nations Economic Commission for Europe
UNEP	United Nations Environmental Programme
UNESCO	United Nations Educational, Scientific and Cultural Organization
UNFCCC	United Nations Framework Convention on Climate Change
UNHCR	United Nations High Commissioner for Refugees
UNICEF	United Nations Children's Fund
UNIDO	United Nations Industrial Development Organization
UNITAR	United Nations Institute for Training and Research
UNMIK	United Nations Interim Administration Mission in Kosovo
NUWTO	United Nations World Tourism Organisation
USAID	United States Agency for International Development
VOC	Volatile organic compound
WEI	Water Exploitation Index
WMO	World Meteorological Organization
WTO	World Trade Organization
WWTP	Wastewater treatment plant

SIGNS AND MEASURES

GWh	gigawatt-hour
ha	hectare
kg	kilogram
kJ	kilojoule
km	kilometre
koe	kilogram oil equivalent
kWh	kilowatt-hour
l	litre
m	metre
moe	megaton oil equivalent
MW	megawatt
PJ	petajoule
ppm	parts per million
s	second
t	metric ton
TJ	terrajoule
TWh	terawatt-hour

CURRENCY

Monetary unit: Serbian Dinar. (Abbreviation CSD)

Year	Dinars / US$	Dinars / Euro
1993	..	..
1994	1.55	..
1995	4.74	..
1996	5.13	..
1997	5.91	..
1998	10.03	..
1999	11.66	11.74
2000	63.17	58.68
2001	67.67	59.71
2002	58.98	61.52
2003	54.64	68.31
2004	57.94	78.89
2005	72.22	85.50
2006	59.98	79.00

Source: National Bank of Serbia. January 2007.

EXECUTIVE SUMMARY

The first Environmental Performance Review (EPR) of Yugoslavia carried out in 2002 included the review of Serbia as a constituent component of the country. In 2003, the Federation of Yugoslavia was restructured into a looser federation, the State Union of Serbia and Montenegro, based on the equality of the two member States. In May 2006, these two States became fully independent, and Serbia has become a successor state of the State Union. The second EPR of Serbia was carried out in 2006 after Serbia gained its sovereignty. This second review intends to measure the progress made by Serbia in managing its environment since the 2002 EPR, as well as in addressing upcoming environmental challenges.

OVERALL CONTEXT

Since 2002, the overall economic context for the conduct of environmental policy has significantly improved, as has the transition process toward market economy. Structural reforms, price stabilization and some privatization have taken place. The gross domestic product (GDP) has roughly doubled since the 2002 EPR, but the revenues have only benefited a few. Poverty remains a serious problem. This explains the position of the Government, which still regulates prices for heating and electricity, coal, gas and oil, as well as tariffs for water services, since 2005.

The growth in industrial activity has increased environmental pressures due to the obsolete, pollution-intensive technology used in many parts of the industrial sector. The energy sector is a major polluter, as it burns polluting fuels in obsolete equipment without abatement technology. The country's highly diversified industry releases a variety of pollutants. In several environmental hot spots, air and water pollution is high and notably exceeds established standards. Serbia's intensive agricultural production causes soil pollution and water eutrophication problems. Humans also exert significant pressures on the environment, in particular through domestic and transport activities. A result has been the decline of water resources quality in most parts of the country. This is partly due to the poor state of environmental infrastructure regarding waste, water supply and wastewater management and to more than a decade of limited spending on maintenance and rehabilitation in the public and private sectors.

POLICYMAKING, PLANNING AND IMPLEMENTATION

The decision-making framework and its implementation

Serbia has managed to elaborate a complete new set of environmental legislation and strategies … in spite of the several restructurings of the State since the 2002 review. It has made a serious effort to approximate European Union (EU) legislation on environment into the national legislation. A number of laws have been adopted, such as the *Law on Environmental Protection*, the *Law on Environmental Impact Assessment* (EIA), the *Law on Strategic Environmental Assessment* (SEA) and the *Law on Integrated Pollution Prevention and Control* (IPPC); other laws, on waste, noise and biodiversity, are awaiting adoption by the National Assembly. Significant progress in enacting corresponding secondary legislation has recently been achieved. In addition, many strategies have been adopted since 2002. In 2006, a *National Environment Strategy* was approved by the Government and is now awaiting the National Assembly's decision. Serbia is also drafting other important strategies, including on the sustainable use of natural resources and goods and on sustainable development.

…which now need to be implemented. The mechanisms to put this legislation and these policies into action are lacking. Various guidelines have been drafted for guiding implementation, but the legislation is complicated, fragmented and scattered, and lacks provisions for establishing binding instruments across sectors – ministries each issue permits for their respective fields of competence, and integrated permits have not yet been introduced. In addition, the only existing emission standards apply to air pollution, and these are different from those of the EU. There is no strategy for approximation of EU legislation, which makes the introduction of new laws complicated. Law enforcement is weak due to weak monitoring, gaps in standards, and low awareness of and compliance with laws.

The environment inspectorate, although not entrusted with the protection of all resources, is gaining strength. The recent *Law on IPPC* will be implemented soon and inspectors will receive intensive training to acquire the technical background and methodology necessary for performing their new tasks. Nevertheless, inspection capacity is still insufficient at the local level, and the unclear sharing of inspection bodies' competences hampers the effectiveness of enforcement. This is the situation not only in the vertical coordination of inspection bodies between state and local levels, but also between inspections under the supervision of different ministries (e.g. environment, forestry, water). The inspection capacity for compliance monitoring and assessment of self-monitoring by polluters needs to be raised in order to meet the tasks of forthcoming EU harmonization (for example, the IPPC). As the police and the judiciary have an important role in the enforcement process, they need also to be strengthened to make them able to impose effective sanctions.

The reinstatement in 2007 of the Ministry for Environmental Protection reflects a stronger will for protecting the environment and provides a better mechanism and scope to deal with the sectoral ministries. Moreover, other institutions have been significantly strengthened with the improved capacity of the central environmental authorities, as evidenced by the establishment of a National Council for Sustainable Development in 2003 and the creation of an Environmental Protection Agency (EPA) in 2004. Both new institutions, however, now need to be endowed with more power and sufficient staff.

Nonetheless, integration of environmental policy with economic and other sectoral policies is in an early stage in Serbia. Policymaking is still dominated by the planning of operations within sectors. Very few sectoral ministries have a specific structure in place to cooperate with the Ministry of Environmental Protection (MEP), and there are many political and institutional obstacles to this needed cooperation. For instance, because the legislation does not define clear-cut sharing of competences, some ministries are simultaneously responsible for the exploitation and the protection of natural resources (e.g. water, forests, mineral resources and land). National policies are not sufficiently coordinated between one another, and inconsistencies between laws may hamper their implementation. The role of the National Council for Sustainable Development should be strengthened so that it can act effectively as a coordinating body for policy integration.

Information, public participation and education

In 2003, an Environment Protection Agency (EPA) was created. Its first main tasks were to establish an environmental information system and to introduce integrated assessment and reporting. However, communication with data suppliers at all levels – local and national, private and public, and between the environment and other sectors – is difficult. As in other countries, monitoring is shared among several institutions, and as a result, responsibilities overlap between institutions and communication among them is unsatisfactory. Scattered environmental information often goes unreported, data are not harmonized, and forming an overall picture of the environmental situation is not possible. An effective and solid network of topic-related focal institutions, providing regular data flows of the environment related information to the authorities and the public, is needed.

National environmental statistics are weak. Current statistical research is either based on outdated questionnaires or unavailable. Cooperation with European statistical institutions (e.g. Eurostat) is lacking on environment. Reporting on the state of the environment is still at a fairly low level, as the quality of environmental information is questionable. Data flows have been improved by the establishment of the EPA, but many barriers still exist, mostly due of undefined procedures and responsibilities. Moreover, long delays before the information is disclosed to the public substantially decrease the information's relevance.

Access to information and public participation in environmental decision-making has much improved. The 2006 Constitution and a number of new laws which entered into force in 2004–2005 stipulate that the administration is obligated to disclose information and citizens the right to be informed about the state of the environment and to participate in the decision-making process. The effectiveness of these measures, however, is yet to be monitored. In 2005, the Ministry of Environmental Protection (MEP) set up a communication strategy with all stakeholders interested in environmental protection. The MEP organizes regular meetings with NGOs and consults them when programmes and regulations are in process. Access to justice on environmental matters is less advanced, as Serbia has no special regulations for this. Serbia is not a Party to the *Aarhus Convention on*

Access to Information, Public Participation in Decision-making and Access to Justice in Environmental Matters.

The Parliament has proclaimed environmental education to be a priority for the country. Strategies have been developed jointly between the ministries in charge of education and of environment. The formal education system is currently being reformed to incorporate the environment and sustainable development into the curriculum at all levels of education. A large number of related training programmes exist for teachers. Environmental awareness among the general population in Serbia, however, is generally low.

International agreements and commitments

The Republic of Serbia is now fully sovereign to decide on its international cooperation in environment, a task which had been the responsibility of the federal level until 2006. Except for the conventions which were ratified by succession and the *Danube River Protection Convention,* ratified in 2003, due to the country's the political instability Serbia has not yet ratified the conventions recommended by the 2002 EPR. This is especially true for the UNECE regional environmental conventions. The MEP is currently working towards the ratification of several conventions, and has introduced by-law which will make their implementation possible (for instance, the laws on EIA and SEA lay the groundwork for the *Espoo Convention on Environmental Impact Assessment in a Transboundary Context*).

Serbia is working to approximate the EU acquis communautaire. This goal has been a major factor in the modernization of the environmental legislation in recent years, notably with the adoption of basic environmental laws such as on EIA, SEA and IPPC, which are fully in line with corresponding EU directives. Some progress is also being made on noise, chemicals and genetically modified organisms. The next step is to put in place appropriate by-laws, sophisticated mechanisms and tools, and specialized institutions to move on the approximated legislation. Approximation of water legislation, however, is still lagging behind. The environment and the water administrations are not capable of coping with the EU concepts and tasks, and need assistance from abroad.

International assistance on environmental matters is scarce. This is not only the result of the still suspended negotiations of the Stabilisation and Association Agreement with the EU. In fact, there is a lack both of visibility regarding the environmental priorities of the country and of a comprehensive overview of the environment-related projects. Projects developed at the local level are not concerted, and are not registered or integrated into national priorities. Often projects are pursued only as long as foreign assistance is available, and do not progress after this assistance ceases. In this context, donors remain quite reserved regarding further assistance and support. The MEP does not have a project unit capable of providing a roadmap of current environmental projects and future needs and priorities.

MOBILIZING FINANCIAL RESOURCES FOR THE ENVIRONMENT

Economic instruments

Economic instruments for environmental protection have improved little since the 2002 Review. Tariffs are still significantly subsidized in the public sector. Although they have increased, water and electricity tariffs do not fully cover service costs, nor have they reached a level sufficiently high to induce a reduction in consumption. The problem is similar with charges on domestic heating, drinking water supply, and wastewater and domestic waste, which are too low to work as incentives for reducing consumption. Before 2005, payment of emission charges was not enforced. Currently, the "polluter pays" principle is applied to industry, but only to a limited extent, as there is no political will to put constraints on the newly privatized industrial sector. Product charges have yet not been introduced. Fines are low and sanctions are insignificant.

The challenge for the authorities is to find a balanced combination of regulatory and economic instruments for reducing environmental pressures and to achieve a decoupling of pollution from the economic growth process. In general, both economic and regulatory environmental instruments are still weak in Serbia. For instance, in spite

of the expanding road traffic and related air pollution increase, there is no discriminating tax between leaded and unleaded petrol, nor any plan to phase out leaded petrol. Not only is the level of taxes and charges too low, but their coverage is limited. As currently designed, these instruments serve mainly for raising revenues, not for changing behaviour. There is a significant lack of statistics for assessing the impact and efficiency of existing traditional instruments. Therefore, it is difficult to adjust or redirect them.

The Environmental Fund has been operational since mid-2006. The amount from charges accruing to the new Environmental Fund, dating from mid-2006, was about 0.02% of GDP. However, with the current narrow coverage of charges, the Fund will never bring in a significant amount of money or support projects eligible for financing, such as those on environmental protection, energy efficiency and renewable energy.

Environmental expenditures and their financing

In 2006, environmental expenditures amounted to 0.2% of the GDP, a figure which reflects public-sector environmental expenditures only, as information from industrial sector is totally lacking. Sixty per cent of total environmental protection expenditures in 2005 were made at the municipality level. Overall, spending on environmental protection has been insufficient to date. The expenditures for covering the infrastructure cost that will be triggered by the implementation of the recent laws on IPPC, waste, air protection and the still-to-be-adopted *National Environment Strategy* (e.g. on wastewater and solid waste treatment facilities, recycling and monitoring equipment, strengthening of public institutions) are estimated to be 0.6 per cent of GDP in 2007, rising to 0.9 per cent in 2009 and 2.4 per cent in 2015. To cover these costs, domestic revenues for environment need to grow significantly and the use of economic instruments needs to be applied to both industry and the citizenry. Foreign financial assistance will also be needed.

There is no published information on the allocation of current environmental expenditures to the main environmental sectors (waste, wastewater, pollution abatement, etc.). It is estimated that municipalities' environmental investment expenditures have on average accounted for a mere 1 per cent of their total environmental expenditures in recent years, the rest being spent on operation and maintenance of old infrastructure. Launched in mid-2006, the five-year *National Investment Plan* (NIP) provides for public investments of which some €20 million (about 1.2% of total) is allocated to environmental protection measures. Funds are being invested on the underdeveloped waste management sector (€11.4 million), water supply and wastewater treatment (€4.9 million), and air pollution (€3.7 million). The main financing sources for the NIP are privatization revenues, accumulated budget surplus from recent years, foreign loans and EU pre-accession funds. However, the financing of the NIP beyond 2007 is not guaranteed.

Moreover, whether the funds are spent on the most pressing environmental priorities is questionable. In the water sector, the spending of revenues from the various water charges is highly compartmentalized. Revenues in each subsector are earmarked for expenditures in the same subsector, not on the most important priority. For instance, more than 50 percent of the water charges are drawn from wastewater and are therefore spent on wastewater infrastructure, whereas only 3.5 per cent are from drinking water charges. Thus, little is spent to improve drinking water infrastructure even though drinking water quality is the key priority objective of the water sector. At the local level, the persistently weak revenues of the municipalities responsible of public environmental services and related environmental infrastructure have led to a deterioration of physical infrastructure and a decline in the quality of services. It is therefore important to find ways to strengthen municipalities' capacities, to explore the scope for inter-municipal cooperation, and to involve the private sector in investment projects. In this context, it is also important to increase the efficiency of providing utility services by giving management sufficient independence in operational and financial matters.

INTEGRATION OF ENVIRONMENTAL CONCERNS IN ECONOMIC SECTORS, AND PROMOTION OF SUSTAINABLE DEVELOPMENT

Water management for sustainable development

Water is abundant but not sufficiently protected in Serbia. Water quality has declined in all streams over the territory, due in part to a worsening of the upstream water entering the country. There has been a lack of

investment in water infrastructure since the early 1990s, which is particularly acute for water supply in rural areas. The too-low water tariffs do not encourage citizens to reduce water use, and when water shortages occur, new resources are exploited rather than conservation being encouraged. As for water quality, the infrastructure in domestic wastewater treatment is insufficient, as it is for industrial discharges, and no wastewater treatment plants have been built recently. Water monitoring, standards and permits are far from being approximated to the EU practices. The legal constraints on water protection and sustainable use are too loose and not enforced.

International cooperation at regional level has been the key for progress in the management of water since the 2002 EPR. The ratification of the *Danube River Protection Convention* in 2003 has triggered two major initiatives, one for managing flood risk and the other for transposing the EU Water Framework Directive as well as directives on nitrates and urban wastewater. The Convention has further given Serbia access to financial assistance from the Global Environment Facility fund to combate eutrophication of surface water. The focus is being given to point pollution first, and to diffuse sources from agriculture second. So far, a combined approach is still not envisaged. Since the huge floods of 2006, The United Nations Development Programme Country Office in Belgrade has been helping Serbia to organize its institutions for disaster response and is coordinating foreign financial and technical assistance offered by various donors.

The competent but understaffed Directorate on Water in charge of water management and protection is under the responsibility of the Ministry of Agriculture, Forestry and Water Management (MAFWM). The MAFWM has it own inspection body, and faces similar difficulties to these of the MEP regarding coordination with the local level administration. Coordination between the Directorate on Water and the MEP is also a problem. There is no proper water fund, although money collected from charges is spent on water financing. The budget line for water management is not commensurate with the huge expenses that are to be spent to improve the water situation, first and foremost on the supply of safe drinking water. The current organization of the institutions does not match what is required in the EU Water Framework Directive, which Serbia has decided to follow.

Energy and environment

Production and use of energy is not efficient in Serbia. Electricity and heating production is mostly based on obsolete technology and on the use of lignite and brown coal. Distribution losses are important and the use of energy at residential and industrial locations is not efficient. Estimates show that only 75 per cent of gross electricity production is available for final consumption, and that energy consumption could be reduced by more than 50 per cent. Moreover, the energy sector is a significant polluter. The combustion of domestic low-quality lignite and coal affects air, water and land quality. Today, the share of renewable energy is around 7 per cent and will stay rather stable until 2015, with 32 per cent of electricity coming from hydropower.

Since the 2002 EPR, the legislation, strategies and institutions in the energy sector have been thoroughly overhauled. Both an energy law and an energy strategy have entered into force, in 2004 and 2005 respectively. Although the Energy Strategy contains only general remarks on the lessening of environmental pressures, Serbia has made progress in integrating the environment into other energy sector policies and laws. In addition, an energy efficiency agency was set up in 2005, with four related centres. Technical improvements of power plants were achieved during the period 2001– 2006. In spite of the progress made in reducing dust emissions, however, compliance with air emissions limits of the EU directives on combustion plants is planned for 2017 only, at a cost of nearly €800 million.

Energy prices have significantly increased for electricity and heat since 2000; however, they are still below the cost recovery level and low for the region. Households' energy consumption remains very high and electricity and heating expenditures are above the regional average. A block tariff system has been introduced for reducing households' electricity consumption while protecting vulnerable users. But the lack of individual metering systems prevents the application of consumption-linked incentives for heat bills. Overall, more focus needs to be devoted to energy efficiency and the development of renewable energy, and there are many administrative barriers to developing and investing in new projects and a lack of incentives to encourage renewable energy. Awareness campaigns should be organized to reduce energy consumption, demonstrate ecological benefits, and spur the demand on renewable energy.

The Law on ratification of the Kyoto Protocol is awaiting parliamentary approval. As a non-annex I party, Serbia has started preparations for participating in the Clean Development Mechanism (CDM). Projects to reduce electricity consumption may be quite attractive for foreign companies. Serbia is drafting an energy sector CDM strategy with the support of Norway, and will establish a Designated National Authority by the end of 2007. The rather complex licencing procedures for construction of energy production facilities may be an obstacle for new projects under the CDM.

INTRODUCTION

I.1 Physical context

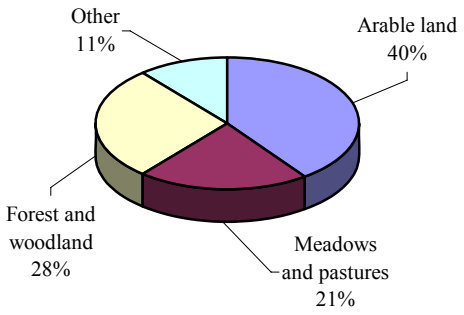
The Republic of Serbia[1] is located in South-Eastern Europe in the heart of the Balkan Peninsula, and covers the area of 88,361 km^2. Within Serbia, there are two autonomous provinces, Vojvodina (21,506 km^2) in the north and Kosovo-Metohija (10,887, km^2) in the south. Serbia shares a border with eight neighbouring countries: Albania (length of shared border, 114 km), Bosnia and Herzegovina (border, 312 km), Bulgaria (border, 318 km), Croatia (border, 241 km), Hungary (border, 151 km), Montenegro (border, 211 km), Romania (border, 476 km) and The former Yugoslav Republic of Macedonia (border, 221 km).

The Danube River provides shipping access to inland Europe and the Black Sea. The Danube, which runs through Serbia for 588 km, is one of the main water transport arteries of the European continent. It flows into the country from Hungary, traverses the Vojvodina Plain, and runs through the capital, Belgrade, before exiting the country through the Balkan Mountains. Other major rivers in Serbia include the Sava (206 km), the Drina (220 km), the Tisa (168 km) and the Zapadna Morava (308 km). The Velika Morava River (185 km), a Danube tributary, flows through the mountainous southern regions. The Danube River basin system covers most of the country's territory.

The country's landscape is diverse, ranging from plains to high mountains. The highest point in Serbia is the Djaravica peak (height, 2,656 m) in the Prokletija mountain range. Serbia has 15 other mountain peaks higher than 2,000 metres. Vojvodina in the north is mostly a rich fertile plain suitable for agriculture (83.5% is in agricultural use), but it also has mountains and hills in the south-east. Central Serbia's topography consists mainly of hills and low and medium-high mountains interspersed with numerous rivers and creeks. Kosovo-Metohija in the south has a varied, primarily hilly landscape and is surrounded with mountains intersected by canyons and wide river valleys.

Serbia has a continental climate, with cold winters and hot summers. The varied topography of the Pannonian Plain, the mountain ranges and its proximity of the Adriatic Sea shape the country's local climate. On the Pannonian Plain summers are hot, with temperatures exceeding 30°C, and winters are long and cold, with temperatures sometimes falling below -20°C. The average July temperature in Belgrade, in Central Serbia, is 21°C, while the average January temperature is 0°C. In the mountainous areas, the higher altitude moderates summer temperatures and makes winters more severe, with colder temperatures and heavy snowfall.

Figure I.1: Land use in Serbia, 2006



Source: Ministry of Science and Environmental Protection. National Environmental Strategy 2006.

Serbia has excellent agricultural land, which is well suited to intensive agricultural production (see Figure I.1). About 85 per cent of the crop-producing land is privately owned, and the agricultural sector is an important part of economy; in 2002, it produced 19.2 per cent of the Gross Domestic Product (GDP). The main crops are cereals (e.g. maize and wheat), livestock fodder (e.g. alfalfa), and industrial crops (e.g. sugar beets and tobacco).

Serbia is also rich in mineral resources. It was self-sufficient with regard to coal before 1999 and has large lead and antimony deposits. The country also has some of Europe's largest copper ore reserves.

I.2 Human context

Serbia's total population is 7.5 million (2006) (See Table I.1). The Kosovo-Metohija territory, which has been under the United Nations Interim Administration Mission in Kosovo (UNMIK) since 1999, has a population of 1.9 million to 2.3 million (2001/2002 estimates).

Serbia's population is urban. The percentage of the urban population rose from 52.3 per cent in 1999 to 58 per cent in 2003. The main cities include the

[1] Hereinafter "Republic of Serbia" and "Serbia" are used interchangeably.

capital, Belgrade (pop. 1,576,124); the commercial centre, Novi Sad (pop. 299,294); the transport and industrial centre, Niš (pop. 250,518); and the manufacturing centre, Kragujevac (pop. 175,802). Population estimates for Priština in Kosovo-Metohija vary from 200,000 (2002 estimate) to 262,686 (2006 estimate).

The Yugoslav wars in 1990 led to huge migrations of people, either as refugees to the other former Yugoslav republics or as internally displaced persons (IDPs) within their own republic. According to the United Nations High Commissioner for Refugees (UNHCR), as of May 2005, the number of IDPs living in Serbia (excluding Kosovo-Metohija) was 208,000. In addition to the IDPs, there are about 150,000 refugees living in Serbia, the majority of whom are from Bosnia and Herzegovina and Croatia.

The official language is Serbian written in Cyrillic, although Latin script is also widely used. In the areas inhabited by ethnic minorities, the languages and scripts of the minorities are in official use.

The demographic and health indices (see Table I.1) have stayed relatively constant since 1999. All indicators except the mortality and infant mortality rates have been very stable. The life expectancy somewhat increased although the mortality rate rose at the same time. The infant mortality rate has decreased considerably – almost 30 per cent since 1999.

I.3 Economic context

The break-up of the State Union of Serbia and Montenegro in June 2006 is a recent event, and therefore the data available (see Table I.2) may not accurately reflect the situation in Serbia, which makes it difficult to analyse the economic condition of the country. Montenegro disconnected its economy from Serbia's in 2003, and therefore the formal break-up of the State Union has probably had little real impact on either economy.

Serbia's GDP fell dramatically in the 1990s, and by 2000 the per capita GDP was about half of the 1989 level. Since 2000 the GDP has increased steadily, and in 2006 it was nearly 30 per cent higher than in 2000. The GDP growth for 2005 was 6.2 per cent.

The robust growth continued during the first six months of 2006, when real GDP increased by 6.7 per cent year on year. The expansion of the economy was driven by service sectors; of these, the transport sector grew fastest (in the second quarter it was up by 26.8 per cent compared to a year earlier), the financial sector by 19.3 per cent, and wholesale and retail trade by 7.5 per cent.

It also seems that the country's industry is recovering from the slump of the 1990s. The latest figures show that the industry's output expansion is driven by the manufacturing sector, which grew 5.4 per cent from 2005 to 2006, while the industrial sector as a whole grew 4.7 per cent during the same period.

Inflation as measured by the Consumer Price Index (CPI) has fluctuated during the past few years. It rose from 9.9 per cent in 2003 to 16.2 per cent in 2005, but thereafter dropped to a reasonable 12.3 per cent in 2006. The appreciation of the dinar, the drop in international oil prices, and the National Bank's tighter monetary policy contributed to this positive development. Reduced inflation has been accompanied by rising real net wages, which grew over 10 per cent from July 2005 to July 2006.

Table I.1: Demography and health indices, 2000-2006

	2000	2001	2002	2003	2004	2005	2006
Population (in millions) Serbia only	7,516.0	7,503.0	7,500.0	7,480.0	7,463.0	7,441.0	7,425.0
Birth rate (per 1,000)	9.8	10.5	10.4	10.6	10.5	9.7	..
Total fertility rate (Serbia and Montenegro)	1.5	1.6	1.6	1.6	1.6	1.5	..
Life expectancy at birth, in years	72.1	72.2	72.3	72.5	72.6	72.7	..
Life expectancy at birth, in years, male	69.6	69.6	69.7	69.9	69.9	70.0	..
Life expectancy at birth, in years, female	74.8	74.9	75.0	75.1	75.4	75.4	..
% of population aged 0-14 years	16.5	16.2	16.1	15.9	15.9	15.8	15.7
% of population aged 65+ years	16.1	16.4	16.7	16.9	17.0	17.2	17.2
Mortality rate (per 1,000)	13.8	13.2	13.7	13.9	14.0	14.3	..
Infant mortality rate (per 1,000)	10.6	10.2	10.1	9.0	8.1	8.0	..

Note: Data on Kosovo and Metohija are excluded.
Sources: Statistical Office of the Republic of Serbia, except total fertility rate, which is from World Health Organization (WHO) Health for All database (www.who.dk on 10.11.2006).

Table I.2: Selected economic indicators, 2000-2006

	2000	2001	2002	2003	2004	2005 [5]	2006
GDP (% change over previous year)	4.5	4.8	4.2	2.5	8.4	6.2	5.8 [1]
GDP in current prices (million US$)	9,013	10,431	12,172	16,124	20,966	..	..
GDP in current prices (million EUR)	26,431	13,186	16,812	18,009	19,724	21,108	
GDP in current prices (million CSD)	397,656	783,897	1,020,117	1,171,564	1,431,313	1,750,000	2,139,800 [1]
GDP in constant 2002 prices (million CSD)	933,534	978,750	1,020,117	1,045,570	1,133,651	1,204,065	
GDP per capita (US$ per capita)	1,199	1,390	1,623	2,155	2,809	..	..
CPI (% change over the preceding year, annual average)	79.6	93.3	16.6	9.9	11.4	16.2	12.3
PPI (% change over the preceding year, annual average)	102.6	87.7	8.8	4.6	9.1	14.2	14.4
Registered unemployment (% of labour force, end of period)	22.2	23.2	25.3	27.8	25.9	26.8	27.1
Current account balance (million US$)	..	..	..	-2,238	-3,329	-2,681 [2]	..
" " (as % of GDP)	..	..	..	-11.8	-14.8	-11.2 [2]	..
Net FDI inflows (million US$)	50.0	165.0	475.0	1,360.0	966.0	1,550.0	..
Net FDI flows (as % of GDP)	0.6	1.6	3.9	8.4	4.6	..	..
Cumulative FDI (million US$)	50	215	690	2,050	3,016	4,566	..
Foreign exchange reserves (million US$)	890	1,809	3,063	4,436	5,147	6,541	12,636
Total net external debt (million US$)	..	..	..	..	..	..	..
Exports of goods and services (million US$)	1,558	1,721	2,075	2,755	3,523	4,482	6,428 [3]
Imports of goods and services (million US$)	3,330	4,261	5,614	7,473	10,753	10,461	1,3172 [3]
Ratio of net debt to exports (%)	..	..	..	..	..	..	..
Ratio of net debt to GDP (%)	..	..	..	48.1	40.4	37.3 [2]	..
Exchange rates: annual averages (CSD / US$)	..	66.8	64.2	57.4	57.9	72.2	65.4
Population (million)	7,516	7,503	7,500	7,480	7,463	7,441	7,425 [4]

Sources: Statistical Office of the Republic of Serbia and Economist Intelligence Unit (EIU), Country Report of Serbia and Montenegro, July 2006.

Notes:

1)UNECE's estimate, 2) IMF estimate, 3) Since 2006 trade with Montenegro included into Serbian total exports/imports,
4) Statistical Office of the Republic of Serbia estimate,
5) Full year Statistical Office of the Republic of Serbia estimate except when otherwise indicated.

In February 2006, the official unemployment rate reached 33 per cent, the highest figure since the collapse of Yugoslavia in 1991. However, if the informal economy is taken into account the unemployment figure is estimated to be much lower, although still high – 18 per cent to 19 per cent. The absolute number of unemployed has hovered around 1 million since March 2005. The rise in unemployment, accompanied by a growing number of unfilled vacancies (an increase of 17.7% between January and April 2006), indicates that Serbia's labour market is having problems matching job seekers with jobs.

I.4 Institutions

In 2003, the Federal Republic of Yugoslavia was transformed into the State Union of Serbia and Montenegro. The State Union came to an end on 3 June 2006, when, on the basis of a referendum, the Parliament of Montenegro declared Montenegro independent of the State Union. On 5 June 2006, the National Assembly of Serbia declared Serbia successor to the State Union. A new Constitution was approved by referendum in autumn 2006, replacing the Constitution of 1990.

The Republic of Serbia has three-layered administrative and self-government structure. The competencies of the different State functions are divided between national, provincial and municipal authorities. The national institutions have the normal customary State competencies for the international relations of the country, and are in charge of its common defence, security and border controls.

The autonomous provinces have competencies on the matters of provincial interest. These include urban planning and development; agriculture; water economy; forestry; hunting; fishery; tourism; environmental protection; industry; road, river and railway transportation and road repairs; education; sport; culture; health care and social welfare; and public information.

The municipalities are responsible for and regulate municipal activities. The fields of activities are essentially the same as on the provincial level but

laws specify which level of government in each case is responsible to take action.

Government system

Serbia is a democratic republic with a multi-party parliamentary representative system. The government system is based on the division of power into legislative, executive and judiciary branches. The relation between the three branches of power is based on balance and mutual control. Legislative power is shared between the Government and the National Assembly. The judiciary is independent of the executive and the legislative powers.

The President is elected by popular vote to a five-year term and may serve no more than two terms. The National Assembly is a unicameral legislature with 250 deputies, who are elected by popular vote for four-year terms. The Chairperson of the National Assembly puts forward a candidate for Prime Minister, who proposes his/her platform and composition of the Government (see Table I.3). After debate, the National Assembly votes on the acceptance of the Prime Minister and the Government.

Administrative system

Out of Serbia's three regions, Central Serbia is not an administrative division and therefore has no regional government of its own. The Autonomous Province of Vojvodina has its own regional government. The Autonomous Province of Kosovo-Metohija is according to resolution 1244 of the UN Security Council (1999) under the United Nations Interim Administration Mission (UNMIK), and is not covered in this Environmental Performance Review. At the subregional level, Serbia is divided into districts and municipalities. The districts (*okruzi*), with various State institutions, are solely regional State administration units without independent budgets or elected assemblies. Serbia is divided into 29 districts, of which 17 are in Central Serbia, seven in Vojvodina, and five in Kosovo-Metohija. The capital, Belgrade, is a district of its own.

The country has 196 municipalities (120 in Central Serbia, 46 in the autonomous province (of Vojvodina, and 30 in autonomous province of Kosovo-Metohija). Municipalities have presidents, property, budgets and assemblies, which are elected in local elections every four years. Municipalities contain local communities (*mesne zajednice*), which are managed by elected local councils (*saveti*).

Only a conglomeration of two or more urban municipalities can have city status. Currently, there are four cities which have their own assemblies and budgets and are formed from several municipalities. Belgrade has 17 municipalities, Kragujevac five, Niš five, and Novi Sad two.

Table I.3: Ministries, May 2007

Ministry for Diaspora
Ministry for Kosovo-Metohija
Ministry of Agriculture, Forestry and Water Management
Ministry of Culture
Ministry of Defence
Ministry of Economy and Regional Development
Ministry of Education
Ministry of Energy and Mining
Ministry of Environmental Protection
Ministry of Finance
Ministry of Foreign Affairs
Ministry of Health
Ministry of Infrastructure
Ministry of Interior
Ministry of Justice
Ministry of Labour and Social Policy
Ministry of Public Administration and Local Self-Government
Ministry of Religion
Ministry of Science
Ministry of Telecommunications and Information Society
Ministry of Trade and Services
Ministry of Youth and Sports

Source: Serbian Government www.srbija.sr.gov.yu/ May 2007

State administration is performed by the ministries and other public administration bodies. A particular competence of the Republic can be delegated to the autonomous provinces or to the local self-government unit. Some powers may be delegated to enterprises, institutions, organizations and individuals or in some cases to specific bodies through which they perform regulatory function in a particular field.

Autonomous provinces have a supreme body called an assembly where the deputies of the province enact statutes, decisions and general acts. Provinces have direct revenues for financing their functions, and they decide independently on their budgets and manage the provincial assets.

Provinces may delegate particular matters within their competence to local self-government units. Resources to execute the delegated competences are provided for by the State or the autonomous province, depending on by whom the competences were delegated.

Local self-government units include municipalities, towns, and the City of Belgrade. Local self-government units have their own assemblies with elected councillors. The municipality has autonomous competencies to pass general acts, adopt budgets, and manage the municipal assets, urban development plans and municipal development programmes within its competences. Affairs of a local self-government unit are financed either from the direct revenues of the local self-government unit, or from the budget of Autonomous Province or the State.

I.5 Impact of the economic sectors on the environment

Energy

The energy sector is a major polluter in Serbia, mainly because it uses polluting fuels (mostly domestic lignite) and burns them using obsolete equipment without abatement technology. In 2005, Serbia produced 65.5 per cent of its electricity from lignite-burning power plants, 33 per cent from hydropower plants and 1.5 per cent from combined and other plants. About 39 per cent of households in Serbia use coal as their primary source of heat, while 33 per cent use electricity, 7 per cent wood, 7 per cent natural gas and 14 per cent district heating. Forty-five towns have district heating systems, which are characterized by low efficiency and by production and distribution losses exceeding 20 per cent of production.

In general, the power-generating facilities produce massive amounts of ash, which are dumped into landfills. It is estimated that disposal sites in Serbia contain about 170 million tons of ash, covering an area of 1,800 ha.

Not only is the energy sector a significant polluter, the energy produced is not used efficiently and energy intensity is very high (see chapter 7 on Energy and Environment). The transmission and distribution losses are respectively 3.2% and 7 per cent.

Serbia also has a small oil production capacity and a local oil processing industry. The total installed processing capacity of oil refineries is about 7.8 million tons a year – 4.8 million tons in Pančevo and 3 million tons in Novi Sad. The NATO (North Atlantic Treaty Organization) bombing campaign in 1999 hit the oil refineries hard, and they are still operating at 84 per cent capacity only (at 6.6 million tons total: 4.8 million tons in Pančevo and 1.8 million tons in Novi Sad). The oil pipeline network is 420 km long.

Mining

Mining is concentrated in a few areas. Lignite is mined from the Kolubara and Kostolac open-cast mines. The low-calorific-value lignite's sulphur content varies from 0.5 per cent to 1.3 per cent, and the known reserves are expected to last for 50 years of exploitation. Copper mining is concentrated in the Bor district. Copper is mined from underground and open-cast mines. The copper content of the ore varies from 0.35 per cent to 0.7 per cent.

The mining basins of Serbia are scarred by years of intensive exploitation of their natural resources. Open-cast mining of coal and copper has led to significant soil degradation. Huge areas are covered with tailings from mining activities. These landfills are estimated to contain 1.4 to 1.7 billion tons of tailings and topsoil, along with 700 million tons of flotation and separation tailings.

About 40,000 ha of soil have been affected by the open-cast mines and the tailings. Less than 20 per cent of that area has been covered by natural vegetation, which until now has constituted the only landscaping of the affected areas. At one point, a recultivation programme was implemented, and approximately 1,800 ha were recultivated by the end of 1991, but the programme was suspended in 1992.

Industry

Industry contributed 27.6 per cent of Serbia's GDP in 2004. The country's industrial sector is very diversified and includes food processing and beverages, chemicals and chemical products, metal processing, oil derivatives, products of non-metallic minerals, machines and devices, and electrical devices and apparatus. The main industrial hot spots are in the cities of Bor, Kragujeva, Pančevo and Šabac.

Pollutants found in the environment include dichloroethane, mercury and other heavy metals, polychlorinated biphenyl (PCB) oils and petroleum waste, and phenols. The levels of these pollutants often exceed national and European Union (EU) standards. Other environmental hot spots, created not by industrial processes but by 1999 NATO bombing campaign, which targeted industrial installations such as chemical plants, power stations, and the oil refineries situated in Pančevo and Novi Sad.

The impact of the industry on Serbia's environment is not clear. This is due to many concurrent phenomena. The responsibilities of the authorities

overseeing environmental protection are not always well defined, and in some cases permits are issued by the institutions in charge of enforcing environmental protection. Industry does not have self-monitoring or reporting, and some protection instruments (e.g. emission permits for air pollution and wastewater discharges) are lacking.

An information system for environmental protection and a register of polluters are prescribed by law but not implemented in practice. All this, combined with an ineffective monitoring and reporting system, has resulted in a lack of environmental data and therefore a lack of information on the environmental pressure from industry.

Agriculture

Serbia's natural conditions favour intensive agricultural production. The agricultural sector employs almost 11 per cent of the population and produces 19.2 per cent of the country's GDP. Agricultural production rose 0.9 per cent in 2006.

Fertilizer consumption decreased from 115 kg/ha in 1991 to 36 kg/ha in 2002, leading to a significant reduction in the eutrophication of water bodies. Current soil pollution and eutrophication problems are mostly connected to effluents from livestock farms.

The World Bank estimates that 29 per cent of the country's surface area and 52 per cent of agricultural land are affected by poor drainage. Crop yields, especially for field crops, would benefit from drainage improvements, which have the potential to increase the crop yield by an estimated 20 per cent to 30 per cent.

Other areas of the country, especially in Vojvodina, have extensive irrigation systems. Vojvodina's economy is based on its 1.78 million ha of fertile arable land. A half million ha (28%) of the land are irrigated.

Some 1.57 million ha, especially in areas next to the large rivers, are subject to flooding, which could cause complete crop loss. Without attention to flood protection, additional investments in irrigation and drainage improvements in the areas prone to flooding would be useless.

Transport

Within the past decade, Serbia has rapidly become motorized. Currently, there are 2.4 million vehicles, or around 250 vehicles per 1,000 inhabitants, but this proportion is expected to double within a few years. Serbia's vehicle fleet is old and has a large number of recently imported used cars. Ninety per cent of the cars are over 10 years old, and one third of all vehicles are more than 15 years old.

Only about one third of passenger cars and somewhat more than half of all registered vehicles are equipped with catalytic converters. This aged vehicle fleet has a severe environmental impact through high exhaust emissions and noise, not to mention the disposal of used engine oil and obsolete cars.

Increasing road transport in general and urban transport in particular are becoming a major source of lead, soot, sodium dioxide (SO_2), and nitrogen oxide (NOx) emissions. The situation is aggravated by the poor quality of automotive fuels. The lead and sulphur content of fuel is much higher than in Western Europe or in the other countries of South-Eastern Europe (except for Montenegro). It is estimated that some 70 per cent of marketed fuel does not meet the established national standards.

A prohibition against importing used vehicles that are older than six years was tightened in October 2004, when the Government adopted a decree banning the import of used vehicles that are older than three years or do not comply with Euro 3 emission standards. There are no plans to phase out leaded fuel or introduce a vehicle control system to diminish vehicle fleet emissions. However, the 2006 National Environmental Strategy proposes the phasing out of leaded fuel by 2010.

I.6 Environmental context

Water

Only 8 per cent of Serbia's available water resources originate in the country; the remaining 92 per cent is transit water entering the country through the Danube, Sava, Tisa and other watercourses.

In 2004, the total annual water abstraction for household and industrial needs was 820 million m^3. Out of the total, 55.4 per cent came from groundwater sources, 42 per cent from surface waters like springs, watercourses and artificial reservoirs, and 2.7 per cent from other public water supplies. Serbia's water exploitation index (WEI) in 2004 was 82 per cent, indicating an excessive use of freshwater resources.

A system of 153 public water distribution networks provides water for 60 per cent of the population, while the remaining inhabitants get their water from private water supply systems (built, operated and owned by communities) or from private wells. The water supply system serves a high percentage of the population, but distribution problems, mainly water losses, cause trouble for consumers. According to the most recent UNICEF data available 48 per cent of surveyed households reported regular or temporary interruptions in water supply.

There are three major problems linked to water usage. Firstly, water losses are significant, i.e. 30 per cent of the supplied water. Secondly, drinking water treatment in many areas is inadequate and the quality of drinking water is unsatisfactory. The Public Health Institute reported that in 2005, 19 per cent of samples taken from the public water supply system failed to meet physical and chemical standards, while 6.5 per cent did not meet bacteriological standards. Finally, the use of groundwater for industrial processes is very extensive. About 28 per cent of Vojvodina's and 18 per cent of Central Serbia's industrial water is abstracted from groundwater aquifers.

The main origins of water pollution are discharges of untreated industrial and municipal wastewater, agricultural run-off, discharges from waste dumpsites, and pollution related to river navigation and thermal power stations. The country's industrial wastewater discharge is concentrated in the Sava River basin, which receives about 80 per cent of the industrial emissions.

The water quality of the watercourses is generally low and, according to the 2002 Water Master Plan and the 2006 National Environmental Strategy (NES), is deteriorating. Inadequate sewerage infrastructure for wastewater collection and treatment is the primary cause of water pollution. The sewerage system covers 48 per cent of the country's population, but there are huge variations in coverage among provinces as well as between the urban and rural population.

Overall, 13 per cent of the total volume of municipal wastewater is treated before discharge. Only 28 towns have wastewater treatment facilities. The largest cities – Belgrade, Novi Sad and Niš – discharge wastewater untreated into water bodies. In addition, some facilities are abandoned, are not functioning fully or provide only mechanical treatment of wastewater. Currently there are no tertiary wastewater treatment facilities in the country.

Air

The main sources of air pollution are the energy sector (especially thermal power plants), the transport sector (engine fuels), and industrial facilities. The combustion of low-quality lignite with low calorific value in the thermal power plants of Obrenovac, Lazarevac and Kostolac produces large quantities of fly ash, sulphur and nitrogen oxides. The emission cleaning equipment of the power plants is inadequate – electrostatic precipitators are in place, but there is no desulphurization or denoxification equipment. Lack of equipment, combined with inefficient combustion and inadequate maintenance, causes high emission levels.

Other major sources of air pollution include the oil refineries in Pančevo and Novi Sad, the cement factories in Popovac, Kosjerić and Beočin, and chemical plants and metallurgical complexes located in Pančevo, Krusevac, Šabac and Smederevo. The causes of pollution are similar to those of emissions in the power sector**:** obsolete technologies, lack of flue gas treatment or low efficiency of filters, low-quality raw materials and low energy efficiency, and inadequate operation and maintenance.

A combination of factors has led to increased emissions. Low energy prices have led to uneconomical, wasteful energy consumption and the use of inefficient combustion technologies. The unnecessarily high use of energy (see chapter 7) is exacerbated by the inadequate maintenance of industrial plants.The total annual damage resulting from air pollution and greenhouse effects is valued at an estimated €0.45 billion to €1.37 billion, or 1.8–5.5 per cent of the GDP.

Biodiversity

Serbia has three biomes: sub-Mediterranean, Middle European and Pontian-Southsiberian. There are about 1,000 flora communities in Serbia, of which the Balkan endemics make up 8.06 per cent (287 taxa) and local endemics make up 1.5 per cent (59 species). The number fauna species and their diversity are also very large. About 600 flora and 500 fauna species are endangered.

About 6.5 per cent (5,743 km^2) of the total land area of the country is protected. Serbia has five national parks, 98 nature reserves, 16 landscape protected areas, 296 nature monuments and 24 nature parks. In addition, 215 plant species and 426 fauna species are protected as natural rarities. Six areas – Labudovo okno, Liduško Lake, Obedska Bara, Peštersko polje,

Stari Begej/Carska Bara and Slano Kopovo – with a total area of 21,000 ha have Ramsar Convention on Wetlands status, and the Golija-Studenica biosphere reserve is included in the biosphere directory of the UNESCO C*onvention concerning the Protection of the World Cultural and Natural Heritage.*

Forests

Forests and woodland cover 28 per cent of Serbia's land area (forests alone cover nearly 26%), and current forestation is 50 per cent higher than at the end of the Second World War (when it was 19.3%). The country's geographical position, climatic diversity and habitat conditions create abundant biodiversity in forests and enable the presence of many different forest types and plants.

However, the economic potential of the forests is limited. The age and structure of the growing stock are unfavourable because over half of Serbia's forests (55%) are sprout or low-productive forests. In addition, several other factors such as forest density, percentage of forest cover, low wood mass and insufficient health conditions make economic exploitation difficult and decrease the forests' CO_2 absorption capacity.

The State owns slightly over 56 per cent of the forests and the rest (44%) is under private ownership. About 18 per cent of the total forest and woodland area is under various protection regimes, but almost all (90%) of the total protected area is state-owned, and hence nearly 35 per cent of the State-owned forests are under protection. About 48 per cent of all State-owned forests are under a protection regime, while the remainder are exploited.

Soil

Erosion is a major cause of soil degradation and is estimated to affect up to 80 per cent of agricultural soil in Serbia. In the central and hilly-mountainous regions, erosion is mainly caused by water. Flat, agricultural Vojvodina is affected by wind erosion: 85 per cent of agricultural soils are affected, with an annual loss of over 0.9 tons of topsoil material per ha. Exploitation of mineral resources by open-cast mining is causing loss of soil, especially in the Kostolac and Kolubara basins, where lignite is mined from underneath the high-quality topsoil.

Waste

Average annual waste generation per capita is 290 kg. Households generate about 63 per cent of the municipal waste and businesses about 20 per cent. About 60–70 per cent of municipal solid waste (2.2 million tons annually) is collected. While collection of municipal waste is organized in urban areas, it is non-existent in rural areas, where part of the generated waste is burned in backyards.

Landfills are the primary waste disposal method. Municipal waste, including hazardous waste generated by households, is usually disposed directly to landfills. Serbia currently has 180 registered landfills for municipal waste. These disposal sites generally do not meet the technical requirements of sanitary landfills. In addition to the registered landfills, there are hundreds of illegal dumpsites of various sizes in rural areas.

The uncontrolled burning of landfills causes harmful emissions of particulate matter, dioxins and polycyclic aromatic hydrocarbons (PAHs), while biodegradable waste produces landfill gas containing CO_2 and methane. The leachate from landfills containing high organic and heavy metals loads are a threat to the groundwater, surface waters and soil.

Although primary recycling is required by law, in practice recycling is not happening. Exceptions include the waste-sorting facility in Novi Sad and recycling yards with designated containers for collection of specific types of waste. The industrial processing capacity for recyclables and recovered materials is very limited. Serbia does not have waste incineration plants, and waste is not used as an alternative fuel.

There are no data on the volume of industrial hazardous waste. It is estimated that 460,000 tons of hazardous industrial and medical waste are generated annually. Vojvodina has a specific problem with waste from oil wells and pumps (the quantity is estimated to be 600,000 m^3). Serbia has neither facilities for the treatment and disposal (destruction or incineration) of hazardous waste nor proper storage facilities, and therefore hazardous waste is temporarily disposed of via inadequate storage methods. The 2006 National Environmental Strategy estimates that the total annual damage from inadequate waste management amounts to between €98 and €276 million or 0.4–1.1 per cent of the GDP.

Map I.1: Map of Serbia

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

PART I: POLICYMAKING, PLANNING AND IMPLEMENTATION

Chapter 1

LEGAL AND DECISION-MAKING FRAMEWORK

1.1 Institutional capacity for environmental management

Since the first Environmental Performance Review (EPR) in 2002, the institutional framework for environmental protection has changed significantly in the Republic of Serbia. These changes demonstrate an effort to create institutions able to implement obligations stemming from international, European Union (EU) and national commitments. After the split of the State Union of Serbia and Montenegro (2006), the Republic of Serbia established an institutional structure covering all levels of public administration, including monitoring and research institutes. However, the institutional framework for environmental protection is not yet complete.

In 2003, the Ministry of Natural Resources and Environmental Protection (MNREP) was established, which is one of the recommendations of the first EPR. The responsibilities in the field of water protection were shared between the MNREP and the Ministry for Agriculture and Water Management (MAFWM). In 2004, the institutional framework was modified and key environmental responsibilities were divided between two ministries: the Ministry of Science and Environmental Protection (MSEP) and the MAFWM. In May 2007, a new Government was put in place and the Ministry of Environmental Protection (MEP) set up on the basis of the former Directorate for Environmental Protection (DEP) of the MSEP.

In September 2006, Serbia adopted its Constitution, which proclaims that every citizen has the right to a healthy environment and the right to timely and full information about the state of the environment. Everyone is accountable for the protection of the environment, and is obliged to preserve and improve it and to protect natural rarities and scientific, cultural and historical heritage, as well as goods of public interest.

National level

Until May 2007, within the MSEP the Directorate for Environmental Protection (DEP) was entrusted with a wide range of responsibilities identified in the *Law on Ministries* (OG RS Nos. 19/2004 and 84/2004). The main tasks of DEP were to ensure environmental protection systems and the sustainable use of natural resources (air, land, minerals, fish, flora and fauna species), the conservation of nature, and the identification and implementation of measures to protect natural areas of significance to the country. The new Ministry of Environmental Protection (MEP) has inherited of the same tasks (see Box 1.1 and Figure 1.1 for the structure of the MEP).

The MAFWM also has some responsibility for the management of natural resources. Some of its directorates are competent to carry out activities related to environment, such as the Directorate for Forests, the Directorate for Plant Protection and the Directorate for Water. The Directorate for Forests is in charge of forestry policy and the development and utilization of forests and game animals, and is responsible for the implementation of measures for the protection of forest and game animals and the control of seeds and afforestation.

The Public Forest Enterprises **(**Public Enterprises: JP Serbia Forests, JP Vojvodina Forests) are responsible for the improvement and utilization of State-owned forests (timber, recreation), the maintenance of forest facilities, and the preparation of programmes and projects for forest management. The Directorate for Plant Protection is responsible for the control of production, import, trade, storage and application of plant protection agents.

The Directorate for Water is responsible for the development of water management policy, rational use of water resources, drinking water supply (excluding distribution), flood protection, issuance of permits for water abstraction and discharges, and collection of charges for water use and for discharges into water bodies. The Directorate is also entrusted of water protection and rational consumption of waters, monitoring and maintenance of national and transboundary water flows, and other tasks defined by the *Law on Water*. The public water management enterprises Srbijavode and Vode Vojvodine were set up to manage water resources, including water catchments and water supply installations, in Central Serbia and in the Autonomous Province of Vojvodina, respectively.

Box 1.1: Responsibilities of the Ministry of Environmental Protection

- Preparation of strategic documents, plans and programmes
- Estimation of groundwater reserves and preparation of standards for geological maps
- Protection from ionizing and non-ionizing radiation, chemical substances, waste and hazardous substances in production, transport, storage and disposal
- Transboundary pollution of air and water
- Control of transboundary waste movements and transboundary movements of protected flora and fauna
- Climate change and protection of the ozone layer
- Environmental protection measures in the process of spatial planning and construction
- Early warning system against accidents
- International cooperation in environmental matters and nature protection
- Protection from noise and vibration
- Preparation of programmes for basic geological investigations aimed at sustainable use of natural resources and underground water
- Nature conservation and identification of potential natural areas of significance for preservation of nature
- Permitting relevant to the import, export and transit of waste and vulnerable wild flora and fauna, ozone-depleting substances, chemicals and radioactive materials
- Environmental and sustainable-development-related inspection

Other ministries with responsibilities relating to the environment include the Ministry of Economy and Regional Development (including industry), the Ministry of Health (including enforcement of sanitary regulations relevant to the environment), the Ministry of Capital Investment[1] (including urban planning and construction and utilisation permits and road, air, rail and water traffic), and the Ministry of Energy and Mining (including energy efficiency, approval for extraction of mineral resources other than underground water, and renewable energy sources).

The current division of environmental responsibilities among all these institutions results in a number of gaps, overlaps and insufficiencies that weaken environmental protection and enforcement. For instance, insufficient coordination between environmental laws and other laws defining other responsibilities of institutions at the national and subnational levels causes significant unbalances and overlaps. Of particular concern are the *Law on Local Self-government* (OG RS No. 9/2002), the *Law on Water* (OG RS No. 46/1991 and No. 54/1996), the *Law on Planning and Construction* (OG RS No. 47/2003) and the *Law on Establishing Certain Competencies for the Autonomous Province of Vojvodina* (OG RS No. 6/2002).

The division of responsibilities relating to natural resources between two ministries (the MEP and the MAFWM) has impeded adequate coordination of policies and actions. The 2004 *Law on Environmental Protection* (OG RS No. 135/2004) gives most competencies to the "ministry responsible for environment" without further specifying its relations with other sectors. Only sporadic provision is made for cooperation at the horizontal level (between ministries). The MEP, formerly the DEP, has a limited ability to influence other national policies and is understaffed. While its capacity to develop legislation is strong, its capacity for policy formulation and appraisal, for economic assessment, and for conducting strategic environmental assessment (SEA) and integrated pollution prevention and control (IPPC) is limited. The lack of staff and expertise prevent the MEP from being a fully efficient national environmental protection body. Consequently, its position in relation to sectoral ministries is rather inferior. These issues are obstacles to addressing fully the challenges of environmental protection in Serbia or of harmonization with the EU environmental *acquis* (Box 1.2).

The measures for reforming and strengthening environmental institutions which are proposed in the 2006 *National Environmental Strategy* (NES) aim at a more realistic and efficient environmental policy, a stronger and more balanced position for the ministry responsible for environment in relation to other ministries, the strengthening of the capacity of all ministries to integrate environmental issues into sectoral policies, and better implementation of the EU environmental *acquis*.

The National Council for Sustainable Development (NCSD) was established in 2003 to provide a forum for discussion and consensus-building among ministries and other stakeholders on issues related to the environment and sustainable development. Its objectives include ensuring horizontal coordination between MEP and other government agencies and

[1] Since May 2007, the Ministry of Capital Investments is divided into two new ministries: the Ministry of Infrastructure and the Ministry of Telecommunication and Information Society.

Box 1.2: Summary of main institutional weaknesses in environmental protection, 2007*

- Lack of horizontal coordination between the Ministry for Capital Investments-National Agency for Spatial Planning and the MSEP-Directorate for Environmental Protection in the field of spatial and urban planning and construction.
- Lack of consistent integration of environmental considerations and requirements in the process of adoption of spatial and urban plans and construction permitting.
- Overlap of competencies between the Directorate for Water and the DEP in relation to water quality and water pollution.
- Potential conflict of responsibilities between the Directorate for Forests, which is performing forestry activities as an economic sector, and the DEP, which is entrusted with the responsibility of protecting forest ecosystems.
- Unclear responsibilities for protection of wild fauna in the context of hunting.
- Inadequate and unclear division of competences between the Ministry of Mining and Energy and the DEP in the field of geological research.
- Insufficient institutional coordination and coverage of environmental monitoring activities.
- Inadequate and insufficient professional staff at all levels of public administration, including environmental inspectorates (especially for SEA, EIA, IPPC, monitoring, inspection activities).
- Educational institutions insufficiently prepared to train an adequate number of environmental experts.

** Situation prevailing before the governmental change of May 2007*

addressing potential conflicts in policy formulation and implementation. NCSD is also entrusted with coordinating the preparation of the *National Strategy for Sustainable Development*. It does not have a permanent secretariat.

At first, in 2003 NCSD was placed under the responsibility of the Ministry of Natural Resources and Environmental Protection and did not meet or operate in practice. To make it more effective, NCSD was restructured in 2005. It is now chaired by the Deputy Prime Minister and includes six ministers, the President of the Serbian Academy of Sciences and Arts and the Rector of the University of Belgrade. An interim operating secretariat has been set up which is working to further develop the *National Strategy for Sustainable Development*. Although the members of the NCSD would supposedly change when the new Government is appointed after the parliamentary elections of 2007, the implementation of NSSD in Serbia would be carried out.

Autonomous province and local level

Under the existing laws, a number of environmental competencies have been decentralised to the level of the autonomous province or units of local government.

In 2002, certain environmental responsibilities were delegated to the Autonomous Province (AP) of Vojvodina under the *Law on Establishing Certain Competencies for the Autonomous Province of Vojvodina* (OG RS No. 6/2002). The functions of the Provincial Secretariat for Environmental Protection and Sustainable Development include development of environmental and sustainable development programmes for Vojvodina and measures for their implementation; monitoring and information systems; approval of environmental impact assessments (EIAs); approval of environmental protection programmes including agricultural land, flora, fauna, forests and water protection; approval of programmes on construction; approval of plans for national parks in its territory; inspection services for all environmental media except hazardous substances and biodiversity; and other issues of interest for the province, in line with the *Law*. The province is also in charge of strategic environmental assessment of plans and programmes and issuing of integrated permits for facilities and activities in its territory.

However, institutional responsibilities for environmental protection delegated to the AP of Vojvodina are not always clear (e.g. concerning the establishment of the provincial institute for nature protection and of public enterprises for the management of national parks). Competencies related to EIA, inspection and monitoring are delegated to the AP of Vojvodina by the national government. The extent to which other competencies are delegated to the AP of Vojvodina is less clear. The *Law on Establishing Certain Competencies for the Autonomous Province of Vojvodina* (OG RS No. 6/2002) states that "The AP regulates certain aspects of the protection, development and upgrading of the environment which are of interest for the AP". This means that the AP enacts regulations, but the wording "of interest for the AP" is unclear.

Municipalities have responsibilities relating to urban planning, environmental protection and improvement of the environment, and public utilities. At the local level, secretariats for environmental protection have responsibilities for environmental management, including air quality protection, protection from noise, management of communal waste, urban planning, and construction permits for facilities not

covered by the national level. Strategic assessment of plans and programmes, EIA and integrated permits are also among their statutory tasks.

Other environmental institutions

The Environmental Protection Agency (EPA), established in 2004, is an institute under the MEP. Its main functions include:

- Developing, harmonizing and managing the national environmental information system (especially regarding the status of environmental media) and developing a register of polluters;
- Collecting environmental data and reporting on environmental conditions and environmental policy implementation;
- Developing procedures for processing and assessing environmental data;
- Updating data on the Best Available Techniques and practices to support IPPC; and
- Cooperating with and reporting to the European Environmental Agency (EEA) and the European Environment Information and Observation Network (EIONET).

The EPA has only a small budget and staff. It has been built on former institutional structures (e.g. monitoring institutes, which will continue to perform monitoring, collect and process data). Its limited number of staff, 22 persons, does not enable the EPA to fulfil all of its functions.

The Institute for Nature Protection, also under the MEP, is responsible for protection of nature, especially protection of protected areas, such as parks, nature reserves, wild flora and fauna habitats, and is also responsible for overseeing the use of these natural resources.

1.2 Policies, strategies and plans

Since 2002, Serbia has made progress regarding the elaboration and adoption of key strategic documents concerning environmental protection. Several strategies have been adopted, and others are under preparation (see Box 1.3).

The legal basis for strategic planning is provided by the 2004 *Law on Environmental Protection*. The *Law* calls for the elaboration of a national environmental strategy.

The NES[2] drafted by the MSEP was adopted by the Government in 2006 and will be submitted for approval to the National Assembly. It lays down fundamental principles of environmental protection and sustainable development and defines the priorities for the institutional framework: (a) full integration of environmental policy into economic and other sectoral policies; (b) strengthening of the institutional capacity for development and enforcement of sectoral and environmental policy and development of emergency response systems; and (c) adequate addressing of environmental liabilities in the privatization process on the basis of the "polluter pays" principle.

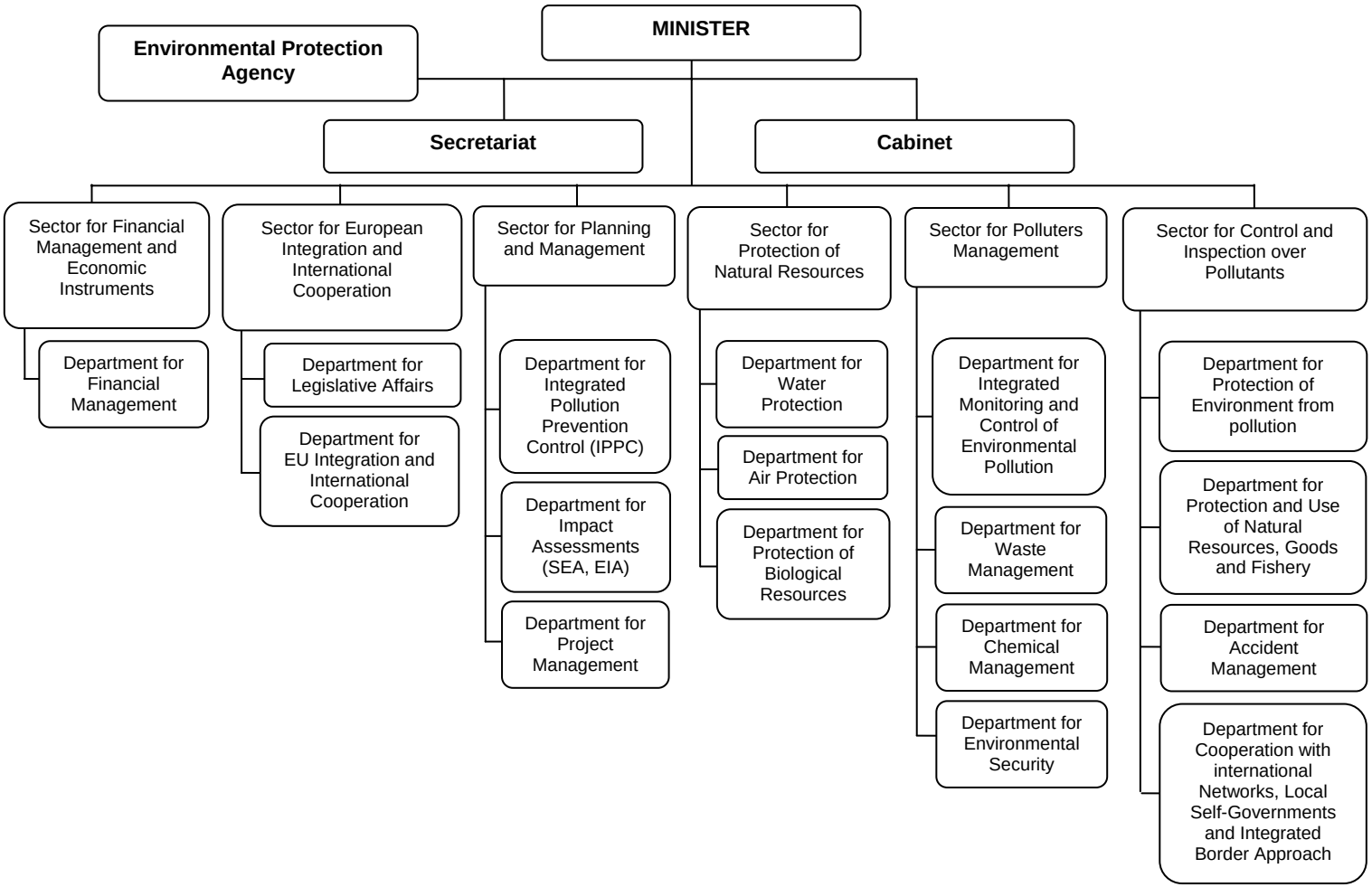
The NES envisages short-term (2006–2010) and medium-term (2011–2015) reforms in environmental legislation and institutions. For legislation, the goal is to develop a comprehensive legal environmental system by adopting sectoral laws and implementing legislation; to improve law enforcement monitoring; and to increase the capacities of the judiciary system. Legislation relevant to the environment should be further revised and gradually harmonized with the EU environmental *acquis.* Regarding institutional reforms, the aim is to improve the horizontal coordination of environmental policy and the integration of environmental requirements into other policies. To this aim, 16 specific environmental action plans will be developed jointly by the ministry responsible for environmental protection and ministries in charge of the respective areas (See Box 1.4). Their preparation is under way.

The NES also recommends the creation of a strong ministry of environmental protection, the strengthening of EPA, the strengthening of all ministries' capacity for integrating environmental issues into sectoral policies, and the strengthening of NCSD and the environmental inspection body. The goals of the NES are based on identified gaps and priorities, and aim to make the whole system more consistent, more transparent and compliant with EU requirements.

Serbia is also working on two other important strategic documents: the *National Strategy for Sustainable Use of Natural Resources and Goods* (following the draft of the EU thematic strategy on the management of natural resources) and the NSSD.

[2] The Law actually refers to a *National Environmental Protection Programme* (NEPP). Since the programme's nature and time horizons are rather typical of documents called strategies, it is referred to as the *National Environmental Strategy* in English and in this text.

Figure 1.1: Structure of the Ministry of Environmental Protection



Box 1.3: Sectoral strategies and other major policy documents adopted or initiated since 2002

Adopted:
National Strategy for Waste Management (2003)
Poverty Reduction Strategy (2003)
Water Resources Development Master Plan of Serbia 2002–2012 (2003)
Strategy for Development of Agriculture in Serbia (2005)
Energy Sector Development Strategy (2005)
Strategy for Development of Forestry (2006)
Study of Sustainable Development of Serbia's Water Sector (2006)
Strategy for Development of Tourism (2006)
National Strategy for Economic Development of Serbia 2006–2012 (2006)
Strategy for Official Statistics (2006)
National Environmental Strategy (2006)

Still under preparation:
Fishery Strategy (draft ready)
National Strategy for Sustainable Development (in preparation phase)
Strategy for Sustainable Use of Natural Resources and Goods (in early phase of preparation)
Strategy for Biodiversity, Action Plan and National Report (in early phase of preparation)
Strategy for Introducing Cleaner Production in Serbia (in early phase of preparation)

The drafting of the *National Strategy for Sustainable Use of Natural Resources and Goods* began in summer 2006. The Strategy is being developed in a participatory approach (seven working groups, each dealing with one particular natural resource).

The MESP is coordinating the strategy-making process. The responsibilities over natural resources are spread over several institutions; this affects strategy formulation and consolidation. This dispersion of responsibilities makes it difficult to have a consistent approach to natural resources management and protection and an adequate interconnection with other ministries responsible for the use of natural resources (e.g. the MAFWM and the Ministry of Energy and Mining).

The NSSD is being drafted under the oversight of NCSD at a time when a number of strategic documents have already been adopted or are in an advanced stage of preparation or even adoption. Developing an "umbrella" strategy in these conditions is not easy, as this strategy should be in line with and built upon the content of all sectoral strategies, while the latter have not been developed or harmonized through any consultative process. See also chapter 3 for more details.

Integration of environmental policy with economic and other sectoral policies is in an early stage in Serbia. Policymaking is still dominated by planning operations within the different sectors of activities, resulting in little horizontal integration, and existing sectoral policies are not sufficiently harmonized with environmental protection.

Overall, many strategies have been adopted since 2002 or are awaiting adoption. However, competent ministries currently lack the necessary institutional structures and mechanisms to ensure their

Box 1.4: The 16 specific environmental action plans in the NES

- Advancement of spatial planning and landscaping
- Protection of soil
- Protection of water
- Protection of air and the atmosphere
- Protection of forests
- Protection of ecosystems
- Protection of natural goods
- Waste management
- Chemicals management
- Protection from ionizing and non-ionizing radiation
- Protection from accidents
- Protection from noise and vibrations
- Sustainable energy management
- Development of information systems
- Development of scientific research and education
- Development and application of economic instruments

implementation, nor do they have any plans to introduce these structures and mechanisms. This problem is closely connected with the problems of institutional framework described above, including that of poor inter-ministerial cooperation, which led to difficulties during the drafting of the NES and is currently causing similar difficulties in the drafting of the *National Strategy for Sustainable Use of Natural Resources and Goods* and the *National Strategy for Sustainable Development*.

In such circumstances, there is a risk that all strategies and action plans will remain only paper documents, without any real impact on practical policy or the state of the environment. Coordination of national policies is a crucial precondition for their efficient implementation.

1.3 Legal framework

Environmental laws

Since 2002, Serbia has made significant progress in developing environmental legislation. As was recommended in the first EPR, a new legal framework for environmental protection has been created. In 2004, the following laws were enacted: the *Law on Environmental Protection* (see Box 1.5); the *Law on Strategic Environmental Assessment* (*SEA Law*) (OG RS No. 135/2004); the *Law on Environmental Impact Assessment* (*EIA Law*) (OG RS No. 135/2004); and the *Law on Integrated Pollution Prevention and Control* (*Law on IPPC*) (OG RS No. 135/2004). They all approximate the corresponding EU directives and introduce the principles of these directives into the national legislation. They also take into account the provisions of the *Espoo Convention on Environmental Impact Assessment in Transboundary Context*, and its *Protocol on Strategic Environmental Assessment*.

According to the *SEA Law*, all national plans and programmes as well as municipal spatial and land use plans should undergo SEA. Public participation is envisaged in all SEA stages. In order to strengthen capacities for the implementation of the *SEA Law*, seminars have been organized since 2005, in particular directed towards local self-government representatives, and guidelines have been elaborated. A pilot project and guidance for implementing SEA were finalized in February 2007 to give practical instructions to the competent authorities at all levels on decision-making for the preparation of programmes and plans. Since the *SEA Law* has been under implementation, SEA reports have mostly been issued for spatial and urban plans. In 2005 and 2006, the DEP has issued 11 opinions on decisions to develop a SEA at the national level, two consents on SEA reports, and 137 opinions on draft decisions to implement SEA at the local level. The secretariat for environmental protection of the City of Belgrade has issued 83 SEA opinions on draft decisions on SEA and four consents on SEA reports.

For the implementation of the *EIA Law*, a Government Decree determines the list of projects for which an impact assessment is mandatory and the list of projects for which an impact assessment may be required. Both lists are in accordance with Annex I of the EU *Directive 97/11* amending EU Council *Directive 337/85*. Public participation is also envisaged in all EIA stages. All subsidiary regulations were adopted in 2005. The Directorate for environmental protection prepared guidelines which detail the EIA procedure and related obligations for all participants. In average, 5 per cent of submitted projects are turned down as a result of environmental impact assessment, and 90 per cent of them are amended. The Secretariat for environmental protection of the City of Belgrade has considered 41 requests for EIA consent in 2005, and 116 in 2006.

The main by-laws for implementation of the *Law on IPPC* have been adopted and full transposition of the EU *IPPC Directive* will be achieved after adoption of several regulations which are under preparation. Guidelines for the implementation of the *Law on IPPC* have been finalized and have to be published by DEP.

Other environmental laws and regulations needed to be changed to approximate the EU legislation, in particular regarding the preservation of nature; the introduction of genetically modified organisms; the protection of air, water, land, soil, forests and geological resources; the management of chemicals; waste management; protection against ionizing and non-ionizing radiation; and the management of noise and vibrations.

In May 2006, the Government approved the following new laws: the *Law on Air Protection*, the *Law on Waste Management*, the *Law on Non-Ionizing Radiation*, the *Law on Amendment to the Law on Environmental Protection*, and the *Law on Implementation of the Convention on the Prohibition of the Development, Production, Stockpiling and Use of Chemical Weapons and on their Destruction*. These are now awaiting adoption by the National Assembly. Other draft legislation, such as the *Law on Nature Protection*, the *Law on Noise*, *Law on Fishery*

and *Law on Amendment of the Law on Natural Parks*, is expected to be adopted by the Government in 2007. The *Law on Chemicals Management*, the *Law on Biocides*, the *Law on Nature Protection*, the *Law on Noise*, the *Law on Packaging and Packaging Waste*, the *Law on Geology*, and the *Law on Protection and Improvement of Green Areas* are in the preparatory phase.

Measures for protection against hazardous substances include bans and limitations regarding the production and trade of ozone-depleting substances and products containing such substances, and the export, import and transit of waste. Handling of hazardous substances is regulated in line with the requirements of the EU *Seveso II Directive 96/82/EC on industrial accidents.*

Public information and public participation in decision-making have been introduced in line with EU *Directive 2003/35/EC on Public Participation. Capacity-building* for relevant organizations is necessary in order to achieve full practical implementation.

Currently, the emphasis is on the adoption of by-laws based on the LEP regarding environmental quality standards and emission standards to ensure consistency with EU legislation. These cover environmental management systems; environmental labelling; import and export of ozone-depleting substances or products containing them (if their trade or use is not prohibited); import, export and transit of waste; handling of hazardous substances; environmental monitoring; information systems; the register of polluters; and economic instruments.

The *Law on Water* (OG RS Nos. 46/1991, 53/1993, 67/1993, 48/1994 and 54/1996), which is currently being implemented, covers water regimes, water management areas, responsibilities for water management (including issuance of water management legislation), water management activities, limitation of owners' and beneficiaries' rights, water cooperatives, financing of water management activities, and administrative inspection to enforce the *Law*.

The legislation provides for various water management sub-laws regarding water resources conditions, water resources compliance and water resources permits. Until May 2007, these were issued by the MAFWM for surface waters and the MSEP (which was in charge of geological issues) for underground water (see Chapter 6).

Environmental standards

Ambient standards for water and air are better regulated and more frequently applied than emission standards, but most of the existing ambient limit values are not harmonized with the relevant EU directives. Emission standards for air pollution have been established but are not harmonized with the relevant EU directives. The air emission limit values regulate combustion plants, processing of mineral raw materials, cement kilns, coke production, metallurgy, inorganic chemistry, organic chemistry and vehicles (cars, trucks and motorcycles). Emission standards for wastewater discharges have not been introduced. For certain products (petrol, diesel fuels and emissions from vehicles), standards have been introduced, but they are often different from EU standards.

Environmental liability

The environmental liability of polluters for environmental damage is regulated by the *Law on Environmental Protection* (LEP) and in general by the *Law on Obligations*. The principle of polluters' liability and legal successors' liability is defined in the LEP. Any legal or physical entity causing environmental pollution by its illegal or improper activities is liable for it, including in the case of liquidation or bankruptcy.

Changes in the ownership of companies or other legal entities or other changes in the ownership structure shall include an assessment and allocation of liability for environmental pollution, and settlement of the debts of the ex-owner regarding pollution or damage to the environment. The liability of polluters for past environmental damage caused by privatized companies is not fully regulated by the *Law on Privatization* (OG RS No. 38/2001, 18/2003, 45/2005).

Implementation

The legal system has improved considerably since the first EPR. However, the introduction of new environmental legislation without a strategy for approximation of EU legislation is becoming very complicated. Annual Action Plans for the harmonization of the legislation with the *acquis communautaire* contain a large number of laws to be prepared. An important number of implementing regulations (more than 150 subsidiary laws) need to be drafted in parallel with the draft laws. In a context

Box 1.5: The *Law on Environmental Protection* (2004)

The Law covers the following areas:

- Criteria and conditions for sustainable management (use and protection) of natural resources and assets;
- Environmental protection of air, water, land, soil, forests, protected natural areas and national parks, and protection against waste, ionizing radiation, noise and vibrations;
- Measures and conditions for environmental protection (prevention), in terms of national environmental programmes and plans; spatial planning and construction; conditions for operation of facilities and installations; environmental quality standards and emission standards (ambient and emission limit values); bans and limitations; environmental management systems; standards for technologies, products, processes and services; and environmental labelling;
- Remediation measures;
- Systems for issuing environmental permits and approvals;
- Protection measures against hazardous substances (production, transport and handling);
- Environmental monitoring (monitoring and information systems);
- Access to information and public participation in decision-making;
- Economic instruments for environmental protection;
- Liability for environmental pollution;
- Supervision;
- Penalties.

where human resources in the legislative sector are limited and the legal framework is complex, legislation is not easy to create, nor to apply and enforce. Moreover, large parts of sectoral laws and regulations are still not harmonized with EU requirements (particularly those concerning emission limits and quality standards, dangerous substances, risk management, waste management, water protection and noise). Although fines and charges have been introduced according to legal provisions, they are not high enough to be effective deterrents.

1.4 Mechanisms for compliance and enforcement

Environmental permitting system

The key permitting procedures include land use permits, construction permits (accompanied by the EIA procedure), IPPC permits (after the EIA) and operation permits. In addition, there are water use permits and permits for the use of other natural resources (fish, medicinal herbs, timber, game, etc). There are no emission permits for air pollution or wastewater discharges, although introduction of effluent standard following the *Urban Wastewater Treatment Directive* 91/271/EC has high priority. The permit-issuing authorities are the respective ministries, autonomous provinces, municipalities or appointed institutions. Usually the same institutions that issue permits also enforce them.

EIA is considered a key prevention instrument. It was implemented in 1992 by the *Regulation on EIA*. The procedure, which is harmonized with the relevant EU *EIA Directive* 85/337/EEC, is laid down by the 2004 *Law on Environmental Impact Assessment*. Full implementation of the law is ensured by adopted relevant by-laws from 2005. The EIA is done before the construction permit is granted. The EIA procedure has three stages: screening, scoping and approval. Each concludes with an administrative decision. The full procedure takes about 260 days.

SEA is another prevention instrument. In 2005 and 2006, SEA was usually carried out in the context of urban and spatial planning. For documents on a higher hierarchy level, such as sectoral policies, the SEA has not been fully implemented yet because the MEP does not have the necessary capacity, although it has competence to carry out SEAs on the policies of other sectors. Currently, the inter-ministerial consultation process is still limited to a formal governmental consultation procedure in which each ministry has to provide its opinion on draft laws, strategies or programmes. As this procedure comes at a very late stage in the process, it is usually too late to make significant changes that would better reflect environmental considerations. Aware of this problem and conscious that it can be solved through the SEA procedure, the MEP is considering the possibility of using foreign assistance (for example, from the Czech Republic) to develop SEA in practice.

The 2004 *Law on IPPC* establishes rules for issuing integrated permits. All by-laws were adopted in 2005–2006, although they have not been fully implemented yet. According to the legislation, operators are obliged to ensure self-monitoring and to submit the results to the competent permitting authority (see chapter 2). The MEP carries out the supervision over the implementation of this legislation. It carries out inspections through the environmental inspectors within the scope of activities set forth by this *Law* (especially over the installations and activities for which the permit is

granted by the MEP). The Autonomous Province is entrusted with the task of inspecting the installations and activities for which the permit is granted by its competent authority, as is the local self-government with inspections over the installations and activities for which the permit is granted by the competent local self-government authorities.

The water permit defines the methods and conditions for using and discharging water. It is granted by the organ that has prior given the water use authorization. The permit is given for a limited period of time, a maximum of ten years. Approval for operating the water facilities is also required, which may be granted at the same time than the water permit.

The water permit is also requested for discharging wastewater into natural (surface and underground) and artificial water bodies, and into public sewerage systems. Companies that discharge wastewater into water bodies or public sewerage systems are requested to install a measuring device, to measure and register the amounts of wastewater, and to submit the corresponding data to the public water enterprises. The companies are also requested to monitor water quality and assess their impact on the recipient body. Hazardous substances in waters are also measured. Wastewater quality is tested for each discharge and before mixing wastewater with recipient water. According to the *Decree on water classification*, waters are classified by four quality classes.

Environmental enforcement authorities

In 2003, the responsibilities of the State Union environmental inspectorate on Borders were transferred to the republic level. Today the Division of Inspection Affairs of the MEP has three sections: the Environmental Protection Inspectorate, the Nature Inspectorate, and the Environmental Protection Inspectorate on Borders. The *Law on Environmental Protection* and specific laws on environmental protection define the responsibilities and rights of the inspectors. The Division organizes, coordinates, guides and supervises the nine regional inspectorates in Belgrade, Šabac, Užice, Kraljevo, Kragujevac, Požarevac, Vranje, Kikinda and Niš.

Also the national level, local self-governments and the AP of Vojvodina perform inspection control for activities regulated by environmental legislation. The inspection activities are carried out by local municipal inspectors, whose role is stipulated by the *Law on Local Self-government* (OG RS No. 9/2002, 33/2004, 135/2004, 62/2006), the *Law on Establishing Certain Competencies for the Autonomous Province of Vojvodina* (OG RS No. 6/2002), and several other laws and regulations.

The Division's specific responsibilities include oversight of environmental activities and the issues listed in Box 1.6.

In 2005, 6,967 inspections were performed and 152,439 controls on borders (export, import and transit of protected species of wild fauna and flora, ozone depleting substances, hazardous matters and waste, poisons, and sources of ionizing radiation). On the basis of those inspections, 677 proposals for prosecuting minor offences were issued, 150 proposals for commercial offences and 10 proposals for criminal prosecutions.

Environmental inspectors cannot impose fines themselves, fines can be imposed only by courts. Environmental inspectors can order and impose provisional measures, including temporary bans, or order to seize installations in case of clear danger to human health and environment. They can also make proposals to prosecutors to undertake a prosecution by the court, but do not receive information as to whether prosecution has been pursued. The court can impose prison sentences for environmental crimes, fines, and other punitive measures.

Environmental inspections are financed from an MEP budget line. In 2006, about CSD 44 million (about €522,000) was earmarked for the Division of Inspection Affairs for technical utilities necessary to carry out inspection activities.

The staffing of the Inspectorate has increased compared to the year 2002. In 2002, there were about 45 inspectors at the national level and about 80 at the provincial and local levels. In 2006, there were 88 environmental inspectors at the national level, 11 at the provincial level, and 180 at the local level.

Also, in recent years the equipment has been modernized and its capacity expanded (especially with regard to mobile monitoring equipment, computers and vehicles). Intensive training for inspectors, including preparation of an inspector's handbook, and training in industrial processes, use of monitoring equipment and techniques, data analysis and the like, is being carried out.

Enforcement tools

According to *Law on General Administrative Procedure* (OG FRY No. 33/1997 and 31/2001),

citizens, organizations and other informal citizen's organization are entitled to participate in general administrative procedure. The public body can set a case in procedure by its own initiative and by the initiative of individuals and organizations. Parties have right to appeal on the first-degree verdict. A second-degree verdict is stipulated in the administrative procedure. Parties can start administrative dispute against final verdict. A legal or private person can bring civil lawsuit to court. The legal bases for bringing charges are the *Property Law* and provisions of the *Civil Law*, which determine compensation for damage. Reports on the offence, economic offence or crime (felony) can be submitted by any legal or physical person harmed by this violation to the judicial entity in charge. Apart from these provisions that regulates access to administrative and court procedures, other special laws contain provisions on access to justice and on the possibility of administrative complain from organizations and private persons.

Provisions for civil appeal, administrative appeal and appeal against offences and report of violation of law are prescribed in following laws: the *Law on Environmental Protection*, the *Law on Environmental Impact Assessment*, *Law on Integrated Pollutio*n Prevention Control, the Law on Prevention against Ionizing Radiation, the Law on Waste Management, the Law on Geological Research and the Law on *Manufacture and Trade in Toxic Substances*.

According to the *Law on Environment Protection*, the Division of Inspection Affairs supervises the enforcement of this law and of its regulations. The instruments used by the inspectors are determined by the *Law on State Administration* and special environmental laws, and their most frequent forms are fines and various kinds of authorizations. When carrying out their activities, inspectors may temporarily confiscate objects, goods or devices, for which the use is not allowed, or which have been used for illicit activities.

Administrative measures are defined in the administrative procedure, in particular during inspections, i.e. when a control of the application of the legislation confirms that there is a violation of regulations. The *Law on State Administration* defines the rights and duties of inspectors. In the case of violations inspectors can pass orders and prohibitions within their own field of authority (see Box 1.6). For instance, they can initiate suspension from execution, and abolish or cancel regulations or other legal laws if such laws are not in compliance with the Constitution and legislation.

A violation is defined as an illegal act if according to definitions given in the *Law on Violations* (OG RS No. 101/2005). Violations may be proscribed by laws, ordinances of the Government and municipal, city or autonomous province decisions. They cover activities of enterprises or other legal entities, entrepreneurs and natural persons, as defined in the Law and are sanctioned as a violation. Sanctions for violations are prescribed in all environmental laws.

For violations, the following sanctions may be prescribed: imprisonment up to 30 days, and exceptionally for the offences endangering human health and life up to 60 days; and fines ranging from 500 to 50,000 CSD for responsible persons; from 10,000 to 1 million CSD for legal entities, and from 5,000 to 500,000 CSD for entrepreneurs; or public service or penalty points followed by the suspension of a driver's licence.

Commercial offences: Enterprises and other legal entities cannot be held responsible for a criminal act, and criminal procedure against them cannot apply. Instead, legal entities can be held responsible for economic crimes and sued through an economic-punishable procedure.

According to the definition taken from the Law on Economic Offences (OG SFRY Nos. 4/1977, 36/1977, 14/1985, 74/1987, 57/1989 and 3/1990, and OG FRY No. 27/1992, 24/1994, 28/1996 and 64/2001), an economic crime is a socially harmful violation of regulations on economic or financial business which caused or may have caused serious consequences, and which is qualified as a commercial offence by the competent authority.

Commercial offences are proscribed by law and ordinance of the Government. Commercial offences regarding the environment are contained in the laws regulating environmental protection – they define activities performed by enterprises or other legal entities which are contrary to legal provisions and which are sanctioned as commercial offence. Sanctions for commercial offences are prescribed by all environmental laws. Commercial offences are sanctioned by fines ranging from 150,000 to 3 million CSD for legal entities and from 30,000 to 200,000 CSD for responsible persons.

Box 1.6: Responsibilities of the Division of Inspection Affairs of MEP

The Division oversees the following activities:

- Sustainable use and protection of natural resources and goods in compliance with strategic documents and conditions and measures determined in accordance with the *Law on Environmental Protection*
- Collection and introduction on the market of wild flora and fauna (at all stages of their development)
- Import, export and transit of endangered and protected species of wild flora and fauna, and their developing forms and parts
- Implementation of environmental protection measures and conditions in planning and construction
- Application of standards for environmental quality and emissions
- Implementation of requirements for operation and activation of installations
- Meeting of environmental protection requirements using domestic or imported technologies or processes
- Observance of prohibitions against producing and trading in certain products and performing certain activities
- Import and export of substances depleting the ozone layer
- Import, export and transit of waste
- Production, use, transport, trade, processing, storage and disposal of dangerous substances
- Carrying out the environmental monitoring programme
- Managing information systems on permits and inspections, and the integrated register of polluters

Criminal acts are strictly proscribed by law. Criminal legislation includes primarily the 2005 *Criminal Code* (OG RS No. 85/2005, 88/2005), which enables other laws containing provisions against environmental crimes such as the *Law on Customs* (OG RS No. 73/2003, 61/2005), the *Law on Protection against Ionizing Radiation* (OG FRY No. 46/1996), the *Law on Prohibition to Build Nuclear Power Plants* (OG FRY No. 12/1995), the *Law on Mining* (OG RS No. 44/1995 and 34/2006), and others. The *Criminal Code* contains a special chapter "Criminal acts against the Environment", which defines 18 environmental criminal acts. For these, fines ranging from 10,000 to 1 million CSD, or up to ten years imprisonment, are prescribed, and for criminal acts with particularly serious consequences, up to 12 years.

Other special laws with criminal provisions have not been codified by the *Criminal Code*, for instance the *Law on Genetically Modified Organisms* (OG FRY No. 21/2001 and 101/2005), the *Law on Production and Circulation of Poisonous Substances* (OG FRY No. 15/1995, 28/1996, 37/2002), and the *Law on Water* (OG RS No.46/1991, 53/1993, 67/1993, 48/1994, 54/1996 and 101/2005).

Planning of inspection activities and assessment of performance

The inspection authorities work according to monthly, semi-annual and annual inspection plans. Monthly reports are written concerning their work, and the plans are reviewed based on results and on assessment of priorities.

According to the 2005 *Law on State Administration* (OG RS No. 79/2005), the Division of Inspection Affairs has prepared guidelines for the content of annual workplans and the content of inspection reports as well as on procedures for submitting these reports. These guidelines are to be implemented starting on 1 January 2008.

However, enforcement of environmental protection legislation in Serbia is weak and suffers from a few serious drawbacks, particularly because of the weak monitoring system, the lack of certain environmental standards, and the generally low awareness of and compliance with the law. The fines and charges envisaged by legal provisions are not high enough to be real deterrents.

The judiciary system is inefficient in imposing sanctions for environmental offences. It usually takes time for a court proceeding to result in a court order and an adequate sanction. The sanctions are often not imposed or are largely symbolic. Judges are not adequately trained in environmental law, nor are State prosecutors and police bodies. As there are no data regarding the relation between lawsuits (both administrative and criminal) and the sanctions imposed, it is not possible to assess the effectiveness of enforcement.

Another important factor influencing the level of environmental enforcement is the insufficient capacity of municipal-level environmental inspection bodies. Although their numbers are sufficient, inspectors lack adequate training and equipment to carry out their duties properly and to guarantee efficient law enforcement when supervising the implementation of important IPPC and EIA decisions at the local level.

For these reasons, the implementation of environmental legislation after its adoption is weak;

charges and sanctions envisaged by the Law on Environmental Protection are not properly enforced.

1.5 Conclusions and recommendations

Since the first EPR in 2002, the institutional framework for environmental protection has changed significantly in Serbia. New institutions have been created and have been entrusted with important tasks.

The Environmental Protection Agency established in 2004 is in charge of managing environmental information so that it can become an instrument for good governance and decision-making.

The EPA is very weak, with a small budget and staff, and is dependent on cooperation with existing institutional structures, which will continue to monitor media and to collect and analyse data. To become fully operational and fully address its statutory tasks, the EPA needs to be expanded.

The National Council for Sustainable Development established in 2003 is a forum for improving the integration of environmental concerns into the other sectors of economic activity. However, NCSD does not have a permanent secretariat and so far has not operated in practice.

In spite of the fact that it has recently been restored as a full-fledged ministry of environmental protection, the main problem is still the need to strengthen the capacity of the MEP, to make it better able to influence other sectoral ministries so as to address fully the challenges of environmental protection in Serbia. Moreover, the division of responsibility for natural resources is not contributing to adequate coordination of policy and actions.

Recommendation 1.1:
The Government should:

(a) Strengthen the newly established Ministry of Environmental Protection and ensure that it includes in its competences the protection of natural resources, including water and forests;
(b) Introduce structural changes in all ministries and authorities responsible for integrating environmental requirements into their respective policies;
(c) Strengthen the position of the National Council for Sustainable Development and make it operational, and create a permanent secretariat for its administrative and technical support; and
(d) Strengthen the Environment Protection Agency, to enable it to ensure information systems management as a basis for the strategic, legislative, enforcement and decision-making activities of environmental protection authorities.

Significant progress has been made towards harmonizing the legal framework with the relevant EU directives. In 2004, four new important laws were enacted that are harmonized with the corresponding directives: the *Law on Environmental Protection*, the *SEA Law*, the *EIA Law*, and the *Law on IPPC*. They approximate the corresponding EU directives and have introduced their principles into the national legislation.

However, SEAs have not been fully implemented yet. The new MEP does not have sufficient capacity to carry them out. The inter-ministerial consultation process is still limited to the formal governmental comments procedure.

This procedure comes at a very late stage in the process, when it is usually too late to make significant changes that would better reflect environmental considerations.

Recommendation 1.2:
The Ministry of Environmental Protection should strengthen its capacity to carry out Strategic Environmental Assessment as envisaged by the Law on Environmental Protection and the Law on Strategic Environmental Assessment.

While environmental legislation has improved considerably since 2002, it has also become very complicated. It is often inconsistent, needs further amendment and lacks implementing regulations. Large areas of the legislation are still not in line with EU requirements, in particular the sectoral laws. The legislation does not define sufficient mechanisms for ensuring effective environmental enforcement. Due the large volume of forthcoming activities regarding the preparation of the *Strategy for Approximation of EU Environmental Legislation* and increasing legislative activities, existing human resources in the MEP, especially those responsible for legislation, economic instruments and supervision, are not adequate to accomplish the related tasks.

Recommendation 1.3:
In order to ensure the implementation of the legislation, the Ministry for Environmental Protection should:

(a) Continue to harmonize the legal framework with the European Union (EU) Directives and strive to remove existing inconsistencies and further improve its effective implementation; and
(b) Strengthen the existing unit responsible for environmental legislation, economic instruments and administrative supervision affairs with an adequate number of professional staff.

The *National Environmental Strategy* aimed to take into account environmental concerns in other sectors of activities through a broad consultative process that also involved many stakeholders, from national to local institutions, the civil society and the public. Other strategies have been adopted since 2002, and some are awaiting adoption. However, the competent authorities lack the necessary institutional structures and mechanisms to ensure their implementation, nor do they have any plans to introduce these. The NES itself calls for 16 separate action plans for its implementation. Moreover, two "umbrella" strategic documents, the *National Strategy for Sustainable Development* and the *National Strategy for Sustainable Use of Natural Resources and Goods*, are being drafted at a time when a number of strategic documents have already been adopted or are in an advanced stage of preparation or even adoption. In such a context, the respective targets and conditions in the various sectoral strategic documents will be difficult to reconcile.

Recommendation 1.4:
The Government, together with concerned ministries, should:

(a) Reconcile the content of the strategic documents on environment and sustainable development or coordinate their implementation; and
(b) Further develop and adopt the National Strategy for Sustainable Development, the National Strategy for Sustainable Use of Natural Resources and Goods, and the National Programme for Environmental Protection, and consider harmonizing sectoral strategies and action plans with their priorities and goals.

Enforcement of environmental protection legislation in Serbia is weak, particularly due to the weak monitoring system, the lack of certain environmental standards, and the generally low awareness of and compliance with laws.

Furthermore, the capacity of environmental inspection bodies is inadequate. Since there is no feedback concerning the results of lawsuits initiated by environmental inspectors, it is hard to evaluate the effectiveness of their enforcement activities.

Recommendation 1.5:
In order to improve the enforcement of environmental legislation and rules, the Ministry of Environmental Protection should:

(a) Continue strengthening enforcement tools and the capacity of environmental inspection bodies at all levels (republic, province and local);
(b) Promote training programmes for environmental law enforcement, particularly on new legislation and permitting procedures;
(c) Develop, together with the Ministry of Justice, training programmes for judges, state prosecutors and police, to strengthen their capacities in the field of environmental enforcement; and
(d) Collect and make publicly available data on concluded administrative, civil and criminal lawsuits concerning the environment.

Chapter 2

INFORMATION, PUBLIC PARTICIPATION AND EDUCATION

2.1 Progress since 2002

Since the first EPR, Serbia has improved its legislation and institutions to better deal with environmental information, and to strengthen processes for ensuring the information of and participation by the public. In 2004, four new laws were adopted which contain provisions about collection of environmental information, reporting, public participation and access to information: the *Law on Environmental Protection* (OG RS No. 135/2004), the *Law on Environmental Impact Assessment* (EIA) (OG RS No. 135/2004), the *Law on Strategic Environmental Assessment* (SEA) (OG RS No. 135/2004) and the *Law on Integrated Pollution Prevention and Control* (OG RS No. 135/2004). The same year saw the setting up of the Environmental Protection Agency (EPA), a key national-level player with regard to the collection and assessment of environmental information. The *National Environmental Strategy* (NES), approved by the Government and now awaiting Parliament adoption, is another document which would, once adopted, enhance and make operational many activities in this field.

In May 2007, a new Government was put in place and the Ministry of Environmental Protection (MEP) set up on the basis of the former Directorate for Environmental Protection (DEP) of the Ministry of Science and Environmental Protection (MSEP).

2.2 Quality of environmental information, monitoring and reporting

Legal framework

Monitoring and data collection

The basis for an integrated environmental monitoring system is laid out in the 2004 *Law on Environmental Protection* (LEP), which defines the monitoring of natural factors, namely changes in the status and characteristics of the environment, including the transboundary monitoring of air, water, land, forests, biodiversity, flora and fauna, elements of climate, the ozone layer, ionizing and non-ionizing radiation, noise, waste, and the early warning of accidents with monitoring and assessment of the development of environmental pollution, as well as obligations stemming from international agreements. This system is to be more specifically determined by sectoral laws which are still to be harmonized with relevant European Union (EU) directives. The LEP provides for the establishment of an information system for environmental protection and of a register of polluters, but to date neither has been done. Only a by-law on the register of polluters has been drafted; other by-laws are still missing.

The 1994 *Law on Statistical Research* (OG RS No. 48/1994) stipulates that national statistics include environmental statistics. The Law does not define any modalities on how to develop research work, for instance regarding cooperation between the authority responsible for environment protection and other ministries, or cooperation with international organizations. A law on statistics was drafted during the period of the State Union, but has to be revised to reflect recent political changes. This draft law foresees the establishment of a statistical council that would be a policymaking and planning body consisting of seven members (the director of the Statistical Institute, three representatives of scientific and research institutions, and three members representing, respectively, the National Bank, the Ministry of Finance and the Cabinet). There are no intersectoral bodies with representatives from other ministries, including the Ministry of Environmental Protection (MEP), that would support preparation of the five-year programmes from a more operational perspective (e.g., topic-oriented co-councils for harmonization of data collection between different government institutions).

A basis for water monitoring is provided by the LEP and the amended *Law on Water* (OG RS No. 54/1996), which overlap considerably on this issue. Standards for water quality monitoring exist (except for the biological quality of waters) and are based on the *Decree on Classification of Waters* (OG SRS No. 5/1968) and the *Regulation on Dangerous Substances in Waters* (OG SRS No. 31/1982). The monitoring of wastewater discharges is based on a regulation from

1983 which covers only a limited number of parameters. Also, since water quality monitoring has no link with water quantity monitoring, it is impossible to estimate the quantity of components carried along by water streams. There is no regulation for industrial wastewater monitoring at the national level; only local regulations exist. The methodology for compiling and classifying water statistics is based on questionnaires dating from the Federal Republic of Yugoslavia, and is therefore outdated.

Existing air quality and emissions standards are not yet harmonized with EU standards (they are based on a 1997 regulation). A new draft law on air quality is awaiting consideration by the Parliament. Waste data are not regularly collected, though this is required by the LEP. In 2007, a new law on chemicals is expected to be drafted.

The monitoring of nature protection is regulated by more than 130 different laws and by-laws. The LEP calls for more focused by-laws that should more closely regulate biodiversity monitoring. But these have not yet been formulated, except for protected areas and protected species.

The NES plans to retain some standards that are not regulated by the EU. Harmonization and adoption of health and emission standards as well as improved monitoring are priorities in the short-term objectives of the NES.

Reporting on the state of the environment

The LEP calls for yearly reporting to the Parliament on the state of the environment at the national level, and for biennial reports at the level of provinces and local self-government units. Reports on the state of the environment are published in national, provincial and local official bulletins.

The LEP defines the components that have to be covered in state-of-the-environment reports. For instance, reports should cover not only the state of the environment, but also the status of implementation of national environmental programmes and action plans; rehabilitation plans; financing systems; and priority obligations and measures in the area of environmental protection. Issuances of the latest reports have been delayed and are awaiting parliamentary approval. The MSEP plans to publish reports for 2003 and 2004–2005 after these have been adopted by the National Assembly. The production of annual reports is a burden for the young EPA. The practice in most other European countries is to publish such reports every 3 to 4 years.

Institutions responsible for the collection, processing and reporting of data

Key strategic responsibility for monitoring and environmental information, which were under the Directorate for Environmental Protection (DEP)[1] within the MSEP until May 2007, are now under the Ministry of Environmental Protection (MEP).

A big step forward in the institutional setup occurred when the EPA was established in 2003. In 2004, it was put under the jurisdiction of the MEP. The responsibilities of the EPA include:

- Development and maintenance of the national information system for environmental protection (including monitoring the parameters of the state of the environment and establishing and maintaining a register of polluters);
- Collection of environmental data, their centralization and processing, and reporting about the state of the environment (including the preparation of the national state-of-the-environment reports) and policy implementation with regard to environmental protection;
- Development of procedures for environmental data processing and evaluation;
- Management of information about best available techniques and practices, and their implementation;
- Cooperation with the European Environmental Agency (EEA) and the European Environment Information and Observation Network (EIONET); and
- Other objectives defined by law.

The EPA employs 22 experts. Its structure does not include a unit to deal with information systems, and no special tasks are allocated to coordination of state-of-the-environment reporting. The EPA cooperates actively with EEA. Serbia has been given an EEA/EIONET server, which is located in the EPA. The server is not adequately exploited and could contribute more to the agency's core tasks (e.g. providing better access to national and international information, serving as a depository for the reports and documentation of working groups, and facilitating networking). EEA provides software, updates and 24-hour help-desk services.

Another key institution is the Hydrometeorological Institute (HMI), which is responsible for air and water monitoring and provides related observations, analysis and forecast. Of its 688 employees, 48 are

[1] http://www.ekoserb.sr.gov.yu

environmental protection experts. After the split of the State Union, the number of employees was reduced by 10 per cent, but the scope of the work stayed unchanged. The structure and staff qualifications have not been adjusted accordingly. In 2005, HMI obtained accreditation for the analysis of 150 air and water parameters.

Further activities are planned to maintain the accreditation of the HMI Laboratory for Environment in accordance with standard JUS[2] ISO/IEC[3] 17025, adopted in 2005. The Laboratory performs approximately 350,000 water and air quality analyses a year. Existing equipment has been improved with support from the Government of Japan (about €100,000), and new monitoring stations are expected to be built in 2007, also with foreign support.

The Laboratory is responsible for international cooperation under the International Sava River Basin Commission, the *Convention on Cooperation for the Protection and Sustainable Use of the Danube River* and the *Convention on Long-range Transboundary Air Pollution*'s *Protocol on Long-term Financing of the Cooperative Programme for Monitoring and Evaluation of the Long-range Transmission of Air Pollutants in Europe* (EMEP).

The HMI delivers daily, weekly and yearly reports on the state and quality of air and waters, as well as special reports on cases of accidental pollution. Reports are published electronically (daily, weekly and yearly) and in print (weekly, yearly and for special purposes), but they are not indicator-based and therefore are not comparable with each other or in an international context. Collected data are also available on the HMI website[4].

The HMI operates as a national reference centre for air in the framework of the EEA/EIONET country network. Since 2004, it has supplied EEA with data for EIONET Priority Data Flows. Longer time series, which are required by EEA, will be provided after the creation of a database and an analysis of historical data series. In accordance with the EMEP Protocol, HMI reports on yearly emissions of sulphur dioxide (SO_2) and nitrogen oxides (NO_x) for the whole country, and delivers these reports once or twice a year to the EMEP bureau and the World Meteorological Organization.

The Statistical Office[5] is a key complementary institution for data collection. After the split of the State Union, the Office inherited responsibility for environmental statistics. Environmental statistical research is a new domain. It currently has a very limited scope (water, some aspects of waste, and statistics on sectors) and is not harmonized with international requirements. There is little cooperation with Eurostat (the European institution responsible for statistics) on this issue. The Statistical Office has established project-based cooperation on waste with EPA.

The National Public Health Institute[6] includes the environment among its areas of responsibility. The Institute, which has 294 employees, coordinates and implements government-sponsored health protection programmes and coordinates a network of 23 local public health institutes and health protection services in Serbia, which perform local monitoring. The Institute's Centre for Environmental Protection is responsible for air; noise; soil; solid and liquid waste materials; chemical accidents; non-ionizing and ionizing radiation; microclimate elements; illumination and microbiological indicators; tracking the state of citizens' health in relation to risk factors caused by the environment (health risk assessment); and implementing measures for improving environmental protection. The public health institutes are competent and relatively well developed, but cooperation between them is not good. Data are thus difficult to obtain and are not harmonized. The Institute has been accredited and will be reorganized to better meet the new requirements at the national and international levels.

Institutions sharing responsibility for collecting water data include the Water Directorate of the Ministry of Agriculture, Forestry and Water Management, the HMI, the EPA, the Secretariat for Environmental Protection and Sustainable Development of the Autonomous Region of Vojvodina, the Statistical Office, and the public health institutes. The responsibilities are not allocated efficiently or coherently, and overlaps and gaps exist. Data are not fully harmonized and are therefore difficult to use in reliable assessments. In particular, institutional reporting responsibilities with regard to water are not clearly defined.

Biodiversity monitoring is among the responsibilities of the Nature Protection Institute[7] and is focused on

[2] JUS: Yugoslav standards.
[3] IEC/ISO: International Electrotechnical Commission/ International Organization for Standardization.
[4] http://www.hidmet.sr.gov.yu
[5] http://webrzs.statserb.sr.gov.yu
[6] http://www.batut.org.yu
[7] http://www.natureprotection.org.yu

protected areas and species. It delivers data on bio- and geodiversity and the state of natural resources to the MEP, the EPA and other relevant institutions. The monitoring is financed from the State budget. However, financing is tight in this field and it is difficult to coordinate data originating from different research sources and non-governmental organizations (NGOs). The Institute has two departments in Novi Sad and Niš. It produces a number of publications and a quarterly bulletin. In cooperation with EEA, it operates as a national reference centre and has been the main implementation institution for the Emerald Network project for including Serbia in the Natura 2000 programme.

The Recycling Agency[8] is the national institution responsible for waste management, especially recycling and recovery of waste. It is responsible for monitoring the use of secondary waste materials and for issuing waste category certificates, as well as for market research and public education. It develops programmes, studies and appraisals relating to waste recycling and management facilities and the introduction of new recycling technologies, and is in charge of national and international cooperation on waste.

In 2002, some environmental competences were transferred to Vojvodina under the *Law on Establishing Certain Competences for the Autonomous Province of Vojvodina* (OG RS No. 06/2002). The Secretariat for Environmental Protection and Sustainable Development of the Autonomous Region of Vojvodina[9] is part of the environmental protection system and is responsible for the monitoring and information subsystem. It operates an environmental laboratory and assumes monitoring and reporting responsibilities for key parameters relevant to air, nature, soil, waste and water.

Municipalities are partly responsible for environmental compliance and have raw data on water supply, wastewater and solid waste. Municipalities are generally responsible for controlling local air pollution.

As in all countries, monitoring is shared among various institutions. In Serbia, not only do responsibilities overlap between institutions, but also the communication among these institutions could be improved.

[8] http://www.reciklaza.sr.gov.yu
[9] http://www.eko.vojvodina.sr.gov.yu

Quality of environmental information, data management and reporting

Laboratories

The MEP, together with other ministries responsible for related areas has set stricter conditions for authorizing laboratories to perform monitoring. Any laboratory seeking accreditation should set up its internal organization and system of work according to the requirements of the standard JUS ISO/IEC 17025 (general requirements defining the competence of testing and calibration laboratories) adopted in 2005. The organization that performs accreditation is called the Accreditation Body of Serbia. By 2006, only a few laboratories (operated by the HMI and national and public health institutes) were accredited according to the requirements of this standard. Other laboratories were accredited according to the JUS ISO/IEC Guide 25 and JUS EN 45001 standards, which are no longer valid. Accreditation of laboratories is now performed on the new legal basis, but the number of such laboratories is still limited and not sufficient for efficient monitoring and analysis. There is no clear procedure for dealing with laboratories accredited under the former standards.

Monitoring and data collection

The Government is planning to adopt two-year monitoring programmes which will serve as points of reference for provincial and local monitoring programmes. Programmes at the local level are usually not coordinated with each other. National, Autonomous Province and local authorities are by law obliged to provide means for monitoring implementation, a practice that already existed before the adoption of the LEP in 2004. Currently, authorities cannot satisfy this requirement owing to lack of financing. All monitoring data should be reported to the EPA.

Self-monitoring and the register of polluters

The LEP requires self-monitoring by polluters. The owner or the operator of a plant that is the source of emissions and environmental pollution is obliged by law to perform self-monitoring. The Government should specify the types of emissions and other phenomena subject to this monitoring; the measurement, sampling and data recording methodology; the deadlines for submission; and rules for data storage. These data will be gathered in the polluter register maintained by the EPA. However, there are no by-laws specifying what institutions are responsible for overseeing and ensuring self-

monitoring by industries and other polluters. At the moment, the unclear division of responsibilities is creating serious difficulties, especially with regard to water (see chapter 1). This has resulted in a delay in the adoption of the by-laws and in a substantial lack of data on emissions.

Water monitoring

Monitoring of water quantity is performed by 187 surface water and 400 groundwater hydrological stations. The quality of watercourses is monitored in 133 profiles on 73 watercourses for 36 to 63 parameters with monthly dynamics control (in fact measurements take place three to 12 times a year); in 30 profiles on 14 watercourses with weekly dynamics control; and in 12 profiles on eight watercourses with daily dynamics control for 16 parameters.

Water analyses are performed in 28 dam reservoirs and five lakes with annual dynamics control for 36 to 63 parameters; sediments are monitored annually in 283 reservoirs and 33 river courses. A total of 333 springs are controlled annually.

Groundwater quality is controlled annually by piezzometer at 68 measuring stations for 30 parameters.

Wastewater monitoring is limited in geographical scope and in terms of the number of measured parameters (chemical oxygen demand, suspended matter, five-day biochemical oxygen demand, pH, water temperature, and number of coliforms).

Water statistics are collected regularly and cover the use, discharge and treatment of water by industry as well as public sewage infrastructure, public supply of water, protection and regulation of watercourses from flooding and erosion, and irrigation.

The programme for monitoring the quality of drinking and bathing water was updated in 2006 to more closely conform to EU regulations.

The monitoring of transboundary waters (in Serbia, 92% of waters are transitional) is part of the following international programmes: the International Commission for the Protection of the Danube River (Danube River Enterprise Pollution Reduction programme) and International Sava River Basin Commission (CARDS programme of pollution protection of the Sava River[10]).

[10] http://www.reciklaza.sr.gov.yu

The HMI tests the quality of transboundary water bodies using methodology commonly used for testing such waters. Quality control for these water bodies is performed with Hungary for the Danube and Tisa Rivers, the Plazovic Channel and Plazovic-Baja-Bezdan Channel, and with Romania for the Danube, Zlatica, Stari Begej, Tamis, Brzava, Moravica, Karas, Nera and Krivaja Rivers (see Map 2.1).

Air monitoring

The HMI performs air quality monitoring in 24 stations measuring SO_2, NOx and soot on the basis of 24-hour sampling in 13 stations not affected by pollution, 10 stations affected by a range of polluters and one background station for the EMEP programme (Kamenicki Vis). The quality and availability of data from the EMEP station are not reliable (see Map 2.2).

There are plans to develop a network of automated air quality monitoring stations that will contain five urban stations, four suburban stations, three traffic stations, 10 industrial stations, one rural station and one background EMEP station.

Seven stations monitor the quality of water precipitations. In accordance with the *Law on Hydrometeorological Affairs of Interest to the Country* (OG FRY Nos. 18/1988 and 63/1990), the HMI measures the γ-radioactivity in the air and precipitations within the network of eight meteorological stations for "early warnings of radioactivity" close to Serbia's border. These data are delivered weekly and monthly to the MEP and military authorities.

Local public health institutes monitor urban air quality in 23–30 settlements for SO_2 (94 monitoring points), soot (100 monitoring points), particulate matter (168 monitoring points) and specific pollutants (NO_2, heavy metals, suspended materials).

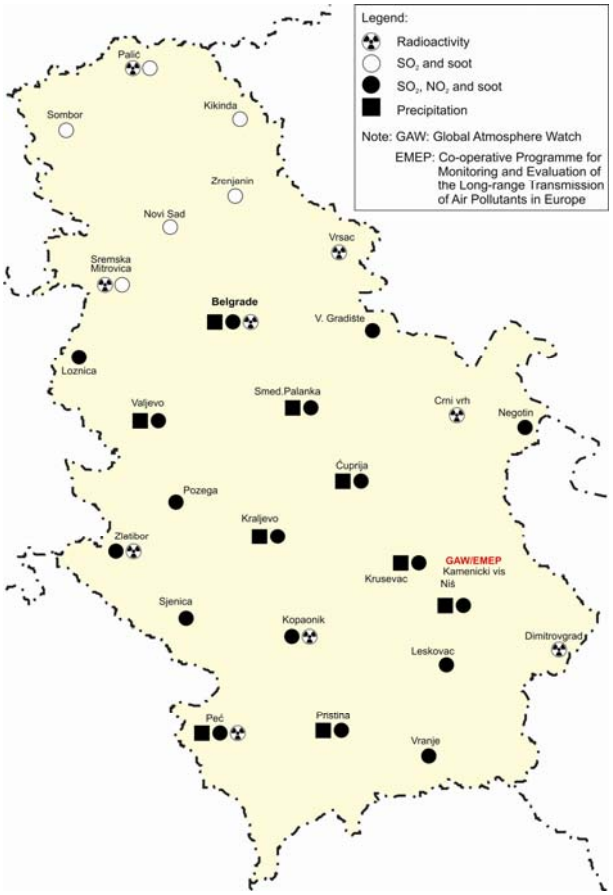
Waste

The EPA is responsible for the collection of data on waste and landfills. The EPA and the Statistical Office have, as a pilot project, sent a questionnaire to the landfills and public companies for municipal waste management to obtain information on the quantities of waste generated and on the landfills' location, legal status, ownership, distance from settlements and equipment. Provisional data show that there are around 164 landfills, of which only one meets the required standards. Data on municipal waste quantities will be available by end of 2007.

Map 2.1: National network of water monitoring stations

Note: The boundaries and names shown in this map do not imply official endorsement or acceptance by the United Nations.
Source: Hydrometeorological Institute, 2006.

Map 2.2: National network of air and precipitation monitoring stations



Note: The boundaries and names shown in this map do not imply official endorsement or acceptance by the United Nations.
Source: Hydrometeorological Institute, 2006

However, the comparability of data will still have to be ensured. Questionnaires will be circulated regularly in the future. The Recycling Agency keeps a database on secondary raw materials and an inventory of hazardous substances. It also keeps an inventory of companies using secondary raw materials as a production input.

Biodiversity

The Institute for Nature Protection has completed a GIS survey of protected nature areas. It has also participated in the Emerald Network programme (the second phase has been completed) and is participating in programmes for nature protection in the Sava River basin and the Carpathian region.

Indicators and integrated assessments

Before 2002, assessment and indicators processing were a very weak part of the information provision process. Some progress has been made since then, mostly due to the establishment of the EPA. In cooperation with EEA a set of indicators was produced for the preparation of the EEA report for the Sixth Ministerial Conference "Environment for Europe" (Belgrade, October 2007). Of the set of 37 EEA core indicators (of which three relate to the sea and thus do not apply to Serbia), Serbia was able to complete 20 indicators with different degrees of quality and compliance with the proposed methodologies. For air, only one indicator (exceedance of air quality) has been calculated, but the calculation has low reliability. No indicators are available for emissions, including greenhouse gases. For water, the situation is better, although data are not comparable within the country or in the international context, because a methodology different from that proposed by EEA was used. Information was produced on all biodiversity indicators, and although the coverage of the data was not complete, the information was sufficient to give an overview of the present situation of biodiversity in Serbia.

State-of-the-environment reports for 2003 and 2004–2005 have been prepared and adopted by the Government and are now awaiting Parliament's approval before being published. The time series cover 22 years. The EPA has also started to prepare five thematic reports[11] for the Belgrade Conference – on air quality in urban areas and its influence on health, the quality and quantity of water resources, soil problems, and biodiversity and CORINE land cover results.

The Statistical Office publishes statistical yearbooks, which include environment statistics.

In 2005, nine environmental indicators were published to monitor progress in meeting the Millennium Development Goals. These indicators will be updated regularly.

Information system and objectives regarding data management and reporting

An information system for environmental protection has not yet been established. It has been delayed not only due to the lack of a legislative basis, but also by unclearly defined responsibilities, a lack of reporting procedures, and unsatisfactory cooperation between institutions. The data collected by EPA cover: air quality; climate change (partially); water quantity and quality; quality of soil; analysis of land use; protected

[11] http://www.reciklaza.sr.gov.yu

areas; protected and endangered species; species diversity; point and diffuse pollution sources (in progress); industrial, municipal, packaging, hazardous and other kinds of waste (in progress); energy consumption and intensity; renewable energy; and transport.

The EEA/EIONET system consists of national nodes for cooperation that are nominated by the countries. In Serbia, only primary contact points (operating as entry points in the countries for defined topics) were nominated by the director of EPA. National reference centers (contact institutions responsible for delivering data to EEA) are yet to be nominated.

The NES provides for a set of reform measures to support monitoring and information systems. These measures are divided into activities for the short term (until 2010) and the medium term (until 2015). However, terminology in the NES is not harmonized (e.g. the definition of an integrated information system is not clear and is not used consistently in the text). The definition of activities and their harmonization is not precise (some objectives are too general or unclear and allow for different interpretations about their implementation). In addition, the draft text does not cover allocation of responsibilities or task sharing.

The EPA has made good progress in increasing data flows to EEA, from 17 per cent of requested data in 2004 to 37 per cent in 2005. Still, there is no cooperation between the Statistical Office and Eurostat, and therefore data on the Joint Questionnaire, which collects statistical data from national statistics at the European level (on water, waste, air and environmental expenditures), are not reported. The availability of climate change data is poor, and there is no firsthand communication with the United Nations Framework Convention on Climate Change (UNFCCC) (see chapter 3).

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

Legal framework for public participation and access to information

Serbia has not yet ratified the Aarhus Convention[12], but many activities and laws exist that would support its future implementation. Serbia signed the Convention's *Protocol on Pollutant Release and Transfer Registers* in 2003. The 2004 *Law on Free Access to Information* (OG RS No. 120/2004) and its 2005 by-law *Instruction for publishing information on the work of public bodies* entitle citizens to enquire about the work of government bodies, require such bodies to report to the public about their responsibilities, organizational structure, budget, services, public procedures, procedure for requesting information, and so forth, as well as giving citizens the possibility to voice their opinions about the Government's work and procedures. The responsibility for supervising implementation of the *Law* lies with the Ministry of Culture, whose Public Information Section monitors and informs the public and government about implementation, and suggests improvements. The *Law* has improved the visibility of the government's work, but it has been implemented unevenly among institutions. For environmental issues, it has somewhat improved transparency regarding responsibilities and projects, and to a lesser degree regarding environmental information.

Like the previous Constitution, the new Constitution of 2006 declares that citizens have the right to a healthy environment and the right to be informed about the state of the environment, but also a responsibility to protect it. The LEP adds the right of everyone to participate in the decision-making process. It also provides basis for the disclosure of environmental information and exemptions (articles 78–80). While this practice seems to be implemented, it is difficult to assess how effectively this is being done. However, LEP provisions on this issue are not fully harmonized with the *Law on Free Access to Information* (e.g. regarding the time frame for delivering requested information).

The 2004 *Law on Environmental Impact Assessment* defines public participation at all stages of the process. The public is informed at three different stages of the process and has the right to voice its opinion at each of these stages. At all stages the authorities must, if requested to do so, provide complete documentation related to an environmental impact assessment (EIA) procedure, except for specified confidential business or state information. The whole procedure lasts about 250 days.

The 2004 *Law on Strategic Environmental Assessment* (stipulates that the public has the right to be informed about programmes in preparation and their impact on the environment. Before granting approval, the authorities must inform and consult the public about the content of the report. The Law

[12] Convention on Access to Information, Public Participation in Decision-making and Access to Justice in Environmental Matters

defines the procedure for public participation in the development and adoption of programmes and plans. After a plan or programme is adopted, the strategic impact assessment data should be made available to the public.

The *Law on Integrated Pollution Prevention and Control* (OG RS No. 135/2004) provides for public consultation in all phases of the procedure, from preparation to adoption of integrated permits. The register of permits should be made available to the public.

With this series of new laws dating from 2004, public participation has acquired an adequate and implementable legal framework, whose effectiveness, however, is yet to be monitored. With regard to implementing EIA, there are cases where all steps have been implemented and where comments from NGOs and the public were numerous. However, there is no serious overview of the implementation of the *Law on Environmental Impact Assessment*; even the number of EIAs conducted is not available.

The EU *Water Framework Directive*'s provisions related to public participation and access to information have not yet been implemented in Serbia. According to the 1991 *Law on Water* (OG RS No. 46/1991), the public has to be informed about accidents resulting in water pollution and about risks of floods. The draft law on water aims at creating conditions for public involvement in decision-making, in particular at all stages of water-related operations. The *Law on Hydrometeorological Affairs of Interest to the Country* (OG FRY Nos. 18/1988 and 63/1990) specifies that the public should be informed about weather conditions and risks of dangerous and extreme weather or pollution events.

Access to environmental information by various stakeholders

In May 2005, the MSEP adopted a communication strategy: "*Strengthening Environmental Management at the Directorate for Environmental Protection: A Dialogue for 2005–2006*". The overall objective was to support enhanced communication between the Directorate – now within the MEP – and all stakeholders interested in environmental protection in the country. The strategy describes the objectives and organization of the communication and the activities for reaching the goals. Upcoming phases include developing more detailed action plans to support the strategy. However, implementation of the strategy is progressing slowly because of other priorities in the MEP.

The EPA has the task of publishing reports about trends and changes in the environment. The websites of the EPA and the MEP provide some information (albeit incomplete) about their activities and the state of the environment. Translation into English is ongoing. The MEP and the EPA do not regularly issue bulletins, newsletters, short reports (briefings) or press releases. By contrast, the Institute for Nature Protection tries to reach out to and inform various stakeholders (schools, newspapers) and is quite effective in doing so. The Recycling Agency goes even further, working closely (for information and training purposes) not only with pupils and the general public, but also with industries and local authorities.

Environmental NGOs are becoming more visible. The growing number of NGOs is creating problems among them (e.g. linked to legal status and tax payments, scattered expertise, differences in knowledge and capabilities for management and networking, and representation issues). The MEP has improved its cooperation with NGOs, but a more strategic approach and clearer criteria for cooperation and funding are needed. The MEP organizes regular meetings with NGOs and consults them when programmes and regulations are in the process of being adopted. NGOs respond actively but are not informed about whether and how their proposals have been taken into account. So far, NGOs have not been successful in preventing investments with adverse environmental impact. Local authorities also consult NGOs.

An area for concern is the status of the country's roughly 100 environmental NGOs. Currently their status with regard to taxation and administrative procedures is the same as that of for-profit organizations. The NGO registration process is slow and expensive. State funding is scattered and does not allow for adequate implementation of projects, even with the help of international donors. The expert capacities of NGOs are not used enough and are still largely unknown in the country; sometimes NGOs lack the necessary training and education to provide high-quality output.

The Regional Environmental Center (REC) for Serbia plays a positive role in facilitating cooperation between NGOs, donors and the MEP. REC has implemented a series of projects and workshops at the regional and local levels to support implementation of provisions of the Aarhus Convention. (Guidelines for Aarhus Convention implementation exist in two versions, one aimed at experts and the other at the general public.) REC

involves a variety of stakeholders in all of its projects (protection of the Danube River, local environmental action plans, inventory of NGOs, and local state-of-the-environment reports).

Serbia has no special regulations on access to justice regarding environmental matters. The court information system, which is under development, will be connected to the future environmental protection information system. This would enable more effective use of information in the judicial system. Priorities for any country are to establish respect for laws and confidence in the judicial system, to protect the rights of vulnerable groups, to strengthen the legislative rules, and to ensure equal access to justice, and to protect the right to a safe environment. The United Nations Development Programme Country Office in Serbia has incorporated these objectives as a priority into its work for the period 2005–2009.

2.4 Environmental education

The Parliament has proclaimed environmental education to be a priority for the country. Environmental education is mentioned in the NES adopted by the Government in 2006. Also, the UNECE Strategy for Education for Sustainable Development has been translated into Serbian, and a national action plan for implementation of the Strategy is being prepared. Both the NES and the action plan have been developed through cooperation between the MEP and the Ministry of Culture (which is responsible for education). A process is under way to set up an Inter-ministerial Working Group to supervise the implementation of the Strategy.

The formal education system is currently being reformed. Elements of education on sustainable development (ESD) have been incorporated into various subjects in primary and secondary schools (e.g. "*The World around Us*" and "*Guardians of Nature*" in all grades of primary school; "*Education for Civil Society*" in primary and secondary schools). ESD is also covered to a certain extent in other subjects, not only biology and ecology, chemistry, geography and physics, but also philosophy, sociology and human rights. "*Teachers Training Manuals for Environment and Sustainable Development*" have been developed for primary and secondary schools. Specific tools and materials are being developed for more advanced environmental education, including on ESD issues, at the university level in four universities (Belgrade, Niš, Novi Sad and Kragujevac). More than 20 faculties have set up departments or study groups for teaching environmental issues at the graduate and post-graduate levels.

To improve their knowledge and background, teachers can choose from 190 accredited training programs, 21 of which are on ecology and 19 on biology. Regarding informal education and environmental campaigns, the Institute for Nature Protection and the Recycling Agency are particularly effective, although the MEP and the EPA are increasing their activities in this area.

However, environmental awareness among the general population in Serbia is low. A survey conducted in 2003 showed that educated people were more willing to pay for environmental benefits. Awareness-raising using specific activities and campaigns have in some cases effectively targeted students, journalists, industries and local authorities.

2.5 Conclusions and recommendations

Since 2002, some progress has been made by: (a) the adoption of new laws and by-laws that embed provisions for environmental information, public participation and education; and (b) the establishment of the EPA. The laws provide a basis for public participation in decision-making processes and for the establishment of an information system and a registry of polluters. Implementing regulations are, however, still largely missing (example.g. on the polluter registers, the environmental information system, and enterprise self-monitoring).

The EPA as a young organization has started work to establish an environmental information system and integrated assessment and reporting. However, it has encountered challenges in establishing more efficient communication with data suppliers and in ensuring sufficient information quality. The difficulties stem from the lack of regulation and the overlaps and gaps in institutional responsibilities. Allocation of clear responsibilities to institutions and improvement of communication between them are the main challenges in establishing an environmental information system. The EPA should make more use of the already available EEA/EIONET server and Web portal to improve access to existing information and communication among stakeholders, and should develop an up-to-date electronic system for data storage and processing.

In parallel with the new legislation which lacks some implementing regulations, a number of old laws are still in use. This, combined with communication problems between the environmental and other

sectors and between the national, regional and local levels, results in various actors, including the public, having limited knowledge about the existing information (e.g. content, ownership). Environmental information is scattered among users, data are not harmonized, and it is not possible to get an overview of the situation. In such circumstances, any efforts to improve the quality of information can be very inefficient. An overview of available information with its metadata would help to improve transparency.

Recommendation 2.1:
Based on the requirements of the European Environmental Agency (EEA) and European Environment Information and Observation Network (EIONET), the Ministry of Environmental Protection, through its Environment Protection Agency (EPA), should establish an effective and solid network of topic-related reference institutions which would regularly transmit environment-related information to the EPA, which would serve as a national focal point.

The collection of environmental data should be geared towards common goals and concepts. Two-year environmental monitoring programmes are performed by different institutions and at different levels. Their concepts and instruments need to be revised to ensure their harmonization within the country and with international requirements. Cooperation with Eurostat and EEA by the different institutions, for example, the Statistical Office and the EPA, would help the relevant institutions to reach these goals.

Environmental statistics, which are an important element of an environmental information system, are very unreliable. Current statistical research is based on outdated questionnaires (e.g. on water) or is missing (e.g. on waste and environmental expenditures). The draft law on statistics does not foresee any structures to promote harmonization of environmental data provision at the national level. The creation of a council is foreseen, but its tasks would be very political, whereas more operational technical co-councils, for example, would be useful. Environment-related cooperation with European statistical institutions (such as Eurostat) is lacking.

Recommendation 2.2:

(a) The Government should:
- *Consolidate the regulatory framework by adopting by-laws on environmental information systems, including on content and procedures of monitoring, reporting systems, and polluter registers; and*
- *Review environmental monitoring programmes, harmonize them with international requirements, and ensure their full implementation;*

(b) The Ministry of Environmental Protection should enforce self-monitoring of polluters and reporting procedures, and ensure that this information and data are reported to the EPA, and further, to the public.

(c) The Environmental Protection Agency, in cooperation with the Statistical Office, should develop, through cooperation with international institutions, accurate and internationally harmonized national environmental statistics linked with environmental monitoring.

Reporting about the state of the environment is an umbrella activity that connects and synthesizes activities in different areas. This process often suffers from typical underlying problems such as the quality of information, its relevance or communication barriers. A brief overview of the quality of environmental information in Serbia (according to internationally used criteria) shows that, although the quality is improving, it is still fairly low:

- Information and data are still very scattered;
- Environmental data are in most fields not representative enough (geographical coverage, time series);
- The comparability of data is problematic in most areas (classifications, standards, methodologies used for analyses, indicator calculations);
- Although the legal procedure for accessing information and its disclosure has improved, stakeholders have no overview of the availability of information on the environment. There is no Web portal or clearing house to help users to find and review relevant information; and
- Poor data flows, poor reporting and long delays in disclosing information to the public substantially decrease the relevance of the information. The establishment of the EPA has led to improvements in the flow of data in the country and to international users, but many barriers remain, mostly because of undefined procedures and responsibilities.

Recommendation 2.3:
The Ministry of Environmental Protection through its Environment Protection Agency should, with the support of the Government, improve the quality of the state of the environment reporting and disclosure to the public by:

(a) Clearly specifying the coverage of the State of the Environment Reports, in particular by including a section on driving forces and pressures for environmental change, and reconsidering the periodicity of the State of the Environment reports;

(b) Improving ways of reporting on the state of environment that will more timely follow the political agenda, for instance publishing topic-oriented reports and short briefings on emerging issues; and

(c) Making the information broadly available in a timely manner.

Chapter 3

IMPLEMENTATION OF INTERNATIONAL AGREEMENTS AND COMMITMENTS

3.1 Framework for international environmental cooperation and changes since 2002

Since the time of the first Environmental Performance Review (EPR) in 2002, two significant political changes have occurred. In February 2003, the Federal Republic of Yugoslavia was transformed into the State Union of Serbia and Montenegro. In June 2006, after a referendum in the Republic of Montenegro which resulted in its independence, the Republic of Serbia also became a sovereign state. In practical terms, this means that Serbia automatically became a party to all international treaties and agreements to which the State Union was a party. In the first review, it was noted that the division of responsibilities between the authorities at the federal and republic levels was not sufficiently clear, and that an extra layer of government often slowed decision-making. This problem was de facto solved when Serbia became an independent state.

Serbia participates in the European Union (EU) Stabilisation and Association Process (SAP), the European Union's policy framework for the Western Balkan countries, with the ultimate goal of becoming a member of the EU. In November 2005, Serbia started negotiations with the EU on the *Stabilisation and Association Agreement* (SAA), but the negotiations were suspended in May 2006 after Serbia was found in non-compliance with its obligations to the International Criminal Tribunal for the Former Yugoslavia (ICTY) in The Hague.

However, work on technical issues, in particular in the area of environmental protection, is continuing. Serbia has regular meetings with representatives of European Commission (EC) on specific sector policies, the so-called "*Enhanced Permanent Dialogue*" meetings. Serbia is also eligible for EU pre-accession financial assistance under the EU Community Assistance for Reconstruction, Development and Stabilisation (CARDS) programme from 2006, and since 2007 under IPA (Instrument for Pre-Accession). The Law on Ministries prescribes that ministries are responsible for international cooperation and harmonization of legislation with the EU *acquis communautaire* in their respective fields of competence.

3.2 Priorities and policy framework

Principles and objectives

The proclaimed goal of the State Union of Serbia and Montenegro was to integrate into European structures, the EU in particular, and to harmonize its legislation and practices with European and international standards. Integration into the EU remains a strategic goal for Serbia.

To ensure harmonization of laws with EU legislation, in July 2004 the Government of Serbia adopted the first *Action Plan for the Approximation of Domestic Laws* with the EU *acquis communautaire*. Since then, the Action Plan has been adopted annually. This process includes harmonization of environmental legislation with the environmental *acquis* of the EU. The *Resolution on Accession to the EU* (OG RS No. 48/2004) was adopted by the National Assembly in 2004, and in June 2005 the Government adopted the *National Strategy for Accession of Serbia to EU*.

The guiding document in Serbia for environmental protection policies is the *National Environmental Strategy*[1] (NES), which was approved by the Government in 2006 but has not yet been adopted by the National Assembly (see chapter 1). Although not very detailed, the section on international cooperation emphasizes the following priorities, in the light of the overarching goal of EU accession:

- Ratification and implementation of a number of international conventions and agreements;
- Cooperation with international and regional organizations, such as the United Nations, the EC, the European Environment Agency (EEA), the European Bank for Reconstruction and Development (EBRD) and the World Bank;
- Accelerated conclusion of bilateral agreements to serve as a basis for effective cooperation programmes; and

[1] Also referred to as the National Environment Protection Programme (NEPP).

- Exchange of experience with the new EU Member States from Central Europe and the EU candidate countries regarding implementation of the EU environmental *acquis* and the reform of environmental policy, institutions and monitoring and financing systems.

Effective international environmental activities are necessary to support the overall environmental priorities of the country. The NES identifies priority environmental policy objectives in the following areas:

- Water quality and water resources
- Waste management
- Risk management and chemicals management
- Air quality and climate change
- Nature conservation and biodiversity

Institutional and legal framework

Most of the responsibilities in the area of international cooperation in environmental protection and sustainable use of natural resources lie since May 2007 with the Ministry of Environmental Protection (MEP), formerly the Ministry of Science and Environmental Protection (MSEP) (see chapter 1). Among these responsibilities are development of strategic documents, plans and programmes in the field of sustainable use of natural resources and renewable energy sources; development of draft legislation for compliance with international agreements and draft laws on ratification of multilateral environmental agreements (MEAs); and the implementation of legislation and policies. Areas overseen by MEP which have direct implications for international cooperation include the following: protection of the ozone layer; climate change; transboundary air and water pollution; early warning of accidents; chemicals management; waste management (except nuclear waste); transboundary movement of protected species of flora and fauna; and transboundary movement of hazardous materials.

The Division for EU Integration and International Cooperation in Environmental Protection in the MEP has overall responsibility for these issues. As of October 2006, it had two departments with a total staff of 10. Focal points for conventions are in most cases specialists responsible for the relevant issues (e.g. nature protection, waste management, environmental impact assessment) in other divisions of MEP.

The Environmental Protection Agency (EPA) is a governmental body within MEP that is responsible for tasks related to the development, harmonization and management of the national information system for environmental protection. In this capacity, it cooperates with EEA and the European Environment Information and Observation Network (EIONET) (see chapter 2).

The Fund for Environmental Protection could play a role in international cooperation. Revenues from international bilateral and multilateral cooperation on activities to enhance environmental protection and energy efficiency are listed among the sources of revenues for the Fund. However, in practice there have been no revenues from this source since the Fund has been operational since May 2005 only.

As was mentioned earlier, according to the 2004 *Law on Ministries* (OG RS Nos. 19/2004 and 84/2004), MEP is responsible for issues related to transboundary water pollution. However, in fact, according to the 1991 *Law on Water* (still in force), the body responsible for all issues related to water management and water protection is the Directorate for Water within the Ministry of Agriculture, Forestry and Water Management.

In practice, international cooperation in water management and protection is engaged in by the Directorate for Water. The Directorate is the focal point for the *Convention on the Protection and Use of Transboundary Watercourses and International Lakes* (the *Law on ratification* was approved by the Government in 2007 and has been submitted to the National Assembly for adoption), the *Convention on Cooperation for the Protection and Sustainable Use of the Danube River* (*Danube River Protection Convention*), and the Danube Black Sea Task Force, as well as agreements on the Tisa and Sava rivers.

The Ministry of Agriculture, Forestry and Water Management (MAFWM) has responsibility for biosafety issues and is the focal point for the *Cartagena Protocol on Biosafety* to the *Convention on Biological Diversity* (CBD).

The Development and Aid Coordination Unit (DACU), within the Ministry of Finance since May 2007, is responsible for coordination of international assistance to Serbia. The Inter-Sectoral Working Group for Coordination of Humanitarian and Development Assistance (ISDACON) is a government body whose objective is to ensure coordination of activities related to planning and implementation of donations and development assistance at the sectoral and inter-sectoral levels.

The DACU maintains the ISDACON Information System, which registers all development assistance directed through central government agencies. Projects relating to environmental protection are reported to the DACU by the MEP and other government agencies.

The European Integration Office of the Government of Serbia (SEIO) is responsible for coordination of government activities in the framework of the EU SAP. All new draft legislation is submitted to SEIO, which provides analysis of its compatibility with EU directives.

Harmonization of environmental legislation with EU directives is under way. In 2004, Serbia adopted the following laws that comply with the respective EU directives: the *Law on Environmental Impact Assessment* (EIA) (OG RS No. 135/2004); the *Law on Strategic Environmental Assessment* (SEA) (OG RS No. 135/2004); and the *Law on Integrated Pollution Prevention and Control* (IPPC) (OG RS No. 135/2004). All these laws provide for public participation and access to information and are in line with the *EU Directive on Public Participation2003/35/EC* (see also chapter 1).

3.3 International cooperation on environmental issues of national importance[2]

Nature and biodiversity conservation

Serbia is a party to a number of MEAs related to biodiversity and nature conservation: the *Ramsar Convention of Wetlands of International Importance* (succeeded in 2001), the *Convention on the Protection of the World Cultural and Natural Heritage* (succeeded in 2001), the *Convention on International Trade in Endangered Species of Wild Flora and Fauna* (CITES) (ratified in 2002), the *Convention on Biological Diversity* (CBD, ratified in 2002) and its *Cartagena Protocol* (acceded in 2006).

The 2004 *Law on Environmental Protection* (LEP) contains a number of provisions related to protection of biodiversity that take into account international agreements. Serbia is developing a new draft law on nature protection to be harmonized with relevant EU directives and the draft *National Strategy for Sustainable Use of Natural Resources and Goods*.

The MEP (Division for Protection of Nature) is the designated focal point and competent authority for the *Ramsar Convention*, CBD and CITES. In addition, several institutions have been designated as scientific authorities for CITES. The Annual Report to CITES for 2005 (for Serbia and Montenegro) has been submitted. The EPA maintains a database on environmental components that include biodiversity. Serbia has been regularly submitting national reports on implementation of the *Ramsar Convention*. The country has six officially designated Ramsar sites, although the number of potential sites is estimated to be over 100. Two more Ramsar sites were adopted in 2006: Labudovo okno and Peštersko polje. An inventory of wetlands is planned. None of the six Ramsar sites has a management plan.

The national report for the implementation of the CBD, as required by the Convention, has not been prepared yet. The Global Environment Facility (GEF) has allocated funding of about US$ 290,000 for the project "*Developing Biodiversity Strategies and Action Plans for Serbia and Montenegro*". The implementing agency for the project is the United Nations Development Programme (UNDP) in partnership with (in Serbia) the MEP. The project will identify strategic directions and actions to conserve biodiversity, and will produce a country study describing the critical features of the biodiversity resources and an action plan presenting a range of activities to facilitate their protection. It also aims at facilitating capacity-building for participation in the Clearing-House Mechanism under the CBD. The *National Biodiversity Strategy and Action Plan* will form the basis for the First National Report to the CBD. Implementation of the project started in the first half of 2007.

Another GEF Enabling Activity related to biodiversity is the project "*National Capacity Self-Assessment for Environmental Management in Serbia and Montenegro*", also with UNDP as the implementing agency, in partnership with MEP (in Serbia). The total budget for the two countries is slightly less than US$ 200,000. The project's main objective is to determine current capacities, assess priority needs and develop a plan of action in order to implement three conventions – the CBD, the *United Nations Framework Convention on Climate Change* (UNFCCC) and the *United Nations Convention to Combat Desertification* (UNCCD) and meet the country's commitments to global environmental management. Serbia's environmental authorities stress that it is necessary to improve inter-ministerial coordination mechanisms for biodiversity-related issues (except biosafety) to ensure integrative

[2] A list of all the MEAs to which Serbia is a party or intends to become a party appears in annex III.

approach in implementation effective implementation of biodiversity policies. Serbia has five national parks and has plans to increase the percentage of protected areas from 6.5 per cent to 10 per cent of its territory by 2010.

The designated focal point and competent authority for the *Cartagena Protocol* is the MAFWM. The *Law on Genetically Modified Organisms* (GMOs) was adopted in 2001 and is supported by several regulations. A new draft law on GMOs is being prepared and is undergoing public discussion. A register of permits for contained use, deliberate release and placing of GMOs on the national market is in place. The National Council for Biological Safety (NCBS) – which consists of experts in agriculture, population genetics, environment, forestry, and molecular biology – was established in 2001. The NCBS provides expert opinion and makes risk assessments. Since 2004, the United Nations Environment Programme (UNEP) and GEF have been implementing the project "*Development of a National Biosafety Framework*" (with a budget of US$130,000) with the MAFWM. The project should help Serbia to comply with the Cartagena Protocol and promote regional and subregional cooperation on biosafety.

Three sites in Serbia appear on the World Heritage List[3] (Stari Ras, Sopoćani, and Studenica Monastery); all three are cultural properties. Serbia also has one Man and Biodiversity (MAB) site: the Golija Mountain.

Serbia has not yet ratified the following conventions: the *Bonn Convention on the Conservation of Migratory Species of Wild Animals*, the *Bern Convention on the Conservation of European Wildlife and Natural Habitats*, the UNCCD, and the *Framework Convention on the Protection and Sustainable Development of the Carpathians* (signed in 2003). Preparation for ratification of these MEAs is under way. For all of these Conventions, draft laws on ratification were approved by the Government and have been submitted to the National Assembly.

Water protection

Serbia has not yet ratified the *Convention on the Protection and Use of Transboundary Waters and International Lakes* or its Protocols on Water and Health and on Civil Liability. The draft law for ratification was approved by the Government and has been submitted to the National Assembly for adoption. The national focal points for the Convention are the Directorate for Water at the MAFWM and the MEP; the National Public Health Institute is the focal point for the Protocol on Water and Health.

Serbia is active in regional cooperation on water protection. In 2003, Serbia ratified the *Danube River Protection Convention*, and it is a member of the International Commission for the Protection of the Danube River (ICPDR). It is also a member of the International Sava River Basin Commission and the Tisa River Basin Forum. Serbia joined the Black Sea Economic Cooperation Council in 2003 and participates in its Commission for Environmental Protection Cooperation.

Serbia is drafting a new law on water (to replace the 1991 law), which will be harmonized with the EU *Water Framework Directive* and other relevant EU legislation (see chapter 6). The MEP, in cooperation with the Directorate of Water, has started drafting an action plan for water protection based on the implementation of the NES.

One of the major projects for reducing environmental pollution of the Danube River is the World Bank–GEF *Danube River Enterprise Pollution Reduction Project*. The total budget is over US$ 22 million, of which US$ 9 million is a GEF grant. The project's specific objective is to reduce agricultural nutrient pollution from livestock farms and slaughterhouses. The project aims to introduce better waste management technologies; to facilitate the development of institutions, monitoring and enforcement; and to increase public awareness of the impact of water pollution by nutrients. The project will assist Serbia in meeting its obligations under the Danube River Protection Convention. The preparatory phase took place in 2003–2005, and the implementation phase will continue until 2009.

Air protection and ozone layer protection

Serbia is a party (by succession, in 2001) to the *Convention on Long-range Transboundary Air Pollution* (CLRTAP) and its *Protocol on Long-term Financing of the Co-operative Programme for Monitoring and Evaluation of the Long-range Transmission of Air Pollutants in Europe* (EMEP). Serbia provides annual emission data as required by the Convention. It has not ratified any of the other seven protocols to the Convention. All of them are listed in the NES as MEAs in the preparation process for ratification, and ratification and implementation of international agreements dealing with air

[3] http://whc.unesco.org/en/statesparties/cs

protection, ozone layer protection and climate change are among ongoing policy objectives for the period 2006–2015. The draft *Law on Air Protection* (submitted for adoption to the National Assembly) is harmonized with relevant EU directives and contains provisions related to CLRTAP. Its adoption, along with necessary by-laws, will be followed up with ratification of the protocols. The Hydrometeorological Institute (HMI) is the focal point for implementation of the EMEP protocol, as is the MEP for the CLRTAP convention.

Serbia is a party (by succession, in 2001) to both the *Vienna Convention on the Protection of the Ozone Layer* and its *Montreal Protocol*. Four amendments to the *Montreal Protocol* were ratified (by accession) in 2005. The MEP is the focal point for the Convention and the Protocol, and few government agencies are involved in the implementation. Serbia is not a producer of ozone-depleting substances (ODS); according to the 2004 *Law on Environmental Protection*, production of ODS is prohibited, and imports of ODS are strictly regulated. The MEP keeps a registry of imports, exports and consumption of ODS and is responsible for issuing export and import permits. The first national programme for elimination of ozone-depleting substances has been completed, in which 450 tons of chlorofluorocarbons (CFCs) (half of the total amount planned) were eliminated. Since 2005, Serbia has been implementing the *National Programme for Final Phase-out of CFCs* with support from the UNEP Multilateral Fund for Implementation of the Montreal Protocol (total budget for Serbia of around US$ 2.6 million). The United Nations Industrial Development Organization (UNIDO) is the lead implementing agency for the programme, and the MEP is the national coordinating agency. Serbia has established the Project Management Unit (PMU), which was one of the Multilateral Fund's conditions for continued funding. The final phase-out of CFCs is planned by the end of 2009.

Climate change

Serbia is a party (Non-Annex I) to the UNFCCC (succeeded in 2001). The designated national focal point is MEP. Serbia is preparing an inventory of greenhouse gas (GHG) emissions in the framework of the GEF project "*First National Communication in Response to the Country's Commitments to UNFCCC*" (whose total budget for the State Union of Serbia and Montenegro is US$ 405,000). UNDP is the implementing agency in partnership with MEP. The project "*Development of a Framework National Strategy and Action Plan for Response to the Problem of Greenhouse Gases*", financed by the Japan Special Fund, was implemented by the Regional Environmental Center for Central and Eastern Europe (REC) in 2004–2005 and a strategy and an action plan were produced. Serbia has not yet ratified the *Kyoto Protocol*, but is preparing to do so (the draft law on ratification was approved by the Government and has been submitted to the National Assembly for adoption). Serbia is planning to establish an inter-ministerial body responsible for determining and approving projects in the scope of the Clean Development Mechanism of the *Kyoto Protocol*. The draft *Law on Air Protection* adopted by the Government and submitted for approval to the National Assembly contains provisions related to GHG emissions, including for the monitoring of GHG emissions, emission quotas for certain pollutants, and for the promotion of clean technologies, energy efficiency measures and technologies that prevent and limit GHG emissions.

Waste and chemicals management

Serbia is a party to the *Basel Convention on the Control of Transboundary Movements of Hazardous Wastes* (ratified in 1999). The focal point for the Convention is the Division for Legal Regulation and Economic Instruments of the MEP; the competent authority for issuing permits for the import, export and transit of waste is the Section for Waste Management of the MEP. Three laboratories have been designated as competent authorities for waste characterization. The Government has established the Commission for the *Basel Convention* to ensure inter-agency cooperation. It is composed of representatives of relevant ministries and institutions (including the Customs Office, laboratories for waste characterization, and the Ministry of Economy and Regional Development). A number of national laws and by-laws support implementation of the Convention. Gaps in the existing legislation are being addressed by the new draft law on waste management, which will replace the current one dating from 1996. Among the main difficulties in the effective implementation of the Convention are insufficient scientific and technical resources and financial constraints. Serbia is complying with its obligations regarding annual reporting to the secretariat of the Convention and is in the initial stages of preparing to ratify the Convention's *Protocol on Liability and Compensation*. The Government anticipates significant difficulties in implementing the Protocol because of the lack of technical and financial capacity on the part of government institutions, businesses and insurance companies.

Serbia is not yet a party to the *Rotterdam Convention on the Prior Informed Consent Procedure for Certain Hazardous Chemicals and Pesticides in International Trade* (*PIC Convention*). However, it is preparing for ratification. The MEP has been designated as the focal point for the PIC Convention and the competent authority for production and trade of hazardous chemicals; the MAFWM will be the competent authority for pesticides. The new draft law on chemicals contains provisions for regulating the import and export of chemicals in accordance with the *Rotterdam Convention*. This new law is being developed with a view to harmonizing it with relevant EU directives, including REACH (*Regulation on Registration, Evaluation, Authorization of Chemicals*). Serbia is waiting for the EU to adopt regulations on classification and labelling of substances in accordance with the *Globally Harmonized System of Classification and Labelling of Chemicals* (GHS), so as to adjust the relevant part of its draft law accordingly. It intends to ratify the PIC Convention after the adoption of the new law on chemicals. The draft law contains a provision for creating a register of chemical substances that are on the domestic market.

Serbia is a signatory to the *Stockholm Convention on Persistent Organic Pollutants* (*POPs Convention*) (signed in 2002), but has not ratified it yet. The MEP is the focal point and competent authority for the Convention. The draft laws on waste management and on chemicals contain provisions for compliance with the *POPs Convention*. The GEF project "*Enabling Activities for the Stockholm Convention on Persistent Organic Pollutants: National Implementation Plan for Serbia and Montenegro*" was approved in 2003 and is currently in the first phase of implementation after Montenegro and Serbia signed the implementation agreement and proportioning of funds (the budget for Serbia is about US$ 350,000). It is being implemented in Serbia by UNEP and the MEP. The main goals of the project are to assist the country in implementation of the Convention, including reporting and other obligations, and to strengthen its capacity to manage POPs and chemicals in general.

There are synergies and linkages between the three conventions (Basel, PIC and POPs), and Serbia recognizes the benefits of coordinating their implementation. Adoption of the prepared draft legislation on waste management and on chemicals would promote the integrated implementation of these MEAs, and the country envisages further capacity-building and training of specialists for all three MEAs.

Risk management

Serbia is not yet a party to the Convention on the Transboundary Effects of Industrial Accidents, but has plans to ratify it. The MEP has been designated as the focal point and competent authority for the Convention. Serbia submitted an implementation report for 2004–2005. The national legislation, including the 2004 *Law on Environmental Protection* and the 2004 *Law on Environmental Impact Assessment* (EIA), contain provisions on accident risk assessment and accident prevention planning as well as other provisions in line with requirements of the Convention and the *EU Seveso Directive on industrial accidents*. While the legislative basis for becoming a party may be considered sufficient, the country acknowledges difficulties in implementation, primarily caused by lack of capacity (human and technical) and poor coordination between the responsible authorities at the national and local levels and with industry.

Transboundary environmental impact assessment

Serbia is not yet a party to the *Espoo Convention on Environmental Impact Assessment (EIA) in a Transboundary Context* and its *Protocol on Strategic Environmental Assessment* (SEA) (signed in 2003). The draft Law on Ratification of the Espoo Convention approved by the Government has been submitted to the National Assembly for adoption. The Department for EIA at the MEP has been designated the focal point and the point of contact for notification for the Convention. Serbia has participated in a series of regional workshops conducted by the UNECE on drafting a model regional agreement to include provisions for detailed implementation of the *Espoo Convention*. This agreement is expected to be signed by all the countries of South-Eastern Europe (SEE), including Serbia, at the fourth Meeting of the Parties to the Convention, which will be held in 2008 in Romania. The 2004 *Law on EIA* and the 2004 *Law on SEA* are fully harmonized with the relevant EU legislation and are in line with the requirements of the Espoo Convention and its Protocol on SEA.

Cleaner production

In the first EPR of Yugoslavia, the establishment of national cleaner production centres was recommended. Serbia has not yet established such centres. In 2006, the pilot project "*Preparatory Assistance for the Establishment and Operation of a National Cleaner Production Programme in Serbia*"

(with a budget of about US$ 50,000, with funds provided by the Czech Republic and Slovenia) was carried out by United Nations Industrial Development Organization (UNIDO) as the implementing agency, with the MEP and the Ministry of Economy coordinating the project at the national level. Based on the results of the pilot project, UNIDO has approved a three-year project "*Establishment and Operation of a National Cleaner Production Centre in Serbia*" financed by Austria and Slovenia and started in January 2007.

Public participation

Serbia is not yet a party to the Aarhus Convention on Access to Information, Public Participation in Decision-making and Access to Justice in Environmental Matters. Several laws adopted in 2004 (the *Law on Environmental Protection*, the *Law on EIA*, the *Law on SEA* and the *Law on IPPC*) contain provisions on access to information, public participation in environmental decision-making and access to justice in environmental matters that correspond to the requirements of the Aarhus Convention. The MEP has been designated the focal point for the Convention. The United Nations Institute for Training and Research (UNITAR) and UNECE, in cooperation with the MEP, implemented the project "*Development of a National Profile on the Implementation of the Aarhus Convention*" in 2005–2006 (budget US$ 7,500). The National Profile has been completed and will assist in the preparations for the Convention's ratification and implementation. See chapter 2 for more information on public participation.

3.4 Bilateral and regional cooperation and international technical assistance

Bilateral and cross-border cooperation

Serbia is participating in bilateral cooperation in environmental protection with a number of countries, with an emphasis on cooperation with neighbouring countries and receiving technical and other assistance from donor countries. In most cases, the effectiveness of cooperation depends less on the existence of formal agreements than on the availability of funds for joint programmes and projects, primarily in the context of regional cooperation. However, Serbia gives importance to the signing of such agreements and/or memorandums of understanding (MOUs).

An intergovernmental agreement exists with The former Yugoslav Republic of Macedonia; a joint committee for cooperation in the area of environmental protection has been established. A MOU on cooperation in environmental protection was signed with Albania at the ministerial level in 2005, although no information on its practical implementation is available. There are plans to sign agreements and/or MOUs with Bosnia and Herzegovina, Bulgaria, Croatia, Hungary, Romania and Slovenia. Serbia cooperates with all these countries in the framework of the ICPDR, and with several of them in the framework of the ISRBC. Serbia and Bulgaria have signed a memorandum on establishing a transboundary nature park in Stara Planina. Environmental components are part of the Neighbourhood and CBC (Cross-Border Cooperation) Programmes with Bulgaria, Croatia, Hungary and Romania and planned ones with Bosnia and Herzegovina and Montenegro, which are supported by the EU CARDS programme and the Instrument for Pre-Accession (IPA).

Serbia participates in the Regional Environmental Reconstruction Programme (REReP) and is involved in a number of cross-border cooperation activities within its framework. An example is the project "*Cross-border Municipal Environmental Cooperation in the Drina River Basin*", involving Bosnia and Herzegovina and Serbia. The project is funded by Norway and is currently in its third phase. (The total budget for three phases in 20022006 is about €330,000.) The project is being implemented by the REC, which serves as the REReP secretariat. The main goal of the project is to develop a sustainable solution to the problem of accumulation of solid waste in the water bodies shared by the two countries – the Drina River and Lake Perućac – and to prevent future waste accumulation. An important feature of the project has been the involvement of stakeholders from both countries, including local authorities, non-governmental organizations (NGOs), utility companies, national parks and other institutions.

Also in the framework of REReP, Serbia participates in the *Environment and Security (ENVSEC) initiative* of UNEP, UNDP and the Organization for Security and Co-operation in Europe (OSCE). Recent and ongoing ENVSEC projects in the SEE region from which Serbia benefits include "Reversal of Land and Water Degradation in the Tisa Basin Ecosystem: Establishment of Mechanisms for Land and Water Management" (funded by UNDP and GEF); "Enhancing Transboundary Biodiversity Management in South-Eastern Europe" (UNEP); and "Environment and Security Risks from Mining in South-Eastern Europe" (UNEP). Serbia participates in the Environmental Compliance and Enforcement

Network for Accession (ECENA) (the former Balkan Environmental Regulatory Compliance and Enforcement Network). The ECENA Network provides technical assistance and facilitates exchange of experience and information among specialists in the SEE region involved in environmental inspection, permitting and implementation of environmental laws.

Serbia participates in the AIMS Network (Joint Network of Senior Officials and Legal Experts), which was established under the REReP project "*Support for Acceptance and Implementation of Multilateral Environmental Agreements in South-Eastern Europe*". The project was implemented in 2001–2004 (with a budget of about €470,000 with funding from the Netherlands). Serbia has benefited from regional workshops on the Basel Convention and the UNECE conventions, as well as from the national capacity-building workshops on priority MEAs. Continuation of the AIMS Network's activities is of particular value for Serbia as it is preparing to ratify several MEAs (see section 3.3) and will be working on their implementation. The emphasis is on identification of synergies between MEAs, training for the national focal points and specific activities for target groups (the business sector and authorities in charge of implementation).

After the country joined the North Atlantic Treaty Organization (NATO) "*Partnership for Peace*" programme in November 2006, Serbia also became eligible for the NATO Science for Peace and Security Programme which, among key priorities, includes environmental security and water resources management.

International technical assistance

Serbia receives significant amounts of international assistance for environmental protection. Major projects supported by donor countries and international organizations are mentioned in section 3.3. Before May 2007, the Ministry of International Economic Relations (MIER) and the Ministry of Finance (MoF) prepared annual reports on international assistance to Serbia using the Inter-Sectoral Working Group for Coordination of Humanitarian and Development Assistance (ISDACON) and its information system. The 2006 report states that the amount of international assistance for the environment sector was approximately €23 million in 2005. As a percentage of total development assistance (with a budget of over €650 million in 2005), this amount is relatively small (about 3.5%), and the MoF emphasizes the need to increase it. Some environment-related projects may not be accounted for in this figure, as they may be defined as assistance to other sectors (e.g. energy, transport or water). In addition, staff in the MEP and the DACU acknowledge that the ISDACON database is not comprehensive enough, and that many projects, in particular those funded and implemented at the municipal level, may not get reported to the system.

Several weak points related to the provision of international technical assistance have been identified as significant by both the donor community and national authorities. One is the absorption capacity (ability to effectively use allocated funds) of the beneficiaries, including government institutions, which are to be strengthened. Also, many projects are donor-driven, which results in an insufficient sense of ownership for the national institutions receiving assistance, and in a lack of involvement by beneficiaries in follow-up after a project ends. Another weak point is insufficient coordination of donor efforts: certain areas may receive more resources than they need, while others do not get enough. Attempts are being made to improve the situation, in particular by the MoF, which intends to develop a donor harmonization agenda that will define the priority objectives and the main activities to achieve them.

The MIER, in cooperation with sector ministries, prepared the document "Needs of Serbia for international donor assistance", which determines the main sectoral priorities and projects requiring financial assistance. This document was adopted by the Government in 2007 and environmental protection is placed as one of five inter-sectoral priorities. Serbia does not automatically exempt technical assistance projects from taxation; tax exemption requires a special agreement between the Government and a donor (i.e. an international organization or a foreign Government) that is ratified by the National Assembly. Both donors and recipient organizations in Serbia perceive this as an obstacle to the provision of technical assistance.

Major bilateral donors for environmental protection in Serbia include the Governments of Austria, the Czech Republic, Finland, Germany, Greece, Italy, Japan, Norway, Slovakia, Slovenia, Sweden, Switzerland and the United States. Among the projects with particular impact on harmonizing environmental legislation with EU directives and institution-building were three projects funded by Finland and Sweden:

- *Development of Environmental Legislation in Serbia and Montenegro* (Yugolex), funded by the Government of Finland (total budget €2 million). The project was carried out in 2002–2005 and resulted in the adoption of three laws on environmental protection (EIA, SEA and IPPC) that are harmonized with the relevant EU directives.

- *Strengthening Environmental Management in the Directorate for Environmental Protection*, funded by the Swedish International Development Cooperation Agency (SIDA). The first phase was carried out in 2004–2005 (with a budget of approximately €420,000), and the second phase started in April 2006 (with a budget of approximately €350,000). The overall objective of the project is to improve management capacity in the environmental sector. In the first phase, modern management methods and models were introduced, and the DEP had committed itself to adopting the EU Common Assessment Framework (CAF) approach. A management system and a management strategy were developed and agreed. The organizational structure of the DEP was changed. A communication strategy was developed, and implementation of some of its elements began. (See the discussion in chapter 2 on communication with NGOs). Based on the results of the first phase, the three main objectives of the second phase are: (1) to build capacity in the DEP, now the MEP, to develop and implement policies and strategies; (2) to assist in the implementation of selected management strategies; and (3) to assist in the modernization of the environmental sector.

- *Institutional Support to Law Enforcement* is a project funded by the Government of Norway whose objective is to strengthen institutional capacity for implementation of legislation related to industrial pollution (IPPC, SEVESO II, EIA) and its enforcement (environmental inspection).

International organizations that provide assistance in environmental protection to Serbia include UNEP, GEF, UNDP, UNIDO, UNITAR, UNECE, the World Bank, the European Bank for Reconstruction and Development (ERBD) and the European Investment Bank.

Cooperation with the EU is particularly important to Serbia, given the country's goal of EU accession. Serbia has been receiving support from the CARDS programme since 2001. Between 2002 and 2006, approximately €39 million was allocated for seven projects in the environmental sector (out of a total for Serbia of over €778 million). The projects provide assistance to institution- and capacity-building, waste management and environmental monitoring. The European Agency for Reconstruction (EAR) has been responsible for implementation of the CARDS programme. In 2007, all existing types of EU assistance programmes (such as CARDS and PHARE[4]) will be replaced by the IPA. As a potential candidate for membership, Serbia will have access to two out of five components of this instrument: (1) support for the transition process and institution-building; and (2) regional and cross-border cooperation. Projects in the environmental sector, including infrastructure projects, will be eligible for IPA funding. Government institutions, not EAR[5], are supposed to play a major role in the new system for managing EU assistance. The Government is preparing a structure for implementing decentralized management of funds. Serbia provides regular (quarterly) reports on the Plan for Implementation of the European Partnership Priorities, which contain a section on the environment, and the country receives feedback from the EU through the Progress Reports issued by the EC.

The "Environment for Europe" process

The State Union of Serbia and Montenegro participated in the Fifth Ministerial Conference "*Environment for Europe*" (Kiev, 2003) and was selected as the host country for the sixth Conference, which will be held in Belgrade in October 2007. As part of the Conference preparations, Serbia organized a meeting of ministers and senior officials of SEE countries to discuss issues that these countries would like to highlight at the event. Several common environmental priorities were identified:

- Strengthening of capacities and cooperation for sustainable development
- Investments in environmental infrastructure at the municipal level
- Capacity-building in support of multilateral agreements
- Addressing issues of past liability
- Enforcement of and compliance with environmental regulations
- Environmental education and awareness
- Enhancing regional cooperation in the area of climate change

[4] EU Poland and Hungary assistance for restructuring of the economy

[5] In next coming years until the structure to manage the IPA funding will be set, EAR will continue to manage them.

3.5 The World Summit on Sustainable Development and the Millennium Development Goals

World Summit on Sustainable Development

Serbia established the National Council for Sustainable Development (NCSD) in 2003 to provide a forum for discussion and consensus-building between ministries and other stakeholders on issues related to the environment and sustainable development. To make it more effective (it had been dormant since its inception), the NCSD was restructured in 2005. It is now chaired by the deputy prime minister and includes six ministers, the president of the Serbian Academy of Sciences and Arts, and the rector of the University of Belgrade (see also chapter 1).

A National Conference on Sustainable Development was held in March 2006. Since 2005, Serbia has been developing its Strategy for Sustainable Development in cooperation with UNDP. This is being done in the framework of the project, "*Developing Strategy for Sustainable Development of Serbia",* funded by SIDA (with a total budget about US$ 800,000 for 2005–2007). The Government of Sweden also provides direct support through such capacity-building elements as advisory services, study tours and workshops. Three working groups – on the knowledge-based economy, environment and natural resources, and economic and social issues – are preparing the draft document. At the time of the mission, the strategy had not yet been finalized.

Sustainable development issues are being addressed at the local level as well. Since 2004, the Standing Conference of Towns and Municipalities (SKGO) in cooperation with the Norwegian Association of Local and Regional Authorities (KS), has been implementing the *Programme for Environmental Protection and Sustainable Development in Serbian Towns and Municipalities*. The overall goal is to improve the quality of life in local communities by improving environmental conditions and enabling local governments to define and pursue sustainable development policies. By May 2005, the *Local Sustainable Development Strategy* (LSDS) was developed and approved by SKGO. The next stage of the process involves making LSDS measures operational at the local level (through Local Agenda 21).

Seven municipalities have been chosen for the pilot project on developing and implementing Local Agenda 21. There is a strong emphasis on participation by the public and various stakeholder groups in this process. However, it is not clear whether this process takes into account the experience of numerous local environmental action plans (LEAPs) that have already been developed in Serbia. (For example, several LEAPs were developed with the support of the REC in the framework of REReP.)

Millennium Development Goals

In May 2005, the Government of Serbia adopted the *Progress Report on the Implementation of the Millennium Development Goals* (MDGs) in Serbia, which was prepared by the inter-ministerial Working Group for Monitoring the Implementation of MDGs with the support of UNDP. The Working Group includes five subgroups, one of which is the subgroup on environment and sustainable development. Implementation of the MDGs was analysed in the context of implementation of the Poverty Reduction Strategy adopted in 2002. The report, *National MDGs in Serbia*, was updated and adopted by the Government in March 2007. The national MDGs will be taken into consideration in all future strategies and action plans, as well as in governmental economic policy.

Goal 7 of the MDGs (Ensure environmental sustainability) was adjusted for Serbia, and eight main targets to be met by 2015 were formulated (see Box 3.1). However, the data in the 2005 Progress Report are often outdated and inconsistent. This was one of the reasons for the preparation of an updated review of the implementation of the MDGs, which was under way at the time of the EPR mission. The update also intends to further customize indicators for specific targets to better reflect the conditions relevant for Serbia.

Box 3.1: Main targets of MDG Goal 7 for Serbia by 2015

- Increase the proportion of land area covered by forests
- Increase the ratio of protected areas to surface area
- Improve energy efficiency
- Reduce use of solid fuels by households
- Increase the proportion of the population with sustainable access to safe drinking water
- Increase the proportion of the population with access to improved sanitation
- Increase the proportion of the population with access to secure tenure
- Implement a safe waste management system

Source: Government of Serbia. Progress Report on the Implementation of the MDGs in Serbia, May 2005.

3.6 Conclusions and recommendations

Since the first EPR in 2002, Serbia has made significant progress in international environmental cooperation. The institutional capacity of the former DEP in this area has been strengthened. Serbia is continuing work to harmonize its environmental laws with the EU environmental *acquis*. It has been active in developing strategies and policies in the area of environmental protection with assistance from the international community, and a number of projects for strengthening environmental management capacity have been or are being implemented. However, in many cases, projects are donor-driven, and there were limited commitment for their follow-up at the national level, an attitude which is progressively changing. To ensure ownership over donor projects and their effective implementation and follow-up, it is necessary to strengthen capacity of national institutions and improve coordination between various government agencies.

The Government has established the ISDACON Information System. The Ministry of Finance and the DACU are entrusted with ensuring coordination and harmonization of donor activities and use of development assistance at the sectoral and inter-sectoral level. The ISDACON Information System collects information on international assistance projects based on reporting from government agencies and donors. It is not comprehensive, and some assistance, particularly that distributed at the municipal level, remains unrecorded.

Recommendation 3.1:

(a) The Ministry of Environmental Protection should clearly define the country's priorities and objectives in the area of international environmental cooperation, and identify resources for achieving them from both domestic and external sources.

(b) The Ministry of Environmental Protection, in cooperation with the Development and Aid Coordination Unit of the Ministry of Finance, should develop a system that would allow full accounting of international assistance in the area of environmental protection and promote better coordination of the donor activities in this area, both with the donors and among the governmental agencies and local authorities.

Serbia has continued activities related to ratification and implementation of global and regional environmental agreements. It has prepared a list of conventions that it intends to ratify in the short and medium term. Several new laws that contain provisions in line with MEAs have been adopted, including the framework *Law on Environmental Protection*, the *Law on EIA*, the *Law on SEA* and the *Law on IPPC*. In the period since the first review, Serbia has ratified the Danube River Protection Convention, the Cartagena Protocol on Biosafety to the CBD, and Amendments to the Montreal Protocol to the Vienna Convention on the Protection of the Ozone Layer. Most of the preparatory work has been done for the ratification of the four UNECE conventions (ratification was recommended in the first EPR) and several other MEAs, including designation of focal points and competent authorities; however, at the time of the EPR peer review these instruments had not been ratified. Serbia relies heavily on international assistance for implementation of many conventions. It participates in the AIMS Network, which supports acceptance and implementation of MEAs in SEE.

Recommendation 3.2:

(a) The National Assembly should speed up the ratification procedure of the agreements, which the Government has adopted as precedence (See list a).

(b) The Government should proceed with the ratification of agreements for which all the necessary preparatory work is under way (See list b).

(c) In order to ensure the implementation of multilateral environmental agreements (MEAs) for which they have been designated as focal points and competent authorities, the Ministry of Environmental Protection, in cooperation with other relevant ministries and governmental bodies, should elaborate action plans for the implementation of MEAs, build sufficient national capacity, and continue striving to attract international assistance. Participation in the AIMS Network should continue.

List a of recommendation 3.2:

- *UNECE Convention on Environmental Impact Assessment in a Transboundary Context (i.e. Espoo Convention)*
- *Framework Convention on the Protection and Sustainable Development of the Carpathians*
- *Convention on the Conservation of Migratory Species of Wild Animals (Bern Convention)*
- *Convention of Conservation of European Wildlife and natural Habitats (Bonn Convention)*

- *United Nations Convention on Combat Desertification in Countries Experiencing Serious Drought and/or Desertification Particularly in Africa*
- *Kyoto Protocol*
- *UNECE Convention on the Protection and Use of Transboundary Waters and International Lakes (Helsinki Convention)*

List b of recommendation 3.2:

- *UNECE Convention on Access to Information, Public Participation in Decision /making and Access to Justice in Environmental Matters (Aarhus Convention)*
- *Stockholm Convention on Persistent Organic Pollutants (POPs Convention)*
- *Rotterdam Convention on the Prior Informed Consent Procedure for Certain Hazardous Chemicals and Pesticides in International Trade (PIC Convention)*
- *UNECE Convention on the Transboundary Effects of Industrial Accidents*
- *UNECE Strategic Environmental Assessment (SEA) Protocol*

Serbia has been pursuing the sustainable development agenda with the establishment of the National Council for Sustainable Development and preparation of the *National Strategy for Sustainable Development* (NSSD). However, cross-sectoral cooperation is insufficient. Other strategic documents, such as the National Environmental Strategy, need to be taken into account when the National Council for Sustainable Development is finalizing the NSSD. At the local level, a number of Serbian municipalities are involved in developing Local Agenda 21. There is no information on correlation with LEAPs already developed in a number of municipalities or on use of their experience in development and implementation of LEAPs.

Recommendation 3.3:

a) National AssemblyThe National Council for Sustainable Development, when approving the National Strategy for Sustainable Development, should ensure that its provisions support implementation of other strategic documents, in particular the National Environmental Strategy.

b) The Government should approve the National Strategy for Sustainable Development and submit it to the National Assembly for adoption (see also Recommendation 1.4).

c) The municipal authorities, when developing and implementing Local Agenda 21, should take advantage of the experience of existing local environmental action plans and take into account lessons learned from implementation of local environmental action plans (LEAPs)

PART II: MOBILIZING FINANCIAL RESOURCES FOR ENVIRONMENTAL PROTECTION

Chapter 4

ECONOMIC INSTRUMENTS FOR ENVIRONMENTAL PROTECTION

4.1 The economic context and the environment

Due to sustained robust growth, the overall economic context for the conduct of environmental policy has improved over the past years (see the Introduction). As regards structural reforms, a major challenge remains the privatization of large State-owned enterprises, an area where progress has been slower than expected. Although there has been progress in price liberalization, the share of administered and regulated prices in the consumer price index (CPI) is still quite high. These include notably prices for heating and electricity, coal and gas, and oil derivatives. In 2005, the central government also decided to take control of tariff-setting in the water and wastewater sector (see section 4.4). Despite improving living standards, there are still a large proportion of people with very low incomes, which is reflected in the widespread use of firewood and the high and rising levels of illegal logging.

Rising industrial activity has been associated with an increase in environmental pressures due to the obsolete, pollution-intensive capital stock in many parts of the industrial sector. The extent of air pollution is high and exceeds established standards, notably in several environmental hot spots. The environmental infrastructure regarding waste, water supply and wastewater management is in a poor state after more than a decade of neglect in the face of limited public-sector spending on maintenance and rehabilitation. Similarly, the lack of funds for adequate maintenance has led to a significant deterioration of forest resources.

Against this background, the authorities face the challenge of applying adequate regulatory and economic instruments for reducing environmental pressures and, more generally, achieving a decoupling of pollution from economic growth. The strategic framework for pursuing all these objectives is provided by the 2006 *National Environmental Strategy* (NES) (see details in chapter 1). The Government has the difficult task of mobilizing the necessary domestic and foreign financial resources to finance the considerable investments required for the implementation of the NES.

There has been only limited progress with the design and implementation of more efficient and cost-effective environmental policies since the first Environmental Performance Review (EPR), and the recommendations made in this area have been followed up only to a limited degree. The "polluter pays" principle has been given legal force, but it is not being implemented. Little is known about the environmental effectiveness of new economic instruments, but they appear to be a blunt weapon especially given the low level of charges, which do not create incentives for changing behaviour, and the weak monitoring and enforcement capacities.

4.2 The use of economic instruments for environmental policy

In contrast to the 1991 *Law on Environmental Protection*, the new 2004 *Law on Environmental Protection* (LEP) (OG RS No. 135/2004) gives legal force to the "polluter pays" and "user pays" principles. It also explicitly recognizes the role of incentive-based measures, such as economic instruments, in achieving environmental policy objectives.

The LEP distinguishes the following environmental taxes and charges[1]:

- Pollution charges
  - Emission taxes
  - (Industrial) waste charges
  - Product charges
- Natural resource use charges
- Deposit refund schemes
- Subsidies, tax incentives and exemptions from charge payments
- Fines for non-compliance with environmental standards

Pollution charges are currently levied only for

- Emissions of sulphur dioxide (SO_2), nitrogen dioxide (NO_2), dust and particles
- Ozone-depleting substances

[1] See the generally accepted definition of environmental taxes and charges used by Organisation for Economic Co-operation and Development and the European Commission at: http://www2.oecd.org/ecoinst/queries/index.htm.

- Production and disposal of industrial hazardous and non-hazardous waste
- Use of motor vehicles

Details of pollution charge rates and their calculation (see Table 4.1) are specified in the *Regulation on Types of Pollution, Criteria for Calculation of Cost Recovery for Environmental Pollution, and Amount and Calculation Methods for Fees* (OG RS No. 113/2005). Charge rates are in principle to be adjusted on an annual basis in line with the average annual rate of change in the CPI.

Emission limit values were established in the 1997 *Regulation on Emission Limit Values, Methods and Time Frame for Measurement and Data Recording* (OG RS No. 30/1997 and 35/1997). The existing emissions regulations are, however, not harmonized with those of the European Union (EU). While the current regulations on emission limit values do not prescribe target values, these have been introduced in the draft *Law on Air Protection*, which is designed to provide a framework for harmonizing air pollution legislation with relevant EU directives. The law has been approved by the Government and is now undergoing the parliamentary process for adoption.

It is noteworthy that before 2006, there was no payment of pollution charges. Industrial air pollution charges are currently paid by some 250 (potential) integrated pollution prevention and control (IPPC) installations, which have submitted a request for integrated permits. These installations will be included in the draft polluter register that is being established by the environmental inspectorate and the Environmental Protection Agency (EPA). Vehicle emission charges have to be paid annually. Charges vary with the type, size and age of the vehicle.

In the framework of the 2004 *Law on IPPC* (OG RS No. 135/2004), it is planned that pollution charges for the 250 potential IPPC industrial installations will be progressively increased from 20 per cent of the full charge to be paid until the end of 2008 to 100 per cent as of 2016.

As regards ozone-depleting substances, their import is subject to an environmental tax (Table 4.1). The LEP stipulates that the production of ozone-depleting substances on the territory of Serbia shall be prohibited and that a special permit shall be required for the import or export of those substances, and products containing them, that have not been prohibited. A programme for the phasing out of chlorofluorocarbons (CFCs) is under way, in line with the requirements of the *Montreal Protocol*[2] *on Substances that Deplete the Ozone Layer*.

The LEP also prescribes a special charge for the commercial use of collected wild flora and fauna, which is designed to ensure adequate biodiversity protection. The charge corresponds to 10 per cent of the established price of the wild flora or fauna. The prices of protected species are determined by the ministry in charge of environmental management in consultation with the ministry in charge of foreign trade. Details are specified in the *Decree on Control of Use and Trade of Wild flora and Fauna* (OG RS No. 31/2005, 45/2005).

There is also a charge for natural resource use. Moreover, users must cover the costs of rehabilitation and recultivation of degraded lands. Sixty per cent of the charge revenues are allocated to the State budget and 40 per cent to the budget of the corresponding municipality. The LEP does not stipulate the earmarking of these revenues for environmental protection measures. In addition to the LEP there are some provisions of special laws and regulations in the area of water management, forest, mining, fishing and protection of nature which define environmental charges for use of natural resources.

An investment tax introduced by the previous LEP in 1991 was abolished at the end of 2004. The tax (in general 1 per cent of the planned investment value of a business project) was to be paid by enterprises for the carrying out of, and the administrative procedure related to, an environmental impact assessment (EIA). The tax had been criticized because it was not related to environmental impacts, but merely a device for raising revenues. Enterprises now have to pay a small fee to cover the administrative costs of determining the content of EIAs and their approval. The level of fees, to be paid to the ministry in charge of environmental management, is established in the *Law on Republic Administrative Fees* (OG RS No. 42/2006).

The LEP provides for a number of other economic incentives designed to promote environmental objectives. Enterprises have the possibility to obtain a refund, waiver or reduction of environmental charges if they contribute to financing measures designed to reduce pollution within the allowed values. Details are specified in the *Regulation on Types of Pollution, Criteria for Calculation of Cost Recovery for Environmental Pollution, and Amounts and*

[2] Protocol to the *Vienna Convention for the Protection of the Ozone Layer*

Table 4.1: Pollution charges in Serbia, 2005

Item	Base charge rate		Remarks
SO_2	CSD 5,000 per ton	For emissions of 500 tons or more per annum.	Reduced charge rates apply for emissions below 500 tons per annum and for emissions below established maximum values.
NO_2	CSD 4,000 per ton		
Dust	CSD 8,000 per ton		
Ozone-depleting substances	CSD 100,000 per ton		Charge applies to imports only.
Industrial waste production and disposal			
Non-hazardous waste	CSD 170 per ton		
Hazardous waste	CSD 850 per ton		
Vehicle emissions			
Passenger car (1,300 cm^3)	Min. CSD 144 per annum Max. CSD 768 per annum		Annual charges depend on vehicle type (passenger car; trucks etc.) and fuel used. Charges increase with motor size and age of vehicle.
Truck (3,000 cm^3)	Min. CSD 1,120 per annum Max. CSD 6,720 per annum		

Source: Decree 113/2005 Regulation on type of pollution, criteria for calculation of cost recovery for environmental pollution, amount and the manner of calculation of fees.Vehicle emission charges: Intermex.

Calculation Methods for Fees (OG RS No. 113/2005). Exemption of charges is foreseen, inter alia, for owners of motor vehicles using electric power and alternative fuels, hospital vehicles, vehicles for the handicapped, and fire brigade vehicles.

The use and/or development of environment-friendly technologies (e.g. renewable energy sources, machinery and equipment that directly protects the environment) can benefit from tax, Customs and other relief measures, which are still to be specified in a special law.

Consumers who return products and product parts in specified ways to reduce environmentally harmful effects may benefit from deposit refunds, subsidies and other financial incentives also still to be specified in special legislation.

Overall, several recent laws contain provisions to extend the number and scope of the charges and taxes, but most of them have not been implemented, as secondary legislation has not yet been specified.

4.3 Transport-related economic instruments

There are several economic instruments being used in Serbia's transport sector which have the potential to increase energy efficiency and affect the degree of vehicle use for transport of persons and goods and related environmental pressures[3]. Air pollution in Serbia, especially in urban areas, is aggravated by the poor quality of automotive fuels. The lead and sulphur content in vehicle fuels is considerably higher than in other countries in South-Eastern Europe (SEE), with the exception of Montenegro. The discrepancies with EU requirements are even larger[4].

In addition to the pollution charge for vehicle emissions, there are petrol excise taxes, a vehicle registration tax and a road user charge (a road toll applied to highways). There are also regulations concerning imports of used vehicles.

As regards petrol for motorcars, Serbia has a longstanding ban on imports of processed fuels that is designed to protect from competition the State-owned oil company Naftna Industrija Srbije (NIS), which has a monopoly for the distribution of gasoline to petrol stations, of which somewhat more than 50 per cent are in private ownership. In July 2006, the Government adopted a (gradual) privatization strategy for NIS, offering an initial minority stake of 37.5 per cent for sale.

In early 2006, the authorities decided to extend the import ban trade rules for processed fuels until 2010. But later in the year the Government announced a conversion of the import ban into a declining tariff schedule that runs until 2012 and that, in contrast to the import ban, is consistent with EU and World Trade Organization rules. In early October 2006, the Government announced that amendments to the *Law on Customs Tariffs* should introduce Customs tariffs on oil derivatives and thus enable their free import. The lifting of the ban on imports of basic oil

[3] For an analysis of energy product prices related to stationary energy use see Chapter 7.

[4] The lead content in petrol is 0.04 g/l in Serbia, compared with 0.005 g/l in other SEE countries. The sulphur content varies from 350 ppm to 2,000 ppm depending on the type of fuel, compared with 150 ppm in other countries in the region. In the EU, leaded petrol was banned from the market as of 2000. The mandatory

limit for the sulphur content of petrol and diesel fuels has been 50 ppm as of 2005, with a further reduction to 10 ppm as of 2009.

derivatives will be accompanied by the introduction of a 30 per cent tax levy on the import of Euro diesel[5] (and heating oil), as well as an 18 per cent tax levy on unleaded gasoline.

Administrative price controls for petroleum products (e.g. petrol, diesel, heating oil) have been used to establish maximum producer and final sales prices (excluding fiscal charges)[6]. These prices have been regularly adjusted in line with fluctuations (notably increases) in world market prices for crude oil. Because of high inflation, excise taxes on petrol (and other oil products) have, moreover, been regularly increased to reflect changes in the retail price index since 2001. There has, however, been no discrimination of administrative price controls and excise taxes in favour of unleaded petrol. Excise taxes on leaded petrol and especially gas oil (diesel) have persistently been below the EU minimum amount in force since 2004 and were among the lowest in Europe in 2006 (Table 4.2).

The NES proposes a phasing out of leaded fuels by 2010, a process that is to be stimulated by a surcharge on the consumption of this type of fuel. But so far there is no definite action plan or regulation for setting this process in motion.

There are no fiscal incentives for the import of vehicles equipped with catalytic converters. A prohibition against importing used vehicles older than six years was tightened in October 2004, when the Government adopted a decree banning imports of used vehicles that are older than three years or do not comply with Euro 3 emission standards[7].

Serbia has a road toll for its five major motorways, which have a combined length of 600 km. The most heavily trafficked toll road in Serbia is the route from Belgrade to Novi Sad (65 km), which is part of the Pan-European Corridor X and connects Serbia with Bulgaria, Croatia, Hungary and The former Yugoslav Republic of Macedonia. The public company Putevi Srbije (formerly the Roads Directorate) is in charge of the construction and maintenance of the road network. The main source of financing for these investments is the revenue from road tolls, which amounted to some CSD 7 billion, or approximately

[5] Euro Diesel fuel is in line with the European EN 590 standards.

[6] Regulation on Changes and Adjustments to Maximum Producer and Final Sales Prices of Oil Derivatives (OG RS No. 66/2006)

[7] Apart from environmental concerns, the measure appears to have been motivated by the need to reduce the large (and rising) trade deficit, which largely reflects high imports of second-hand cars.

€95 million, in 2004. In addition, 10 per cent of petrol tax revenues are earmarked for these purposes. Also half of the annual vehicle registration tax is allocated to the public roads company; the other half is allocated to the municipalities. Putevi Srbije has an environmental unit which was established in the (former) Roads Directorate in July 2004.

Its main function is to define and implement an adequate environmental protection policy for the road transport sector in line with EU technical standards. But there is no information available on the extent to which revenues have also been used for road network–related environmental improvements.

Toll prices vary across the five major motorways and four vehicle categories, ranging from standard passenger cars to long vehicle trucks. The toll discriminates, moreover, between domestically registered and foreign-registered vehicles, with the payments for the latter being much higher than for the former. In July 2005, however, the Government decided to raise road charges for domestically registered vehicles by some 60 per cent to an average of 2.9 eurocents per kilometre as a first step towards eliminating this large charge differential[8].

The average toll for vehicles with foreign registration plates is still about twice as high, at some 5 eurocents per kilometre. The adjustment was made in response to a request from the EU. The goal is not only to move towards equal treatment of domestic and foreign-registered vehicles but also to ensure that repair and maintenance of roads is financed to a larger extent from domestic revenues and that the high standards set for international road traffic corridors can be maintained. There are no estimates available of the impact of the increased road tolls on domestic use of motorways, but they are likely to have reduced the volume of traffic, an implicitly positive environmental consequence.

4.4 Waste management

The main economic instruments applied in this sector are waste collection and disposal charges. Municipalities decide on the level of the charges for municipal waste based on recommendations from the management of the public utility companies. Generally, there has been a lack of resources to ensure adequate provision of waste collection and

[8] See www.srbija.sr.gov.yu [Road toll for domestic vehicles increases on EU demand; July 7, 2005]

Table 4.2: Excise taxes on petrol

Euros per 1,000 litre

Country	Gasoline		Diesel
	leaded	unleaded	
Serbia	394.3	394.3	209.8
Memorandum items			
Czech Republic	463.2	400.0	336.2
EU Minimum rate	421.0	359.0	302.0
Germany	721.0	669.8	470.4
Hungary	446.0	412.9	359.1
Montenegro	364.0	364.0	270.0
Slovakia	462.3	398.1	373.2
Slovenia	421.8	359.9	302.6

Source: Serbia, Montenegro: Ministry of Finance; other countries: European Commission Directorate General Taxation and Customs Union, Excise Duty Tables, Part II - Energy and Electricity, REF 1.023, July 2006. (http://ec.europa.eu/taxation_customs/taxation/excise_duties/energy_products/rates/index_en.htm)
Note: Excise taxes for Serbia and Montenegro: as at 1 August 2006; other countries: as at 1 July 2006. EU minimum rates are applicable as from January 2004. Exchange rate: 1 € = CSD 82 (August 2006).

disposal services. There are some 180 officially registered dumps for municipal waste in Serbia. In rural areas, there is no collection of municipal waste, which is burnt on open land.

Municipal waste charges differ between households and enterprises and also widely across municipalities in the country. Waste charges have been increased in recent years to offset the adverse effects of high inflation on revenues in real terms. But on average, waste collection charges accounted for only 0.3 per cent of household expenditures in 2004 (Table 4.3). Charge rates for communal waste collection and disposal are still largely based on the size of residences (for households) and business premises (for enterprises), rather than on the volume and characteristics of waste. Charges are paid directly to the corresponding public utility company. In cities and larger towns, households generally pay the charges on a monthly basis jointly with charges for water and sewage services; in smaller towns, separate payments for these services appear to be more common.

Enterprises normally have to pay on the basis of quarterly or monthly invoices. In general, waste charge rates and related revenues do not cover the operational and maintenance costs of waste collection and disposal. Insufficient revenues also reflect low rates of collection from the business sector, which are caused largely by the weak financial situation of enterprises and the difficulty of enforcing payment. Information on average collection rates is, however, not available. There are no genuine incentives for households and enterprises to reduce waste that requires collection and disposal.

Enterprises producing industrial waste have to obtain a corresponding permit for a fee. Industrial waste charges are set at the national level. Charge rates (Table 4.1) have been specified only for two broad aggregates: non-hazardous waste (CSD 170 per ton) and hazardous waste (CSD 850 per ton). It is not clear on what basis these charge rates were fixed and to what extent they are cost-reflective. In any case, at present all hazardous waste produced either remains on business premises (where it is often inadequately stored) or is exported (based on a special permit) because Serbia does not have adequate disposal and treatment facilities for this waste category. Estimates suggest that in the early 2000s the total volume of industrial hazardous waste accumulated was some 260,000 tons, but the possible margin of error surrounding this figure is not known. The draft *Law on Waste Management,* which is awaiting parliamentary adoption, would abolish the permit requirement for non-hazardous waste production. Product charges are mentioned in the 2004 *Law on Environmental Protection*, but they have not yet been implemented. Deposit-refund schemes, which are designed to stimulate recycling and prevent waste, are currently operational only for certain types of packaging materials, such as glass and plastic bottles, and only in a few municipalities. A *Law on Packaging and Packaging Waste,* which is in the final stage of drafting, will propose new economic instruments to foster the recuperation and reuse of packaging waste.

Table 4.3: Household expenditures on domestic waste collection and disposal, water services and energy products (% of household expenditures)

Per cent of total resources

Item	Urban areas	Rural areas	National average
Waste collection	0.4	0.1	0.3
Sewerage collection	0.1	..	0.1
Water supply	0.8	0.6	0.8
Electricity	6.4	6.7	6.5
Gas	0.6	0.4	0.5
Firewood	2.0	4.3	2.8
Coal	0.7	1.5	1.0
Central heating and hot water services	1.2	..	0.8

Source: Statistical Office of the Republic of Serbia, Household Budget Survey 2004, Bulletin 449, Belgrade 2005.

4.5 Water and wastewater management[9]

There is a range of economic instruments used in the water sector of Serbia, which are, however, mainly designed to raise revenue rather than to pursue environmental protection and natural resource use objectives.

At the municipal level, public water utilities are charging for water supply and sanitation services. The Public Water Companies (PWC) raise drainage and irrigation charges as well as levies for the use of water infrastructure. The central government, moreover, raises separate fees for water use (e.g. supply of drinking water) and for water protection (mainly related to discharge of wastewaters), which come on top of the charges raised by the PWC and local water utilities. There is also a fee for the extraction of gravel, sand, and other materials from water courses. Revenues of the PWC, the public water utilities and the central government from the collection of these various charges and fees are all earmarked for water-related expenditures.

Water abstraction charges have to be paid by public water supply services, industry, agriculture and other water users for an agreed (permitted) volume of water. Public water services pay only a nominal fee (CSD 0.015/m^3 in 2006) for the abstraction/use of raw water to the public water company, Srbijavode (Serbia Water), which covers Central Serbia, and the newly established public water company for Vojvodina, Vode Vojvodine. The average charge for abstraction of raw water amounted to CSD 0.110/m^3 in 2006. Surface water abstraction by hydropower and thermal power plants is subject to a fee, which is a fixed percentage of a base price per kWh of electricity generated. This percentage is 2.3 per cent for hydropower plants and 1.3 per cent for thermal power plants; for a base price of CSD 2.11/kWh in 2006, this implies that the water abstraction charge was CSD 0.049/kWh for hydropower plants and CSD 0.026/kWh for thermal power plants in 2006 (Table 4.4).

Drainage and irrigation charges have to be paid by owners or users of agricultural, construction and forested land. Revenues from drainage and irrigation charges as well as charges for the use of water infrastructure and other services have to be paid to the PWC (see chapter 5).

Water supply and sewage services at the local level are the responsibility of municipal public water services. Sometimes these services are combined with municipal waste collection and disposal services. Although these services are formally independent, their actual power in tariff setting is very limited. They can propose tariffs, but the actual decision is taken by the local government authorities. Tariff setting has therefore often been dominated by political and social considerations rather than creating incentives for change in the behaviour of households and enterprises.

In addition to the revenues from water supply and sewage services, the municipal services receive part of the revenues from charges paid by households and enterprises for building on constructible land. These fees are designed to contribute to the construction of the required water supply and water discharge infrastructure.

In principle, all revenues collected by the municipal water services are to be used to finance the operation and maintenance of the local water supply and wastewater infrastructure and to contribute to

[9] For more detailed information on water management issues see the Introduction and Chapter 6.

investment in new infrastructure. It is, however, quite common that water charges are collected together with charges for other municipal services, such as solid waste collection.

The distribution of these revenues among the various municipal services does not always reflect the actual amounts billed, but is based on other considerations. In any case, the revenues of water utilities are far from sufficient to ensure even adequate maintenance and repair of existing infrastructure. This has made the water services very dependent on financial support from the local government's budget and from central government transfers. However, support from these sources has been insufficient to prevent a progressive deterioration of the water sector infrastructure.

There have, however, been increases in water supply prices and sewerage charges in many municipalities, which have improved cost recovery since 2002. Revenues from fines have increased as well. Yet charges and fines in general remain at a level that does not provide sufficient incentives for decreasing water consumption and avoiding or reducing water pollution. On average, the costs of water supply accounted for 0.8 per cent of household expenditures in 2004; payments for sewerage collection amounted to only 0.1 per cent of household budgets (Table 4.3). Collection rates are reported to have improved in recent years, but actual statistics are not available.

In 2004, the average water charges (drinking water plus wastewater discharge) were CSD 19/m^3 for private households and CSD 44/m^3 for industry. Only some 70 per cent of abstracted water was actually invoiced; and about the same proportion (75 per cent) of water bills were actually paid. In other words, only about half of the abstracted water was actually paid for by the final consumer in 2004.

Accordingly, the losses of revenue amounted to some CSD 3.25 billion (or some €120 million) in 2004 (Table 4.5). It has been calculated that in 2004 the price for water (drinking water and wastewater services) would have had to be about CSD 110/m^3 (or €1.5/m^3) to ensure full cost recovery.

Concerns that higher tariffs in the water and wastewater sector were contributing to driving national inflation above the target rate of the Government of Serbia led it, in 2005, to remove the authority of municipalities to set tariffs autonomously. There is now a provision that all municipal tariffs need approval from the central government and that they are not to be raised by more than the official target rate for annual inflation. This measure will make it more difficult for municipalities to recover the cost of water sector services, and it places an additional burden on central and local government finances.

Small and medium-sized industrial enterprises located in urban areas typically discharge wastewater into the municipal sewage system and pay a corresponding charge to the local water service. Firms with wastewater treatment facilities pay either reduced charges or, in case the discharged water meets established quality standards, are exempted from payment. There are separate charges for the discharge of pollutants (mainly by larger industrial enterprises) into natural water bodies and man-made channels.

In Serbia, these charges are referred to as charges for water protection, which are collected by the PWC. There are, however, no emission standards for effluent discharges in Serbia. Charge rates are in principle based on the volume of discharges and are differentiated according to the quality class of the recipient water body. They are, however, too low to affect polluters' behaviour.

Also, there is insufficient monitoring of the water quality of water bodies, and data on actual volumes of discharged water are lacking. Charges for wastewater discharge vary across industrial sectors, depending on the extent of water polluting activities; the base rates ranged from some CSD 1,860/m^3 for wood industries to some CSD 3,300/m^3 for petroleum and chemical industries (Table 4.4).

4.6 Charges for natural resources management

The *Law on Forests* (OG RS No. 46/1991 and subsequent revisions, the latest being OG RS No. 101/2005) stipulates the payment for utilization of forest resources. The main source of revenues is a 3 per cent tax on the sales value of harvested timber from State as well as private forests. Tax revenues are allocated to the Forest Directorate, (which is part of the Ministry of Agriculture, Forestry and Water Management) which is responsible for the management of the forest estate and for nature conservation in protected areas, and earmarked for financing forest management measures. There are also fees for the leasing of forest areas for purposes other than timber production (e.g. pasture) but the associated revenues are insignificant.

Table 4.4: Fees for water use, wastewater discharge and extraction of materials, 2003-2006

Category	Unit	CSD			
		2003	2004	2005	2006
Water use					
Drinking water					
Households	per m^3	0.110	0.126	0.137	0.150
Personal needs	per m^3	0.110	0.215	0.234	0.250
Firms	per m^3	0.215	0.247	0.269	0.290
Hydropower plants	per kWh	0.034	0.043	0.044	0.049
Thermal power plants	per kWh	0.018	0.023	0.024	0.026
Mineral water/spring water	per litre	0.110	0.600	0.654	0.710
Water abstraction (raw water)	per m^3	0.075	0.086	0.100	0.110
Wastewater					
Municipal	per m^3	0.100	0.115	0.125	0.137
Manufacturing industry	per m^3	1,350-2,400	1,552-2,760	1,691-3,008	1,860-3,308
Thermal power plants					
With recirculation systems	per m^3	…	…	…	1929.000
With open-flow cooling system	per kWh	0.018	0.023	0.024	0.026
Other types of wastewaters	per m^3	0.700	0.770	0.839	0.922
Extraction of materials*	per m^3	20-50	30-60	33-66	36-73

Source: Decree on the amount of the fee for water use, water protection and for extraction of materials from watercourses.

Note: Revenues are allocated to the central government budget, section for Ministry of Agriculture, Forestry and Water Management.

* Extraction of sand, gravel and other material from water courses

Table 4.5: Water and wastewater charges and revenues of public water utilities, 2004

Item		
Water abstraction	730 million m^3	
Losses	221 million m^3	
Invoiced volume	509 million m^3	
Households	368 million m^3	
Firms	141 million m^3	
Water and wastewater charge	CSD/m^3	€/m^3
Households	19	0.26
Firms	44	0.61
Revenues (invoiced)	CSD billion	€ million
Households	7.0	96.0
Firms	6.2	89.0
Total	13.2	182.0
Revenues (actual)	9.8	135.0

Source: Ministry of Agriculture, Forestry and Water Management, Water Directorate, Financial study of water infrastructure operation and maintenance. Statistical Office of the Republic of Serbia – direct communication.

Note: Exchange rate used 1 € = CSD 72.6

Since June 2006, the *Law on Agricultural Land* (OG RS No. 62/2006) has included rules pertaining to soil protection. There is a general prohibition against the discharge of hazardous substances. The Ministry of Agriculture, Forestry and Water Management has yet to adopt special regulations regarding fines for non-compliance. There are charges for use of agricultural land for non-agricultural purposes. The level of charges is decided by the municipal tax authorities, based on the market value of the land (after the change in land use). Charges for most land use changes amount to 50 per cent of the market value, with a maximum of €1,500 per ha. Charges for land use for a specific (limited) period time amount to 10 per cent a year of the land's market value. There is an obligation to recultivate the land after the temporary change in use. Forty per cent of the revenues from these charges are allocated to the municipality budget, 60 per cent to the State budget. These revenues are earmarked for spending on the protection of agricultural land. There are a number of exemptions from payment of land use charges (e.g. for afforestation, the creation of flood protection facilities, irrigation and drainage systems, and the regulation of waterways). Changes in land use need to be approved by local governments, and some changes require approval by the competent ministry.

4.7 Conclusions and recommendations

The 2004 *Law on Environmental Protection* provides the legal basis for the application of the "polluter pays" principle in Serbia. There has been some progress in the use of economic instruments for internalizing the external environmental costs caused by household consumption and business activities. Specific achievements include the recent implementation of environmental charges for emissions of selected pollutants associated with industrial activity, an environmental charge on motor vehicles, a charge on import of substances that deplete the ozone layer, as well as the establishment of charges for industrial waste production and disposal.

Given the short time that has elapsed since their implementation, it is not possible to assess the effectiveness of these instruments (i.e. to what extent the level of environmental charge rates creates effective incentives for polluters to change their behaviour). But there is a general presumption that these instruments, as currently designed, serve mainly to raise revenues, and that strong incentives for reducing environmental pollution are still largely absent. This holds also for other areas such as water pollution and solid waste management. In general, both economic and regulatory environmental instruments are still weak. Not only is the level of taxes and charges too low, their coverage is also limited. The application of the new pollution taxes to potential IPPC facilities should be further enlarged to all relevant polluting activities in the country.

The Government's awareness of these problems is reflected in the short- and medium-term objectives of the NES and related national action plans to be developed for the decade ahead. The Government, in close cooperation with major stakeholders, should clearly define the main pollution reduction targets and the medium- and long-term time frame for achieving them, and should design specific economic and regulatory instruments that will help reach these targets. Since the statistics required for assessing the effectiveness of existing traditional instruments are largely lacking, it is difficult to adjust or reorient these instruments.

Recommendation 4.1:
The Ministry of Environmental Protection, in cooperation with major stakeholders, should:

(a) Conduct a thorough review of existing major traditional regulatory and economic instruments for environmental protection, with a view to establishing their current environmental and economic impact;
(b) Explore the scope for complementary use of economic instruments and traditional regulations for reducing pollution; and
(c) Raise pollution charges and regulatory standards in a gradual and predictable fashion, with enterprises receiving sufficient advance notice to be able to reduce adjustment costs and develop efficient approaches for complying with more stringent standards and policies.

A coherent strategy that integrates environmental protection with road transport policies and aims at internalizing road transport externalities is still to be developed. Unleaded fuels have a very limited role in the market for fuels. There are no fiscal incentives to promote the use of unleaded fuels, although the effectiveness of such incentives has been demonstrated in many countries. Serbia is one of the last countries in Europe that lacks a definite action plan for phasing out the use of leaded fuels.

Recommendation 4.2
The Government should:

(a) Develop an action plan for the complete elimination of leaded petrol as well as the progressive reduction of sulphur content in petrol and diesel fuel to current EU requirements of 50 ppm, and announce a target date for achieving these goals as soon as possible;
(b) Introduce effective fiscal incentives which promote unleaded petrol and low-sulphur petrol and diesel;
(c) Design other measures to reduce pollution related to urban transport, such as strict mandatory technical inspections of vehicles (with a focus on exhaust emissions and noise pollution) and temporary fiscal incentives encouraging buyers to purchase new cars and scrap old ones.

The challenges in the waste sector are considerable both as regards the creation of an adequate physical infrastructure and the use of effective incentives for achieving reduced waste generation and orderly waste disposal. Waste collection and disposal charges have been increased in recent years, but in general they remain far below the level required for cost recovery. Moreover, they are designed in a way that does not encourage the reduction or selective sorting or recycling of waste. To the extent that this is feasible and practical, charge rates should be based on the volume of waste generated and set at a level that creates incentives for waste minimization and recycling.

Recommendation 4.3:
The Ministry of Environmental Protection, in cooperation with the Ministry of Local Self-Government, should support municipalities in the implementation of an effective household waste management policy. This should include guidance and training in basic techniques for calculating cost-reflective waste charges. In order to create incentives for waste minimization, waste charges should, to the extent possible, be proportional to the amount of waste collected. Municipal collection of enterprise waste should be based on the use of standardized bins and the nature of the waste to be collected. All charge rates should be calculated so as to ensure full cost recovery.

Progress regarding the use of economic instruments for water supply and water protection management has been relatively limited. Strong financial incentives for economical use of water are still largely absent. Revenues from water supply and wastewater collection generally do not cover the operating costs of the local water utilities. There is an urgent need to rehabilitate and extend the regional coverage of the water supply and wastewater infrastructure. But these investments will be worth financing only if there is also a comprehensive review and reform of water and wastewater charges in line with the "polluter pays" principle. Such a reform will also have to address the important issue of the affordability of higher water charges for low-income earners. A range of utility subsidies are available to help households that have difficulty paying their water bills. However, in order to be implemented effectively, social tariffs require adequate metering or reliable estimates of consumption. Examples of alternative instruments are across-the-board price subsidies and targeted cash payments to ensure an adequate minimum disposable income after utility bills have been paid. The Government needs to review its current policy of limiting the authority of municipalities to raise tariffs to cost-recovery levels in line with prevailing local circumstances.

Recommendation 4.4:
The Government should:

(a) Initiate a reform of the tariff system in the water sector by gradually raising tariffs to a level that corresponds to full cost recovery for utility services while using targeted subsidies to address affordability problems;
(b) Strengthen enforcement measures to improve bill collection rates on water services;
(c) Apply water pollution charges on the overall quantity of wastewater discharged and the pollution, not just on pollution above specified limits.

The authorities have included the transfer of ownership of the water utilities' assets from the state to the local self-government level in the draft Law on Water. They should strive to implement this change as soon as the law is adopted. The incentives for efficient utility resources management, including investments in repair, maintenance and modernization of technical equipment and buildings, would be increased if ownership of the corresponding assets were transferred to the local government level. (See Recommendation 6.1 in chapter 6.)

Chapter 5

ENVIRONMENTAL EXPENDITURES AND THEIR FINANCING

5.1 Overview

The increased government revenues associated with improving overall economic conditions since the first Environmental Performance Review (EPR) have made it possible to increase public environmental protection expenditures, not only in nominal but also in real terms, i.e. (adjusted for inflation). Yet despite their more or less steady growth since 2002, the current level of these expenditures is dwarfed by the magnitude of the environmental problems to be addressed and the considerable investments required for improving and extending the environmental infrastructure. There is also an urgent need to strengthen the public institutions tasked with designing effective environmental policies and to ensure their monitoring and enforcement. An important step forward in this direction was the establishment of the Environmental Protection Fund, which became operational in May 2005.

In the *National Environmental Strategy* (NES) it is estimated that the additional total expenditures (operational and investment-related) required to achieve the Government's environmental policy objectives (which are tantamount to meeting European Union (EU) environmental standards) over the period 2006–2015 would amount to some €4 billion. To achieve the policy goals, the NES projects a more or less steady increase in annual environmental expenditures to a level that would correspond to more than 2 per cent of gross domestic product (GDP) towards the end of the 2006–2015 period. For reference, actual consolidated public-sector environmental expenditures during the period 2001–2005 corresponded to some 0.3 per cent of GDP.

Most of the projected expenditures will be divided more or less equally among measures to improve the situation in the three main environmental sectors – waste, water and air. Some €0.6 billion (or 15%) of the projected spending is targeted at transport infrastructure, district heating systems, and the extension of the water supply system, activities which fall outside the range of environmental protection measures but will indirectly lead to environmental benefits. The projections exclude operational expenditures for the currently existing environmental infrastructure (such as waste collection and disposal, wastewater collection and treatment) and expenditures on existing environmental institutions, including monitoring systems.

Financing of the ambitious NES will have to rely on strengthening the revenue-raising function of environmental taxes and charges and, related to that, stricter implementation of the "polluter pays" and "user pays" principles (including enforcement of compliance with environmental standards). It will also require the mobilization of other domestic financial resources (direct government budget allocations and domestic loans) as well as foreign financial assistance and borrowing abroad. Some financial resources will be made available from a National Investment Plan (NIP) which the Government established in 2006 and which foresees the funding of public infrastructure projects (including environmental infrastructure) from privatization revenues during the period 2006–2011. Achieving the environmental policy objectives of the NES will require not only ensuring adequate financing but also building sufficient institutional implementation capacities for the various projects. More generally, the NES, to be successful, requires that environmental protection be ranked sufficiently high on the Government's medium- and longer-term policy agenda.

5.2 National environmental protection expenditures

Information on the level and structure of environmental protection expenditures in Serbia continues to be rather limited. In the absence of an official reporting obligation, data are completely lacking for the industrial sector. But it may be surmised that any such expenditures during the past decade or so have been quite small, given the overall difficult financial situation faced by enterprises. Progress in privatization and improved profitability in the industrial sector should, however, provide more scope for raising environmental standards and

for more general enforcement of the "polluter pays" and "user pays" principles. This in turn will create incentives for companies to increase their investments in environmental protection measures. Also, the need to meet stringent environmental product and process requirements for participating in international production-sharing networks and accessing international product markets will make higher environmental protection expenditures and the increased use of environmentally sound technologies a necessary condition for improving the international competitiveness of Serbia's industrial sector.

In the public sector (central and local government combined), aggregate environmental protection expenditures fluctuated within a narrow range of 0.3–0.4 per cent of GDP between 2003 and 2006 (Table 5.1). Official projections[1] are for annual public-sector environmental expenditures to correspond to 0.4 per cent of GDP until 2009. This contrasts with assumption in the NES that total environmental expenditures will correspond to 0.9 per cent of GDP in 2009. The NES clearly relies on financing sources other than government budget funds.

There is no published information on the allocation of current environmental expenditures to the main environmental sectors (e.g. waste, wastewater, pollution abatement). Nor are there data on the relative importance of current, (i.e. operational) environmental protection expenditures (costs of personnel, etc.) compared to environmental infrastructure investments.

A breakdown of overall government budget expenditures by main purpose (i.e. functions), based on the internationally agreed Classification of the Functions of Government (COFOG)[2], provides some insight into the involvement of different levels of government and institutions in spending on environmental protection in recent years (Table 5.1).

At the central government level, the bulk of environmental expenditures are made by the Ministry of Environmental Protection (MEP)[3]. These include the costs of administration and management. But in the budget of the Government of Serbia, all expenditures of the Directorate for Water have been allocated to the functional category "water supply", which is part of the larger division "housing and community amenities", although wastewater-related spending and own revenues of the Directorate for Water should be recorded under the category "environmental protection". The available data suggest that somewhat more than 60 per cent of total environmental protection expenditures in 2005 were made at the level of municipalities. The consolidated central and local government environmental protection expenditures corresponded to 0.3 per cent of GDP in 2005 according to the Ministry of Finance.

A detailed breakdown of environmental protection expenditures by major environmental expenditure category is available at the level of municipalities for the year 2005 only (Table 5.2). Waste management accounted for about one third of total environmental expenditures, but only about 10 per cent was allocated to wastewater management.

The category "environmental protection expenditures n.e.c.", which among other things includes administration and management of environmental protection activities, policy design and enforcement, and dissemination of information, accounts for about a quarter of all expenditures. Aggregate environmental expenditures accounted for only about 1.5 per cent of municipalities' total expenditures. Data are not available, but it is estimated that municipalities' environmental investment expenditures have on average accounted for about 1 per cent of their total environmental expenditures in recent years.

In mid-2006, the Government launched a five-year National Investment Plan (NIP) for the period 2006–2011 to stimulate growth and economic development by improving the public infrastructure, the education and health system, housing and other areas, including environmental protection. The main financing sources for the NIP will be privatization revenues, the accumulated budget surplus from recent years, foreign loans and EU pre-accession funds.

The NIP provides for total public investments of €1.7 billion for 2006–2007, of which some €20 million (or 1.2%) is allocated to environmental protection

[1] Ministry of Finance, Memorandum on budget and economic and fiscal policy for 2007 with projections for 2008 and 2009, Belgrade, November 2006

[2] In contrast to conventional government budgets, which reflect the changing organizational structure of national governments, COFOG makes it possible to monitor trends in government spending on environmental protection (and other functions) and to make international comparisons. COFOG distinguishes 10 main divisions of government expenditures by purpose. Besides environmental protection (division 5), these include areas such as housing and community amenities (including expenditures on water supply (division 6)), health, education, social protection and defence.

[3] In May 2007, the Ministry of Environmental Protection succeeded to the Ministry of Science and Environmental Protection (see chapter 1).

Table 5.1: Government environmental protection expenditures, 2003–2006

million CSD

Institution	2003	2004	2005	2006 **
Directorate for Environmental Protection (560)	562.0*	405.1	719.3	542.2
Environmental Protection Agency (560)	NA	17.7	45.9	21.6
Environmental Fund (560)	NA	NA	5.8	85.1
Agency for Recycling (510)	25.0	16.7	25.2	42.9
National Investment Plan (560)	NA	NA	NA	68.5
Total above (excluding municipalities)	562.0	439.5	790.4	760.3
Municipalities (510-560)	..	..	1,387.1	..
Total above (including municipalities)	..	..	2,177.5	..
Memorandum items:				
Total above as per cent of GDP (excl. municipalities)	0.05	0.03	0.04	0.04
Total above as per cent of GDP (incl. municipalities)	..	..	0.12	..
Total consolidated government environmental protection expenditures (functional classification)				
as per cent of total government expenditures	0.7	0.7	0.8	0.8
as per cent of GDP	0.3	0.4	0.3	0.4
Expenditures of Water Directorate (630)	1,906.0	2,300.0	3,207.0	3,900.0

Source: Annual government budgets; Ministry of Finance, Memorandum on budget and economic and fiscal policy for 2007 with projections for 2008 and 2009. Belgrade, November 2006.
Note: Figures in brackets behind institutional names are COFOG codes for functional classification of government expenditures as shown in the Serbian government budgets. Group 5 (Environmental protection expenditures): 510 = Waste management; 560 = Environmental protection expenditures n.e.c;
Group 6 (Housing and community amenities): 630 = Water supply.
Data for 2006 are budget projections.
* Total expenditures of Ministry for Protection of Natural Resources and the Environment
** Planned

measures. More than 80 per cent of these expenditures will be financed from the proceeds of privatization. The main emphasis during this period will be on the underdeveloped waste management sector (€11.4 million), followed by water supply and wastewater treatment (€4.9 million) and air pollution (€3.7 million).

5.3 Financing of environmental expenditures

The 2004 *Law on Environmental Protection* (LEP) (OG RS No. 135/2004) has increased the scope for financing of government environmental expenditures by enlarging the range of potential sources of revenue and earmarking them for environmental protection. The LEP also led to the establishment of the Environmental Protection Fund. As was noted in chapter 4, pollution charges were not collected before 2006. Total revenues from earmarked environmental taxes and charges in 2006 amounted to some CSD 2.1 billion (some €26 million), of which some 40 per cent is allocated to the State budget (i.e. the Environmental Fund) and about 60 per cent to the

Table 5.2: Environmental expenditures of municipalities by main function, 2005

COFOG* Category	CSD million	Per cent of the total
5.1 Waste management	450.6	32.5
5.2 Wastewater management	133.2	9.6
5.3 Pollution abatement	228.0	16.4
5.4 Biodiversity and landscape protection	34.8	2.5
5.5 Environmental Research and Development	208.4	15.0
5.6 Environmental protection n.e.c.	332.1	23.9
Total above	**1,387.1**	**100.0**
Memorandum item:		
Environmental protection expenditures as per cent of total municipality expenditures	..	1.4

Source: Ministry of Finance, direct communication, 2006.
Note: * COFOG = Classification of Functions of Government.

Box 5.1: The financing of water infrastructures in the municipality of Belgrade

In the municipality of Belgrade, a special Land Development Public Agency, serves inter alia as a fund for financing the construction of municipal water infrastructure. The revenues of the Agency come mainly from land development fees and a direct city budget allocation for water supply and sewerage. Allocations for water supply and sewerage (and storm water drainage) amounted to some €43 million in 2004, corresponding to some 45 per cent of the Agency's total budget. In addition, the city government's Secretariat for Municipal and Housing Affairs allocated some €8.5 million to water sector financing (support to the local utility company for current operations and maintenance investments as well as co-financing of a KfW* project for the rehabilitation of the water supply system). During the past years, the local utility company steadily raised water tariffs to some CSD 40 or 50 eurocents per m^3 in 2004. Improved revenues allowed the utility to start an ambitious rehabilitation of water supply networks in 2004. (mainly to reduce water losses) with a total value of €11 million. Total funds allocated to the water sector corresponded to some 10 per cent of the city budget in 2003. It is noteworthy that the city does not have a water supply or sewerage master plan for planning its investment projects in a coherent framework. But in October 2006, the Land Development Public Agency signed a contract for the construction of a wastewater collection system which should improve communal effluent standards and contribute to the implementation of the *Convention on Co-operation for the Protection and Sustainable Use of the Danube River*, ratified by Serbia in 2003.

* *Kreditanstalt für Wiederaufbau (KfW).*

city and municipality budgets (Table 5.3). These revenues will likely be available for spending only as from 2007. If revenues from excises on petrol (which are not earmarked for environmental spending) are included, total environmental tax revenues in 2005 corresponded to some 2.5 per cent of GDP, which is close to the EU average.

The bulk of environmental protection expenditures by central environment authority have been financed from the general State budget, supplemented by central environment authority's limited revenues and donations from international organizations. Loans from international sources to finance environmental protection measures are not included here (Table 5.4).

Environmental protection spending by the Directorate for Water has been subject to rather strict segmentation of earmarking of water-related

Table 5.3: Revenues from environmental taxes and charges, 2003–2006

million CSD

Category	2003	2004	2005	2006
Pollution taxes				
SO_2, NO_2, particulate matter, industrial waste production and disposal	..	..	..	1,204.0 *
Ozone-depleting substances	..	..	..	13.25 *
Motor vehicle emission	..	..	..	907.75 *
Biodiversity protection				
Charges for collecting protected species for commercial purpose	18.5	25.5	44.5	38.7 **
Natural resource use tax				
Use of fish catchment areas	24.8	19.5	23.5	13.7 a)
Stumpage fees and other forest use fees	..	100*	221.9	101.2 b) *** **(Jan-June)**
Excise taxes for motor fuels				
Gasoline/Diesel	38,128.1	46,816.3	42,220.9	31,008 a)
Other oil derivatives	645.4	211.0	32.6	..
Total above	38,816.8	47,172.3	42,543.4	33,286.6
Total as per cent of GDP	2.3	3.3	2.4	2.0*

Source: Ministry of Finance; Ministry of Agriculture, Forestry and Water Management; Ministry of Science and Environmental Protection. Direct communications with ministries, 2006.

Notes:

* Earmarked for environmental financing. Revenue distribution: 40 per cent to State budget (Environmental Fund), 60 per cent to budget of local self-government.

** As from May 2005 earmarked for Environmental Fund (2005 allocation: CSD 38.5 million.)

*** Earmarked for protection of forests. 2004: partial data only.

a) Jan– Sep 2006

b) Jan–Jun 2006

Table 5.4: Financing of central government environmental protection expenditures, 2004–2006

million CSD

	Current government budget (01)	Own revenues of institutions (04)	Donations from international organizations (06)	Undistributed govt. surplus revenues and proceeds from privatization (13)	Total
Directorate for Environmental Protection					
2004	306.4	69.2	27.6	..	403.3
2005	550.4	18.5	150.4	..	719.3
2006	457.9	19.5	64.9	..	542.2
SEPA					
2004	2.7	..	15.0	..	17.7
2005	27.6	..	18.3	..	45.9
2006	21.6	..	..	..	21.6
Recycling Agency					
2004	16.7	..	..	..	16.7
2005	25.2	..	..	..	25.2
2006	34.9	5.0	3.0	..	42.9
Environmental Fund					
2005	6.0	36.3	..	..	42.3
2006	45.1	40.0	..	..	85.1
National Investment Plan					
2006	..	..	..	68.5	68.5
Water Directorate					
2004	1,004.1	1,299.0	..	..	2,303.1
2005	1,006.8	2,201.6	..	..	3,207.4
2006	1,306.9	2,604.0	..	..	3,110.9

Source: Annual government budgets 2004–2006.
Note: Total expenditures including compensation of employees. All expenditures of the Water Directorate are classified in the Serbian government budget under the COFOG functional expenditure code 630 (Water supply) and not as part of COFOG category 5 (Environmental protection expenditures).

revenues. Revenues from drainage charges are to be used for the operation, maintenance and construction of drainage systems in irrigation and drainage areas. Irrigation charges are used to fund the operation, maintenance and construction of irrigation systems. Water effluent charges are to be used for financing water protection measures and wastewater treatment. Water use charges can be used only for financing the construction of water supply systems and the regulation of watercourses. Data on expenditures for these different categories are not available, but revenues from water use, wastewater charges and levies for extracted materials allocated to the Directorate for Water amounted to some CSD 2.2 billion, or some €7 million, in 2005 (Table 5.4).

Municipal revenues for financing of environmental expenditures are limited to their share (60%) of the pollution charges identified in the new LEP. There is no systematic information on the magnitude of central government transfers to support municipal environmental spending.

In principle, municipalities are authorized, subject to an "opinion" from the Ministry of Finance, to borrow from domestic banks to finance environmental projects. But there are restrictions concerning the size of the loans and the total amount of debt that can be accumulated. Also, financing conditions are often not favourable, and many (possibly most) municipalities do not have surplus funds for debt servicing. In principle, investment projects should be embedded within a multi-annual financial planning framework, but this appears to be the exception among municipalities in Serbia.

Some municipalities have received loans from domestic banks for co-financing projects which were mainly financed by international financial institutions. These include solid waste management in the Pcinjski District (the World Bank) and municipal infrastructure reconstruction in the City of

Subotica (European Bank for Reconstruction and Development (EBRD))

5.4 Environmental Protection Fund

The Environment Protection Fund, which was established by the LEP, has been operational since May 2005, with the Ministry of Finance providing initial funding. The Fund is an independent legal entity, and its general mandate is to finance environmental protection projects as well as projects promoting energy efficiency and use of renewable energy sources. The Fund is responsible for the acquisition, management and use of financial resources in these areas. Project support can be provided through loans, guarantees and other forms of collateral, subsidies, financial assistance and donations.

The Fund's human resources are financed from the State budget. There were 12 staff members in 2006. The Fund is obliged to establish annual and medium-term work programmes. The former have to be approved by the Ministry of Environmental Protection (MEP) and the latter by the Government. The Fund must submit an annual report to the MEP, and it must inform the public about its activities. The director of the Fund is appointed by the Government, which also appoints the managing board and the supervisory board for a four-year period. The managing board has seven members: three Government representatives and one representative each of the central bank, the autonomous province, the local self-governments and the Fund. The supervisory board has five members: two representatives of the Government and one representative each of the autonomous province, the local self-governments and the Fund. Expenditures of the Fund are planned in cooperation with and have to be adopted by the MEP.

The LEP specifies a range of actual and potential sources of financing for the Fund's activities:

- Environmentally related charges and taxes earmarked in the LEP (see Chapter 4) for financing environmental projects and allocated to the State budget;
- Proceeds from privatization of State-owned assets;
- Funds from national and international sources (loans, donations, etc.); and
- Revenues from financial assets accumulated by the Fund.

Charges for communal waste collection and disposal and wastewater charges do not fall under the earmarking of revenues for the Fund. The Fund's total revenues from environment-related taxes and charges amounted to some CSD 890 million (about €10 million) in 2006, which is about 40 per cent more than the amount projected earlier. But overall, the own revenues of the Fund are relatively limited (they corresponded to less than 0.1 per cent of GDP in 2006) and are expected to remain so over the medium term (Table 5.5). So far the Fund has not received any allocations from privatization revenues or donations from domestic or foreign sources.

As the Fund became operational only in May 2005, there was no spending on environmental projects in the remainder of 2005**.** In fact, actual expenditures have remained significantly below budget appropriations not only because of the time required for thorough project selection, but also due to the multi-annual implementation periods. Total expenditures in 2006 amounted to some CSD 100 million (about €1.25 million), compared with budget appropriations of CSD 821.4 million (€10.25 million) over this period. Some 90 per cent of the allotted funds are for projects related to solid waste management. It is noteworthy that there is an increase in (planned) budget appropriations by some 45 per cent in 2007 compared with 2006.

The 2004 LEP provides for the possibility of establishing environmental funds also at the local government (municipal) level. These local environmental funds have to be financed with revenues from respective municipalities, plus a portion of the pollution charges earmarked for municipalities (see chapter 4). Additional financial resources may be provided from the central government and the municipal budget. Such local environmental funds currently exist only in a few municipalities (Aleksandrovac, Apatin, Bor, Cuprija, Despotovac, Jagodina, Kikinda, Kula, Obrenovac, Paracin, Požarevac, Secanj, Sremska, Svilajnac and Užice); no information is available on their operations and financial resources.

5.5 Foreign financial assistance

According to data compiled by the Ministry of International Economic Relations (MIER), total multilateral and bilateral financial assistance disbursements in Serbia amounted to some €650 million in 2005, corresponding to 3.1 per cent of GDP. Environmental protection projects accounted for some €23 million or 3.5 per cent of these funds, corresponding to 0.1 per cent of GDP in 2005. Coordination of international assistance is carried out

Table 5.5: Actual and projected revenues of the Environmental Fund from earmarked environmental taxes and charges, 2006–2009

million CSD

Charge base	2006 Actual	2007	2008	2009
Motor vehicles use	363.1	388.5	420.0	542.0
Emissions of NO_2, SO_2, dust, charges for industrial waste production and disposal	481.6	515.2	580.0	675.0
Ozone-layer depleting substances	5.3	5.7	4.5	3.0
Collection of wild flora and fauna	38.7	41.4	55.0	78.0
Total above	888.7	950.8	1,059.5	1,298.0
Total as per cent of GDP	0.05	..	..	..

Source: Directorate for Environmental Protection, direct communication. ECE secretariat calculations.

by the Development and Aid Coordination Unit (DACU) in the MIER.

The Inter-Sectoral Working Group for Coordination of Humanitarian and Development Assistance (ISDACON) was established by the Government to contribute to more efficient management and use of international financial support across the various sectors. It also compiles and disseminates information on foreign financial support to Serbia (see chapter 3).

The EU has played a leading role in supporting Serbia with financial and technical assistance to improve institutional capacity-building for the environmental infrastructure.

The main EU financial instrument in Serbia has been the *Community Assistance for Reconstruction, Development and Stabilisation* (CARDS) programme, launched in 2001. The programme has been managed mostly by the European Agency for Reconstruction (EAR). (Exceptions are the *Tempus* programme and the *Customs and Taxation Projects*.) Environmental projects have been financed as part of the priority area "economic and social development". A core principle guiding CARDS assistance is that of harmonization with the EU *acquis communautaire* and the associated approximation with EU norms.

Between 2002 and 2005, total EU financial assistance to Serbia amounted to some €740 million, of which about €34 million (or some 4.5%) was for environmental projects. Support for rehabilitation of energy infrastructure (some €420 million) has been accompanied by significant environmental improvements (reduced air pollution, etc.).

The expenditures on environmental projects (as defined by EAR) therefore significantly understate the overall funding devoted to pollution abatement and control and other environmental protection measures.

International financial institutions (e.g. EBRD, the European Investment Bank, and the World Bank/IFC[4]) have supported the Government of Serbia in addressing major problem areas, including rehabilitation of the environmental infrastructure. For example, EBRD has supported projects to rehabilitate the energy sector and municipal infrastructure (wastewater treatment plants and regional landfills).

The financial involvement of the United Nations Development Programme (UNDP) in environment-related projects in Serbia was relatively small during the period 2001–2005. The total budget for the "energy and environment" cluster for 2001–2005 amounted to some US$ 0.8 million for, or 1 per cent of the total budget for UNDP-supported projects in Serbia. Projects have mainly been related to the development of a biodiversity strategy action plan, national capacity self-assessment and the interface between energy and the environment and between poverty and the environment. The main sources of financing were UNDP-administered trust funds and cost-sharing funds, which together accounted for more than 90 per cent of total financial resources.

UNDP, in cooperation with EAR, was also implementing the EU-funded *Municipal Improvement and Revival* (MIR) programme in 11 municipalities in South Serbia, the poorest region of the country. The programme also included the financing of projects related to rehabilitation of water supply networks, water treatment, sewage facilities and solid waste management. It is noteworthy that implementation of projects was conditional upon a 10 per cent financing contribution from the local communities, which demonstrated their commitment to a project.

[4] International Finance Corporation

Table 5.6: EU financial assistance to Serbia on environment, 2002–2005

Euro million

Year	Total	Environ-ment	Remarks
2002	172	0.5	Assistance to newly created Ministry for Natural Resources and the Environment
2003	220	10.4	Technical assistance: Preparation of national environmental strategy and action plans; feasibility studies
2004	205	14.0	Hazardous industrial waste disposal
2005	147	9.5	Capacity building in the water sector
2002-2005	**744**	**34.4**	
Per cent	**100**	**4.6**	

Source: European Agency for Reconstruction, Annual Report to the European Parliament and the Council, January to December 2005, Thessaloniki, 12 June 2006.

In addition to multilateral institutions, many bilateral donors have been active in Serbia, with assistance being provided mainly through the corresponding national development agencies, such as United States Agency for International Development (USAID), GTZ[5] and the Swedish International Development Cooperation Agency (SIDA). Bilateral assistance amounted to some €130 million in 2005, of which €4.9 million (or 3.1%) was for environmental protection. Of this amount, €3.1 million (or 63%) went to water-related projects.

The relatively limited amount of funding from multilateral and bilateral sources for environmental protection measures suggests that the implementation of the NES and the associated technological upgrading of the environmental physical infrastructure will have to rely predominantly on the mobilization of domestic resources. One mechanism for strengthening external financial assistance is to give a higher priority ranking to environmental issues in national development strategies and in international cooperation.

For more information on international technical assistance, see chapter 3.

5.6 Conclusions and recommendations

The NES presents a detailed account of the state of the environment and provides a very good overview of the stringent policies required to create adequate incentives for reducing pollution. Considerable expenditures on the environmental infrastructure will also be required to achieve the environmental priorities of the Government, which are aligned with the standards of the EU *acquis communautaire*. A major challenge is the mobilization of domestic and foreign resources to finance these investments in environmental protection and reap the associated economic and social benefits. Related to this is the need to ensure efficient allocation of financial resources and optimize the cost-effectiveness of environmental policy measures. A major requirement in this context is an improved information system for environmental expenditures and their financing, including their close monitoring.

A main problem is the fragmented and apparently also incomplete reporting on public sector environmental protection expenditures. But the available information clearly suggests that given the considerable environmental pressures in Serbia, government spending on environmental protection to date has been insufficient. But the increasing government revenues associated with sustained and robust growth should in principle make it possible to allocate more resources for improving the quality of the environment.

The NIP, which was launched in the second half of 2006, allocates a mere 1.2 per cent of total funds to environmental protection in 2006–2007. In any case, the financing of the NIP beyond 2007 is not guaranteed and will depend, inter alia, on the rate of economic growth, progress in large-scale privatization and availability of foreign funds.

There is also no information available on environmental protection expenditures by the business sector, as there is no reporting obligation. At a minimum, such reporting could start with the 250 (potential) integrated pollution prevention and control facilities, and later be extended to other firms with a certain minimum size in terms of sales or employment. Comprehensive and reliable statistics on environmental expenditures and revenues are as important as data on the state of the environment for gauging the effectiveness of environmental policy.

[5] Gesellschaft für Technische Zusammenarbeit GmbH (i.e. the German Agency for Technical Cooperation)

Recommendation 5.1:
The Government should establish a coherent and comprehensive information and reporting system for environmental protection expenditures and revenues covering the public sector, the business sector and private households, using as a general framework the European System for the Collection of Economic Information on the Environment (SERIEE) developed by the Organisation for Economic Co-operation and Development/Eurostat and the associated Classification of Environmental Protection Activities and Expenditures (CEPA).

The establishment of the Environmental Protection Fund is in line with recommendations made in the first EPR. But the overall budget of the Fund is currently relatively small and, judging from projections of own revenues from earmarked pollution charges, this situation will not change over the medium term. This points to the importance of other financing sources, especially government budget allocations, including from privatization revenues and the NIP, but also from multilateral and bilateral financial assistance.

Recommendation 5.2:
The Government should:

(a) Review its short- and medium-term budget plans with a view to allocating funds for environmental protection that are commensurate with ambitious but realistic policy targets;
(b) Ensure that an adequate share of public revenues is channelled to the Ministry of Environmental Protection, as well as the Environmental Protection Fund;
(c) Ensure that environmental protection is effectively integrated into all major investment projects financed from the National Investment Plan, especially for the energy, transport and agriculture sectors; and
(d) Provide the Environmental Protection Fund with human and financial resources.

The bulk of public environmental services and related environmental infrastructure is organized at the level of local government and related utilities. The persistently weak revenues of municipalities and their utilities have, over the past decade or so, led to a deterioration of physical infrastructure and, associated with that, a decline in the quality of utility services.

It is therefore important to strengthen municipal capacities for assessing investment needs and for mobilizing and absorbing the funds required for environmental investments at the local level. It is also important to explore the scope for inter-municipal cooperation with regard to infrastructure services in order to exploit economies of scale and to enhance private-sector involvement in investment projects. In this context, it is also important to increase the efficiency of providing utility services by giving management sufficient independence in operational and financial matters.

Recommendation 5.3:

The Government should promote legal and institutional arrangements which strengthen the capacity of municipalities to prepare investment projects and which enable greater access to domestic capital markets for financing these projects. This involves, among other things:

(a) Supporting the preparation of multi-annual investment plans for municipal infrastructure development programmes;
(b) Encouraging local self-government units to invest in environmental infrastructure through greater use of loans based on existing legislation on public debt;
(c) Considering the need to relax existing borrowing constraints; and
(d) Developing guidelines and procedures for private-sector involvement in the provision of environmental utility services at the municipal level.

See also Recommendation 6.2 in chapter 6 on water.

A main feature of the water sector policy is the current system of highly compartmentalized earmarking of revenues from the various water charges. All revenues from a specific section of the water sector (drinking water, wastewater, etc.) are devoted to spending on the corresponding section of the water sector infrastructure, independently of water sector policy priorities.

For instance, more than 50 per cent of the water charges are from wastewater and are therefore spent on wastewater infrastructure, while a small 3.5 per cent are from drinking water charges, so that little is spent to improve drinking water infrastructure even though drinking water quality is the key priority objective. Such compartmentalized earmarking can be a source of inefficiencies because spending in each subsector is dictated mainly by the level of revenues rather than by the relative importance of the various water sector priorities, including environmental priorities.

Recommendation 5.4:
The Ministry of Agriculture, Forestry and Water Management, in cooperation with the Ministry of Environmental Protection, should reconsider the current system of earmarking water revenues, and optimize their allocation according to national priorities in the water sector.

See also Recommendation 4.4 in chapter 4.

PART III: INTEGRATION OF ENVIRONMENTAL CONCERNS INTO ECONOMIC SECTORS AND PROMOTION OF SUSTAINABLE DEVELOPMENT

Chapter 6

WATER MANAGEMENT FOR SUSTAINABLE DEVELOPMENT

6.1 Water resources

Overview

Serbia has access to significant surface and underground water resources, which are sufficient to meet the needs of its current economic activities and of its people. Annual precipitation in Serbia varies from 550–650 mm in the plains to 800–1,200 mm in the mountainous regions.

The Danube, Tisa, Sava, Drina and Velika Morava rivers form the main water resource in the country. All rivers belong to three sea basins: the Black Sea, the Adriatic Sea and the Aegean Sea. The Black Sea watershed includes 176 billion m^3 of water, the Adriatic around 2 billion m^3, and the Aegean Sea about 0.5 billion m^3. Around 92 per cent of the available water resources originate outside of Serbia. Inland water flow in Serbia is approximately 16 billion m^3 annually. The volume of transit waters is significant – approximately 162 billion m^3 a year.

The reach of the Danube River that flows through Serbia is 588 km long, of which about 138 km constitute the State border with Croatia and about 213 km with Romania. The Danube's largest tributaries, the Drava, Sava and Tisa rivers, empty into the Danube on Serbian territory, increasing the flow by about 2.5 times. Other significant tributaries that empty into the Danube in Serbia include the Velika Morava; the Tamis which comes from Romania; and the Timok, which constitutes a small part of the Serbian-Bulgarian border.

The surface water potential is greatly enhanced by the construction of river reservoirs. In Serbia, there are currently 30 major river reservoirs (with a storage volume greater than 10 million m^3), 31 medium-sized reservoirs (storage volume greater than 1 million m^3), and about 100 minor reservoirs. The total volume of these reservoirs is 6.2 billion m^3.

A significant surface water resource is the Danube-Tisa-Danube water system. This system extends over a surface area of 20,000 km^2 and includes a network of canals whose overall length is about 700 km.

The underground water potential is estimated to be 60,000 l/s to 90,000 l/s, of which about 21,000 l/s is used for drinking water supply.

Serbia's territory has numerous sources of mineral and thermal water. More than 1,000 sources of mineral, thermal and thermal-mineral water have been registered. The total yield of sources of thermal-mineral and thermal water is more than 1,000 l/s.

There are no official data on how climate change will affect the hydrographic regime in the medium and long term. Studies made by the World Meteorological Organization have defined Serbia as a moderate area of influence of the future climate changes. However, it will suffer all the extremes defined by one of the three main scenarios defined by the recent Panel on Climate Change, but only in a moderate form. The Government is a party to the *United Nations Framework Convention on Climate Change* (UNFCCC), but the First Communication to the UNFCCC has not been yet prepared. Serbia participates in the initiatives of the *United Nations Convention to Combat Desertification* (UNCCD), although it is not a party to the Convention. Serbian representatives – as observers – attended the Second Technical Workshop on the Establishment of a Subregional Centre Relating to Drought in South-Eastern Europe in the Context of the UNCCD, which was held in Sofia in April 2006. Each participating country was invited to develop national guidelines for implementing a National Drought Strategy, a task that Serbia has yet not tackled.

Water use

Drinking water supply and quality

Raw water for drinking purposes (Figure 6.1) comes from underground water (59%), surface water (24%) and springs (17%). Household surveys carried out during the Serbian census in 2002 show that, overall, around 89.4 per cent of Serbia's population is supplied with drinking water by piped distribution systems. However, urban areas have much more complete coverage than rural areas: 98 per cent versus 78 per cent. About 93 per cent of Belgrade's population is supplied by piped water.

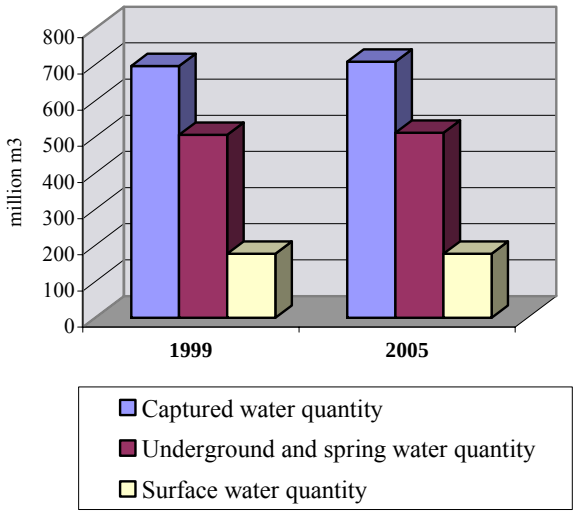
Approximately half of the country's population lives in urban areas and is supplied by large (Belgrade, Novi Sad and Niš) or medium-sized water supply systems. The other half, living in rural areas, gets its drinking water from public water supply systems (managed by municipalities and operated by local public utility companies or built operated and managed by the communities themselves) or even from private wells. Data on rural public water supply systems are very scarce, but it is estimated that there are about 5,000, which are not even registered and do not carry out any control of water quality. Also supply systems cover 300,000 private wells. Only 10 per cent of the exploitated water sources are protected with sanitary protection zones around intakes. Water consumption is higher in Serbia than in other European countries. The average amount of water injected into the networks is 370 l/capita/day (500 l/capita/day in Belgrade)[1] of the General Urban Plan for Belgrade mentions 900 l/capita/day, an extreme figure due to losses in the water supply systems, which are estimated at 30 to 80 per cent. Consumption in rural areas and in municipalities with fewer than 50,000 inhabitants is significantly below the national average.

A survey conducted between 2001 and 2005 by the Public Health Institute of the Republic of Serbia monitored 150 public water supply systems providing drinking water to about 70 per cent of the Serbian population and revealed how many water supply systems delivered water not meeting bacteriological, physical and chemical requirements. The results of the survey are shown in Figure 6.2.

The drinking water quality of Belgrade's public water systems (serving 1.6 million inhabitants) differs significantly between the city and its suburbs. For Belgrade proper, the results of laboratory analyses of drinking water in 2005 show that 1.5 per cent of the samples did not meet the requirements with respect to physical and chemical characteristics, and 6.4 per cent of the samples did not meet biological requirements. In the suburbs, 29 per cent of the samples did not meet physical and chemical requirements and 7.7 per cent did not meet biological requirements. Monitoring of water quality in schools located in city suburbs, which have their own water supply systems, shows that 57.7 per cent of samples did not meet requirements with respect to physical and chemical characteristics and 62.8 per cent of samples did not meet biological requirements.

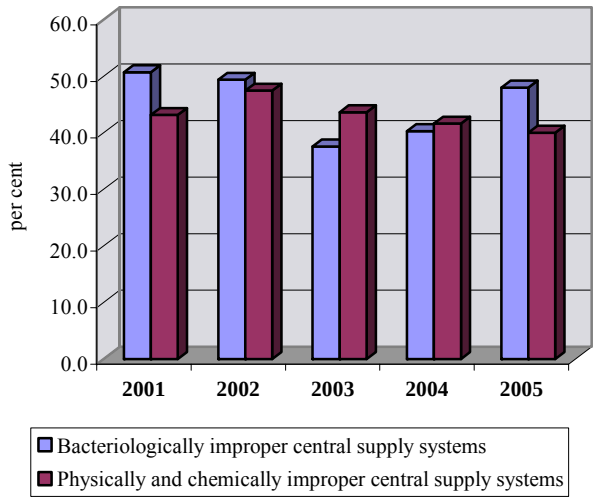
[1] The domestic standard is a design capacity of 250 l/capita/day.

Figure 6.1: Drinking water use in settlements, 1999 and 2005



Source: Statistical Yearbook of Serbia, 2004, 2005.

Figure 6.2: Drinking water quality monitoring results for 150 public water supply systems, 2001–2005

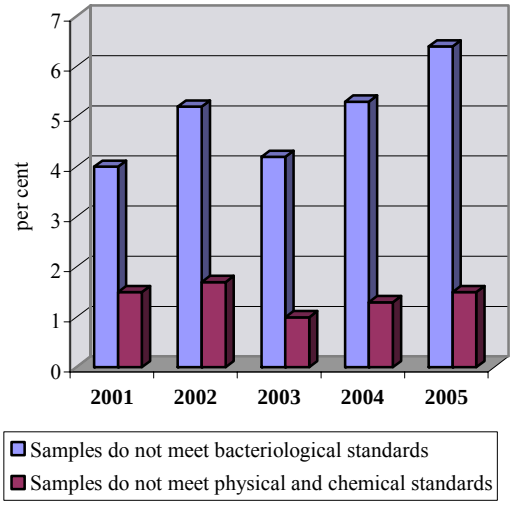


Source: National Institute of Public Health, 2005.

The quality of drinking water delivered by Belgrade's central water supply system from 2001 through 2005 shows an increase in the per cent of samples failing to meet quality standards (see Figure 6.3).

No monitoring is performed for rural water supply systems, which serve about 30 per cent of the population. Official data are not available. Inspectors perform monitoring when necessary and on regular intervals, but their activities are hampered by the lack of legally responsible counterparts

Figure 6.3: Drinking water quality in Belgrade's central water supply system, 2001 – 2005



Source: Institute of Public Health of Belgrade, 2005.

In the past decade, there have been few investments in the water sector. As a result, water assets have deteriorated and service does not meet users' needs. However, the 2006 *National Environmental Strategy* (NES) foresees that an environmental expenditure equal to 2.5 per cent of gross domestic product (GDP) will be reached by 2014, considering a scenario of 5 per cent annual GDP growth. Seventeen per cent of the environmental expenditure should be allocated to the construction, operation and maintenance of new water assets for the period 2005–2014. The NES also estimates that investments needed to improve drinking water quality and to extend and upgrade drinking water distribution networks will total €10 million and €2 million per year, respectively.

The monitoring of the quality of drinking water is under the responsibility of the Ministry of Health. In municipalities, the monitoring is carried out by the Municipal Health Institutes. The Ministry of Health is responsible for control of rural water supply systems but is unable to fulfill this task because the systems are not registered. However, it controls all the school water supply systems and is now upgrading systems where necessary.

Water use in industry

Serbia is an industrially developed country and has a high number of heavy industrial plants and small and medium-sized enterprises. The industrial sector declined significantly in the 1990s as a result of the structural problems of the socialist economic system combined with the break-up of the Federal Republic of Yugoslavia and international isolation.

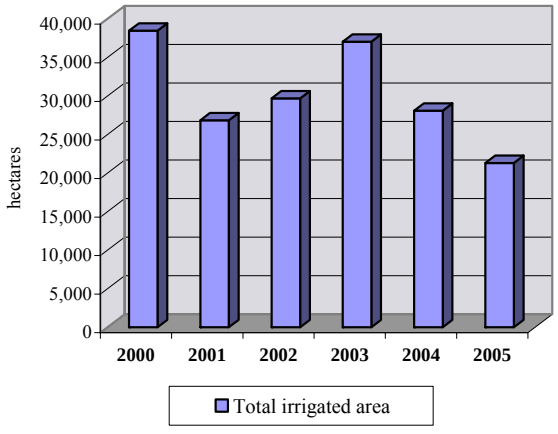
Industrial water usage decreased from around 216 billion m^3 in 1999 to 192 billion m^3 in 2004 (11%). According to the findings of the Statistical Office of Serbia, in the period 2002–2004 the industrial sector got about 2 per cent of its water from groundwater bodies and about 98 per cent from surface waters.

Water use in agriculture

Rivers and canals are the major sources of water for irrigation; the share of underground water is relatively small. Of a total of 4.7 million ha of arable land in Serbia, 3.6 million ha are suitable for irrigation. Irrigation systems cover only 5 per cent of this area (180,000 ha) and most of the irrigation systems work less than optimally or not at all, so that only about 1 per cent (30,000 ha) is actually fully utilized. Figure 6.4 shows total irrigated land in the period 2000–2005.

Some 2.67 million ha of agricultural land throughout Serbia, representing about 52 per cent of the country's total area, are affected by poor drainage. In plains, some 1.61 million ha are affected or about 90 per cent of agricultural land. To address the drainage problems and the threat of waterlogging, some 2.08 million ha nationwide in over 400 drainage areas have been provided with drainage facilities incorporating 210 pumping stations and 22,600 km of drainage canals. More than 58,000 ha are equipped with tile sub-drainage. Currently, canals in drainage networks are affected by siltation and weed growth, while the associated structures and pumping stations have deteriorated, resulting in a generally inadequate functioning of the drainage network.

Figure 6.4: Total areas irrigated, 2000–2005



Source: Statistical Yearbook of Serbia 2006.

The main reasons for the lack of drainage and irrigation are the unfavourable economic status of agriculture and lack of funding for system maintenance and operations. Therefore, widespread rehabilitation is required.

Hydropower production

Almost all hydroenergy produced in Serbia is from plants with installed capacity above 10 MW. Currently, large hydropower plants produce around 10.3 TWh/year of electricity (32% of Serbia's total annual electricity production). A smaller part of hydropower potential is exploited using small hydropower plants (SHPPs) with installed capacity of up to 10 MW. With 39 SHPPs currently operating in Serbia (with a total installed capacity of up to 49 MW), the potential of SHPPs remains largely untapped.

Flood control

Large areas of the country, especially adjacent to the large rivers on the flood plains, are subject to flood damage. The damage is estimated to affect some 1.6 million ha throughout the country, of which 1.45 million ha are in Vojvodina and the plains east of Belgrade, and the remaining 0.15 million in Central Serbia. Countrywide this implies that 500 large communities, 515 industrial facilities, 680 km of railroads, 4,000 km of roads and about 30 per cent of agricultural land are vulnerable. The existing flood defence system includes 3,434 km of riverside levees, 930 km of canals and 39 river reservoirs and retention areas.

The flood defence measures and works are designed and defined through the General Flood Defence Plan (GFDP) for a period of five years for the areas protected by structures built to safeguard against the detrimental effects of water. The execution of the GFDP has been made possible through the Operative Flood Defence Plan, which covers a period of one year. For areas which are vulnerable to floods but not included in the GFDP, responsibility for adopting protective measures lies with the municipal assembly of the municipality where the area is located.

However, lands protected by such structures remain subject to extreme floods, which can endanger human lives, buildings and crops. The last decade's minimal maintenance of flood defences led to a reduction in their operational performance and an increased risk of flooding. In fact, major flood events occurred in 2002, 2005 and 2006.

It is important to note that the GFDP does not include a full river basin and sub-basin risk management approach. Specifically, it does not include a complete map of areas subject to different risk levels of flooding or a unique scale of risk valid for all Serbian river basins and sub-basins. The characterization of lands potentially endangered by floods (e.g. maps of land use) is generally not coupled with mitigation measures.

The Directorate for Water (DW) of the Ministry of Agriculture, Forestry and Water Management (MAFWM) is implementing an infrastructure rehabilitation programme for key drainage and flood control devices under the World Bank–funded Irrigation and Drainage Rehabilitation Project (2005–2011). The Flood Action Programme (FAP) of the International Commission for the Protection of the Danube River (ICPDR) provides a road map for implementing a full risk management strategy. The FAP focuses on a river basin approach to cope with flood risk, recommending a set of actions to reduce the hydraulic risk, and it includes measures such as early warning systems and civil protection. DW started flood risk mapping activities in 2006 in the framework of the FAP.

6.2 Anthropogenic pressures on the quality of water resources

Untreated industrial and municipal wastewater, agricultural run-off, discharges from dumpsites and pollution related to shipping and from thermal power stations are the main sources of water pollution in Serbia. The deterioration of water quality is partially attributable to transboundary pollution of the watercourses entering Serbia, which are polluted with nutrients, oil, heavy metals and organic components.

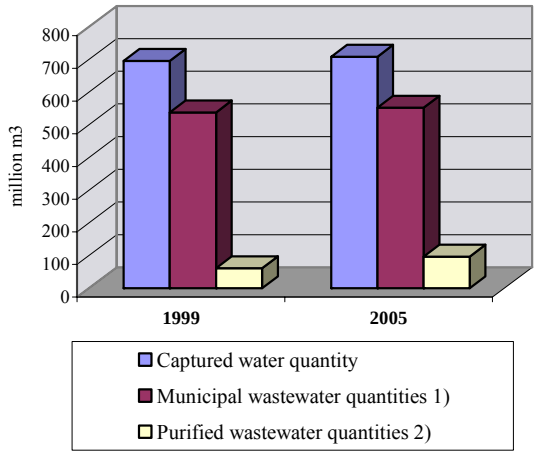
Collection, treatment and discharge of municipal wastewater

The sewerage system covers approximately 3.1 million (48%) of the country's population. Seventy-five per cent of the total urban population is connected to public sewage systems, while only 9 per cent of the rural population is. The total length of the constructed sewerage network is 7,226 km, of which 35 per cent is separate, 25 per cent is combined and 40 per cent is partly separate. Fifty-two per cent of Serbia's inhabitants, mostly people living in rural settings, have no means of connecting to public sewerage systems and are obliged to use septic tanks and draining fields for wastewater discharge.

The total daily generation of municipal wastewater is approximately 1 million m^3 with a total organic load of 11.6 million population equivalent (PE). Wastewater treatment facilities exist in 20 municipalities (16% of the population is connected to wastewater treatment facilities) and have a total installed capacity of 1 million PE (Figure 6.5); 15 facilities perform biological treatment and 5 mechanical treatments only. Some facilities are 35 years old, and their efficiency is low. Serbia's largest municipalities (Belgrade, Novi Sad and Niš) discharge untreated wastewater into recipient water bodies.

In 2002, the DW started a four-year programme that co-funds capital investments in the water supply and sanitation sector. The programme has a relatively small budget (€7.5 million in 2006), but it has encouraged small communities to upgrade their waterworks.

Figure 6.5: Municipal wastewater discharge and treatment, 1999 and 2005



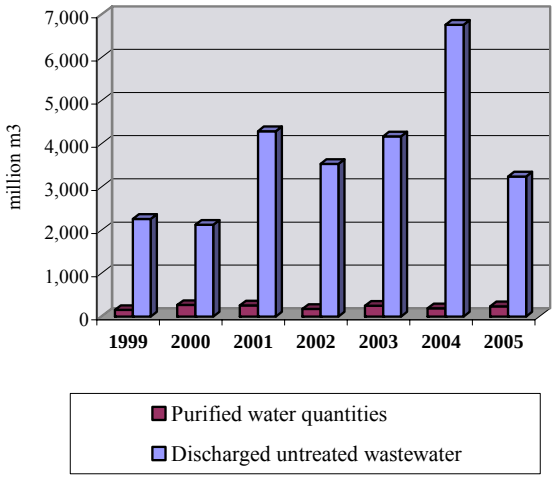
Source: Statistical Yearbook of Serbia, 2004, 2005.
Notes:
[1)] Municipal wastewater quantities from municipality with public sewerage and estimation from municipality without public sewerage
[2)] Purified wastewater quantities from municipality with public sewerage.

Wastewater from industry and agriculture production

The total amount of industrial wastewater generated daily rose from 6.5 million m^3 in 2000 to 19 million m^3 in 2004, with a total organic load of 7.5 million PE. Seventy-five per cent of the inorganic discharge is generated by 10 of the 250 existing industrial installations in Serbia. Among these 10 are the U.S. Steel factory in Smederevo, the Nikola Tesla A and B thermal power plants in Obrenovac, the non-ferrous metallurgy plant Zorka in Šabac, the Kostolac thermal power plant and the power cable factory in Jagodina. The Bor and Sjenica mines and the Kolubara open-pit mine discharge exhaust water.

Typically industrial installations located in urban areas discharge their wastewater into the existing municipal sewerage system. Larger industries are generally located outside settlements, usually near riverbanks. Wastewater from these facilities is discharged directly into watercourses, with or without previous treatment. Serbia's industrial sector possesses 120 larger facilities for treating industrial and mining wastewater. Most of them, mainly small industrial installations, have only the pre-treatment or minimal treatment capacity that is required to fulfil the conditions to discharge into municipal sewerage systems. Only 20 larger industrial installations have full independent wastewater treatment facilities, and today many of those are functioning only partially. Since 2000, five new wastewater treatment plants have been built, and another five are under construction. For other 10 plants, the project documentation is in the final phase.

Figure 6.6: Quantities of untreated and treated industrial wastewater, 1999–2005



Source: Statistical Yearbook of Serbia 2006.

Most industrial and mining wastewater is discharged into the Sava River and its tributaries. The quantities of untreated and treated industrial wastewater discharged into the water bodies in the period 1999–2004 appear in Figure 6.6, which also indicates that the proportion of treated industrial wastewater fell from 11 per cent in 2000 to less than 3 per cent in 2004.

Water pollution from agriculture

The main point sources of organic discharge in Serbia are around 130 pig farms representing 1.2 million head. Farms with capacity of up to 20,000 head use the combined dry-humid method of animal waste disposal, while farms with capacity of more than 20,000 head use the humid method. There are 43 farms with capacity of more than 10,000 head, of which 34 are located in Vojvodina. It is estimated that farms in the Danube River basin in Serbia have organic loading of 9 million PE.

Wastewater is discharged mostly into lagoons or natural depressions, from where, after a period of 6 months, it is extracted to fertilize agricultural areas. An extremely small number of farms have facilities for treatment equipment, aerators, separators and biogas production, but rarely are such facilities properly operated and functioning.

The World Bank is leading a project for the reduction of nutrients in the Danube River. It started as a project to reduce nutrients from industry, such as fertilizer plants and breweries, and is continuing with slaughter houses and farms. It is a five-year long project.

Impact of solid waste disposal

Serbia currently has only one sanitary landfill site, which is located in the municipality of Vranje. A few others are being built. There are 164 controlled dumpsites and more than 1,000 unofficial dumpsites. Dumpsites have no systems for protecting ground and surface water bodies from dumpsite leachate.

Fifteen of Serbia's dumpsites (8.8%) are located no more than 50 m from riverbanks (five of them are right on riverbanks). Five dumpsites (3%) are situated 100 m or less from watercourses, while 6.7 per cent of registered dumpsites are 500 m or less from watercourses. 12.2 per cent of existing dumpsites are located 1,000 m or less from exploited underground water sources.

Solid waste is usually a mixture of municipal, bio-hazardous, industrial and inert waste. In addition, each year, 6 to 7 million tons of ashes from thermal power plants are dumped on equally inadequate dumpsites. It is estimated that dumpsites in Serbia produce approximately 890,000 m^3/year of leachate corresponding to about 41,590 tons of chemical oxygen demand and containing 389 tons of nitrogen and 426 tons of phosphorus, as well as heavy metals including arsenic, copper, zinc, nickel and chromium.

The Environmental Protection Agency (EPA) has established a register of landfills, in particular for those close to water bodies.

Impact of shipping on freshwater bodies

Serbia has 959 km of navigable rivers. The main navigable river is the Danube (588 km), followed by the Sava River (207 km) and the Tisa River (164 km). In addition, the Danube-Tisa-Danube Canal provides a navigable waterway. The main inland harbours are Apatin, Bačka Palanka, Belgrade, Bogojevo, Novi Sad, Pančevo, Prahovo, Senta and Smederevo.

The main sources of pressure from shipping on river water quality are inadequate collection and treatment of vessels' wastewater and inadequate disposal of vessels' solid waste; additional pressures are the low standard of the domestic river fleet and the inadequate environmental protection infrastructure of Serbia's inland ports. Serbia's inland ports have no facilities for collection and treatment of atmospheric precipitation from open working areas. There is only one facility, for collection of used oil, wastewater and solid waste. Treatment of these substances does not exist in the ports. The most dangerous accidents occur from accidental and deliberate oil spills.

Accidental pollution

Special attention must be paid to accidental pollution of domestic origin and especially from transboundary sources. The most frequent accidents involve oil spills or transboundary oil slicks, usually on the Danube and due to the shipping activities. Also, there have been many serious accidental spills such as the Baja-Mare accident, which caused almost all life in the Tisa River to cease to exist. Although there are numerous international conventions, this threat still exists.

6.3 Water quality

Water monitoring

The quality of surface and underground water, aquifers and reservoirs is monitored by the Hydrometeorological Institute (HMI) based on an annual programme adopted by the Government. In 2005, the monitoring system on Serbian territory included 187 surface water hydrological stations. The quality of surface water monitored regularly, with a sampling frequency of 12–24 times a year and analysis of 36–63 water quality parameters. The quality of underground water is monitored at 68

stations, while sediments are tested according to 33 profiles. The Institute of Public Health of Belgrade monitors the surface water quality of the Danube, Sava, Kolubara and other rivers in the Belgrade area, with more than 170 samples taken yearly.

Authorities put a great effort in acquiring automatic water quality monitoring stations. Through the European Agency for Reconstruction funding, several stations have been procured for the Tisa River. Through the European Union (EU) Twinning Projects, three stations will be established on small watersheds, and through the National Investment Programme four stations are in the process of financing on the Danube, Tisa and Sava rivers.

The DW, through the Srbijavode and Vode Vojvodine water enterprises, is in charge of monitoring wastewater discharge. A total of 34 inspectors carry out about 4,000 inspections per year. Only 30 per cent of such inspections are planned in advance and performed each year between February and April. The remainder are carried out in response to reports by citizens. When illegal discharge is found, the procedure for prosecuting the polluter is long, and is successful in only about 10 per cent of cases. The costs of identifying the source of pollution are often higher than the fine imposed on the polluter.

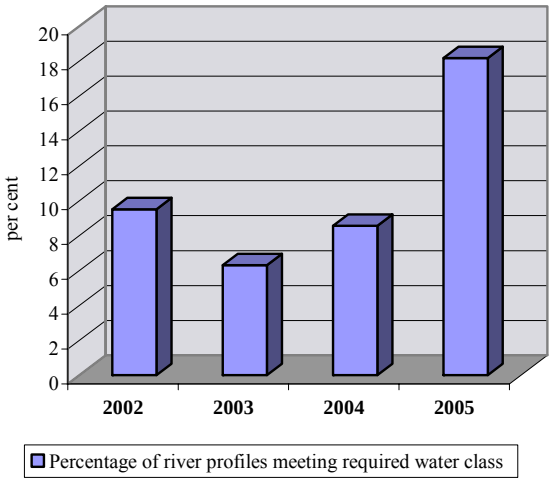
Quality of surface waters

The 1968 *Decree on Classification of Waters* (OG RS No. 5/1968) divides surface water into four quality classes. Class I is for very clean water that requires only disinfection in order to be used for water supply and is suitable for recreational activities. Class II is for slightly polluted water requiring adequate treatment in order to be used for water supply. This water is suitable for recreational activities but not for trout farming. It may be used as irrigation water if important standards are met. Class III water is polluted and requires adequate treatment in order to be used for industrial supply (except for the food and textile industries); it is not suitable for recreational activities. Class IV water is highly polluted. Very clean water (water that meets the requirements for Class I and Class I/II) is very rare in Serbia. It can be found only in mountainous regions – for example, along the Djetinja, Rzav, Studenica, Moravica and Mlava Rivers in Central Serbia. The most polluted rivers (whose quality falls outside the classification system) include the Stari, Plovni, Begej, Topolica, Veliki Lug, Lugomir, Crni Timok and Bor, as well as the Vrbas-Bečej canal (Figure 6.7).

When measured according to this system, watercourses in Serbia are shown to be generally polluted, and samples from recent years show that the quality continues to deteriorate. According to the findings of the HMI in 2005, the water parameters for 23 per cent of 65 monitored river profiles fell into Class II, 70 per cent into Class III and 6 per cent into Class IV. In 2004 Danube and Tisa rivers fell from Class II/III to Class III/IV. The same applies to the transboundary rivers coming from Romania. The analyses of the sediment are not even as good as this. The quality of most transboundary watercourses is deteriorating considerably. Most of the pollution comes from sources located in the upstream countries and recently the situation has deteriorated significantly.

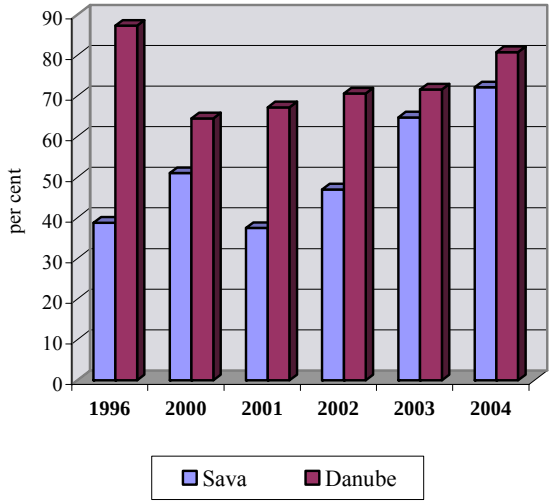
Water quality suffers especially from eutrophication caused by nutrients and organic pollutants (owing to discharge of untreated sewage and agricultural run-off) and heavy metals. Increased bacteriological pollution is found in large rivers (Danube, Sava, Tisa and Morava) downstream from large cities (e.g. Belgrade, Novi Sad). Only 27.9 per cent of 68 water samples taken from the Sava River in the Belgrade area during the 2005 monitoring season fell into the required Class II. Biological and physical/chemical parameters have deteriorated significantly in comparison with previous years, and the situation appears to be among the worst in the last decade. Control of the water quality of the Danube near Belgrade in the same year showed that 87 per cent of water samples did not meet Class II standards (Figure 6.8).

Figure 6.7: Percentage of Serbian river profiles meeting water quality requirements on the basis of the 1968 Decree on Classification of Water (OG RS No. 5/1968), 2002–2005



Source: Hydro-Meteorological Institute, 2006.

Figure 6.8: Percentage of Danube River and Sava River samples taken in the Belgrade area failing to meet water quality requirements, 1996–2004

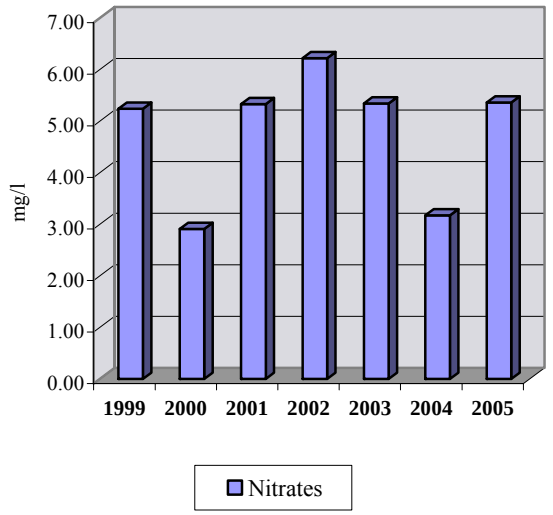


Source: Institute of Public Health, Belgrade 2005.

Underground water quality

The quality of underground water can vary from high to deficient and requiring treatment to reach drinking water standards. Monitoring results indicate the presence of ammonia, nitrates, sulphides, iron, mineral oils (Tisa River basin), evaporable phenols and manganese (samples from wells located in the area of Backa) and, in some cases, suspended solids (e.g. the South Morava basin). Figure 6.9 gives the average yearly value of nitrates in monitored underground water and shows values below the Serbian standards for drinking water quality of 50 mg/l.

Figure 6.9: Nitrates in underground water, 1999–2005



Source: Serbian Environmental Protection Agency, 2005.

6.4 Policies and the institutional and legislative framework

The policy framework

The national policy targets for water protection and water resources management are:

- To harmonize national water management legislation with the EU *Water Framework Directive*, and tointroduce emission limit values for effluent discharges according to EU *Directive 91/271/EEC on Urban Wastewater Treatment*;
- To ensure sustainable use of underground water aquifers, and to establish protection zones for all current and planned water supply sources;
- To ensure that drinking water in urban areas meets the quality standards of EU *Directive 98/83/EC on Drinking Water*, to extend the centralized water supply to selected rural areas with especially unsatisfactory water quality, and to improve the standards and efficiency of laboratories for water quality monitoring;
- To harmonize national institutional competences for integrated water management; and
- To extend the sewerage system to cover 65 per cent of the population by 2014, to provide wastewater treatment in agglomerations with organized sewerage systems that have significant impact on the recipient waters and especially on sensitive areas, and to upgrade or renew the operation of existing municipal wastewater treatment plants.

The major elements of the national policy and strategy for the water sector are defined in several strategic documents:

- The 2006 *National Environmental Strategy* (NES);
- The *National Strategy for the Conservation of National Resources* (Ministry of Science and Environmental Protection);
- The *Study of the Sustainable Development of the Water Sector* in Serbia, drafted in 2003; and
- The *Water Master Plan of the Republic of Serbia*, approved by the Government of Serbia in 1991, with a time line of 10 years.

The documents define a strategy of sustainable use and protection of water resources until 2012–2020. The fundamental objectives and tasks involved in water sector reform include the following:

- The adoption of a platform for legislative and institutional reform of the water sector;
- The drafting of the law on water and a new law on water sector funding;

- The institutional and territorial reorganization of Serbia's water sector; and
- The definition of the legal status of ownership of water services.

The legal framework

The most important law governing water in Serbia is the 1991 *Law on Water* (OG RS No. 46/1991). The Law regulates protection of water, protection from water disasters, use and management of waters as a resource of public interest, criteria and methods for conducting water management, organization and financing of water management, and supervision and monitoring of implementation of its provisions. It covers surface waters and underground water, including drinking water, thermal and mineral water, boundary and transboundary waters, and inter-republic water bodies in Serbia.

A wide range of by-laws has been developed to regulate water sector issues (see Box 6.1).

The institutional framework

Serbia's water sector is mostly under the mandates of the MAFWM and the DW. In the Autonomous Province of Vojvodina, the sector is managed by the Provincial Secretariat for Agriculture, Forestry and Water Management. The DW oversees the use and functioning of all water resources, in particular their monitoring, allocation and protection.

Under the DW (which had 60 staff members in 2005), there are two public water companies (PWC) which are the implementing agencies of the DW: Srbijavode (Serbia Water, with 132 employees in 2005) for Central Serbia, and Vode Vojvodine (Waters of Vojvodina, with 336 employees in 2005) for the Autonomous Province of Vojvodina. These entities are in charge of managing the water facilities. Field operations are carried out by water services under contractual arrangements with Srbijavode and Vode Vojvodine.

Since the early 1990s, the water utility company sector has undergone a major crisis. Low tariffs that do not reflect full cost recovery, coupled with low collection rates, have led to a general deterioration of water assets and poor levels of service. Piped drinking water often fails to meet quality standards, and funds for the extension of sanitation facilities (sanitary networks and wastewater treatment plants) are scarce. Furthermore, 90 per cent of municipalities have not yet implemented protection measures (i.e.sanitary protection zones) for areas used for water abstraction.

Under the *Law on Environmental Protection* (OG RS No. 135/2004), the Ministry of Science and Environmental Policy performs State administration functions relating to protection and sustainable use of natural resources; creates plans and programmes for the sustainable use of natural resources, including water; and prepares detailed groundwater research projects.

Box 6.1: Legal framework for water management

Decree on Classification of Water (OG SRS No. 5/1968)
Law on Protection against Natural and Other Major Disasters (OG SRS No. 20/1977, 24/1985, 27/1985, 6/1989 and 52/1989 and OG RS No. 53/1992, 67/1993 and 48/1994)
Law on Use and Protection of Water Supply Sources (OG SRS No. 27/1977, 24/1985 and 29/1988)
Regulation on Dangerous Substances in Waters (OG SRS No. 31/1982)
Regulation on the Methods and the Minimum Number of Waste Water Quality Tests (OG SRS No. 47/1983)
Regulation on Sampling and Methods for Laboratory Analysis of Drinking Water (OG SRS No. 33/1987)
Plan for Water Pollution Prevention (OG RS No. 6/1991)
Law on Water (OG RS No. 46/1991, 53/1993, 67/1993, 48/1994 and 54/1996)
Law on Fluoridation of Drinking Water (OG RS No. 35/1994, 38/1994 and 25/1996)
Regulation on Allowed Concentrations of Hazardous and Harmful Substances in Soil and Water for Irrigation and on Methods for Their Determination (OG RS No. 23/1994)
Regulation on Regularity of Hygienic Quality of Drinking Water (OG FRY No. 42/1998 and 44/1999)
Law on Use of Funds for Rehabilitation and Protection against Natural Disasters (OG RS No. 50/1992)
Law on Water Regimes (OG RS No. 59/1998)
Law on Planning and Construction (OG RS No. 47/2003)
Law on Ratification of the Convention on Cooperation for the Sustainable Use of the Danube River (OG FRY No. 2-2/2003)
General Flood Defence Plan for 2003–2008 (OG RS No. 34/2003)
Operative Flood Defence Plan for 2006

Other ministries involved in the management and protection of waters include the following:

- Ministry of Environmental Protection
- Ministry of Public Administration and Local Self-Government
- Ministry of Health
- Ministry of Capital Investment[2]
- Ministry of Energy and Mining
- Ministry of Finance

The responsibilities of the various ministries have not been clearly defined. DW in the MAFWM and the MSEP have overlapping mandates. For instance, the EPA is developing a register of point pollution sources. But data are also being collected by the DW to form its own register. Several registers on pollution sources in municipalities have been established by the Municipal Health Institutes. They are in most cases only lists of polluters.

In addition, the Ministry of Public Administration and Local Self-Government is responsible for water utilities, including water supply and sewerage treatment. The MAFWM is thus left to deal mainly with issuance of water management criteria approvals and permits for the use or release of water, as well encouraging and providing subsidies for investment capital to construct projects.

Underground waters are also considered a mineral resource and are thus to certain extent under the responsibility of the Ministry of Energy and Mining (and, in the Autonomous Province of Vojvodina, the Provincial Secretariat for Energy and Mineral Resources).

In addition to the State bodies and institutions, the following governmental and non-governmental institutions are important stakeholders in the water domain:

- The public companies Serbia Forests and Vojvodina Forests;
- The Electric Power Utility of Serbia;
- Scientific and professional organizations, including universities, the HMI, chambers of commerce and other similar organizations and institutions; and
- Institutions such as the Jaroslav Cerni Institute for the Development of Water Resources, numerous design, contracting and other companies, and numerous non-governmental environmental protection organizations.

The HMI is in charge of systematic monitoring and quality analysis of surface and underground water; issuing warnings in case of accidental contamination of water; and special monitoring during water contamination caused by the accident.

Responsibility for monitoring and control of drinking water quality lies with the institutes of public health (see chapter 2).

International obligations

Because of its geographical and hydrological location, Serbia is a key actor for sustainable management of international water resources at the bilateral and multilateral levels (see chapter 3). A regulated international legal regime in the water sector is extremely important for all neighbouring countries, for the Danube riparian countries, and consequently for cooperation within the ICPDR and for the success of its activities. In the framework of the ICPDR, the DW is responsible for the implementation of the Danube River Enterprise Pollution Reduction Project. The nutrient reduction plans that will be prepared as part of the project will pave the way for the transposition of EU *Directive 91/676/EC on Nitrates* and will serve as a basis for a code of good agricultural practices. The ratification of the *Danube River Protection Convention* has also been the impetus for two key initiatives in the water sector: flood risk management planning and consideration of the transposition of the EU *Water Framework Directive* into a draft law on water.

Bilateral cooperation agreements have been signed with Albania, Bulgaria, Hungary and Romania. The outcome of the implementation of these agreements has varied from country to country, and a general re-assessment is needed that focuses on the conditions under which they were implemented, rather than on their content.

Serbia does not have bilateral agreements governing sustainable management of transboundary waters with Bosnia and Herzegovina, Croatia or The former Yugoslav Republic of Macedonia, although the DW has done preparatory work.

Recognizing the importance of establishing a framework for multilateral cooperation, the Republic of Serbia ratified or approved several agreements:

[2] As of May 2007, the Ministry of Capital Investments has been divided into two new ministries: the Ministry of Infrastructure and the Ministry of Telecommunications and Information Society.

- The *Danube River Protection Convention* (Sofia, 1994), ratified in 2003;
- The *Budapest Declaration/Tisa Water Forum,* approved in 2001;
- The *Framework Agreement on the Sava River Basin*, approved in 2002; and
- The *Convention Regarding the Regime of Navigation on the Danube*, approved in 1948.

Norms and standards

Domestic drinking water standards are in compliance with the World Health Organization guidelines and the EU *Drinking Water Directive*. Responsibility for hygienic control of the drinking water quality in Serbia rests under the local Institutes for Public Health. The control is conducted in compliance with the *Regulation on hygienic regularity of quality of drinking water* (OG FRY No. 42/1998). The control of the surface water quality has been systematically treated from the aspect of the quality of recipient water, not requiring the control of effluent. On the basis of threshold values of the quality parameters set by the *Decree on classification of waters*, all water flows in Serbia are classified into four classes. The basic principle of domestic regulation is that after the discharge, the class of the recipient water body must not be compromised. The draft law on water proposed by the DW foresees the adoption of the combined approach, ambient water quality and emission limits, proposed by the EU *Water Framework Directive*.

The design of water supply and wastewater infrastructure is based on the domestic standards that set 250 l/capita/day as design capacity. This figure is high if compared to EU standards (180–200 l/capita/day).

Instruments for water management

Regulatory instruments

Environmental impact assessment (EIA) has been the most efficient regulatory instrument since it is implemented in Serbia, i.e. over 15 years. With this instrument, any pollution originating from future facilities and other activities is foreseen and can be prevented. As it comes after all the other permits are granted, it represents the "final checking". It is also possible to use it on finished objects. Serbia is also implementing the *Law on Integrated Pollution Prevention and Control* (OG RS No. 135/2004), which is essential for the control of large installations, which present the greatest potential danger to the environment in general, and to water in particular (see chapter 1).

Inspections

Inspections related to water management are performed by DW water inspectors. The coordination of the inspections includes the monitoring of the implementation of the *Law on Water*, other regulations and general instruments governing construction/reconstruction projects and other activities which might result in an alteration of the water regime.

Inspections related to drinking water are carried out by the Health Inspectorate. Inspectors' duties are defined in the current *Law on Water* and in the yearly work plan defined by the authority they belong to. Inspectors can also undertake specific measures and actions, such as confiscating objects which have caused water pollution accidents of a possibly criminal nature.

Economic instruments

The economic instruments applied in the water sector include abstraction charges, drainage and irrigation charges, water user charges, water protection charges (effluent charges), and charges for excavation of materials from watercourses. They are described in chapter 4.

Water pricing

Water resources management is funded by user charges, water protection charges, and drainage and irrigation charges as well as by charges for the excavation of material from watercourses and by funds from the state budget earmarked for projects in the water sector.

The current average tariff for drinking water is €0.25, or one sixth of the estimated tariff of €1.5 that would enable full recovery of costs related to operation, maintenance and new investments.

In the last 15 years, the municipal water supply and sanitation sector suffered from budget limitations. As a result, few new investments were made and maintenance was kept to a minimum. Most water and sanitation assets are currently in critical condition and urgently need upgrading, rehabilitation or replacement.

Tariffs for water and sanitation services are proposed yearly by municipal water companies to the

municipal assembly for approval. Since 2004, the Ministry of Finance has imposed a ceiling on tariff increases: they cannot exceed the programmed inflation rate.

Tariffs and fines for wastewater discharge above the authorized limits are very low compared to the costs of treatment facilities, and sanctions for non-compliance are not implemented. Thus there is no adequate incentive for the industrial and agricultural sector to comply with the law. For more information on economic instruments, see chapter 4.

Revenues from drainage and irrigation charges and charges for water resources management have to be paid to the public water company. In principle, revenues have to be used to finance the operation and maintenance of the corresponding infrastructure and to contribute to investment in new infrastructure in this part of the water sector. Charges and charge revenues have in general been too low to permit adequate maintenance of facilities and equipment. Low collection rates, which were an additional obstacle, have reportedly improved in recent years.

6.5 Conclusions and recommendations

Since the first Environmental Performance Review, Serbia has made significant progress in water management to bridge the gap with EU practices and directives. However there is a risk that if the new approaches are not properly funded and enforced they will not be applied, as has happened with the set of water laws and regulations currently in force.

Serbia has committed itself to implementing the EU *Water Framework Directive,* the EU *Seveso II Directive 96/82/EC,* the *Helsinki Water Convention*, the *Espoo Convention*, and other international and regional agreements related or linked to water, as a national strategy for harmonizing its legislation with that of the EU. It is also a party to the ICPDR. While most of the contents of the *Water Framework Directive* have been transposed into the draft law on water, this has not solved a few issues such as the institutional overlaps between the MAFWM and the MSEP. It also does not include the combined approach for point and diffuse sources of pollution of the EU *Water Framework Directive*. Transposition of the EU Directives on Nitrates and Urban Wastewater would facilitate implementation of the combined approach. Furthermore, the draft law on water will need a set of by-laws in order to be implemented.

Recommendation 6.1:
The Ministry of Agriculture, Forestry and Water Management, in cooperation with the Ministry of Environmental Protection, should speed up the drafting of a new Law on Water, taking into account the country's commitments to introducing EU-relevant regulations, including the Water Framework Directive*, and provisions of other international multilateral environmental agreements (MEAs), such as the Helsinki Water Convention*[3] *and the Danube River Protection Convention*[4].

Responsibility for implementing a few key aspects of the water sector, such as reduction of discharges, phasing out of hazardous substances and creation of a register of protected areas, is currently shared by the MAFWM and the MSEP. Most of the problems arise from the fact that neither the MAFWM nor the MSEP have devoted enough time or have allocated sufficient funds to cope with these problems. To avoid these and other overlaps and allow for better-coordinated action, the Government should clarify the competences of the Ministry of Environmental Protection and those of the DW of the MAFWM.

See Recommendation 1.1(a) in Chapter 1.

Since the early 1990s, the water utility sector has undergone a major crisis. Insufficient revenues, which result from low tariffs that do not reflect the supply costs of services, as well as low collection rates, have led to a general deterioration of the water supply and water protection infrastructure (buildings, machinery and equipment) owing to inadequate maintenance and servicing. The water sector infrastructure belongs to the State, which is not adequately funding its management.

As local problems are in general best solved at the local level, shifting the ownership of the water sector infrastructure to the municipalities and giving them full responsibility for their functioning, including collection of water charges, would ensure better management of these assets. Municipalities could be given the choice between managing their water utilities themselves and subcontracting their management partly or fully to public or private water companies. This points to the need for the government to develop guidelines and rules concerning the involvement of the private sector in the provision of utility services (see Recommendation 5.3 in chapter 5).

[3] *Convention of the Protection and Use of Transboundary Watercourses and International Lakes*

[4] *Convention on Cooperation for the Protection and Sustainable Use of the Danube River*

The poor condition of the water sector infrastructure and the insufficient coverage of costs of services provided result largely from an inadequate tariff policy. Higher water prices will not only reduce water consumption but also create incentives for investments by water companies to reduce water losses. The adoption of full cost recovery tariffs will allow not only better financing of the operation and maintenance of water and wastewater services but also the new investments required to extend them.

Recommendation 6.2:
The Government should provide more scope for municipalities and public water companies for financing enhancements in water infrastructure.

Due to the situation that the water quality has in the last couple of years declined from Category II/III to Category III/IV on most of the watercourses in Serbia, an assessment of transboundary impacts from upstream countries should be made. This year the second Joint Danube Survey will be carried out. Serbia should seize this opportunity to assess the transboundary impact of water entering into its territory on the quality of its water resources.

Recommendation 6.3:
The Ministry of Agriculture, Forestry and Water Management, in cooperation with the Ministry of Environmental Protection, should, after the completion of the Joint Danube Survey, carry out with the International Commission for the Protection of the Danube River an assessment of the transboundary impact of upstream countries on the quality of the Danube River entering Serbia.

Not only the streams entering the country are bringing a water of mediocre quality, but also there has been no wastewater treatment plants (WWTP) built in Serbia in the recent period. This has also contributed to the further deterioration of water quality. The MESP or the DW have not allocated any funds for new WWTP and especially not for WWTP in the mining sector which seems to be the one with the highest impact.

The Nutrient Reduction Programme of the Danube River financed by the World Bank contained a subprogramme about nutrient reduction that should be in the near future extended to industry as well as to farming. By the end of 2007, all companies in Serbia have to be privatized, and therefore their projects regarding wastewater sanitation would become eligible for World Bank financing.

Recommendation 6.4:
To ensure good ecological quality of Serbian watercourses, the Ministry of Agriculture, Forestry and Water Management, in cooperation with the Ministry of Environmental Protection, should:

(a) Develop an action plan for the construction of wastewater treatment plants compatible with the EU relevant directives and allocate corresponding funds in the budget;
(b) Request the World Bank to reintroduce nutrient reduction from industrial facilities in the Nutrient Reduction Programme for the Danube River.

Although the "polluter pays" principle figures to some extent in the current national legislation, its application is not being exercised. There is no bylaw to implement it. Even when it would be justified to apply it to polluters, the environmental inspectors seldom put it into practice due to various difficulties. For instance, the DW that deals with wastewater does not have enough inspectors to perform the number of inspections needed to monitor wastewater discharges in an efficient way. When the polluter is identified, prosecution and fine imposition are successful in only 10 per cent of cases. The costs incurred by the Ministry's Directorate for Water to identify the source of pollution are usually much higher than the fine imposed on the polluter. Small fines do not motivate polluters to invest in wastewater treatment facilities.

Recommendation 6.5:
In order to ensure full responsibility for water pollution and to establish polluter databases, the Ministry of Agriculture, Forestry and Water Management, in cooperation with the Ministry of Environmental Protection, should initiate a new set of water pollution charges which stipulates the full application of the "polluter pays" principle.

The regulation in force requires that municipalities identify and incorporate into their urban planning sanitary protection zones for water abstraction. Since 2003, only 10 per cent of the municipalities have complied with such obligations, and only a few of them have implemented protection measures for their sanitary protection zones., and therefore the quality of drinking water in Serbia is generally unsatisfactory, with most of the samples failing to meet bacteriological, physical and chemical standards. For 30 per cent of the population living in rural areas not served by public water supply systems, there are no data available, and visits by inspectors from the Ministry of Health are rare. The Ministry of Health should organize an awareness-

raising campaign in rural areas to alert the population to the risks of using unsafe water and to prevent outbreaks of water-related diseases.

Recommendation 6.6:

To ensure a safe drinking-water supply, the Ministry of Agriculture, Forestry and Water Management, in cooperation with the Ministry of Environmental Protection and the Ministry of Health, within their competencies should:

(a) Complete the drafting of the regulation on the protection of drinking water abstraction, and speed up its adoption and further implementation;

(b) Enforce measures for the protection of sanitary protection zones at water intakes;

(c) Enable municipalities and water-utility companies with the means to improve drinking water treatment facilities;

(d) Call on water utilities to reduce losses in the drinking-water supply network and to provide for metering of the water quantities used in their networks; and

(e) Provide access to safe water for the population in areas without public water supply systems, with a target of reducing to 15 per cent, by 2015, the proportion of the population with no access to safe water, as stipulated in the Millennium Development Goals for Serbia.

Chapter 7

ENERGY AND ENVIRONMENT

7.1 Progress since 2002

Serbia is increasing its international cooperation in the energy field and has committed itself to reaching European Union (EU) standards on energy. Progress has occurred mainly on the legal framework, policy development and institutional changes. Core elements are the adoption of the *Law on Energy* (OG RS No. 84/2004) in 2004, the establishment of the Energy Agency in 2005 and the Serbian Energy Efficiency Agency (SEEA) in 2002, the adoption in 2005 of the *Energy Sector Development Strategy* and of the *National Action Plan for Gasification* and, in early 2007, of, the *Energy Strategy Implementation Programme for the period from 2007 to 2012*[1] (ESIP 2007–2012). The *National Environmental Strategy* (NES), moreover, lists priority measures to reduce environmental impacts from the energy sector.

Serbia has also made some progress in integrating the environment into the energy sector policies. By adhering to the *Energy Community Treaty* signed in October 2005, Serbia agreed to comply with EU *acquis communautaire* on energy and renewable sources, as well as competition and environmental legislation and requirements relevant to energy. Serbia completed the unbundling of electricity system operation and market operation from other electricity activities, introduced regulated third-party access, and opened up the electricity market by reducing the eligibility threshold to 3 GWh per year.

Significant results have been achieved regarding technical improvements of power plants during the period 2001–2006. The electricity sector had invested some €400 million by the end of 2005, complemented by foreign donations for the rehabilitation and modernization of the production facilities. The operational efficiency of district heating systems in major towns such as Belgrade, Novi Sad and Nis, has been significantly increased due to rehabilitation measures, supported by assistance from KfW[2]. In recent years, other towns have also benefited from financial assistance from both KfW and European Agency for Reconstruction (EAR). However, despite some governmental assistance for repairs and maintenance and price increases for heat supply, financial shortages remain, which prevent significant improvements in the operation of district heating systems in the smaller towns. Achieving more progress in energy sector reforms will in particular require further improvements in legal and institutional frameworks, better monitoring of emissions and energy consumption, and systematic collection and analysis of pertinent data.

[1] The ESIP 2007-2012 was adopted by the Government in January 2007, and has the legal status of a Decree.
[2] Kreditanstalt für Wiederaufbau (KfW)

7.2 Current energy supply and energy consumption

In 2006, the main characteristics of the energy sector were the following: 65 per cent electricity production based on lignite-fired power plants, very high electricity consumption in the household sector (mostly for heating purposes); and very high overall energy intensity reflecting low energy efficiency on both the production and demand side. The outdated technologies used for energy production and the partial lack of abatement technology are the main causes of negative environmental impacts.

The availability of official statistical data for the energy sector is quite poor. Those statistics that are available often refer either to Yugoslavia or to the State Union of Serbia and Montenegro as a whole. However, the Statistical Office is building up capacity and currently provides annual balances for heat and electricity starting from 2004. The release of first comprehensive energy balances is planned for 2008.

Energy consumption and energy intensity

Final energy consumption in Serbia declined between 1990 and 2002 by 23 per cent as a consequence of political and economic shocks. Because of a progressive economic recovery, energy consumption started to rise again in recent years but is still significantly below the 1990 level. In 2005 total energy consumption was some 18.5 per cent lower than in 1990. Provisional estimates are for an increase in energy consumption by some 3.5 per cent in 2006 compared with 2005 (see Table 7.1).

Table 7.1: Total final energy consumption, 1990–2005

Mtoe

	1990	1994	1998	2002	2003	2004	2005	2006 est.
Final energy consumption								
Total	9.030	4.470	6.390	6.940	7.310	7.664	7.367	7.633
Industry	3.920	1.520	2.840	2.420	2.390	2.088	2.216	2.277
Transport	1.820	0.500	1.160	1.580	1.760	2.252	1.981	2.097
Other	3.290	2.450	2.390	2.940	3.160	3.323	3.170	3.259

Source: Ministry of Energy and Mining 2006: Fact Sheets Serbia. The 2006 estimate from the Ministry of Energy and Mining.

Industrial energy consumption rose by 9 per cent in 2006 compared with 2004, but was still 42 per cent below the level of 1990. The projected continuation of the rise in overall economic activity might go along with a proportionate rise in energy consumption, pointing to the need of improving energy efficiency, or, equivalently, reducing the high energy intensity of economic activity.

The level of carbon dioxide (CO_2) emissions over the past decade has also been influenced by the fluctuations in levels of economic activity and the low efficiency of energy production and use, as well as the high coal-intensity of electricity production.

No data on CO_2 emissions for Serbia are available, but data for Serbia and Montenegro combined show that CO_2-intensity, measured by energy-related CO_2 emissions from fossil fuel combustion per unit of real gross domestic product (GDP), was considerably above the EU25 and world average during the period 2000-2003. Moreover, it also displayed a notable upward trend. CO2 emissions per capita rose strongly during the period 2000–2003 converging rapidly to the (still higher) EU average.

Table 7.2: CO_2 emissions, 2000–2003

a) CO_2/GDP (kg CO_2/US$)*

	2000	2001	2002	2003
Serbia and Montenegro	2.24	2.25	2.36	2.44
EU 25	0.36	0.37	0.36	0.37
Non-OECD Europe	0.70	0.71	0.69	0.69
World	0.52	0.51	0.51	0.51

b) CO_2 tons per capita

	2000	2001	2002	2003
Serbia and Montenegro	3.79	4.00	5.71	6.10
EU 25	8.20	8.34	8.27	8.50
Non-OECD Europe	4.09	4.33	4.56	4.84
World	3.87	3.85	3.87	3.99

Source: International Energy Agency. International Energy Statistics: CO_2 emissions from fuel combustion, 1971–2003. 2005.
*Note: * PPP US$ of the year 2000.*

Electricity consumption

Final electricity consumption in Serbia was 25,663 GWh in 2005, up by 4 per cent compared to 2004 (table 7.3). Average electricity consumption per capita was 3,922 kWh in 2005, an increase by some 4.5 per cent compared with 2004.

Electricity consumption has increased the past few years, as the overall economic activity and living standards of households raised. The latter is also reflected in a growing use of air conditioning systems during summer. The household sector accounted for 55 per cent of electricity consumption in 2005, down from 59 per cent in 2002. Industry, the second largest consumer of electricity, had a share of about 22 per cent in 2005.

Since around one third of households in Serbia use electricity for heating purposes, the average electricity consumption[3] in the residential sector is very high at 1,990 kWh/capita. In Belgrade, households use more than 60 per cent of their total electricity consumption for heating purposes and 11 per cent for preparation of hot water (Table 7.4).

Electricity production

The installed total capacity of electricity generating power plants owned by Electric Power Industry of Serbia (EPS) is 8,355 MW, of which 5,171 MW (some 62% of the total) are in lignite-fired thermal power plant[4], and 2,831 MW (34%) in hydroelectric power plants. The installed capacity of gas-fired and liquid fuel-fired combined heat and power (CHP) plants amounts to only 353 MW (about 4%).

In addition, EPS operates three power plants, which are not in its ownership, with a total installed capacity of 461 MW.

[3] Average electricity consumption by the residential sector in Germany in 2005 was 1,719 kWh/capita.

Table 7.3: Electricity balance, 2004 and 2005

GWh

	2004	2005
Gross production	**33,874**	**36,474**
Hydro Power Plants HPP	11,121	12,032
Thermal Power Plants TPP	22,166	23,873
Combined Heat and Power Plants CHP	452	381
Autoproducers *	135	188
Imports	5,975	6,751
Exports	6,248	8,694
Total energy supply	**33,601**	**34,531**
own consumption energy sector	3,301	3,519
distribution and transfer losses	5,633	5,349
Final consumption	**24,667**	**25,663**
Industry	5,687	5,757
Construction	318	297
Transport	239	246
Households	13,626	14,191
Agriculture	207	216
Others	4,590	4,956

Source: Statistical Office of Serbia. Balance of Electricity in the Republic of Serbia. 2006.
Note: * See footnote 5

The installed capacity has remained unchanged since 2002. In 2005, 36,474 GWh of electricity was generated, of which 65.5 per cent was by thermal power plants, 33 per cent by hydropower plants, 1 per cent by CHP plants, and 0.5 per cent by autoproducer[5] thermal power plants. The share of electricity generated from hydropower plants remained constant at about 33 per cent between 1990 and 2005.

Because of the high own electricity consumption of the electricity production sector (around 10%) and high distribution losses (around 15%) due to the poor condition of the grid system, only around 75 per cent of gross electricity production is available for final electricity consumption.

The strong seasonal consumption pattern, with the peak load demand during winter due to electricity use for heating, is difficult to manage with the existing power system. Therefore, electricity demand during peak load periods often must be met by higher imports.

[4] As of 1 July 1999, EPS does not operate their plants on the territory of Kosovo-Metohija

[5] An autoproducer of electricity and/or heat is an enterprise that, in support of its primary activity, generates electricity and/or heat for its own use or for sale, but not as its main business.

Table 7.4: Structure of electricity consumption in apartments with electricity heating (in the Belgrade area)

Purpose	Share of total (%)
Heating	61.2
Preparation of the sanitary water	11.5
Food preparation	10.0
Clothes and dish washing	6.6
Deep freezing	3.6
Other	2.6
Refrigerators	2.5
Lighting	2.0

Source: Technical Assistance to the Ministry of Economy and EPCG. Energy Efficiency Strategy for Montenegro. 2005.

Heat production and consumption

The gross production of heat[6] in 2005 for Serbia was 48,799 TJ, of which 47 per cent were produced in autoproducer thermal power plants, 45 per cent in district heating plants, 4 per cent in CHP plants, and 3 per cent in thermal power plants.

The main consumer of heat energy is the industrial sector, with a share of 56 per cent in 2005. Several hundred industrial companies produce industrial steam and heat. Around 30 companies have CHP plants but most of them have not been operational for a long time. Production and consumption of heat for industrial purposes are characterized by lack of modern technology and, related to that, low energy efficiency.

Households have a share of 37 per cent in heat energy use. In Serbia, 50 towns have their own urban heating systems. The total installed capacity of district heating plants is 6,600 MW, of which 50 per cent is in the city of Belgrade (Box 7.1). The respective shares of fuels for district heating are 67 per cent for gas, 19 per cent for oil and 14 per cent for coal.

Due to lack of investments since 1990, substations and pipes are in bad condition. Therefore, the efficiency of centralized heat production and distribution is low, with losses up to 20 per cent. In recent years, a few communities have started to overhaul their district heating systems, but this process is costly and progress is slow due to lack of funds.

[6] Heat production in household sector by burning solid fuels is not included

Bad insulation of buildings is another major source of heat loss. According to the ESIP 2007–2012, 30-40 per cent of energy savings could be achieved by meeting the requirements of the existing standard JUS.U.J.5.600 and other relevant national standards for building design and insulation.

Furthermore, if the more stringent EU standards were applied, the energy savings could be even greater, amounting up to 65 per cent according to an estimate of the SEEA.

To decrease the share of solid fuels and electricity for domestic heating, the Energy Development Strategy promotes increased use of natural gas as well as central heating (by 2015, 400,000 additional households will be supplied by gas and 180,000 will be connected to central heating)

Environmental impacts

The energy sector is a significant polluter in Serbia. Environmental adverse effects on air, soil and water originate chiefly from lignite-fired power plants and from the oil and oil derivatives industry, which lack modern clean technology and abatement technology.

The combustion of lignite of low quality, which has a low calorific value and high moisture content and produces large quantities of fly ash, dust, sulphur and nitrogen oxides, has a significant impact on air.

Furthermore, thermal power plants generate more than 5.5 million tons of fly ash per year that cause uncontrolled secondary emissions, soil and water pollution and soil degradation.

The discharge of waters from the cooling systems of the power plants affects aquatic ecosystems by increasing the ambient water temperature. Transformer stations, which still use polychlorinated biphenyls (PCBs) for heat transfer, are also a risk for the environment.

Oil processing causes emissions of volatile organic compounds (VOCs) and other aromatic hydrocarbons and sludge from refineries pose further risks. Residential heating with coal and wood produces locally high amounts of sulphur dioxide (SO_2), nitrogen oxides (NOx), and carbon monoxide (CO) and soot emissions, resulting from poor fuel quality and incomplete combustion.

Coal mining and processing at Kolubara and Kostolac affect air and water quality and cause land degradation. In particular, emissions of suspended solid particles have continuously exceeded emission limit values. Similarly, the large thermal power plants Public Enterprise (PE) Nikola Tesla and PE thermal power plant Kostolac, SO_2 and dust emissions both exceed the emission limit values.

As a consequence the *National Environmental Strategy* (NES) lists several measures to be taken at thermal power plants and oil industry sites classified as high-priority. Since 2002, some measures to improve the environmental situation in the power industry have been implemented.

In addition to an improved monitoring system, power plants have started technological upgrading to reduce air emissions. Progress has been made in reducing dust emissions by installing electrostatic precipitators to achieve compliance with domestic and EU regulations. The process has started at some units and is ongoing.

In 2005, the abatement measures were funded partly by the Environmental Protection Fund. According to EPS, measures for reducing dust emissions are planned to be completed in 2009, reduction measures for SO_2 emissions should start in 2008, and reduction measures for NOx will follow. Compliance with the emissions limits of EU *Directive EC on the limitation of emissions of certain pollutants into the air from large combustion plants 2001/80/EC* is planned for 2017.

Box 7.1: Belgrade's district heating system

The district heating system of Belgrade has many small boiler stations fuelled by residual fuel oil and lignite, which are a main cause of poor air quality in the city. Belgrade's district heating company is progressively closing down those small substations and connecting them to central gas-fired plants. The time frame for replacement of the 70 boilers left will depend on availability of financial support. Gas-fired district heating plants cause less environmental impact than plants using other fossil fuels. The replacement of some parts of the installed capacity of gas-fired district heating plants by gas-fired cogeneration plants, which produce electricity and heat, is also under discussion. This replacement would be much more favourable in terms of fuel efficiency and should be highly recommended. Cogeneration plants also allow the use of heat for cooling purposes in summer and would decrease electricity consumption for air conditioning. The successful installation of cogeneration plants depends also on favourable framework conditions, such as the existence of secondary legislation and political support.

The biggest problem remains the safe deposition of ash, which is considered hazardous waste. Disposal sites contain about 170 million tons of ash covering an area of about 1,800 ha. It is stored improperly as there are no disposal sites for hazardous substances in Serbia, and local water sources are at risk of contamination. Accordingly, the majority of public complaints concerning thermal power plants were due to the negative impacts of ash pits on air and waters.

Currently under question is the future of the small lignite-fired thermal power plant of Kolubara, which has a very low efficiency of 25 per cent[7]. Its closure is under discussion. However, no cost analysis has been made to compare the investment needed to retrofit this plant to meet environmental standards with the investment that would be needed to replace this power plant with a new one using renewable energy sources such as biomass, hydropower or wind, and therefore to take a decision on solid economic and technical grounds. Experience from Germany suggests that modernization and refitting of lignite-fired power plants with a capacity below 200 MW is usually not economically viable.

Fossil energy sources

Serbia has reserves of lignite and low-quality coal (average calorific value of 7,500 kJ/kg), with rather favourable mining conditions. Lignite is extracted from two major open-pit mines[8] in Kolubara and Kostolac with a yearly production of 35 million tons of lignite. The ratio of overburden[9] to coal is 2.2 m^3/t in Kolubara and 4.3 m^3/t in Kostolac[10]. Hard and brown coal mining is of minor importance and is performed in eight small underground mines.

The inefficiency of the coal mines is still high as are the environmental impacts. Although the situation improved in 2001, when investments financed by EAR facilitated an increase of coal production by 2.7 million tons per annum and a change in the unsustainable mining practices of the past by helping to remove the backlog of overburden. There are plans to expand the mining field of Tamnava West with the aid of international loans in order to increase its production.

[7] In other words, 75 per cent of the potential energy in lignite is wasted

[8] There is also open pit mine in Kosovo-Metohija

[9] The ratio of overburden excavated per ton of coal removed.

[10] In comparison, the ratio of overburden to coal for coal mining in Germany is 3.15m^3/t to 6.61m^3/t

Crude oil production is concentrated in the Autonomous Province of Vojvodina. Oil derivates are produced in two refineries (Novi Sad and Pancevo) that were heavily damaged by bombing during 1999 and are now operating at 70 per cent of total capacity (6.6 million tons annually). The oil pipeline network totals 155 km.

Serbia has its own gas reserves and in 2003 covered 14 per cent of its total gas supply from own production. The gas network is in bad condition, however, lacking new investments and spending on repair and maintenance. As gas becomes an important substitute for other energy sources (especially for heating purposes), the country's dependence on gas imports is growing. There are investment plans for the construction of underground gas storage, a connection to other gas pipeline systems in the region, and the enlargement of gas distribution networks.

Renewable energy sources and potential

Renewable energy resources contribute greatly to electricity production in Serbia: more than 32 per cent of electricity is produced by hydropower plants. These are mostly large hydropower plants with capacity of more than 10 MW. The yearly production of around 10.3 TWh (25,200 TJ) is based on an installed capacity of 2,831 MW (Figure 7.1).

There is some use of other renewable energy sources (biomass, geothermal and solar thermal), but their actual contribution to domestic energy supply is small compared to the potential. A small amount of wood and wood wastes is burned in electricity and heat-producing plants (below 0.2 per cent of the total fuel used in plants in 2005). Seven per cent of households heat with wood. As wood is often used directly by rural communities without entering the commercial market, the total amount of firewood used is unknown. But rising poverty has caused more use of firewood, and illegal logging has increased. During the oil embargo in the 1990s, Serbia began fuel production from soybean oil. Quality problems were the main reason that biodiesel production fell out of favour when crude oil was imported again. It is expected, however, that a new facility producing biodiesel with an annual capacity of 100,000 tons located in Sid will begin operations before the end of 2007. Direct use of geothermal energy amounted to 2,375 TJ in 2000. The main use is for bathing and swimming, agricultural, and heating purposes.

Since 2001, electricity and heat production from renewable energy sources has remained largely

unchanged, except for annual fluctuations due to the water regime. A few installations to use biomass or wind are under construction (see Figure 7.1).

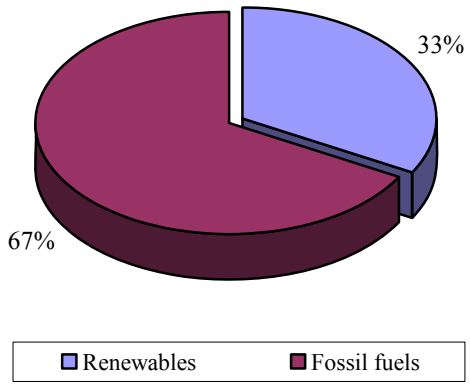
Studies analyzing the potential of renewable energy in Serbia are scarce, and most information is based on estimates. It appears, however, that apart from hydroenergy only a very small fraction of this potential has been realized. The most is known about the additional technical usable potential of hydropower, which amounts to 7,000 GWh. The corresponding locations for the construction of facilities with power over 10 MW and the annual production of about 5,200 GWh are in the Morava River basin (2,300 GWh), the Drina and Lim rivers (1,900 GWh) and the Danube (1,000 GWh). Some 900 locations are identified as appropriate for small hydropower plants, which have a more limited impact on the environment compared to large hydropower plants.

After hydropower, biomass has the greatest energy potential in Serbia due the country's large areas used for forestry and agriculture. The estimated potential is around 113,000 TJ (2.6 Mtoe), of which about 60 per cent is accounted for by agricultural waste and the rest from wood biomass.

There are few analyses and studies of the potential of geothermal energy, but SEEA reports more than 100 locations of geothermal wells with water temperatures between 20°C and 100°C and the potential is evaluated about 0.18 Mtoe. Solar energy is used for water and space heating in the domestic and tourist sectors, but there are no figures on the extent of this use. Serbia has many areas that are suitable for using solar energy, with more than 2,000 hours of sunshine per year and a total potential of about 0.64 Mtoe. Therefore the use of solar thermal energy for heating water or rooms in public buildings and households should be promoted through demonstration projects and economic incentives, such as soft loans and tax releases.

The first wind power plants in Serbia are currently under construction. According to the ESIP 2007–2012, the potential for wind power plants is around 0.19 Mtoe (2.2 TWh, 7,955 TJ). These estimates are based on long term measurements, conducted by the existing meteorological stations, placed at 10 m high. But to obtain a more reliable estimate of the potential will require measurements at higher altitudes. Favourable regions in Serbia with wind velocities between 4 and 6 m/s include eastern Serbia, the Pannonian plain north of the Danube and some locations in mountainous areas. More research into the potential of wind power in Serbia is necessary, along with analyses at a regional level to identify suitable locations and technical possibilities for the construction of wind generators.

Figure 7.1: Share of renewable energy sources in electricity production



Source: Republic Statistical Office. Energy balance of electricity and heat 2004, 2005, working document. Belgrade, 2006.

7.3 Relevant policy objectives and responses

Legal framework

Since the first Environmental Performance Review, the legislation, strategies and institutions in the energy sector have been thoroughly overhauled.

The *Law on Energy* entered into force in 2004. It is based on principles such as ensuring an energy supply taking into account environmental protection and sustainable development. Improving energy efficiency, liberalizing the energy market, and promoting renewable energy sources and CHP plants are additional objectives. The Law provides a framework for the development of the energy sector and for the establishment of the EA and the SEEA. It regulates the generation, transmission, distribution and supply of electricity; the organization and functioning of the electricity market; the transportation, distribution, storage, trade and supply of petroleum products and gas; and the production and distribution of heat.

Secondary legislation is, however, still incomplete. The only measures which have been implemented are regulations for delivery of natural gas and electricity, the unbundling of transmission and production of electricity and the rules for issuing energy permits and licenses, as well as methodologies for setting energy prices.

The new legal framework for environmental protection (see chapter 1) adopted in 2004 has evident relevance for the energy sector as well as the draft *Law on Air Protection*, which is awaiting adoption by the National Assembly. The existing emission regulations are not yet harmonized with the EU regulations[11].

The Law on ratification of Kyoto Protocol is in the Parliament for adoption. Serbia will ratify the Protocol as non-Annex 1 country, i.e. it will not have to meet a greenhouse gas emission target, but will be eligible for emission reduction projects under the Clean Development Mechanism of the Protocol. This should provide opportunities to fostering greater use of renewable energy sources and increasing energy efficiency. Participation in the CDM will require setting up an adequate regulatory and institutional framework and developing a national strategy for implementation of CDM projects in the energy sector (see chapter 3).

Policy objectives and responses

The *Energy Sector Development Strategy of the Republic of Serbia by 2015* was developed by the Ministry of Mining and Energy (MoME) and adopted by the Government in 2005. It outlines long-term development objectives and contains investment plans and projections for energy consumption under different economic development scenarios.

Main priorities for the coming years include the technological modernization of the sector, the increase of energy efficiency in production, distribution and consumption, and the increased use of renewable energy sources. Further long-term priorities are investments in new gas technologies, and the construction of new energy infrastructure facilities, including electric and thermal power plants.

The estimated investments to achieve these objectives till 2015 amount to some US$ 7.7 billion, of which US$ 6.4 billion for technological modernization of mainly oil and coal sector, US$ 950 million for improving energy efficiency (mainly of the gas sector and district heating) and US$ 357 million for promotion of renewable energy (biomass and hydropower) and modernization of district heating. Although all these measures should lead to reduced environmental impacts, this aspect is not taken up in the *Energy Sector Development Strategy*.

[11] EPR interim report on fulfilment of the recommendations of Environmental Performance Review 2002

Though the objective is to increase the use of renewable energy, projections are for its share in growing primary energy consumption to decline from 7.5 per cent in 2002 to 6.7 per cent in 2015. The potential for renewable energy other than hydropower projected to be in place in 2015 is 8 PJ. Energy efficiency measures are supposed to reduce the electricity consumption of the household sector by 3.7 TWh per annum under favourable economic development conditions. The projections assume rising per capita electricity consumption by the household sector until 2015, though the average electricity consumption of Serbia's households is already higher than that of many other countries of South-Eastern Europe (SEE).

The National Action Plan for Gasification of 2005 specifies the above-mentioned general goals of the *Energy Sector Development Strategy* for the gas sector. A key objective is to decrease the electricity demand for heating in the household sector by 2,300 GWh by 2015 by increasing the share of gas heating. The most important capital investment in the natural gas sector is the construction of a major gas pipeline between Niš (Serbia) and Dimitrovgrad (Bulgaria), which will connect the Serbian and Bulgarian gas pipeline systems.

In line with the *Energy Law* and the Strategy, the MoME prepared the ESIP 2007–2012, which was adopted by the government in January 2007. This Programme defines conditions, methods and time schedule for the implementation of the Strategy in all the major parts of the energy sector. Since 2002, SEEA has developed strategic programmes for improving energy efficiency in industry, buildings and the municipal sector as well as for promoting CHP and renewable energy sources. Programmes for energy efficiency in district heating and in the transport sector have not been prepared yet. So far, there is no action plan on energy efficiency, but a national energy efficiency strategy is being prepared.

Several other strategies under preparation will be of relevance for the energy sector (*Strategy for Sustainable Development, National Strategy for Sustainable Use of Natural Resources and Goods*, *Strategy for Introducing Cleaner Production*) in addition to the NES, mentioning the protection of soil, water, air and sustainable energy management. The NES plans in the short term to direct investments chiefly to environmental hot spots defined as high-priority. Among them is to abate air pollution from large industries and power plants and to ensure adequate management of ash deposits from power plants.

The NES projects that one third (i.e. some €1.2 billion) of total environmental protection expenditures required over the medium term will be in the energy sector. The total investment expenditures of the energy sector necessary to reach compliance with the EU *Large Combustion Plants (LCP) Directive 2001/80/EC* is estimated to amount to nearly €800 million during the coming decade.

Serbia has played an active role in the establishment of the *Energy Community Treaty* (signed in 2005) with eight other partners in SEE and the EU, aiming at the creation of an integrated energy market for electricity and gas with the EU. The obligations of linking environmental and energy issues that result from the treaty, include the implementation of several European Directives, for example the *reduction of sulphur content in liquid fuels* (1999/32/EC), the *limitation of air emissions from combustion plants* (2001/80/EC), and the implementation of two EU directives designed to promote renewable energy sources (2001/77/EC and 2003/30/EC).

Institutional framework

The institutional framework for energy policymaking has much improved since the country was first reviewed in 2002. The national Energy Agency (EA) was established in 2005 as a regulatory authority with its main tasks being energy market development, monitoring the implementation of regulations and harmonization activities of energy entities as regards the regular supply of energy and related services to customers. The EA has elaborated all the relevant tariff systems envisaged by the *Law on Energy*, with the exception of the tariff system natural gas storage and operation, which were approved by the Government.

The EA has also developed *methodologies for determining the costs of connection to and use of the energy transmission, transportation and distribution system with the exception of the connection to the natural gas transportation and distribution system*.

The national utility EPS is still in charge of the production, distribution and sales of electricity, while the newly established Electric Power Network Serbia (Elektromreža Srbije, or EMS) is in charge of the power transmission system operation, grid management and market operation since 2005. EPS is organized as a holding company with 11 subsidiaries (five electricity production companies, five distribution companies and one open pit mining company) and three public enterprises on Kosovo and Metohija. EPS has no management control over the facilities on the territory of Kosovo and Metohija.

Though electricity production is, in principle, open to competition, EPS produces almost 95 per cent of the electricity used in Serbia, i.e. it has virtually a monopolistic position. A long period of price controls entailed that EPS incurred significant losses, with the consequence of insufficient funds for maintenance, modernization and building of new capacity. Strategic partnerships with domestic and foreign investors are likely required to ensure future security of supply.

The SEEA started work in 2002 and is responsible for the development of programmes aiming at improving energy efficiency and energy saving as well as for the promotion of renewable energy sources. Its work is supported by five Regional Energy Efficiency Centers, which, as independent units at Serbian universities, are linked together in the Serbian Energy Efficiency Network. Their main tasks are developing energy efficiency projects, supporting the transfer of innovative technologies, and providing consulting services to industry and households.

The SEEA has been working on pilot projects in the area of energy efficiency and has organized training programmes, conferences and campaigns to raise awareness for energy savings. Pilot projects have been mainly funded by international donors. Within the Energy Efficiency Project, energy efficiency measures are expected to significantly reduce the energy consumption of 100 social public buildings between 2005 and 2010, with the SEEA providing technical support.

In spite of all these steps forward, institutional capacities in the energy sector are still weak. Especially, the number of qualified staff is very limited and needs to be increased in the MoME and the SEEA.

Energy pricing

Domestic prices of crude oil, oil derivatives and gas are now fluctuating in line with world market prices and exchange rate developments. Final energy prices of most sectors are fixed by the Government and are below the cost-recovery level. It is expected that in the near future (possibly in the course of 2007) prices for tariff customers are calculated by the energy entities according to the methodologies issued by the SEA, but government approval of prices will still be required.

Electricity prices in Serbia have increased significantly since 2000, albeit from a very low level (see Figure 7.2). After the last price increase in April 2006, the average prices of 0.037 €/kWh for residential consumption and 0.035 €/kWh for industry are still below the cost recovery level. Tariff reforms are a very important precondition for further development of the domestic energy market and integration in the European energy market.

Serbian electricity prices for industry are among the lowest in the region, even compared to those in Montenegro and The former Yugoslav Republic of Macedonia, which have average prices of around 0.045 €/kWh and 0.056 €/kWh respectively.

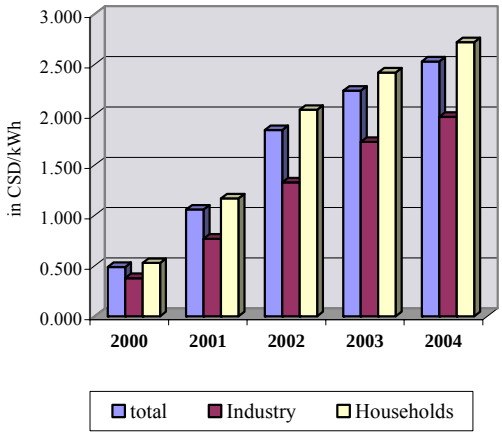
In 2001, EPS introduced a three-tier block tariff system for household energy prices with the aims of offering incentives for efficient use, discouraging electricity use for heating, and guaranteeing an affordable energy supply for poor people. This tariff system distinguishes three blocks with different consumption levels and with rising electricity prices per kWh from the lowest consumption range to the highest (Table 7.5). The consumption limits for each of the blocks are based on economic considerations of production costs. Until 2005, the lowest consumption level was quite high, at 600 kWh/month, and 70 per cent of the households fell into this tariff block. In 2006, the consumption level for the low consumption block was lowered to 350 kWh/month, which is now close to the average electricity consumption of Serbian households.

This reduced consumption level in the lowest block provides more incentives for saving electricity. For district heating, the situation is more complex as final decisions regarding prices are made by local governments. The prices have, however, risen considerably. In Obrenovac, they rose from 0.049 €/m^2 in 2001 to 0.37 €/m^2 in 2006[12]. Currently, prices in Serbia average 0.35 €/m² of living space per month, but this is still not cost reflective. Heat prices for households are lower than those to be paid by social institutions and industry.

Given that the price for heat is not based on measured consumption but on the size of the flat, consumers have no incentive to reduce energy consumption since they do not benefit from saving heat energy by changing behaviour or investing in insulation measures. Furthermore, there are in general no thermostatic valves for the regulation of heat supply.

[12] Information provided by EPS Serbia.

Figure 7.2: Average electricity prices, 2000–2004



Source: EPS, Electric Power Industry of Serbia, 2004.

The absence of meters is an obstacle to switching to a consumption-based tariff system and monitoring energy savings. In a pilot project, the Belgrade district heating company installed meters and thermostatic valves in a number of flats. Simply explaining to inhabitants how to heat in a rational and energy-saving way caused heat demand to drop 15 per cent without any financial incentive, as heating prices were still based on dwelling size, and without any insulation measures at the building level. A small community in Vojvodina has started to introduce heat prices based on actual heat consumption instead of dwelling size. Results on the effectiveness of the new system are not yet available, but this will be a valuable example for other communities.

As in many other transition countries, the setting of energy prices is of great interest from a social point of view. Comparisons with other transition countries show that households in the State Union of Serbia and Montenegro had above-average heating expenditures (Table 7.6).

Poor households spend a considerably greater part of their income on electricity and heating compared to average income households. For Serbia, cost-covering prices would mean greatly increased electricity and heating expenditures that would especially affect poor households. The existing block tariff system is a useful instrument for mitigating the social consequences of economically badly needed tariff reforms, though it is based on economic calculations rather than social concerns.

Table 7.5: Block tariff for residential electricity consumption

	2003	% of households 2003	Av. electricity price in 2004 in €/kWh (excl. tax)	2006	% of households 2006	Av. electricity price in 2006 in €/kWh (excl. tax)
Green zone	< 600kWh/month	70%	0.022	< 350kWh/month	60%	0.033
Blue zone	601 - 1,600kWh/month	22%	0.032	350 - 1,600kWh/month	38%	0.043
Red zone	>1,601 kWh/month	4%	0.076	>1,601 kWh/month	2%	0.079

Source: EPS, Electric Power Industry of Serbia. Tariff System. 2003, 2006.

Development of projects for improving energy efficiency

The potential to increase energy efficiency for Serbia appears to be enormous, but in the absence of a comprehensive study the magnitude of potential energy savings and the costs for achieving them are impossible to gauge. The SEEA estimates that energy consumption could be reduced more than 50 per cent, but this is based on the experience from several pilot projects and should therefore be considered as a rough estimate only.

A major sector for reducing energy use is that of residential, administrative and commercial buildings, where a current general feature is inefficient heat consumption. Improved insulation of buildings is an essential precondition to save energy. Metering, valves and a new price system are other prerequisites, as is reducing the share of households using electricity for heating.

Efficiency standards for new buildings or the renovation of buildings do not exist in Serbia, and it seems there are no activities for implementing the EU *Energy Performance of Buildings Directive* 2002/91/EC. To reduce electricity consumption for heating, funding programmes for installation of gas heaters (e.g. based on bottled natural gas) for households not connected to gas or district heating could be introduced.

There is also great potential for improving energy efficiency is also given in the industry sector. Energy efficiency in Serbian industry is one third than the world average. According to the SEEA, Serbian industry could save €70 million a year by increasing energy efficiency by 10 per cent. This suggests that investment expenditures designed to increase energy efficiency in the industry sector could be recovered relatively quickly.

Energy audits have shown the high energy use per unit of product in Serbian food factories compared to that in other countries. The importance of more efficient energy use in industry for the competitiveness of Serbian industry is growing to the extent that energy prices will have to be increasingly cost-reflective.

Economic incentives for improving energy efficiency will remain low as long as energy prices are subsidized. Energy performance contracting is another interesting instrument to finance energy efficiency measures (see Box 7.2) in the presence of tight budgets of energy users, but it also requires cost-reflective energy prices to create adequate incentives for energy saving measures.

The ESIP 2007–2012 recognizes the importance of improving energy efficiency in Serbia. It points out the need of a law on energy efficiency, which would not only create obligations for energy savings but also establish the legal framework for energy efficiency management and the introduction of EU energy efficiency directives. Some of the measures identified in ESIP are:

- Development of reliable energy statistic and energy indicators as instruments for monitoring energy efficiency measures;
- Establishment of a network of energy managers at the level of municipal administration, who will be in charge of energy planning and energy efficiency;
- Establishment of energy management systems in industry;
- Introduction of energy audits in industry and building sector as regular activity;
- Provision of financial and other incentives for the companies implementing energy efficiency projects;
- Introduction of a "Green public procurement" principle;
- Further cooperation with international financial institutions with the aim to provide favourable credit lines for financing energy efficiency measures;

- Capacity-building of local banks to provide loans for projects in the field of rational use of energy;
- Creation of a legal framework for energy service companies; and
- Organization of public awareness campaigns and educational measures concerning energy efficiency.

The promotion of the use of renewable energy as a national development priority is included in a number of national regulations, programmes and strategies, such as the 2004 *Law on Energy*, the 2005 *Energy Development Strategy for 2015*, the ESIP 2007-2012 and the *National Strategy of Serbia within the accession of Serbia and Montenegro to the European Union*.

In promoting an increasing use of renewable energy Serbia strives to mitigate the negative environmental impacts associated with the use of fossil fuels and to reduce its dependency on fuel imports and stimulate local economic development. The promotion of renewable energy also aims to encourage private investment in the energy sector and to strengthen competitiveness, both in the energy sector and in the economy in general. The *Law on Energy* provides a legal framework for increasing the share of renewable energy sources and improving energy efficiency. *Developing renewable energy projects*

According to the Law, producers who use renewable energy sources or waste and those who simultaneously generate electrical power and heat are called respectively "privileged electrical power producers" and "privileged heat producers", and are to enjoy priority treatment, inter alia, on the power market in terms of subsidies and tax relief. However the conditions for gaining the status of privileged electricity producer and the conditions for their support have not yet been established.

According to the *Methodology for determining the tariff elements for calculating transmission fees* (OG RS No. 68/2006) and the *Tariff System for access to and use of the electricity transmission system* (OG RS No. 1/2007), all producers of electricity based on renewable energy sources have been exempted from the obligation to pay transmission fees. There are no exceptions as to the obligation to pay connection fees in accordance with the *Methodology on the criteria and manner of determining fees for connection to the transmission and distribution grid* (OG RS No. 60/2006, 79/2006 and 114/2006)

But the most important part of the secondary legal framework and regulations for privileged power producers has not yet been established. A system for promoting the production of electricity from renewable sources has not yet been decided on, but it seems that a feed-in[13] tariff is favoured over a quota system. Regulations to guarantee the priority of feed-in of renewable electricity in the grid do not exist. These unsettled framework conditions discourage investment in renewable energy projects. A similar situation concerns the promotion of CHP plants, which are much more effective in producing electricity and heat than existing thermal power plants and district heating plants.

Furthermore, the procedure of getting a licence and permit for the installation of renewable energy facilities is very complex and time-consuming. For instance, the licensing procedure for small hydropower plants requires more than 10 separate applications to different institutions. This complicated procedure discourages investments and hamper the development of renewable energy sources.

The SEEA is working on a few feasibility studies and pilot projects for renewable energy sources, which are funded by international donors or programmes. Two different pilot projects have been implemented thus far: the construction of a small hydropower plant with total capacity of 80 kW and the replacement of liquid fuel heating boilers in public buildings by biomass boilers with a total capacity of 5 MW. There are feasibility studies that elaborate the use of solar energy for water heating and the use of biomass and geothermal energy as well as the construction of a small hydropower plant. However, staff capacity for the preparation of projects and support during implementation is very limited. As noted above, another funding instrument for projects promoting renewable energy and energy efficiency could be the Clean Development Mechanism (CDM) once Serbia has ratified the *Kyoto Protocol*. Foreign and domestic investors can carry out projects in Serbia to reduce greenhouse gas emissions.

An important point for foreign investors is the anticipated benefit in terms of certified emission reduction, which depends on the potential emission reduction from a particular project and has to be calculated on a project basis. As Serbia has a national emission factor for electricity (estimated at 1.2 kg CO_2/MWh) which is rather high, investments in renewable energy and other projects to reduce

[13] Price per unit of electricity that a utility or supplier has to pay for renewable electricity from private generators.

Table 7.6: Affordability of electricity and heat expenditures for households (as per cent of total household expenditure)

	Average household		Poor household*		Poor households in 2010**	
	Electricity	Heating	Electricity	Heating	Electricity	Heating
Serbia and Montenegro	5.5	4.6	7.2	10.0	14.5	32.3
South-Eastern Europe	5.2	1.6	8.3	1.9	10.0	7.2
CEE and Baltic states	3.8	3.7	6.5	5.7	4.7	5.6
CIS	2.3	1.4	4.1	1.5	5.2	7.4

Source: EBRD Working Paper No. 92. May 2005.
Notes:
* Expressed as lowest income decile, i.e. poorest 10 per cent of population.
** Projections; affordability at full cost recovery.

Box 7.2: Energy performance contracting – a financing instrument for energy efficiency

Due to obsolete or inefficient energy systems and equipment in buildings and in industry, energy consumption and therefore energy costs are often significantly higher than they need to be. Energy performance contracting (EPC) is an increasingly common way to improve energy efficiency when investment costs and lack of necessary expertise are obstacles to identification and implementation of measures to reduce energy consumption. Under a performance contract, an energy service company agrees to implement and finance measures designed to improve efficiency of energy use in exchange for a share in the resulting savings of energy costs over an agreed period of time (usually five to 10 years). A key element of EPC is that the energy service company, by financing the project costs from energy savings, guarantees the performance of the installation and takes the investment risk away from the energy user. EPC is commonly used for public buildings (e.g. schools), but can also be used for privately owned buildings or in industry.

Experiences with EPC in Eastern Europe (e.g. in the Czech Republic and Romania) show that this instrument works well, but that it requires good preparation in terms of the introduction of the instrument and the adaptation of framework conditions. An energy audit, comparisons of alternative ways for energy savings and measurement and verification procedures regarding energy savings are essential for ensuring the success of projects.

electricity consumption may be quite attractive for foreign companies located in countries with greenhouse gas emission reduction targets under the Protocol.

The Government has decided that the implementation of any CDM projects in the energy sector should take place within the framework of a strategy (still to be developed) addressing issues related to energy efficiency, renewable energy sources, fuel switching and CHP. The Government of Norway has provided financial funds to support development of the *Energy Sector CDM Strategy*. The project is in an early phase of preparation. However, it is expected that it will be finalized by the end of 2007, which will coincide with the establishment of the Designated National Authority.

7.4 Conclusions and recommendations

Serbia's energy supply and especially its electricity supply are based largely on use of lignite and brown coal. Open-pit mines and coal-fired thermal power plants have considerable environmental impacts. High emissions of carbon dioxide from burning lignite are an increasing matter of concern, given their contribution to climate change, which is likely the most serious global environmental problem in the future.

Even though the *Serbian Energy Sector Development Strategy* is primarily based on the utilization of lignite for electricity production as this is the major domestic energy carrier, the Strategy has also recognized among its top priorities the need to increase energy efficiency in both the production and consumption sectors in order to promote a wider use of renewable energy sources and to reduce harmful emissions. Within the Strategy, these priorities are seen as necessary conditions for achieving a better balance between the energy sector and environmental priorities, which is essential for ensuring sustainable development. The ESIP 2007–2012 defines various legal, organizational, technical and other measures and activities that should be implemented to promote energy efficiency and could help decouple economic growth from environmental pressures. The main challenge of the Government at this time is the implementation of ESIP 2007–2012.

Recommendation 7.1:
To reduce the impact of energy production and consumption on the environment, the Government should:

(a) Ensure fuel switching from the utilization of electricity for space heating to the use of natural gas or connection to district heating systems;
(b) Increase energy efficiency to reduce electricity and heat demand; and
(c) Significantly increase the share of renewable energy sources in primary energy production by 2015.

Prices for energy in Serbia are not yet at cost-recovery levels, especially for electricity and heat. As a consequence, necessary investments in modernization and abatement technology have been postponed and delayed, as the companies producing electricity and heat do not have sufficient financial resources. Equally important is the fact that because of the low prices, incentives to reduce energy consumption in State-owned and private industry are lacking. Furthermore, low electricity prices make the construction of new electricity production facilities based on renewable energy and CHP unprofitable, and discourage private investors.

Therefore, the responsible institutions should take into account the main goal for pricing policies, which should be to raise prices to levels that are cost reflective in order to spur economical use of energy, to induce energy savings, to reduce reliance on energy imports and fiscal deficits resulting from subsidies, and to allow for the generation of funds for urgently needed investments in maintenance and modernization of existing obsolete or aged equipment. At the same time, well-targeted social measures should be implemented to ensure affordability of adequate energy supply for poor households.

Recommendation 7.2:
The Government, in cooperation with the Energy Agency, should:
(a) Stop subsidizing the energy sector; in particular, it should make electricity prices fully reflective of costs, including the costs of production, grid operation and measures to reduce environmental impacts;
(b) Introduce cost-reflective prices for district heating in cooperation with responsible local authorities. The installation of a metering system should be proposed to allow a switch from area-based to consumption-based pricing as soon as possible. Measures to enlarge or overhaul the network should always include the installation of a metering system;and
(c) Develop special social measures to support vulnerable users.

One of the main characteristics of the Serbian energy sector is its low efficiency in both energy production and consumption. Improved energy efficiency would also reduce production costs, raise productivity and increase international competitiveness. Efforts in recent years to increase energy efficiency have not been sufficient. One of the most important unsolved problems is to reduce high energy consumption for heating purposes by households and the public sector. Necessary measures include the modernization of heating systems, the improved insulation of buildings, and the reduction of electricity use for heating purposes. The latter is also necessary to change the unfavorable electricity consumption pattern during winter.

As regards buildings, it is necessary to introduce limit values for energy consumption both for new buildings and for renovations of existing ones. The EU *Directive on the energy performance of buildings* (2002/91 EC) could be used as a guide for developing corresponding standards. The public should be informed of the economic benefits of reduced fuel and electricity consumption, of existing technologies for achieving this, and of fiscal incentives from which they could benefit. The results of pilot projects in all sectors should be widely publicized.

Recommendation 7.3:
The Government, in cooperation with the relevant ministries and agencies, should:
(a) Establish an energy efficiency fund as soon as possible for financing measures to improve energy efficiency in industry and households. The fund should be fed with a tax on electricity consumption by industrial customers, and be supplemented by international funding and other funding sources. Companies implementing an energy audit and energy-saving measures could be exempted from this tax;
(b) Introduce energy consumption standards for the construction of new buildings and the renovation of existing buildings;and
(c) Introduce a funding programme to promote insulation measures for residential and public buildings (e.g. soft loans and tax rebates) and to connect flats and buildings to district heating or to the gas grid.

Recommendation 7.4:
The Energy Efficiency Agency and the Regional Energy Efficiency Centres should continue and intensify awareness- and capacity-building regarding energy efficiency measures. Public awareness

campaigns should show the economic and ecological benefits of reduced fuel consumption.

Renewable energy sources and modern combined heat and power plants could contribute much more to security of energy supply in Serbia than they do today. The *Law on Energy* has introduced a legal framework for promotion of renewable energy sources and CHP, but it is necessary to develop relevant secondary legislation and to introduce incentive mechanisms for privileged energy producers in the forthcoming period as well as to raise energy prices. The rather complex licencing procedures for construction of new energy production facilities are another obstacle for wider use of renewable energy sources. These procedures should be gradually improved through amendments of the existing and development of a new regulation. Upon ratification of the *Kyoto Protocol,* efforts should be made to benefit from projects for reducing greenhouse gas emissions under CDM, thereby promoting the achievement of policy objectives related to renewable energy, energy efficiency, CHP, fuel switching and environmental protection.

Recommendation 7.5:
To stimulate both the production and consumption of renewable energy, the Ministry of Mining and Energy should:

(a) Introduce as soon as possible implementing regulations for the Law on Energy to promote electricity and heat production from renewable energies;
(b) Introduce economic incentives, e.g. a feed-in tariff, for electricity produced from renewable energy sources;
(c) Simplify the complex licence procedures for facilities based on renewable energy and establish a one-stop shop to prepare renewable energy projects and offer support to possible investors during the licensing procedure;
(d) Engage itself, in cooperation with other competent ministries and industry representatives, in developing a range of investment projects in the energy, waste, forestry and agricultural sectors which reduce greenhouse gas emissions or enhance sequestration and which are therefore eligible for financial funding from the Clean Development Mechanisms after the Kyoto Protocol has been ratified; and
(e) Designate a body for implementing Clean Development Mechanism projects and entrust it with preparing ready-to-offer projects to investors.

Serbia's energy sector is still responsible for considerable environmental pollution, though the modernization of production technologies and the installation of emissions reduction technology in thermal power plants have started. An important incentive for the sector to reduce air, water and waste pollution would be the implementation of meaningful pollution charges and fines as stipulated in the *Law on Environmental Protection*. Both should be adjusted to changing economic circumstances and enforced. As in some cases it may not be cost-effective to modernize old facilities, a comprehensive cost analysis for smaller thermal power plants would help determine whether investments to meet environmental standards should be directed to replacement by biomass or gas-fired cogeneration plants rather than refitting of the old plants.

Recommendation 7.6:
The Government should develop measures to further reduce environmental impacts from thermal power plants and refineries on air, soil, ground and surface waters, as well as health impacts on human beings, by introducing best available techniques and abatement technologies, and should find ways to safely dispose of ash deposits.

ANNEXES

Annex I: Implementation of the recommendations in the first review held in 2002

Annex II: Selected regional and global environmental agreements

Annex III: Selected economic and environmental indicators

Annex IV: List of national environment-related legislation

Annex I

IMPLEMENTATION OF THE RECOMMENDATIONS IN THE FIRST REVIEW HELD IN 2002

PART I: THE FRAMEWORK FOR ENVIRONMENTAL POLICY AND MANAGEMENT

CHAPTER 1: Decision-making framework for environmental protection

Recommendation 1.1:
The Federal Government of Yugoslavia, in cooperation with the Serbian Ministry for Protection of Natural Resources and Environment,
(a) Should take advantage of their constitutional reviews and the framework agreement with the EU to harmonize all legal instruments concerning the protection of the environment and the management of natural resources; and
(b) Should establish a mechanism to coordinate the process of approximation to EU legislation.

Implementation:
(a) The 2006 *Constitution of the Republic of Serbia* stipulates the right to a healthy environment and the duty of the citizens to protect and enhance the environment. The legal and institutional framework is founded on these bases. Also, the Republic of Serbia prescribes and provides the systems for environmental protection and enhancement and for the protection and enhancement of flora and fauna by adopting laws which enable sustainable management and protection of natural values, improve the environment, and provide a healthy environment. The obligation to harmonize the legal framework with the EU *acquis communautaire* was first mentioned in the *Resolution on Accession to the EU*, adopted by the National Assembly on 13 October 2004. This document stipulates that the legal harmonization has priority in the work of the Parliament, accompanied by special procedures to increase its efficiency.

(b) In July 2003, the Serbian Government adopted the first *Action Plan for the Approximation of Domestic Laws with the Acquis Communautaire.* Since then, the *Action Plan* has been annually updated and adopted. The introduction of the Approximation Statement does not imply obligatory approximation with the EU legislation; there is a possibility of postponing the approximation in case technical and economic conditions are not fulfilled. A draft law, other regulation or general legal act not accompanied by the Statement is returned to the public institution or organization that proposed it for finishing touches. The procedure for adoption of draft law by Government of Serbia stipulates that the ministry that prepared the draft has to submit it to other relevant ministries and State bodies to obtain their opinions. It is mandatory to submit draft laws to the Serbian European Integration Office, which gives its opinion on the level of harmonization needed with EU legislation. Assistance in harmonization is also obtained through various capacity-building and technical assistance projects, such as CARDS capacity-building projects, TAIEX[1] assistance, or the REReP projects.

Recommendation 1.2:
Serbia's Ministry for Protection of Natural Resources and Environment should implement the Agreement[2] that they reached on 12 July 2002 on cooperation on environmental protection. Implementation should be consistent with the new constitutional charter and in cooperation with the relevant Yugoslav Ministry.

[1] TAIEX is the Technical Assistance and Information Exchange Instrument of the Institution Building unit of Directorate-General Enlargement of the European Commission.
[2] Agreement on Principles of Relations between Serbia and Montenegro

Implementation:
Before 2006, the two republics tried with some success to implement this Agreement. After the split of the State Union of Serbia and Montenegro in 2006, Serbia took by succession all international environmental agreements except those which specifically related to Montenegro.

Recommendation 1.3:
Based on the 2001 State-of-the-Environment report, the Ministry for Protection of Natural Resources and Environment should further develop an environmental policy, to be approved by the Government, to set clear and achievable goals and objectives. This environmental policy should be implemented through an action plan clearly specifying the responsible actors and the required actions, in a realistic time frame and outlining the means of finance.

Implementation:
According to the 2004 *Law on Environmental Protection*, the management of environmental protection shall be secured and implemented through a national environmental protection programme (NEPP), also called the National Environmental Strategy, to be adopted by the National Assembly for a period of 10 years. It shall provide for integrated environmental protection, and contain in particular:

- A description and rating of environmental status;
- Basic objectives and criteria for the implementation of environmental protection in general, in areas and spatial regions with priority measures of protection;
- Conditions for implementation of the most favourable economic, technical, technological and other measures for sustainable development and environmental protection;
- Long-term and short-term measures for the prevention, mitigation and control of pollution;
- The responsible actors and time frame; and
- Funds for implementation.

NEPP would be implemented through action plans that have to be adopted by the Government for a period of five years. In May 2006, the *National Environmental Strategy* prepared by the Ministry for Science and Environmental Protection was approved by the Government. It is now in parliamentary procedure for adoption.

Recommendation 1.4:
(a) The National Assembly should adopt the draft law on the environmental protection system at its earliest opportunity; and
(b) The Ministry for Protection of Natural Resources and Environment should prioritize compliance and enforcement by providing appropriate training in inspection, equipment and human resources to its inspectorate. The Government should allocate sufficient funds for this purpose; in addition, twinning arrangements could be sought with other countries.

Implementation:
(a) The new legal framework for environmental protection was adopted in 2004 by the *Law on Environmental Protection*, the *Law on Strategic Environmental Assessment,* the *Law on Environmental Impact Assessment* and the *Law on Integrated Prevention and Pollution Control,* which are fully harmonized with the respective EU Directives. The most significant issues covered by the *Law on Environmental Protection* include: fundamental principles of environmental protection, management and protection of natural resources; measures and conditions of environmental protection; environmental programmes and plans; industrial accidents; public participation; monitoring and information systems; clearly identified competences of the Environmental Protection Agency; reporting; financing environmental protection; liability for environmental pollution; inspection services; and fines. See list in annex IV.

(b) Since 2003, border inspection competences have been transferred to the republican level. There are two competent authorities for environmental inspection: the environmental inspectorate for air, noise, ionizing radiation, chemicals, protected areas, flora and fauna, waste industrial activities and fishing; and the ecological inspection on borders for transboundary movement of wastes, endangered species of wild flora and fauna, radioactive materials, chemicals, and substances which deplete the ozone layer. The staffs and budget of the environmental inspectorate have increased and the equipment has been modernized

(especially mobile monitoring equipment, computers and vehicles). Intensive training for inspectors – including preparation of the *Inspector's Handbook*, training in industrial processes, use of monitoring equipment, monitoring techniques and data analysis – has rapidly increased.

Recommendation 1.5:
The Ministry for Protection of Natural Resources and Environment should require a compliance plan from pre-1992 polluting industries. It should be based on environmental audits done by the enterprises. As a result, the Ministry for Protection of Natural Resources and Environment should issue environmental permits taking into account the compliance plan, stipulating a time frame and the measures required to comply with existing standards and norms.

Implementation:
The system of integrated permitting shall be implemented according to the 2004 *Law on Integrated Prevention and Pollution Control* (IPPC). For new installations, the law becomes applicable as of the time of its coming into effect. For the existing installations subject to IPPC, the Government shall adopt a programme of harmonization with the law on IPPC by 2015.

CHAPTER 2: Economic instruments and financing

Recommendation 2.1:
The Ministry for Protection of Natural Resources and Environment should:
(a) Together with the Ministry of Finance and the Economy, increase the use of economic instruments for environmental protection, specifically emission charges and product charges;
(b) Give more emphasis to the application of economic instruments in order to increase their use and effectiveness. A programme for the systematic monitoring and evaluation of existing economic instruments should be launched; and
(c) Start drafting by-laws to apply the polluter and user pays principles and economic instruments.

Implementation:
(a) Since 2004, a set of economic instruments has been introduced (e.g. natural resources charges, polluter charges, charges at local level, environmental protection fund, and economic incentives) by the adoption of the Law on Environmental Protection (LEP). Implementation of these instruments will ensure the application of the polluter pays and user pays principles in line with EU requirements.
(b) New polluter charges entered into force on 28 December 2005 and have applied since 1 January 2006. They cover pollution charges defined according to the types of pollution from certain sources (e.g. air emissions, generation and disposal of waste, ozone-depleting substances, and motor vehicles). At this stage of implementation, polluter charges have only been addressed to large polluters (IPPC installations). A further step is to gradually widen the scope to medium and small polluters. Product charges are covered in the LEP and have to be developed through by-laws. The Environmental Protection Fund established by the LEP has submitted to the Ministry its annual report on achievements under its work programme for the period 2006-2007. A first systematic evaluation of existing economic instruments is under way. Existing charges for the use and trade of wild flora and fauna were readjusted in April 2005.
(c) To develop economic instruments as provided for in the LEP, the Government adopted new by-laws in 2005 regarding natural resources and polluter charges (e.g. charges on the use and trade of wild flora and fauna, and polluter charges defining the type of pollution and polluters, criteria for calculating charges, and the amount and manner of calculation and payment of charges). By-laws also cover criteria and conditions for refund, waiver and reduction of environmental pollution charges.

Recommendation 2.2:
The Government should give municipalities and public enterprises the possibility of setting their own tariffs for municipal services in order to operate on a full cost-recovery basis. Tariffs should be gradually increased to consumer affordability levels, with the possibility of subsidies for lower-income groups.

Implementation:
Municipalities have the scope to set tariffs for local utility services based on recommendations from the public utilities companies. Charges for waste and water services have increased, but in general revenues are insufficient for full cost recovery.

Recommendation 2.3:
The Ministry of Finance and the Economy should increase the efficiency of collection and enforcement procedures by setting higher non-compliance fines.

Implementation:
Although environmental non-compliance fines are included in the general State budget, they are not earmarked for environmental expenditures. Nevertheless, non-compliance fees are still insufficient to influence the behaviour of polluters vis-à-vis environmental protection.

Recommendation 2.4:
As soon as the law on the environmental protection system has been adopted, the Government of Serbia should take the necessary steps to establish and implement an environmental budgetary fund to channel financing for environmental purposes. Its statutes, structure, and management and operational procedures should be set out in an additional regulation. The fund should aim at generating funds from national and international sources, and not simply be a disbursing mechanism, but also take into account the environmental objectives targeted by economic instruments.

Implementation:
The Environmental Fund was established in May 2005 and has been operational since that time. Its 2005 Statute stipulates its activities, structure, management and operational procedures. Its aim is to provide financial facilities and resources to support and improve environmental protection in the country. In its work, especially in the planning and utilization of finances, the Fund follows international standards of good practice, for example involving public in its work and decision-making.

CHAPTER 3: Information, public participation and awareness-raising

Recommendation 3.1:
The Federal Secretariat for Labour, Health and Social Care, Serbia's Ministry for Protection of Natural Resources and Environment should continue providing support for the establishment of environmental NGO networks and provide NGOs with access to accurate environmental information and the opportunity to participate in environmental decision-making.

Implementation:
Some progress has been made in this area. The Directorate for Environmental Protection (DEP) within the MSEP cooperates with NGO Networks. Continued and targeted DEP support to NGOs is needed for establishing a diverse and strong complement of experts on the NGO side. REC is building a database of Serbian NGOs.

Regular meetings with representatives of NGO are conducted on the premises of the DEP. Key policy documents and draft regulations are sent to NGOs for comment. NGOs do respond to proposals, but are not informed about how their comments are taken in account. Financing, aimed to support NGOs projects from the State budget, is scattered among many NGOs; thus very little is provided for a single project, which quite often does not allow for the completion of the project.

Recommendation 3.2:
The Government of Serbia, through its Ministry for Protection of Natural Resources and Environment should provide the resources to update monitoring facilities for carrying out a comprehensive and systematic monitoring of the state of the environment. (See recommendation 6.4)

Implementation:

Limited progress has been made in this area. Environmental monitoring regulated by the LEP defines the scope and means of performing monitoring and the responsibilities of institutions. It also stipulates that environmental monitoring has to be an integral part of national information system. Its scope is not clearly defined – "monitoring of natural factors" is a term not defined in the law – but also includes transboundary monitoring requirements and obligations for monitoring from international agreements. More detailed criteria and requirements for the monitoring and reporting of data are provided in the two-year State monitoring programmes adopted by the Government. Programmes have been developed and adopted for the different institutions responsible for monitoring, but are not harmonized. Autonomous provincial and local self-governance units should carry out monitoring programmes in accordance with the State programme. The LEP also regulates self monitoring, although more by-laws are needed to fulfil its implementation. The Agency of Environmental Protection (EPA) and the Hydrometeorological Institute (HMI) (air and water automatic monitoring stations) have received new monitoring equipment. HMI has also modernized its own equipment. But much is still needed to build a comprehensive monitoring system.

Recommendation 3.3:

Serbia's Ministry for Protection of Natural Resources and Environment should:

(a) Prepare periodic reports on the basis of the data collected and analysed: and

(b) Provide training programmes for the staff currently employed in the monitoring institutes.

Implementation:

(a) Limited progress has been made in this area. Since 2002, no specific thematic reports analysing collected data have been published. Five reports covering urban air quality, water, soil, biodiversity, and land are under preparation and will be issued for the sixth Ministerial Conference "Environment for Europe" to be held in Belgrade in 2007. The EPA has also coordinated the collection of environmental data and the processing of the EEA core set of indicators (around 17 indicators, of uneven quality, out of the 35 required).

(b) Very little progress has been made in this area. Administrative officials, in accordance with the *Law on Administrative Officials* (OG RS No. 79/2005), have the right to training and specialization on issues of their competence financed by the.Government. Each year, the Government develops a training and specialization programme, and every governmental body specifies a special programme for its officials, according to its own needs. Many training oportunities are also offered by foreign institutions. Due to lack of human resources, only a few such oportunities are taken.

Recommendation 3.4:

Serbia's Republic Hydrometeorological Institute in cooperation with the Federal Hydrometeorological Institute, should update the water monitoring to include life parameters, such as vegetation and animal ecosystems in the rivers and along the riverbanks. A first step would be to start simple observation studies on the status of the ecosystems close to the riverbanks.

Implementation:

This recommendation was never implemented.

Recommendation 3.5:

Serbia's Ministry for Protection of Natural Resources and Environment should:

(a) Introduce public participation in EIA procedures and should include more provision for public participation in the environmental decision-making procedures in accordance with the Aarhus Convention.

(b) Consult Serbia's Ministry of Education and Sport on appropriate ways to introduce environmental protection issues into the curricula of primary schools.

(c) Raise public awareness of environmental issues through information campaigns, the use of the media, environmental programmes, and cooperation with schools and universities.

Implementation:

(a) Remarkable progress has been made in this area. Serbia has not yet ratified the Aarhus Convention, but preparations are ongoing. Provisions of the Aarhus Convention have already been incorporated in the four

laws adopted in 2004 (*Law on Environmental Protection*, *Law on Environmental Impact Assessment* (EIA), *Law on Strategic Environmental Assessment* (SEA) and the *Law on Integrated Environmental Pollution Prevention and Control* (IPPC)). During the EIA procedure, the competent body informs and consults authorities, organizations and the public. The decision-making process takes account of consultations, proposals for modifications and amendments. A Ministry regulation has been adopted to describe and define public debates on the EIA study.

(b) Progress has been made in this area. In 2001, when the multidisciplinary and intersectoral approach to environmental education was introduced through the educational reform, principles of sustainable development were included in the school curriculum. The reform in the first and second grades of primary school adopted a more holistic approach to environmental education through a new subject called "The World around Us", as well as in subjects such as the mother tongue, the arts, and physical and health education. The optional subjects "Environmental Education" and "Guardians of Nature" were also introduced. The new school texts have been revised accordingly, methods of active participation introduced, and additional training courses organized for teachers. Environmental education is also an integral part of the draft sustainable development strategy.

(c) Few success stories in raising public awareness on environmental matters can be registered. Public awareness is not high, but is improving. The Institute for Nature Protection conducts a targeted, active and systematic approach towards the media and schools. It also includes cooperation with journalists. The Recycling Agency also targets the general public, industry and local authorities. Apart from cooperating with media and schools, the DEP has provided financial support to over 30 educational programmes prepared by NGOs. Publishing activities are mostly oriented towards raising the level of environmental awareness among children, and include long-term projects such as "School in Nature" and "Living with the Nature". There are special magazines on the environment for children. Nonetheless, the numbers and quality of articles in daily newspapers and periodicals are generally far from satisfactory. Although there are special radio and TV programmes, insufficient attention is paid to environmental issues.

Recommendation 3.6:

The Ministry for Protection of Natural Resources and Environment should establish an environmental information system. This system should provide data and information on the status and the protection of the environment, which should be made available to decision makers and to the public.

Implementation:

Limited progress has been made in this area. LEP requires the establishment of an information system for environmental protection and an integrated polluter register. Serbia still lacks both. The EPA is responsible for their establishment. A draft Ministerial regulation for the establishment of an integrated polluter register exists, but clear allocation of responsibilities among authorities for its implementation is lacking. By-laws for detailed prescription about the information system and reporting should be adopted by Government, but have not yet been prepared. In practical terms, the EPA has started collecting environmental data from different institutions and compiling them into an integrated database to support production of indicators, as suggested by the EEA.

Recommendation 3.7:

The Ministry for Protection of Natural Resources and Environment should regularly prepare a report on the state of the environment and submit it to the Government of Serbia. The Government should submit the report to the National Assembly, and it should be accessible to the public.

Implementation:

Since its establishment, the EPA prepared reports on the state of the environment in 2003, 2004 and 2005. These were adopted by Government, but have not yet passed the National Assembly, and are therefore not available to the public.

CHAPTER 4: International cooperation

Recommendation 4.1:

The Federal Government of Yugoslavia should establish a standing consultative mechanism with Serbia to:

- *Clarify the respective roles of the Federal Government and the two republics with regard to international cooperation in environmental (and other) areas;*

- *Coordinate the implementation of international conventions;*
- *Facilitate decision-making on related issues; and*
- *Discuss the modalities for entering into bilateral agreements specific to one republic (e.g. concerning the coastal area or the Danube River basin).*

Implementation:
This recommendation is no longer relevant after Montenegro and Serbia became independent States. Serbia is a successor State to all international environmental agreements to which the State Union of Serbia and Montenegro was a party.

Recommendation 4.2:
The Federal Government of Yugoslavia should ratify:
- *The Sofia Convention on Cooperation for the Protection and Sustainable Use of the Danube River;*
- *The UNECE Helsinki Convention on the Protection and Use of Transboundary Watercourses and International Lakes;*
- *The UNECE Helsinki Convention on the Transboundary Effects of Industrial Accidents;*
- *The UNECE Espoo Convention on Environmental Impact Assessment in a Transboundary Context; and*
- *The 1995 Revised Barcelona Convention for the Protection of the Marine Environment and the Coastal Region of the Mediterranean.*

Following ratification, the Government of Serbia and the Government of Montenegro should implement these conventions.

Yugoslavia in cooperation with the Governments of Serbia and Montenegro should also make operational as soon as possible bilateral agreements dealing with transboundary water issues.

Implementation:
Serbia ratified the Sofia Convention on Cooperation for the Protection and Sustainable Use of the Danube River in 2003. The draft laws on ratification of the Helsinki Convention on the Protection and Use of Transboundary Watercourses and International Lakes and the Espoo Convention on Environmental Impact Assessment in a Transboundary Context have been submitted to the Parliament and are undergoing parliamentary procedure before approval. The recently adopted Law on Environmental Impact Assessment contains provisions regulating EIA in a transboundary context that comply with the requirements of the Espoo Convention. A draft Law on the ratification of the Helsinki Convention on the Transboundary Effects of Industrial Accidents is under preparation. The Revised Barcelona Convention for the Protection of the Marine Environment and the Coastal Region of the Mediterranean is not relevant for Serbia.

Recommendation 4.3:
The Federal Government of Yugoslavia should ratify the Aarhus Convention on Access to Information, Public Participation in Decision-making and Access to Justice in Environmental Matters as soon as possible.

Following ratification, the Government of Serbia and the Government of Montenegro should implement the Aarhus Convention.

Implementation:
Serbia has not yet ratified the Aarhus Convention on Access to Information, Public Participation in Decision-making and Access to Justice in Environmental Matters. However, the legislative basis for ratification and implementation of the Aarhus Convention has been created. In particular, the following laws contain the necessary provisions in accordance with the requirements of the Aarhus Convention: the 2004 *Law on Environmental Protection*, the 2004 *Law on Free Access to Information of Public Importance*, 2004 *Law on Environmental Impact Assessment* (EIA), the 2004 *Law on Integrated Pollution Prevention and Control* (IPPC), the 2004 *Law on Strategic Environmental Impact Assessment* (SEA), and the 2003 *Law on Urban Planning and Construction*. The country has prepared a national profile in the framework of the project "Preparation of a National Profile to Assess Capacities to Implement the Aarhus Convention" supported by UNECE and UNITAR.

Recommendation 4.4:
The Federal Government of Yugoslavia and the respective ministry of Serbia should seek further international support for establishing cleaner production centres. Support for the implementation of conventions related to the management of chemicals should be provided or channelled through such centres, in cooperation with the Basel Convention's Regional Centre for Training and Technology Transfer in Bratislava (Slovakia), United Nations Environment Programme (UNEP) and the United Nations Industrial Development Organization (UNIDO). (See also recommendations 7.2b and 10.3.)

Implementation:
The DEP has finished implementing the project "Preparatory assistance for the establishment and operation of a National Cleaner Production Programme" in cooperation with UNIDO. The next step, which is not yet implemented, is the establishment of a National Centre for Cleaner Production as an independent NGO responsible for supporting industry in technological modernization; for managing a reference library; for cooperating with UNEP, UNIDO and other national centres for cleaner production; and for training, project preparation and fund-raising.

Recommendation 4.5:
The Federal Government of Yugoslavia should consider submitting the following projects (among others) to the Global Environment Facility for funding:
(a) Enabling Activity for Biodiversity, to develop a national biodiversity strategy and action plan. After implementation of the Enabling Activities, a second project for the establishment of a clearing-house mechanism could be envisaged; (see also recommendation 9.3.)
(b) Development of a national biosafety framework. Yugoslavia would need to express its intention to ratify the Cartagena Protocol on Biosafety; and
(c) Development of a national implementation plan for the Stockholm Convention, using the Global Environment Facility's "Initial guidelines for enabling activities for the POPs Convention."

Implementation:
Competent government bodies in Serbia are in the process of implementation of several projects financed by GEF:
(a) Under the Ministry of Science and Environmental Protection (Directorate for Environmental Protection)-UNDP/GEF:
- Biodiversity Strategy, Action Plan and National Report. The project has been approved for Serbia and Montenegro, but its implementation has not yet started.
- National Capacity Self-Assessment for Environmental Management in Serbia and Montenegro (CBD, UNFCCC, UNCCD). This project is ongoing.
- Development of National Implementation Plan for Stockholm Convention on POPs. This project is ongoing.

(b) Under the Ministry of Agriculture, Forestry and Water Management, UNEP/GEF:
- Development of the National Biosafety Framework. This project is ongoing.

Recommendation 4.6:
(a) The Federal Government of Yugoslavia should continue to give high priority to regional and transboundary cooperation, in particular within the framework of the Regional Environmental Reconstruction Programme (REReP). Further development of bilateral environmental framework agreements with neighbouring or other States is encouraged. Serbia should be enabled to establish transboundary cooperation arrangements where they have specific interests.
(b) Serbia's Ministry for Protection of Natural Resources should consider developing programmes for assistance in the implementation of multilateral environmental agreements in a regional context, in the framework of and fully harmonized with the AIMS project (Support to Acceptance and Implementation of Multilateral Environmental Agreements in South-Eastern Europe, REReP 1.12).

Implementation:
Serbia continued its participation in regional and transboundary cooperation. It joined the Black Sea Economic Cooperation Council in April 2003. It became a member of the International Commission for the Protection of the Danube River (ICPDR) in August 2003. It also participates in the International Commission for Sava River

Basin (ICSRB), and in the Regional Environmental Reconstruction Programme (REReP) and has benefited from a number of REReP projects. It participates in the Environmental Compliance and Enforcement Network for Accession (ECENA), a network of environmental inspectorates; in the Priority Environmental Investments Programme (PEIP); and in the AIMS Network. Serbia cooperates closely with neighbouring and other countries in the area of environmental protection (Albania, Bosnia and Herzegovina, Bulgaria, Croatia, Germany, Italy, Japan, Romania, Slovenia and The former Yugoslav Republic of Macedonia, among others), but does not have bilateral environmental framework agreements with most of them. There are plans to sign agreements with several countries.

PART II: MANAGEMENT OF POLLUTION AND OF NATURAL RESOURCES

CHAPTER 5: Management of water resources

Recommendation 5.1:
The appropriate authorities of the Federal Government and the Federal Hydrometeorological Institute should design and, in collaboration with Serbia's Ministry for Protection of Natural Resources and Environment, should implement a Danube nutrient reduction investment project consistent with the nutrient reduction targets called for by the Convention on Cooperation for the Protection and Sustainable Use of the Danube River.

Implementation:
In 2003, the MoESP started the *Danube River Enterprise Pollution Reduction Project* (DREPR) funded by GEF-WB. The project was initiated by a PPU (Project Preparation Unit) that identified the legal framework and assessed the responsibilities of the bodies involved. The project focuses on nutrient pollution from farming facilities, but not from industries. After the preparation phase, the project was assigned to the farming experts in the Ministry of Agriculture, Forestry and Water Management (MAFWM) and the Project Implementation Unit (PIU) was established in July 2005. Beneficiary farmers for the installation of pilot facilities for the reduction of nutrient loads were identified in September 2006 and project implementation is ongoing. Currently, there is no plan to extend the project to industries.

Recommendation 5.2:
Serbia's Ministry of Agriculture and Water Management, in collaboration with its Ministry for Protection of Natural Resources and Environment should prepare a comprehensive national flood disaster management strategy, which includes preparedness, mitigation, recovery and reconstruction. The impact of floods can be further reduced by integrating hazard mitigation measures into land-use planning and investment projects.

Implementation:
The MAFWM and the Hydrometeorological Institute work together to monitor the water levels and start safety procedures in case of flood hazard events. There is no national register of source pollution sites on the riverbanks or in the vicinity of rivers. There is no flood protection strategy at the national level as of yet, but the MAFWM is studying a set of actions, taking into account the recommendations from the ICPDR and the EU approximation process. Those include the flood risk mapping that started in 2006 and the proposal of an inter-ministerial body for flood disaster management. For the protection of environment and human lives, buildings, industries and landfills should not be placed in areas alongside watercourses, but such buffer areas are neither identified nor mapped.

Recommendation 5.3:
Serbia's Ministry for Protection of Natural Resources and Environment, in collaboration with its Ministry of Agriculture and Water Management and its Ministry of Health should:

(a) Undertake a thorough study of rural water-supply systems, both formal and informal, as the basis for designing a programme for improving rural water supply. In Serbia, the Ministry of Agriculture and Water Management has a list of priority projects in small town and rural water-supply systems that could serve as the basis for an assessment of rural water needs. The assessment should include, inter alia, the state of the existing water-supply systems, an inventory of informal water-supply systems, an inventory of private wells and a survey of water quality in private wells;

(b) Provide the legal and institutional framework for monitoring, regulating and supporting the rural water sector, as a priority;

(c) Focus on water-supply systems for medium-size cities and rural areas. This includes urgent investment to get infrastructure working again, lower operating costs, provide operational and management information and deal with immediate water quality problems;
(d) Include in a rural water-supply programme a component for health education and promotional activities that would incorporate, among other things, education and training on the appropriate design and use of wells, design and use of home-made chlorination systems, school sanitation and health, and water quality monitoring in remote rural communities; and
(e) Give top priority to the provision of water-supply and sanitation services to communities or persons who are underserved.

Implementation:
In 2002, the MAFWM initiated a four-year programme to improve water and sanitation conditions in small and medium-sized towns in Serbia. The programme carried out the conceptual and preliminary design for the upgrading of water and sanitation facilities for all the town and villages in Serbia. The programme co-finances the works up to 50 per cent of the capital cost, with a yearly budget that increased from CSD 20 million in 2002 to CSD 600 million in 2006. Among all funded projects, 50 per cent were for the construction of sewerage systems.

Inventory and monitoring of wells for water supply is under the responsibility of the Ministry of Health (MoH). However, due to budget shortfalls and limited staff (inspectors), drinking water quality is not monitored in rural areas. The MoH carries out awareness-raising campaigns to sensitize the population to water-quality and use issues. The rural population is being made aware of the health hazards deriving from the use of improperly treated water.

Recommendation 5.4:
Serbia's Ministry for Protection of Natural Resources and Environment, in cooperation with its Ministry of Health should expand drinking water quality monitoring to rural areas.

Implementation:
The Ministry of Public Health, through the Public Health Institutes, is responsible for water-quality monitoring. No drinking water-quality monitoring has been performed in the last four years due to the lack of financial and staff resources. Water quality analyses are carried out only on the basis of specific requests from individuals and upon the payment of the costs for the analyses.

Recommendation 5.5:
Serbia's Ministry of Agriculture and Water Management should:
(a) In the medium term, improve the financial situation of water and waste-water utilities through appropriate pricing policies, management strengthening, and better operating procedures;
(b) Allocate funds to achieve a cost-effective mix of institutional strengthening, improved efficiency and service expansion;
(c) Give priority to maximizing the efficiency of existing water utility systems with a first step directed towards reducing the huge losses in the systems; and
(d) Continue developing private sector involvement.

Implementation:
The Ministry of Public Administration and Local Self-Government is in charge of the overall coordination of water utilities. Water companies, in agreement with their main (and often sole) shareholder, the municipality, set and apply tariffs for water and sanitation services.

The level of tariffs is very low and inadequate for a cost recovery policy. Water companies are cross-subsidized by the municipal budgets for maintenance works and, more rarely, by new investments.

In the last three years (2004-2006), the increase of water tariffs has been controlled by the Ministry of Finance, with a maximum ceiling of the programmed inflation rate.

Due to law tariffs and the lack of adequate budget lines from the municipalities and central government, in the last 10 years water utilities in Serbia could not satisfactorily maintain and upgrade waterworks. There is no programme to reduce water losses, and when the level of service becomes inadequate the common approach is to increase the water injected into the network. As a result, the system is highly inefficient.

Institutional strengthening, management and services improvement programmes have been carried out in rare cases, usually with the support of international donors and investors.

Low tariffs and poor collection rates have thus far not encouraged the participation of the private sector in the management and operation of water utilities.

Recommendation 5.6:
Serbia's Ministry of Agriculture and Water Management should:

(a) Reduce consumption through water-demand management and demand-reduction programmes that would include a cost-effective metering strategy, consumption-based billing, tariff levels that are sufficiently high to induce consumers to use less water, and public awareness on water conservation;
(b) Adopt adequate commercial management systems;
(c) Replace the current "basic cost-plus" tariff formula with one that provides incentives for cost reductions and allows for an acceptable level of profits and reduces large differences in tariffs among household, industrial, and other users. Targeted support for vulnerable users should be included as part of the tariff reform; and
(d) Improve the efficiency and reduce the operating costs of the utilities with policies aimed at: improving their financial management and control, streamlining personnel, making plant and network operations more efficient through rehabilitation and adequate maintenance, reducing water and energy consumption, using good materials, and insisting on quality civil works. These efforts should involve the customers as part of a more general effort to improve client orientation.

Implementation:
Local water utilities are responsible for applying and collecting tariffs for water abstraction, supply and distribution, as well as for waste-water collection and treatment. The MAFWM charges the water companies for the supply of raw water and waste-water discharge.

The price of raw water and the law on tariffs prevent the system from switching to a water-demand and demand-management scheme. Adequate tariff policies and a commercial management system have been adopted only in few cases and at the request of international investors (e.g. the European Bank for Reconstruction and Development) as a condition for providing loans. There has been little or no change in the differences in tariffs applied among household, industrial and commercial users.

As a result, adequate maintenance, reduction of water and energy consumption, and quality of civil works have been greatly affected. Due to large cross-subsidies from the municipal budget, local water utilities are not motivated to adopt a cost-recovery and efficient market-based management scheme. Additionally, water utilities are often overstaffed.

However, a draft law on water, currently under discussion in the Parliament, includes a set of measures that should potentially overcome such situations. These measures include the adoption of realistic water prices and water related service fees (user pays principle), the polluter pays principle and sustainable financing.

Recommendation 5.7:
Serbia's Ministry for Protection of Natural Resources and Environment, in collaboration with its Ministry of Agriculture and Water Management should set priorities for the selection of the most urgent needs in waste-water treatment infrastructure, such as waste-water treatment plants that discharge into or upstream of vulnerable zones, e.g. drinking water resources, recreation areas, and protected areas.

Implementation:
According to the 2002 *Water Master Plan*, by 2021 waste water shall be treated for all settlements with a population equivalent larger than 5,000. In 2004, MAFWM started a programme to co-finance water and

sanitation facilities. MAFWM's contribution is up to 50 per cent of the capital cost. Priority has been given to the cases in which waste water is discharged into minor watercourses, whose class would be more affected by the sewage flow. Anyhow, most of the funds have been used for water supply and sanitary networks.

According to the law, municipalities are in charge for the mapping and protection of vulnerable areas, but only 10 per cent of those have complied to this obligation so far. As a result, protection plans have not been prepared. From this perspective, the draft law on water foresees insurance coverage for the use of floodplains according to the risk.

Recommendation 5.8:
The Ministry for Protection of Natural Resources and Environment and its Ministry of Agriculture and Water Management should set up a methodology and related practicum (instruction) and carry out a survey of spot and diffuse pollution sources by catchments and sub-catchments, inter alia, to provide a basis for mapping pollution loads.

Implementation:
The Serbian Environmental Protection Agency (SEPA) is in charge for the set-up of the new registry of polluters that has been built starting from the harmonization of exiting registries of polluters. Before the SEPA was established in 2002, data on point source of pollutions were gathered and stored with different methodologies by a number of bodies (e.g. Institutes of Public Health, MAFWM, Municipalities). The process of harmonization is ongoing. Up to now, diffuse sources of pollution have not been considered.

Recommendation 5.9:
The Ministry for Protection of Natural Resources and Environment should:
(a) Introduce standards and norms for water quality (surface and ground) taking into account physical and hydro-ecological aspects of water systems, consistent with relevant international legislation;
(b) Establish, in cooperation with competent authorities for standardization, methodological standards for sampling and laboratory analyses (chemical, microbiological, biological) of natural waters; and
(c) Initiate and enforce accreditation of laboratories that examine natural and waste waters and ensure standardized inter-calibration methods and procedures.

Implementation:
(d) Standards and norms are updated regularly (regarding physical and chemical parameters), but the biological standards have not been legally introduced.
(e) Same as (a)
(f) The process will be obligatory by the end of 2007. It is being implemented now, but the implementation is not yet compulsory.

The ICPDR (signed in 2004) and the draft law on water (drafted in 2006 by the MAFWM) are likely the two most important milestones in the process of approximation of the Serbian water legislation to EC Water Framework Directive. However, the draft law on water has not been approved by the Parliament yet. The Ministry of Health is currently studying the parameters, procedures and methodologies for drinking-water quality, based on both the EC Directive and WHO standards. Part of this initiative has been funded by a project of the European Agency for Reconstruction (EAR) carried out with the Serbian Institute of Public Health.

A new law for the accreditation of laboratories is under preparation, but it is expected to be in force no earlier than late 2007.

CHAPTER 6: Air management

Recommendation 6.1:
The Federal Government of Yugoslavia should accede to three of the protocols to the UNECE Convention on Long-range Transboundary Air Pollution: the Protocol to Abate Acidification, Eutrophication and Ground-level Ozone, the Protocol on Heavy Metals and the Protocol on Persistent Organic Pollutants.
The Governments of Serbia should implement them.

Implementation:
Serbia took steps for ratification of the two following protocols to the UNECE *Convention on Long-range Transboundary Air Pollution*: the *Protocol on Heavy Metals* and the *Protocol on Persistent Organic Pollutants.* The *Protocol to Abate Acidification, Eutrophication and Ground-level Ozone* is still under consideration.

Recommendation 6.2:
Serbia's Ministry for Protection of Natural Resources and Environment should each establish the legal framework for air management, based on a multi-pollutant and multi-effect approach and integrated prevention and pollution control, including limit values for emissions.

Implementation:
Air-quality emission limit values are regulated by the *Ordinance on Limit Values, Methods of Imission Measuring, and Criteria for Determination of Measurement Points and Data Recording* (OG RS No. 54/1992, 30/1999) for a certain number of polluting substances (inorganic substances, organic substances, carcinogenic substances). Emission limit values are regulated by the *Ordinance on Emission Limit Values, Manner and Deadlines of Metering and Data Recording* (OG RS No. 35/1999). The *Regulations on Limit Values, Imission Criteria for Establishing Measuring Sites and the Data Evidence* do not prescribe target values; they will be prescribed after the adoption of the *Law on Air Protection*.

The *Law on Air Protection* is in the Parliament for adoption. This draft law, it introduces (1) target values due to specific mechanisms of creation of certain polluting substances, including ozone, (2) margins of tolerance (percentage of permitted temporary exceedence of imission limit values), as well as (3) upper and lower evaluation limits for enabling evaluation and defining air-quality categories. All regulations on air quality are harmonized with EU regulations and with the *Council Directive 96/1962 EC on ambient air quality assessment and management* and its daughter directives, which set air-quality standards.

Recommendation 6.3:
Serbia's Ministry for Protection of Natural Resources and Environment should:
(a) Prescribe environmental audits to be carried out by large enterprises or other big polluting sources;
(b) Establish a pollutant release and transfer register of big polluters (PRTR) on the basis of the audit results; and Develop national action plans to combat air pollution, taking into account the monitoring data and results from mobile sources.

Such plans should cover all existing stationary and mobile sources and include a mixture of effective control measures, including the more rational use of raw materials, energy management, lower-waste technologies, basic control techniques and better housekeeping.

Implementation:
(a) There is no environmental audit carried out by any type of enterprise or big polluting sources because there is no law, nor any mention in the legal framework. Serbia has adopted the *Law on IPPC* regulating the conditions and procedures of granting integrated permits for installations and activities that might have adverse effects on human health, the environment or material resources, as well as types of activities and installations, supervision and other issues that are of relevance for environmental pollution prevention and control. A few large industries or big air polluters are in the process of obtaining IPPC permits (e.g. the "Holcim" cement plant in Novi Popovac), and some polluters are setting up self-monitoring (e.g. the thermo-power plant "Nikola Tesla", Oil Refineries of Serbia, cement plants, etc.).

(b) Although there is no audit system, the development of a pollutant release and transfer register (PRTR) based on a preliminary list of big polluters has been started. No action plans to combat air pollution have been developed due to the lack of auditing.

Recommendation 6.4:
Serbia's Ministry for Protection of Natural Resources and Environment and its Ministry of Health should establish an environmental information system on air pollution starting with source emission data according to the EMEP sector split. It should cover SO_x, NO_x, VOCs, ammonia, CO, CO_2, particulate matter (PM 10 and 2.5), heavy metals and POPs.

Sufficient funds should be allocated from the budget to redefine a national monitoring strategy respecting international requirements (EMEP, PRTR) and to extend the air pollution monitoring programme to mapping critical loads and participating in international cooperative programmes. (see also recommendation 3.2)

Implementation:
Air-quality monitoring is carried out by a network of measuring stations set up at different levels by institutions such as Public Health Institutes (PHI), the Hydrometeorological Institute (HMI), and other research institutes.

According to the adopted biannually *Decree on Determining Air Quality,* the air-quality network of the State monitoring system of the HMI includes 13 stations not affected by significant sources of pollution, 10 stations located in meteorological stations affected by a range of sources of pollution, and one meteorological station for implementing the EMEP programme. The monitoring stations carry out 24-hour sampling of air quality and chemical analyses to determine ambient concentration of SO_2, NO_x and soot.

The network of local urban stations covers monitoring of basic pollutants: soot, SO_2, NO_x, CO, ozone, particulate matter and heavy metals. Air-quality monitoring activities are based on the biannual monitoring programme adopted by the Government, which comprises a monitoring network located in 76 measuring points in 40 settlements. In addition, 19 settlements are covered by 44 measuring points of local network for monitoring specific pollutants depending on the proximity to industrial facilities (e.g. formaldehyde, phenol, NH_3, benzene, etc).

CHAPTER 7: Waste management

Recommendation 7.1:
The Federal Secretariat for Labour, Health and Social Care should:
(a) Urgently find funding for the Institute for Nuclear Sciences in order to define the composition of radioactive waste stored in the Institute's facilities;
(b) Introduce treatment facilities and the environmentally sound disposal of radioactive waste; and
(c) Regularly monitor and maintain the facilities so as to prevent radioactive contamination in the vicinity of Belgrade.

Implementation:
The Ministry in charge of environmental matters in cooperation with International Atomic Energy Agency (IAEA) is implementing the VIND Programme ("Vinca De-commission"), which consists of three parts: (1) the decommissioning of existing the nuclear reactor; (2) the management of nuclear waste; and (3) the export of nuclear waste. The Ministry is regularly financing the disposal of radioactive waste (CSD 120 million/year, about €1.5 million).

Recommendation 7.2:
The Federal Secretariat for Labour, Health and Social Care should:
(a) Prepare a proposal for the harmonization of all existing laws and regulations on hazardous waste, in cooperation with the competent authorities in Serbia and
(b) Establish a coordination structure and procedures for the control of transboundary movements of hazardous waste and its disposal. Coordination should include the relevant federal authorities, including the customs authorities, from the Government of Serbia and local authorities responsible for waste movement on their respective territories. (see also recommendations 4.4 and 10.3)

The coordination mechanism should be complemented with training programmes for customs officials and inspectors on how to control hazardous waste shipments and management operations, including recycling, so as to meet Basel Convention obligations. In this regard a user-friendly technical handbook or guidelines on how to determine what constitutes hazardous waste for the use of customs officials and inspectors could be drafted.

Implementation:
(a) The legal framework for the control of and protection from hazardous waste and harmful substances is prescribed by the LEP, the *Law on Handling of Wastes,* the *Regulations on Management of Substances with*

Hazardous Properties, the *Regulations on Criteria for Determining Location and Disposition of and Waste, Processing Facilities, Temporary Storage or Final Disposal of Waste Materials Deposit Sites,* and the *Regulations on Conditions and Methods for Classification, Packing and Care of Secondary Raw Materials*. The inspectorate has to check for compliance with this framework.

(b) As a Party to the Basel Convention on the Control of Transboundary Movements of Hazardous Wastes and their Disposal, Serbia is responsible for all transboundary movements of hazardous waste and its disposal on its territory. The monitoring of imported waste is realized through control of transboundary waste, in compliance with the Basel Convention and waste categorization regulations (*Regulations of documentation attached to claim for waste import, export, and transportation* (OG RS No. 69/1999)), and in accordance with *Regulations for Documents Submitted with Request for Import, Export and Transit of Wastes*.

Within the framework of imported waste characterization, there is documentation on transboundary waste movement and conducted control of each imported waste shipment, in the form of the laboratory certificate of waste characterization, including reliable documentation on the amount of imported waste, and its tracking to processing.

Recommendation 7.3:
Serbia's Ministry for Protection of Natural Resources and Environment should each prepare inventories of industrial (including hazardous) waste generation. The inventories should include:

- *The main sectors generating industrial (including hazardous) waste and the number of installations per sector;*
- *The kinds of waste being generated;*
- *The production processes producing the waste; and*
- *The location where waste is being stored and discharged.*

Implementation:
This recommendation has not yet been implemented. The EPA has started with the preparation of inventories of waste generators. Data will be included the PRTR registry. Industrial waste is being deposited either in landfills situated on plant grounds, or in mixed and/or industrial landfills.

Recommendation 7.4:
Serbia's Ministry for Protection of Natural Resources and Environmental Protection should:

- *(a) Draw up a comprehensive waste management strategy for industrial waste, municipal waste and hazardous waste, paying special attention to hazardous industrial waste;*
- *(b) Develop an implementation plan, on the basis of the waste management strategy, that would include, inter alia, legal and economic priorities, measures and targets to ensure that goals are met.*

As preparatory steps for the development of the implementation plans, the respective Ministries should each prepare a study of the waste recycling industry.

Implementation:
In 2003, the Government adopted the *National Waste Management Strategy*, which is the basic document providing condition for the rational and sustainable republic waste management. In the following phase, the Strategy must be supported by several implementation plans for collecting, transport, treatment and disposal of controlled waste. A draft A*ction Plan for Waste Management* is in development according to the N*ational Environmental Strategy*, but has yet to be adopted.

Recommendation 7.5:
Serbia's Ministry for Protection of Natural Resources and Environment should develop and implement a law on waste management. The law should as far as possible take into account relevant EU waste legislation. It should:

- *Define and classify all waste, including hazardous waste;*
- *Lay down clearly the responsibilities for waste management;*
- *Provide for regulatory instruments for local authorities and procedural mechanisms to ensure proper implementation, including permitting requirements; and*

- *Specify institutional arrangements for its enforcement.*

Implementation:
The draft *Law on Waste Management*, which is harmonized with all relevant EU directives, was adopted by the Government in May 2006. The DEP is drafting the *Law on Packaging and Packaging Waste*.

Recommendation 7.6:
Serbia's Ministry for Protection of Natural Resources and Environment should launch a wide information campaign addressing businesses, institutions and members of the public to promote the minimization of waste at the source. It should be complemented by educational and training programmes to prepare the separate collection of municipal waste. Communication media, such as television, radio and newspapers should be used to the fullest extent.

Implementation:
This recommendation has not been implemented.

Recommendation 7.7:
Serbia's Ministry for Protection of Natural Resources and Environment should, in cooperation with selected municipalities, prepare a study for the rehabilitation of landfills. On the basis of the results of this study, they should initiate demonstration projects for the construction of new sanitary landfills.

Implementation:
To carry out the implementation of the 2003 *National Strategy for Waste Management*, DEP financed and co-financed the following activities (€800,000):

- Development of technical documentation for sanitation and remediation of existing dumpsites for 19 municipalities;
- Sanitation and remediation of existing dumpsites in four municipalities; and
- Development of technical documentation for construction of seven regional landfills covering the waste of 38 municipalities.

In 2005, 24 projects with a value of €300,000 were financed, including the development of technical documentation for construction of three regional landfills for 16 municipalities, and the development of technical documentation for sanitation, closure and re-cultivation of existing dumpsites for 22 municipalities.

During 2006, the environmental fund financed different projects in different municipalities across the country. For instance, the environmental fund co-financed a project of sanitation of landfill for solid waste in the municipality of Kikinda (€61,000). Within the National Investment Programme, which is financed from the privatization revenues, several environmental projects will be financed in the period 2006-2007 (€20 million).

CHAPTER 8: Mineral resources management

Recommendation 8.1:
Serbia's Ministry of Energy and Mining, in cooperation with its Ministry for Protection of Natural Resources and Environment should develop long-term strategies for their mining industries that take into consideration, among other issues, the rehabilitation of the industries to minimize their negative impact on the environment, the clean-up of existing waste and decontamination of waste water, the maintenance or reconstruction of weak or damaged tailing collectors and dams and the rehabilitation of degraded land. The strategies should also address the need for regular monitoring, data collection and analysis.

On the basis of these long-term strategies, they should develop short-, medium- and longer-term action plans that would serve as a basis for discussions with multilateral and bilateral partners as well as with investors. (see recommendations 10.2 and 10.8)

Implementation:
No implementation has been undertaken so far. All strategies related to mineral resources and groundwaters will be developed in 2007.

Recommendation 8.2:
Serbia's Ministry of Energy and Mining, in cooperation with its Ministry for Protection of Natural Resources and Environment in developing their actions plans, should work closely with the management of the mining and related energy companies to identify sources of financing for the implementation of the companies' environmental rehabilitation. An adequate and reliable timetable should be established for each project, and implementation deadlines respected.

Implementation:
Not yet implemented; dependent on the implementation of Recommendation 8.1.

Recommendation 8.3:
The Ministry for Protection of Natural Resources and Environment should ensure that the Geological Survey collects data for the sustainable management of resources. Its main functions should be: (a) to conduct mineral studies and to identify new hydrocarbon basins, (b) to identify appropriate sites for investment, (c) to conduct seismic and risk assessments of hazardous geological processes, and (d) to produce geo-scientific databases, maps and reports.

Implementation:
The Geological Institute of Serbia (or Geological Survey) was created in February 2006.
(a) The Geological Institute is currently:
- Financing several projects of basic geo-investigation and mapping the territory of the country at the scale of 1/50,000, which provides an adequate basis for a knowledge of minerals in the country;
- Identifying seven hydrocarbon basins; and
- Carrying out two or three drilling operations per year.

(b) An Agency for Mining within the Ministry of Energy and Mining is in the creation stage and will be responsible for identifying appropriate sites for investment.
(c) The Geological Institute will conduct seismic and risk assessments of hazardous geological processes.
(d) A Geographical Information System dedicated to geological activities was developed in 2003 and is regularly updated.

Recommendation 8.4:
The Ministry of Energy and Mining should introduce best available technologies to reduce substantially any environmental pollution from coal, oil and gas exploration and exploitation and copper mining and smelting. This should be done in parallel to the introduction of environmental management and international environmental standards in the Serbian mining industry. (see also recommendation 10.3a)

Implementation:
No action has been taken on this issue.

CHAPTER 9: Biodiversity conservation and nature protection

Recommendation 9.1:
Serbia's Ministry for Protection of Natural Resources and Environment should facilitate the harmonization of their nature protection legislation with international biodiversity conservation and management criteria. Cooperation with scientific and public institutions, non-governmental organizations and other stakeholders would facilitate this process.

Implementation:
The draft *Law on Nature Protection* is in the ministerial procedure for comments. It is harmonized with international norms and standards and foresees the establishment of appropriate mechanisms and instruments of protection and sustainable use of biodiversity. The law and other projects will give grounds for the development of the national strategy for biodiversity protection.

The inventory of the two most endangered categories of flora, according to the World Conservation Union (IUCN) criteria, has been completed by using the international CORINE methodology and geographical

information system technology. The corresponding *Red Book* (Volume 2) will be published in early 2007. The inventory of vertebrates is on going.

Cooperation of the Ministry with scientific and public institutions, NGOs, and other stakeholders such as IUCN, REC, the Faculty of Biology, and the Institute for Nature Conservation and the Faculty of Agriculture is under way.

Recommendation 9.2:
Serbia's Ministry for Protection of Natural Resources and Environment, its Ministry of Agriculture and Water Management and its Ministry of Trade, Tourism and Services should:
(a) Within the next four years, harmonize all of their respective legislation that impacts on nature conservation and protection, agriculture, water and tourism; and
(b) Reflect these harmonized laws in all relevant management plans.
(see also recommendation 12.6.)

Implementation:
(a) The harmonization of legislation having impacts on nature conservation and protection, agriculture, water and tourism is postponed until the adoption of the *Law on Nature Protection* (see implementation of Recommendation 9.1).
(b) As well, this is not reflected on the management of National Parks and other protected areas. Nevertheless, they have five-year management plans, which are split into annual management plans. Other areas, without protected status, have annual management plans.

Recommendation 9.3:
Serbia's Ministry for Protection of Natural Resources and Environment in order to implement the Convention on Biological Diversity and other international agreements, as well as their own nature protection policies, should develop and implement national biodiversity strategies and action plans, in cooperation with international organizations and national stakeholders. The institutional strengthening and capacity building of nature protection administration and management staff at all levels should be included.
(see also recommendation 4.5)

Implementation:
The national strategy for biodiversity and its action plan will be developed with UNDP and other national stakeholders.

Recommendation 9.4:
The Ministry for Protection of Natural Resources and Environment of Serbia, in cooperation with scientific institutions, national park management and other stakeholders, should develop and implement management plans for each national park, according to international standards and best practices, and taking into account the interests of local communities. (See also recommendations 14.2 and 14.3.)

Implementation:
Although the law of Nature Protection is still not adopted, the management of National Parks and other protected areas takes into account, as much as possible, international standards and best practices. They are applying to be part of EMERALD network.

Recommendation 9.5:
Serbia's Ministry for Protection of Natural Resources and Environment, in cooperation with its Ministry of Agriculture and Water Management should each develop and implement a national forestry strategy based on sustainable forest management, taking into account international forest certification principles. This should be done in cooperation with all stakeholders, using transparent and internationally recognized procedures.

Implementation:
Based on the *National Strategy of Agriculture*, the *Strategy of Development of Forestry* was adopted by the Government in 2006. A forest law, currently being drafted, will integrate sustainable forest policy principles.

PART III: ECONOMIC AND SECTORAL INTEGRATION

CHAPTER 10: Industry and the environment

Recommendation 10.1:
The Federal Secretariat for Labour, Health and Social Care, as soon as possible and in cooperation with the Federal Ministry of Economy and Internal Trade, and with the authorities responsible for environmental management and industrial development in Serbia should develop an overall strategic framework and action plan for the reconstruction and modernization of industry, with agreed priorities, as the basis for discussions with potential donors and external investors.

Implementation:
See implementation status of Recommendation 10.6.

Recommendation 10.2:
The Federal Secretariat for Labour, Health and Social Care, in cooperation with the Federal Ministry of Interior Affairs and the environment ministries of Serbia should, as soon as possible:
(a) Make a thorough review of current practice and problems in the handling, storing and depositing of hazardous substances from industry and of related chemical spills and risks of chemical accidents;
(b) Based on this review, develop an up-to-date strategy and an action plan for the remediation of chemical spills and for the prevention of chemical accidents and of other negative environmental impacts from the handling of hazardous substances;
(c) Review, update and enforce the requirements for industry to establish a risk management and safety system in collaboration with the relevant authorities; and
(d) Review and update, as necessary, current procedures for the authorities involved in emergency operations in the event of chemical accidents. These procedures should take account of those contained in the UNECE Convention on the Transboundary Effects of Industrial Accidents and the Seveso Directive.
(see recommendation 10.8)

Implementation:
This recommendation has not been implemented due to the following reasons:
(a) Poor enforcement of the legislation on the risk of accident risk management;
(b) Lack of risk management plans;
(c) Insufficient cooperation between the risk management actors (industries, municipal authorities and state agencies and organizations);
(d) Improper storage of chemicals and hazardous waste;
(e) Out-of-date industrial technologies;
(f) Insufficient training in technological disciplines;
(g) Poor organization and implementation of preventive measures, negligence and inadequate handling of hazardous substances; and
(h) Poor condition of transport infrastructure and vehicles.

Recommendation 10.3:
Serbia's Ministry for Protection of Natural Resources and Environment, in cooperation with its Ministry of Economy and Privatization should:
(a) Establish a clean production centre and promote the introduction of cleaner technologies, environmental management and international environmental standards in industry (see also recommendation 8.4); and
(b) Develop action plans for the clean production centre to promote demonstration projects for cleaner technologies and environmental management systems within selected priority areas. The economic advantages and the means of financing cleaner technologies should also be highlighted in the demonstration projects.
This activity should be undertaken in cooperation with other institutions currently involved in cleaner production activities and with important stakeholders such as industrial associations, private banks and universities. (see also recommendations 4.4 and 7.2 b)

Implementation:

(a) From January to June 2006, a pilot project "Preparatory assistance for the establishment and operation of a National Cleaner Production Programme in Serbia" was carried out with UNIDO. The Ministry of Science and Environmental Protection and the Ministry of the Economy coordinated this project. The Faculty of Technology and Metallurgy of the University of Belgrade was the implementing institution. Six enterprises, of which four are private, participated, and the results were:
- An environmental team for cleaner production was established;
- An environmental policy was adopted;
- A cleaner production assessment was carried out in accordance with UNIDO methodology; and
- Cleaner production projects on the savings of materials and energy, a decrease in all air, water and ground emissions, the minimization of waste generation, and the reuse of on-site waste and emissions were all initiated.

(b) By the end of 2006, a project was initiated which defines the specific requirements for the establishment and organization of the National Cleaner Production Centre (NCPC) in Serbia, which will be based on a strong sectoral approach, concentrating mainly on the national priority sectors, namely on agro-industry and chemical. The NCPC will play an important role in coordinating all national CP efforts and will promote partnership links between public and private institutions at the national and regional levels and enhance capacity-building for more effective market access. Support is planned for a period of 36 months.

Recommendation 10.4:

Serbia's Agency for Privatization should include environmental clauses in the sales contracts for the privatization of enterprises and industries.

Implementation:

See implementation status of Recommendation 10.5.

Recommendation 10.5:

The Government of Serbia should regulate and increase the role of their environment ministries in the privatization of enterprises and industries by introducing environmental audits or environmental impact assessments including cost estimation of the environmental damage from past pollution.

Implementation:

Under the *Law on Privatization*, environmental audits can be required without cost estimation of the environmental damage from past pollution. The Government issued a Decree that prescribes:
- A list of projects for which an environmental impact assessment is obligatory; and
- A list of projects for which an environmental impact assessment may be required.

The lists are in accordance with Annex I of the Directive amending the *Directive of the Council 337/85 on assessment of the impact of certain public and private projects on the environment 97/11*.

Recommendation 10.6:

The Ministry of Economy and Privatization, in cooperation with the Ministry for Protection of Natural Resources and Environment and the Ministry of Health, should prepare and adopt an action plan for industrial development that takes full account of the health of the population and the sustainability of the environment.

Implementation:

The 2006 *National Environmental Strategy* contains some mechanisms that provide for the protection of the environment to be taken into consideration in other policies. The current situation of the institutional framework for environmental protection is characterized by inconsistency and overlapping responsibilities and competences between institutions.

Unspecified and unclear division of competences regarding issues on water, land, forests, and mineral resources leads to compartmentalized, incomplete and ineffective approaches to their protection. Most environmental institutional reforms will be carried out in the short term (2006-2010), as they are usually the preconditions for implementation of other policy reforms.

The strengthening of capacity in all Ministries for integration of environmental issues in sectoral policies is needed to integrate environmental policy with other sectoral policies, especially those pertaining to energy, industry, agriculture, transport, privatization and tourism.

Recommendation 10.7:
The Ministry for Protection of Natural Resources and Environment should draw up a detailed action plan for institutional strengthening and capacity building in the enforcement, inspection and control of industry's environmental performance to be implemented as soon as possible. The plan should specifically focus on:

- *The effective organization and use of the resources of the Ministry allocated for the enforcement, inspection and control of polluting industries;*
- *The identification of needs for additional resources;*
- *The improvement of professional skills and technical know-how in environmental management, pollution abatement, cleaning measures and cleaner technologies;*
- *The provision of the necessary equipment;*
- *The standardization of the inspectors' work;*
- *Possibilities for delegation to the municipalities; and*
- *The introduction of self-monitoring through voluntary agreements.*

(see also recommendations 1.4 and 6.3)

Implementation:
A section within DEP has been created. At the end of the 2005, a *Manual for Environmental Inspectors* was published by the environmental inspectorate. The first part of the book focuses on environmental legislation, the second on the minimum criteria for environmental inspection, including checklists, reports, orders and lawsuits. A "Guideline on contents of the annual work plans and on contents of reports of carried inspections supervision as well as on method and conditions on sending reports" is under preparation, and should be adopted by end of 2007 and effectively applied from January 2008. According the LEP, autonomous province and local self-governments should perform inspection supervision over the implementation of activities mentioned under the LEP. Self-monitoring is also regulated by law, but there are no cases reported.

Recommendation 10.8:
The Ministry for Protection of Natural Resources and Environment should assess both the need for clean-up operations additional to the already planned activities and the potential risk of chemical accidents. An action plan should be prepared and implemented to ensure the necessary clean-up operations and to minimize the identified risks. (See also recommendation 8.1. and 10.2)

Implementation:
No action taken. See implementation status of Recommendation 10.2.

CHAPTER 11: Energy and the environment

Recommendation 11.1:
The Federal Ministry of Economy and Internal Trade and the relevant authorities of the two republics should:

(a) Update the existing Strategy for the Development of the Energy Supply Industry and develop action plans and programmes to improve energy efficiency and integrate environmental principles in the energy sector; and
(b) Promote and implement a legislative framework and develop an institutional framework to facilitate implementation.

Implementation:
(a) In 2005, the Government adopted the *Energy Sector Development Strategy by 2015* and the *National Action Plan on Gasification*. Strategy programmes ("*Energy Efficiency in Industry*" and "*Energy Efficiency in Municipal Sector*") were to be introduced in 2005. The Government approved the *Action Plan for Improving Energy Efficiency and* the *Strategy and Programmes to Promote Renewable Energy.* The *Strategy of Introducing Cleaner Production* is in an early phase of preparation.. The Energy Law was

adopted in 2004, and the *Treaty Establishing the Energy Community* was ratified in 2006. The Government established the following institutions:

- The Energy Efficiency Agency in 2002; and
- The Energy Agency in 2005.

(b) The secondary framework is still missing.

Recommendation 11.2:
Serbia's Ministry of Energy and Mining should end all subsidies of energy prices. The electricity companies should be allowed to set prices to reflect the real economic costs. Targeted support for vulnerable users should be included as part of the tariff reform.

Implementation:
Energy prices are still subsidized. Petrol is the only fuel following market prices so far. For gas, electricity, and heat for district heating, prices are still subsidized. Electricity prices have risen continuously since 2002, but are still not covering production costs. Electricity prices for industry are lower than in all neighbouring countries.

The actual block tariff for electricity is often seen as a social tariff, although it has not been developed for social reasons. The Energy Agency is preparing a new tariff system. The Government has to adopt it and will decide on electricity prices. Support measures for vulnerable users by financial support are being discussed.

Recommendation 11.3:
Serbia's Ministry of Energy and Mining, together with the energy efficiency agency (once established) together with the electricity company, should start broad-based public information campaigns to publicize energy-saving and energy-efficiency measures.

Implementation:
The Energy Efficiency Agency has started education and training programmes in the building sector, in industry and in municipalities, for example training of energy managers in municipalities. The Electric Power System of Serbia (EPS) has also run educational programmes for children to show that electricity is the most expensive form of energy and that it should be rationally consumed.

Recommendation 11.4:
Serbia's Ministry of Energy and Mining should begin the restructuring of their energy sectors as soon as their national assemblies adopt the new energy laws.
The Ministry of Energy and Mining should establish an energy efficiency agency and ensure that it receives sufficient resources to develop and implement the approved energy policies and strategies.

Implementation:
The restructuring of the energy sector is under way. Unbundling has progressed in some fields. The Electric Power System is in charge of generation, distribution and sales, while a newly established entity is responsible for the energy network and grid management.

Unbundling has also progressed in the oil and gas sector. An important step was the establishment of the Energy Agency as a regulatory body with the task of enhancing the development of an open energy market and setting its rules. The Agency has developed methodologies that regulate price-setting in the electricity, natural gas, oil and oil derivates transportation sectors, which should come into force in January 2007.

The Energy Efficiency Agency was established in 2002. It has so far been focused on pilot projects rather than on developing and implementing energy policies and strategies.

Recommendation 11.5:
Serbia's Ministry of Energy and Mining, together with the energy efficiency agency (once established) should introduce a standards and labelling system for household appliances to decrease electricity consumption.

Implementation:
There are no standards or labelling systems for household appliances. Until now, the Energy Efficiency Agency has mounted a campaign explaining the labelling system used in the EU to raise public awareness.

Recommendation 11.6:
Serbia's Ministry of Energy and Mining, together with the energy efficiency agency (once established) in cooperation with the management of the thermal power plants, should:
(a) Rehabilitate the thermal power plants to a state where they can operate within emission limits, as a matter of priority;
(b) Provide the necessary financial resources for this purpose, through increased tariffs and governmental funding; and
(c) Introduce a fee system guaranteeing the emission limits and forcing the production plants to comply with them.

Implementation:
(a) Measures on modernization have been started with electrical filters at several power plants to reduce emissions of dust. As for measures for SO_2, reduction, these are planned from 2008 onwards. Compliance with the directive on large combustion plants is planned from now until 2014.

(b) As electricity prices are still below production costs, the State-owned companies' budget for environmental measures is limited and necessary measures to reduce environmental damages are delayed. Apart from these companies' budget, funding can also come from international funds and loans, as well as from Serbian Environmental Fund.

(c) A fee system for plants operating under the IPPC directive has been in use since 2005.

Recommendation 11.7:
The Ministry of Energy and Mining, through the energy efficiency agency, should:
(a) Work toward increasing the share of co-generation. Natural gas should be used as a fuel. The Ministry should also remove existing market barriers for the heating companies to deliver electricity to the grid; and
(b) Begin now to develop a strategy on how to overcome the constraints on renewable energy sources and to begin an implementation programme on the basis of this strategy. The implementation programme should include demonstration projects and create favourable conditions for new or existing production units using renewable energy sources, e.g. priority in production, a smoother approval process, attractive tariffs, investment support.

Implementation:
(a) A strategy or programme to increase the share of co-generation does not exist yet. Market barriers for heating companies to deliver electricity to the grid still exist. Privileged heat producers (including heat from combined heat and power (CHP) plants) are entitled to the benefit of relief measures, (e.g. tax relief) according to the Energy Law, but there is no information on current practice.

(b) A strategy and programme do not exist. A strategy is under preparation. Privileged electricity producers such as producers using renewable energy sources are entitled to preferential measures (tax relief), but the rules and secondary legislative framework are missing. Permission procedures are very complicated. The Energy Efficiency Agency is preparing several projects (biomass and small hydropower).

Recommendation 11.8:
The Ministry of Energy and Mining, in cooperation with the municipalities, should rehabilitate district heating plants in line with modern heating concepts, adjusting the capacities of all components to energy demand estimated after implementation of energy-saving measures.

Implementation:
Some district heating companies have started rehabilitation work and also pilot projects to save heat energy demand by introducing valves and metering systems as well as consumption-based prices. Some programmes on energy efficiency, on new renewable energy sources, on environmental protection, on scientific research and

technological development, and on specialized education and training of personnel are being applied to existing and entirely new activities within the energy activities, including the introduction of a modern energy statistical system and adoption of additional-specific energy regulations for improving the performance of energy activities.

CHAPTER 12: Agriculture and the environment

Recommendation 12.1:
Serbia's Ministry of Agriculture and Water Management should transpose European Union regulations on phytosanitary, veterinary and food safety and genetically modified organisms and implement them as a priority. An important part of the implementation will be to organize the responsible institutions and make enough funding available to them. Serbia and Montenegro should work together to find efficient collaborative solutions.

Implementation:
Directives on phytosanitary, veterinary and food safety, genetically modified organisms and novel foods, food and feed hygiene, animal by-products, animal feed, packaging, labelling, natural water, additives/flavourings, pesticide residues, contaminants, irradiation, animal health, animal welfare, plant health, plant protection products, and import controls were transposed into the national legislation.

Recommendation 12.2:
(a) The Ministry for Protection of Natural Resources and Environment and the Ministry of Agriculture and Water Management should establish an inter-ministerial working group, which should be a forum to discuss and make proposals on policy development in the agricultural sector.
(b) The inter-ministerial working group (if established), or the Ministry of Agriculture and Water Management, should manage the process of developing practical national codes of good agricultural practices and recommendations for their implementation. Measures should be taken to involve the other stakeholders, e.g. agricultural institutes, farmers associations, in this process.

Implementation:
Due to disagreements on responsibility-sharing regarding the protection of forests and waters, the two institutions never established an inter-ministerial working group.

Recommendation 12.3:
The Ministry of Agriculture and Water Management, in further developing the extension services in Serbia, should support the implementation of "codes of good agricultural practices" once they have been established. In particular it should give the extension service a mandate and resources to actively promote the optimal and efficient use of agricultural inputs by helping farmers establish nitrogen management plans and apply integrated pest management where necessary.

Implementation:
The Ministry of Agriculture, Forestry and Water Management has already initiated projects to implement codes of good agricultural practices. With the World Bank's support to rural areas in difficulty and with the financial involvement of the interested farmers, the Ministry is establishing nitrogen and phosphorus mitigation management plans.

Recommendation 12.4:
The Ministry for Protection of Natural Resources and Environment, the Ministry of Agriculture and Water Management and the Ministry of Health should initiate research programmes to improve the interdisciplinary understanding of the effects of agriculture on health and the environment. Improving the understanding of how to minimize nutrient and pesticide run-off, and finding cost-effective and environmentally friendly solutions for the handling of manure are two examples. These research programmes should be linked to the development of codes for good agricultural practice, and the results used in training programmes for advisers from the extension services and in higher agricultural education.

Implementation:
This recommendation has not been fully implemented. It is worth mentioning, however, a project financed under the GEF-World Bank Investment Fund for Nutrient Reduction in the Black Sea/Danube Basin: "Serbia Danube River Enterprise Pollution Reduction Project". The preparation of the Project was executed by the DEP and the implementing agency is the Ministry of Agriculture, Forestry and Water Management.

The aim of the proposed project is to increase the prevalence of environmentally friendly practices among polluting enterprises in the Danube basin of the Republic of Serbia. In particular, the project will target nutrient pollution from livestock farms, notably pig and cattle farms, as well as nutrient-discharging industries such as fertilizer factories and slaughterhouses. It has three components: Regulatory Reform and Capacity-Building, Investment in Nutrient Reduction, and Awareness-Raising and Replication Strategy.

The Ministry of Agriculture, Forestry and Water Management will use this project as a base to extend the project's principles to the full territory of the country. This will be based on voluntary and financial contributions from farmers.

Recommendation 12.5:
The Ministry of Agriculture and Water Management should promote the development of organic farming.

Implementation:
The Ministry of Agriculture, Forestry and Water Management promotes organic farming. These farmers receive financial or technical help from the Ministry to apply organic farming principles and to diversify their production. In 2005, the Ministry provided funds from the State budget for the certification of organic production (40% of certification value). In 2006 the Ministry provided funds for the promotion of organic production, the education of producers, the establishment of organic production, and for certification. Support measures for development of organic production are envisaged for 2007 as well.

The Ministry has organized and supported producers of organic products for the "Bio Fach" Fair in Germany in 2005 and 2006, and continuation of this support in envisaged for 2007.

Recommendation 12.6:
The Ministry of Agriculture and Water Management and the Ministry for Protection of Natural Resources and Environment should promote ecological labelling of food products. Support should primarily be directed towards developing regulations, capacity building, providing information to the public and establishing and developing organizations for organic farming.

Implementation:
The Ministry of Agriculture, Forestry and Water Management promotes ecological labelling of food and agricultural products. Until now, the certification is delivered by foreign companies. A tendering is ongoing to have in the country a company able to certify and deliver an eco-label. A Serbian eco-label is on the preparation phase.

The Division for Organic Production has been established in December 2005, within the Sector for Rural and Agricultural Development of the Ministry of Agriculture, Forestry and Water management.

In 2006, the Parliament adopted the *Law on Organic Production and Organic Products* (OG RS No. 62/2006), which has been adjusted to Regulation 2092/1991, the *Regulation on the requirements for the legal entity issuing certificates for organic products and on the issuing procedures*, and the *Regulation on packaging, storage and transport of organic products* (OG RS No. 96/2006). Preparation of other by-laws is under way. In December 2006, the National Label for organic products was announced.

Recommendation 12.7:
The Ministry of Agriculture and Water Management should include the following in an environment-related regulatory framework for agricultural production in a medium-term perspective and apply those considered feasible:

- *Application of the same permitting and inspection procedure for large animal production facilities as for any other industrial production facility;*
- *Restrictions on animal density per acreage of manure disposal;*
- *Instructions for manure storage facilities and spreading practices;*
- *Obligatory tests of pesticide sprayers and training of farmers using pesticides;*
- *Regulations on non-tilled protection zones along watercourses including drainage canals;*
- *Impact on biodiversity; and*
- *Restrictions on the use of genetically modified organisms.*

(see also recommendation 9.2.)

Implementation:

Official controls of animal origin products are conducted according to the following regulations:

- *Law on Veterinary Matters* (OG RS No. 91/2005),
- *Regulation on the mode of conducting veterinary-sanitary examination and control of animals before slaughter and control of products of animal origin* (OG SFRY No. 68/1989),
- *Regulations on Loading, Reloading and Unloading of Animals, Products, Raw Materials and Animal Waste, Transportation Vehicle Requirements, Sanitary and Technical Condition of the Consignment and Form of the Consignment Health Condition Certificate* (OG SFRY No. 69/1990),
- *Regulation on the quantities of pesticide, metals, metalloids, and other toxic substances, drugs anabolic and other substances that could be found in food* (OG SFRY No. 5/1992, 1119/92 and 32/2002), and
- *Regulation on Marking and Identification Mark of Packed Food Stuff (OG SCG, No.4/2004).*.

Instructions for manure storage facilities and spreading practices are under preparation. Mandatory tests of pesticide sprayers and the training of farmers using pesticides are regularly conducted. The competent authority for management of genetically modified organisms (GMOs) is the Ministry of Agriculture, Forestry and Water Management. GMOs are regulated by the following laws and by-laws:

- *Law on genetically modified organisms* (OG FRY No. 21/2001);
- *By-law on restricted use of genetically modified organisms* (OG FRY No. 62/2002);
- *By-law on content and data of register of genetically modified organisms and products from genetically modified organisms* (OG FRY No. 66/2002);
- *By-law on trading with genetically modified organisms and products from genetically modified organisms* (OG FRY No. 62/2002); and
- *By-law on introducing into production genetically modified organisms and products from genetically modified organisms* (OG FRY No. 62/2002).

The Ministry of Agriculture, Forestry and Water Management drafted a new Law on genetically modified organisms harmonized with relevant EU directives. The draft law on GMOs definesconditions for GMO usage; the deliberate introduction of GMOs into environment; the production, handling, trade, transport, the labelling of GMOs or product containing GMOs; and the conditions and measures for prevention and mitigation of potential harmful effects resulting from use of GMOs.

According to the existing *Law on genetically modified organisms* (OG FRY No. 21/2001), there is no obligation for the labelling of GMO products. Certain by-laws contain provisions regarding labelling, but existing legislation does not provide for conditions for their implementation. Therefore, a new draft Law is being prepared to overcome his situation.

Existing legislation defines fines for unauthorized use of GMOs that can have harmful effect on human health, with possible imprisonment of up to one year.

Recommendation 12.8:

The Ministry of Agriculture and Water Management and the Ministry for Protection of Natural Resources and Environment, at the outset of the reforms that are planned, should define national priorities for the preservation of biotopes and the rural landscape, including wetlands. Priorities for the preservation of biotopes and landraces of crop plants and animals could be developed within the framework of a national biodiversity strategy. The priorities should be an important background for the development of agricultural policies.

Implementation:
The *Agriculture Strategy* adopted in 2005 stipulates a number of activities for the management and conservation of genetic resources for food and agriculture. The protection of agro-biodiversity is ensured by the implementation of the *Convention for Biodiversity Conservation*. The national databases referring to plant and animal genetic resources are harmonized with international standards. The Ministry of Agriculture, Forestry and Water Management has supported projects dealing with the management, conservation and research of agro-biodiversity. Harmonization of the national legislation with EU legal acts has not been completed.

CHAPTER 13: Transport and the environment

Background information:
The Ministry of Capital Investments[3] has taken over responsibilities regarding transport matters. The Road Directorate was created in July 2006. An environmental unit was set up within the Directorate. This unit serves as a link with the governmental authority responsible for the environment.

Recommendation 13.1:
The responsible authorities of the Federal Government and *Serbia should allocate a greater percentage of funding for rail, water and urban public transport based on sustainable transport policies. Consideration should also be given to services for non-motorized transport.*

Implementation:
Sustainable transport policies have not yet been introduced. The situation is as follows:
- The condition of the railway infrastructure has deteriorated due to lack of maintenance. The share of railways in passenger and cargo transport has significantly declined in the past decade.
- Harbours generally do not have adequate environmental infrastructure and environmental protection systems.
- Public transport is not promoted. Infrastructure is obsolete and not maintained, as are public transport vehicles. The population thus relies on road transport.
- The state of network road infrastructure has deteriorated due to lack of maintenance and to war damage.

Recommendation 13.2:
The responsible authorities of the Federal Government and Serbia should develop a strategy to phase out highly polluting cars and to introduce high-quality fuels, taking into account environmental elements. This could be achieved through fiscal measures, such as eco-taxes and car registration taxes, or other measures.

Implementation:
It is forbidden to import cars that are not compatible with the EURO III standard. The Government considers that this measure will lead to a gradual renewal in the car fleet.

Recommendation 13.3:
Serbia's Ministry of Transport and Telecommunication, in collaboration with its Ministry for Protection of Natural Resources and Environment should develop a sustainable transport policy that fully incorporates environmental considerations through strategic environmental assessments. In Serbia, the spatial plan should be integrated into the policy that will be developed under the new Law on Planning and Construction.

Serbia should also actively participate in the Subgroup on Environment and Transport in the framework of the Central European Initiative and in the Transport, Health and Environment Pan-European Programme (THE PEP).

Implementation:
Serbia adopted the laws on strategic environmental assessment (SEA) and environmental impact assessment (EIA) in 2004. SEA is however in the beginning phase and the conditions to carry on a complete SEA are not fully implemented. Implementing legislation is still incomplete or missing. Serbia participates in the Subgroup

[3] Since May 2007, the Ministry of Capital Investments is divided into two new ministries: the Ministry of Infrastructure and the Ministry of Telecommunication and Information Society

on Environment and Transport in the framework of the Central European Initiative and in the Transport, Health and Environment Pan-European Programme (THE PEP).

Recommendation 13.4:
Serbia's Ministry for Protection of Natural Resources and Environment, in cooperation with its Ministry of Transport and Telecommunications, should promote capacity building in the municipalities in transport issues and should assist the secretariats for environmental protection and the persons responsible for making transport-planning decisions to receive training in environmental management and sustainable transport principles.

Implementation:
Not implemented.

Recommendation 13.5:
The relevant authorities in Serbia should develop a plan to phase out the use of leaded petrol as quickly as possible taking into account an existing database (UNECE "Regional Car Fleet Study") to identify the fuelling requirements of all vehicle types in their republics and, if necessary, the changes needed to run the vehicles on unleaded petrol.

Implementation:
The Government has no real plan to phase out leaded petrol in the short term. It is introducing some measures that would help to facilitate a steady change of the car fleet:

- Annual technical checks (security and pollution); and
- Ad-hoc checks followed by immediate upgrading, if necessary.

See also implementation status of Recommendation 13.2

Recommendation 13.6:
Serbia's Ministry of Transport and Telecommunications (Road Administration) should:
(a) Ensure that environmental impact assessment is carried out when building new or reconstructing existing transport infrastructure; and
(b) Ensure that environmental parameters, for instance the results of the EIAs, are integrated into the new database.

Implementation:
(a) According to the 2004 *Law on Environmental Impact Assessment*, impact assessments shall be carried on projects on transport (including infrastructure). In particular, all the projects that are planned in areas with protected status. See implementation status of Recommendation 13.3.
(b) There is no database to store the results of EIAs.

Recommendation 13.7:
The Water Traffic Administration, in collaboration with the Ministry for Protection of Natural Resources and Environment and Danube partners, should assess the application of an indirect tax system for shipping waste in Serbia, and should develop such a system, as appropriate.

Implementation:
Neither the Water Traffic Administration nor the Ministry of Science and Environmental Protection assessed the application of the above tax system. There is currently no plan to consider it.

Recommendation 13.8:
The Water Traffic Administration, in collaboration with the Ministry for Protection of Natural Resources and Environment and Danube partners, should assess the toxicity of the river sediments and war debris and make arrangements for clean-up and the appropriate disposal of these materials.

Implementation:
The European Commission, through the CARDS program, funded and carried out in 2003-2005 a Master Plan for the improvement of the Serbian waterways. Areas covered by the Master Plan include: the regulation of free

ship navigation, the rehabilitation of waterways, and the development of ports. In the coming years, five projects identified in the Master Plan will be implemented and one will include the clean up of polluted river sediments and war debris.

CHAPTER 14: Tourism and the environment

Recommendation 14.1:
Serbia's Ministry of Trade, Tourism and Services, in cooperation with its Ministry for Protection of Natural Resources and Environment should:

(a) Each prepare and submit for approval by the Government a policy for sustainable tourism. The policy should serve as a framework for all tourist-related activities. In Montenegro, it should be consistent with its declaration as an Ecological State (1991);
(b) Develop a tourism master plan, also based on the overall policy for sustainable tourism, to allow for appropriate economic, spatial and resource planning and the development of the necessary infrastructure in tourist areas. In Serbia, the master plan should be harmonized with the draft action plan for sustainable tourism in protected areas. In Montenegro, where a tourism master plan has already been drafted, the Ministry should ensure that it reflects the (new) sustainable tourism policy;
(c) On the basis of the policy, develop guidelines for tourism development at the local level and introduce eco-standards for tourist premises;
(d) On the basis of the policy, identify the important sustainable tourism indicators and provide the means for monitoring, collecting and evaluating the data accordingly; and
(e) In cooperation with the Ministry of Culture, make an inventory of all sites of tourist interest. As the sites are identified, individual plans for their sustainable development should also be prepared (e.g. for sustainable tourism in national parks).

(see also recommendation 9.4)

Implementation:

(a) The Ministry of Trade, Tourism and Services (www.minttu.sr.gov.yu) developed the *Strategy for Development of Tourism till 2015*, which was adopted in October 2006. The *Strategy* includes all principles of sustainable tourism.
(b) The Tourism Master plan is part of the Strategy. Protected areas are not yet included in the Tourism Master Plan. Some tourism activities are running in the protected areas. These economic activities have to comply with the 2005 *Law on Tourism*.
(c) Guidelines for tourism development were developed. Eco-standards are still in preparation phase.
(d) In cooperation with United Nations World Tourism Organization (UNWTO), sustainable tourism indicators were introduced. In addition, Serbia started a project with UNWTO called the Satellite Tourism Account.
(e) Some inventories were accomplished, especially regarding ancient Roman architecture, in collaboration with NGOs and the Ministry of Culture.

Recommendation 14.2:
Serbia's Ministry for Protection of Natural Resources and Environment should establish the following economic instruments to support sustainable tourism:

- *Entrance fees at national parks;*
- *Fiscal incentives for tourist premises that implement eco-standards, such as "green hotels" that give special attention to the conservation and protection of resources such as water and energy.*

(see also recommendation 9.4)

Implementation:

- There are some projects either to create gates at the entries of the National Parks and collect fees or to create tolls for road crossing protected areas.
- There are no incentives towards a "green" management of any type of economic activity.

Unfortunately, illegal buildings in National Parks have been reported. No concrete action has been taken to combat this issue.

Recommendation 14.3:

Serbia's Ministry of Trade, Tourism and Services, in cooperation with its Ministry for Protection of Natural Resources and Environment should:

(a) Carry out widespread campaigns to raise awareness of sustainable tourism particularly among hotel managers, tourist agencies, tourists and municipal authorities. The campaign should make use of workshops, community meetings, brochures and posters, among other media; and

(b) In cooperation with Serbia's Ministry of Education and Sport introduce sustainable tourism development into the curricula of the higher schools for tourism and catering.

Implementation:

(a) Some campaigns to raise awareness of sustainable tourism are being launched in Serbia. Some training is also provided for managers in all economic tourist activities.

(b) The University in Belgrade and a high school in Novi Sad have introduced the sustainable tourism development concept into their curricula.

Recommendation 14.4:

The Government of Serbia should establish an inter-ministerial body on sustainable tourism that would also include representatives of local authorities and appropriate non-governmental organizations.

Implementation:

No inter-ministerial body on sustainable tourism has been created. The Ministry of Trade, Tourism and Services plans to create an Agency for Tourism in 2007.

CHAPTER 15: Human Health and the Environment

Recommendation 15.1:

The Federal Secretariat for Labour, Health and Social Care, Serbia's Ministry of Health, in cooperation with its Ministry for Protection of Natural Resources and Environment should:

(a) Together draw up a national environmental health action plan (NEHAP) to identify priorities and establish an implementation plan, paying particular attention to resource requirements. Among other issues, the NEHAPs should address activities for awareness-raising, and define a strategy to improve waste-water treatment, waste disposal, air quality, drinking water, food safety and traffic safety;

(b) Consider the establishment of an intersectoral body for environmental health that would, inter alia, aggregate, analyse and interpret the relationship between existing environmental and health data; review existing laws, conventions and regulations for environment and health, with particular reference to World Health Organization (WHO) guidelines and European Union regulations; and coordinate environment and health activities with a view to building strong environmental health networks at all levels;

(c) Help municipalities to develop local environmental health action plans with strong public participation; and

(d) Give consideration to the UNECE-WHO Transport, Health and Environment Pan-European Programme (THE PEP) as a policy tool around which specific actions and partnership (including at the international level) to tackle the environmental and health problems posed by transport could be developed.

Implementation:

(a) According to the decisions made at the WHO workshop organized in Belgrade in March 2006, the Serbian national *Children's Environment and Health Action Plan* (CEHAP) working group (National CEHAP Committee) decided to draft a new CEHAP (*Children's Environment and Health Action Plan*).

(b) After splitting of the State Union into two separate countries, Serbia started the official nomination of its National CEHAP committee, consisting of representatives from different sectors and experts from various institutions. This working group is now reviewing existing laws and regulations on the environment and health, interpreting the relationship between environment and health data to the WHO Office Bonn and drafting the CEHAP.

(c) Municipalities are aware of the importance of environmental health process and most of them are already involved in the creation of local environmental action plans (LEAPs). The guidelines for incorporating the "health" component in these plans must be given on behalf of responsible Ministries for environment and health.

(d) Local City Secretariat for Environmental Protection of Belgrade has its representative in the National CEHAP Committee and is a good example of close cooperation between national and local level.
(e) The *PEP Programme on Transport, Health and Environment* is already considered as a policy tool and specific actions are developed in the transport sector. A new *Law on Traffic Safety* is being adopted, considering the fourth Ministerial Conference's recommendations on children's health and environment.

Recommendation 15.2:

(a) The appropriate statistical office(s) should carry out a census as soon as feasible;
(b) The statistical offices and public health institutes at all levels should cooperate to identify a common set of essential environmental health indicators that need to be monitored and reported on a regular basis and decide among themselves on which institutions should be responsible for collecting these data. These data should be collected systematically and made available to the public. Ongoing international developments could provide a most useful reference for this work, also in view of improving international comparability of data;
(c) The public health institutes at all levels should address the need to undertake combined exposure assessments and analyses of health and environmental data in order to identify the negative health effects of environmental pollution. This should include reviewing the existing data collection and standardized protocols for data collection and evaluation, in close cooperation with statistical offices. Missing data should be identified and recommendations on reorganizing data collection should be given. The result of the analysis should be routinely reported; and
(d) Serbia's Ministry of Health, in cooperation with its Ministry for Protection of Natural Resources and Environment should initiate scientific investigations into the impact of specific local environmental pollution on health and address public concerns in relation to these issues.

Implementation:

(a) The Statistical Office of Serbia is carrying out the development of statistical data on Environmental Health.
(b) Public health institutes at all levels already analyse environment and health data and identify negative health effects of environmental pollution (e.g. indoor and outdoor air, noise, pesticides, lead, poisoning). International developments provide useful guidelines, especially the Environment and Health Information System (ENHIS) project, which is a substantial step towards a comprehensive EH information system to support relevant policies, including those addressing children. This system proposes allowing international and interregional comparisons of the leading environmental health issues in Europe to be linked to national assessments by employing a uniform methodology. Serbia is invited to send data on four policy indicators:
- Policies to promote safe mobility and transport in children;
- Policies to reduce weight problems and obesity in children;
- Policies to reduce unintentional injuries to children not related to traffic; and
- Policies to reduce child exposure to ultra-violet radiation.

(c) Combined exposure assessments and analyses of health and environmental data to identify the negative health effects of environmental pollution are already provided within the Public Health Institutes related to some environment risk factors. A review of existing data collection and evaluation is being made in close cooperation with statistical offices.
(d) Certain scientific investigations regarding the impact of specific local environmental pollution on health are already planned with the advice of the Serbian National CEHAP Committee. There are no finances for these activities, even though this field was identified as a priority through the Biennial Collaborative Agreement (BCA) between WHO and the Ministry of Health. UNEP is supporting the project of investigating the lead impact, originated from traffic, on children's health. Also, several other studies and investigations were financed with the help of local authorities and NGOs, for instance:
- The impact on health of fly ash particles originating from Thermal Power Plant in Obrenovac; and
- The impact of cadmium originating from tobacco industry in Nis, on the health of kindergarten children.

Recommendation 15.3:

The Federal Secretariat for Labour, Health and Social Care, Serbia's Ministry of Health should:

(a) Carry out continuous and major public awareness campaigns to reduce smoking among the population. Particular efforts should be made to prevent young people from taking up the habit. Initiatives such as

"The National Committee for Tobacco Prevention", "Quit and Win" or "Clear the air from cigarette smoke" have to be strengthened financially; and

(b) Work together to develop and pass anti-smoking legislation to protect children and other non-smokers from passive smoking. Existing regulations have to be enforced. No-smoking policies in public and private buildings should be initiated.

Implementation:

The National Committee for Smoking Prevention established by the Ministry of Health tries to raise major public awareness of the risks of smoking and exposure to passive tobacco smoke among the population, in particular among children. A draft version of the *Strategy on Tobacco Control* has been prepared and was to be adopted by the end of 2006. Campaigns are regularly performed for the *World No Tobacco Day* and for the *National No Tobacco Day* on 31 January, as well as "Quit and Win".

The Parliament ratified the *Framework Convention on Tobacco Control* on December 1, 2005. The *Law on Smoking Ban in Closed Premises*, the *Law on Tobacco* and the *Law on Advertising* have been already adopted. Smoking is banned in all school premises. Selling tobacco products to children under 18 has been banned..

Recommendation 15.4:

The Federal Secretariat for Labour, Health and Social Care, Serbia's Ministry of Health, in cooperation with its Ministry for Protection of Natural Resources and Environment, should:

(a) Adopt and implement the WHO Guidelines for drinking-water quality in order to improve the microbiological and physico-chemical safety of drinking water; and

(b) Strengthen the legal and institutional framework for monitoring and enforcing drinking-water quality standards in accordance with the UNECE Helsinki Convention on the Protection and Use of Transboundary Watercourses and International Lakes (see Recommendation 4.2).

Implementation:

(a) The WHO guidelines for drinking-water quality were partially adopted in the Book on Regulation on Hygienic Safety of Drinking Water (OG SFRY 42/1988). However, the preparation of a new Book is under way and takes into consideration the third edition of WHO Guidelines.

(b) The ratification of the UNECE Convention on the Protection and Use of Transboundary Watercourses and International Lakes is under preparation. Also, activities regarding the ratification of the Protocol on Water and Health are ongoing.

Recommendation 15.5:

(a) Serbia's Ministry for Protection of Natural Resources and Environment should regulate and implement the proper management of medical waste. This should include, inter alia:

- *Developing separate collection strategies for wastes with different levels of hazardousness;*
- *Providing incinerations, disinfection and special treatment for infectious medical waste; and*
- *Exploring ways to reuse and recycle materials to reduce the amount of hazardous waste.*

These activities could begin as pilot projects, implemented in cooperation with local authorities, hospitals and other stakeholders.

(b) Serbia's Ministry of Health should, through their public health institutes, train medical professionals and others who have contact with medical waste.

Implementation:

(a) The *National Waste Management Strategy* has been adopted, as have the *Guidelines for Handling Pharmaceutical Waste*. The European Agency for Reconstruction supported the supply of equipment for medical waste collection, including the procurement for 78 units of such equipment for the entire country.

(b) Funding permitting, the Ministry of Health is training professionals and other citizens who may have contact with medical waste.

Recommendation 15.6:

The Federal Secretariat for Labour, Health and Social Care, Serbia's Ministry for Protection of Natural Resources and Environment, in cooperation with its Ministry of Health, should:

(a) Supervise the medical check-ups of the population at risk in the hot spots, e.g. nursing mothers, to assess the possible health effects on industrial pollutants and the extent of the body burden of the pollutants. The data of human bio-monitoring and health effects should be combined with environmental monitoring data. Such knowledge helps to decide which environmental clean-up actions are most urgent;

(b) Initiate, during clean-up actions, human bio-monitoring and effect monitoring to measure the effectiveness of the actions; and

(c) Initiate epidemiological environmental research programmes in cooperation with international organizations, regional health authorities and research institutes.

Implementation:

(a) Medical check-ups in the hot spots are already implemented in Serbia, especially in wide industrial and polluting zones. Data of human monitoring and decisions for most urgent clean-up actions are expected if the project on "capacity-building in children's health and environment in Serbia" is accepted for financial support.

(b) Clean–up actions are from time to time followed by monitoring to prove their effectiveness. One example is the air pollution monitoring in Pancevo and actions for the reduction of detected pollution.

(c) Epidemiological and environmental research programmes in cooperation with WHO Regional and Country Offices will be possible, provided financial support in the field of environmental health is available from the international organizations or other donors.

Annex II

SELECTED REGIONAL AND GLOBAL ENVIRONMENTAL AGREEMENTS

	Worldwide agreements	Serbia	
As of 20 May 2007		**Year**	**Status**
1949	(GENEVA) Convention on Road Traffic		
1951	International Plant Convention	**1955**	**R**
1954	International Convention for the Prevention of Pollution of the Sea by Oil	**1973**	**R**
1957	(BRUSSELS) International Convention on Limitation of Liability of Owners of Sea-going Ships		
1958	(GENEVA) Convention on Fishing and Conservation of Living Resources of the High Seas	**1966**	**R**
1958	Convention on the Continental Shelf	**1966**	**R**
1958	Convention on the Territorial Sea and the Contiguous Zone	**1958**	**R**
1958	Convention on the High Seas	**1965**	**R**
1960	International Convention for the Safety of Life at Sea	**1964**	**R**
1960	(GENEVA) Convention concerning the Protection of Workers against Ionising Radiations		
1963	(VIENNA) Convention on Civil Liability for Nuclear Damage 1997 (VIENNA) Protocol to Amend the 1963 Vienna Convention on Civil Liability for Nuclear Damage	**1977**	**R**
1963	(MOSCOW) Treaty Banning Nuclear Weapon Tests in the Atmosphere, in Outer Space and under Water	**1964**	**R**
1969	(BRUSSELS) Convention on Civil Liability for Oil Pollution Damage 1976 (LONDON) Protocol	**1976**	**R**
1969	(BRUSSELS) Convention relating to Intervention on the High Seas in Cases of Oil Pollution Casualties	**1976**	**R**
1971	(RAMSAR) Convention on Wetlands of International Importance Especially as Waterfowl Habitat 1977 1982 (PARIS) Amendment 1987 (REGINA) Amendments	**2001 Su**	**R**
1971	(GENEVA) Convention on Protection against Hazards from Benzene (ILO 136)	**1975**	**R**
1971	(BRUSSELS) Convention on the Establishment of an International Fund for Compensation for Oil Pollution Damage	**1978**	**R**
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	**1973**	**R**
1972	(PARIS) Convention on the Protection of the World Cultural and Natural Heritage	**2001 su**	**R**
1972	(LONDON) Convention on the Prevention of Marine Pollution by Dumping of Wastes and Other Matter 1978 Amendments (incineration) 1980 Amendments (list of substances)	**1976**	**R**
1972	Convention on the Prohibition of the Development, Production and Stockpiling of Bacteriological (Biological) and Toxin Weapons, and their Destruction	**1973**	**R**
1972	International Convention on the International Regulations for Preventing Collision at Sea	**1975**	**R**
1972	(GENEVA) International Convention for Safe Containers		
1973	(WASHINGTON) Convention on International Trade in Endangered Species of Wild Fauna and Flora 1983 (GABORONE) Amendment	**2002**	**R**
1973	(LONDON) Convention for the Prevention of Pollution from Ships (MARPOL)	**1980**	**R**
	1978 (LONDON) Protocol (segregated ballast) 1978 (LONDON) Annex III on Hazardous Substances carried in packaged form 1978 (LONDON) Annex IV on Sewage 1978 (LONDON) Annex V on Garbage	**1983**	**R**

Ac = Accession; Ad = Adherence; De = denounced; Si = Signed; Su = Succession; Ra = Ratified.

Worldwide agreements (continued)		Serbia	
As of 20 May 2007		**Year**	**Status**
1975	Convention Concerning the Protection of the World Cultural and Natural Heritage	**2001 Su**	**R**
1977	(GENEVA) Convention on Protection of Workers against Occupational Hazards from Air Pollution, Noise and Vibration (ILO 148)	**1983**	**R**
1979	(BONN) Convention on the Conservation of Migratory Species of Wild Animals 1991 (LONDON) Agreement Conservation of Bats in Europe 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) 1996 (MONACO) Agreement on the Conservation of Cetaceans of the Black Sea, Mediterranean Sea and Contiguous Atlantic Area (ACCOBAMS)		
1980	Convention on the Physical Protection of Nuclear Material	**1986**	**R**
1981	Convention Concerning Occupational Safety and Health and the Working Environment	**1987**	**R**
1982	(MONTEGO BAY) Convention on the Law of the Sea 1994 (NEW YORK) Agreement Related to the Implementation of Part XI of the Convention 1994 (NEW YORK) Agreement for the Implementation of the Provisions of the United Nations Convention on the Law of the Sea of 10 December 1982 relating to the Conservation and Management of Straddling Fish Stocks and Highly Migratory Fish Stocks	**2001 Su**	**R**
1985	Convention Concerning Occupational Health Services	**1990**	**R**
	(VIENNA) Convention for the Protection of the Ozone Layer	**1992 Su**	**R**
	1987 (MONTREAL) Protocol on Substances that Deplete the Ozone Layer	**1992 Su**	**R**
	1990 (LONDON) Amendment to Protocol		
	1992 (COPENHAGEN) Amendment to Protocol		
	1997 (MONTREAL) Amendment to Protocol		
	1999 (BEIJING) Amendment to Protocol		
1986	Convention Concerning Safety in the Use of Asbestos	**1989**	**R**
	(VIENNA) Convention on Early Notification of a Nuclear Accident	**1989**	**R**
	(VIENNA) Convention on Assistance in the Case of a Nuclear Accident or Radiological Emergency	**1991**	**R**
1989	(BASEL) Convention on the Control of Transboundary Movements of Hazardous Wastes and their Disposal	**2000**	**R**
	1995 Ban Amendment	**2002**	
	1999 (BASEL) Protocol on Liability and Compensation		
1990	(LONDON) Convention on Oil Pollution Preparedness, Response and Cooperation		
1992	(RIO) Convention on Biological Diversity	**2002**	**R**
	2000 (CARTAGENA) Protocol on Biosafety	**2006**	**Ac**
1992	(NEW YORK) Framework Convention on Climate Change	**2001 Su**	**R**
	1997 (KYOTO) Protocol		
1993	Convention on the Prohibition of the Development, Production, Stockpiling and Use of Chemical Weapons and on Their Destruction	**2000**	**R**
1994	(VIENNA) Convention on Nuclear Safety		
1994	(PARIS) Convention to Combat Desertification		
1997	(VIENNA) Joint Convention on the Safety of Spent Fuel Management and on the Safety of Radioactive Waste Management		
1997	(VIENNA) Convention on Supplementary Compensation for Nuclear Damage		
1998	(ROTTERDAM) Convention on the Prior Informed Consent Procedure for Certain Hazardous Chemicals and Pesticides in International Trade		
2001	(STOCKHOLM) Convention on Persistent Organic Pollutants	**2002**	**Si**

Ac = Accession; Ad = Adherence; De = denounced; Si = Signed; Su = Succession; Ra = Ratified.

Selected bilateral and multilateral agreements *(continued)*

Regional and subregional agreements		Serbia	
As of 20 May 2007		**Year**	**Status**
1980	Protocol for the Protection of the Mediterranean Sea against Pollution from Land-based Sources	**1990**	**R**
1982	Protocol Concerning Mediterranean Specially Protected Areas	**1985**	**R**
1986	Agreement for the Environmental Protection from Pollution of the Tisza River and Tributaries	**1990**	**R**
1991	(ESPOO) Convention on Environmental Impact Assessment in a Transboundary Context		
	2003 (KIEV) Protocol on Strategic Environmental Assessment	**2003**	**Si**
1992	(HELSINKI) Convention on the Protection and Use of Transboundary Waters and International Lakes 1999 (LONDON) Protocol on Water and Health		
1992	(HELSINKI) Convention on the Transboundary Effects of Industrial Accidents		
1992	(HELSINKI) Convention on the Protection of the Marine Environment of the Baltic Sea Area, 1992		
1992	(PARIS) Convention for the Protection of the Marine Environment of the North-East Atlantic		
1993	(OSLO and LUGANO) Convention - Civil Liability for Damage from Activities Dangerous for the Environment		
1994	(LISBON) Energy Charter Treaty		
	1994 (LISBON) Protocol on Energy Efficiency and Related Aspects		
1998	(AARHUS) Convention on Access to Information, Public Participation in Decision-making and Access to Justice in Environmental Matters 2003 (KIEV) Protocol on Pollutant Release and Transfer Register		
1999	Agreement for the Establishment of a General Fisheries Council for the Mediterranean		
2000	(FLORENCE) Convention on European Landscape		

Ac = Accession; Ad = Adherence; De = denounced; Si = Signed; Su = Succession; Ra = Ratified.

Annex III

SELECTED ECONOMIC AND ENVIRONMENTAL INDICATORS

Air pollution	**1999**	**2000**	**2001**	**2002**	**2003**	**2004**	**2005**	**2006**
Emissions of SO_2								
- Total (tons)	..	367,214.8	377,223.5	359,675.7	390,141.3	353,801.0	..	..
- by sector (tons)	..	..	..	..	..	..	..	..
Public electricity and heat production	..	331,648.5	339,446.1	326,434.6	356,828.8	345,899.7	..	..
Manufacturing industries and construction	..	25,290.9	22,803.8	23,333.0	23,473.1	7,901.8	..	..
Residential	..	10,275.4	14,973.5	9,908.1	9,839.4	..	..	..
Energy	..	..	..	..	..	..	..	..
Industry	..	..	..	..	..	..	..	..
Transport	..	..	..	..	..	..	..	..
Other	..	..	..	..	..	..	..	..
- per capita (kg/capita)	..	..	..	..	..	..	..	..
- per unit of GDP (kg/1,000 US$)	..	..	..	..	..	..	..	..
Emissions of NO_X								
- Total (tons)	..	47,694.6	48,888.8	47,974.2	51,482.1	46,217.0	..	..
- by sector (tons)	..	..	..	..	..	..	..	..
Public electricity and heat production	..	42,041.7	42,819.8	41,112.2	45,482.4	44,930.8	..	..
Manufacturing industries and construction	..	4,113.0	4,150.7	5,153.2	4,257.5	1,286.4	..	..
Residential	..	1,539.8	1,918.2	1,708.8	1,742.2	..	..	..
Energy	..	..	..	..	..	..	..	..
Industry	..	..	..	..	..	..	..	..
Transport	..	..	..	..	..	..	..	..
Other	..	..	..	..	..	..	..	..
- per capita (kg/capita)	..	..	..	..	..	..	..	..
- per unit of GDP (kg/1,000 US$)	..	..	..	..	..	..	..	..
Emissions of Ammonia NH_3								
- Total (tons)	..	..	..	..	..	..	..	..
- by sector (tons)	..	..	..	..	..	..	..	..
Energy	..	..	..	..	..	..	..	..
Industry	..	..	..	..	..	..	..	..
Transport	..	..	..	..	..	..	..	..
Other	..	..	..	..	..	..	..	..

Air pollution (continued)	**1999**	**2000**	**2001**	**2002**	**2003**	**2004**	**2005**	**2006**
Emissions of particulate matter (PM10, PM2,5 and TSP)								
- Total (tons)	..	..	..	..	..	..	..	..
- by sector (tons)	..	..	..	..	..	..	..	..
Energy	..	..	..	..	..	..	..	..
Industry	..	..	..	..	..	..	..	..
Transport	..	..	..	..	..	..	..	..
Other	..	..	..	..	..	..	..	..
Emissions of non-methane volatile organic compounds (NMVOC)								
- Total (tons)	..	..	..	..	..	..	..	..
- by sector (tons)	..	..	..	..	..	..	..	..
Energy	..	..	..	..	..	..	..	..
Industry	..	..	..	..	..	..	..	..
Transport	..	..	..	..	..	..	..	..
Other	..	..	..	..	..	..	..	..
Emissions of persistent organic pollutant (PCBs, dioxin/furan and PAH)								
- Total (tons)	..	..	..	..	..	..	..	..
- by sector (tons)	..	..	..	..	..	..	..	..
Energy	..	..	..	..	..	..	..	..
Industry	..	..	..	..	..	..	..	..
Transport	..	..	..	..	..	..	..	..
Other	..	..	..	..	..	..	..	..
Emissions of heavy metals (cadmium, lead and mercury)								
- Total (tons)	..	..	..	..	..	..	..	..
- by sector (tons)	..	..	..	..	..	..	..	..
Energy	..	..	..	..	..	..	..	..
Industry	..	..	..	..	..	..	..	..
Transport	..	..	..	..	..	..	..	..
Other	..	..	..	..	..	..	..	..
Greenhouse gas emissions, total (CO_2, CH_4, N_2O, CFC, etc) (tons)	..	..	..	..	..	..	..	..
Emissions of CO_2								
- Total (tons)	..	..	..	..	..	..	..	..
- by sector (tons)	..	..	..	..	..	..	..	..
Energy	..	..	..	..	..	..	..	..
Industry	..	..	..	..	..	..	..	..
Transport	..	..	..	..	..	..	..	..
Other	..	..	..	..	..	..	..	..
- per capita (tons/capita)	..	..	..	..	..	..	..	..
- per unit of GDP (tons/1,000 US$)	..	..	..	..	..	..	..	..

Air pollution (continued)	1999	2000	2001	2002	2003	2004	2005	2006
Greenhouse gas (GHG) Emissions vs targets (if established) (Percent of the target/percent over target)	..	..	..	..	..	..	..	..
Energy-related particulate emissions (tons)	..	..	..	..	..	..	..	..
Urban population exposed to air quality exceedances (e.g. multiplicity of maximum permissible concentration (MPC) or air pollution index)	..	..	..	..	..	..	..	..
Consumption of ozone depleting substances (ODP)	..	307.0	262.0	370.0	412.0	283.0	52.0	..

Water	1999	2000	2001	2002	2003	2004	2005	2006
Freshwater resources (million m^3)	..	..	..	..	..	..	..	..
Surface water	..	..	..	..	..	..	..	..
Groundwater	..	..	..	..	..	..	..	..
Water abstraction	..	..	..	..	..	..	..	..
Total (million m^3/year)	2,988.0	2,960.0	..	..	..	7,749.0	..	..
per capita (m^3/year/capita)	..	..	..	..	..	..	..	..
Intensity of water usage (abstraction / available resources)	..	..	..	..	..	..	..	..
Total water consumption by sectors (million m^3)	..	..	..	..	..	..	..	..
Households 1)	381.0	..	..	..	..	368.0	379.0	..
Industry	2,457.0	2,415.0	4,573.0	4,362.0	4,770.0	7,316.0	..	..
Agriculture	..	200.0	157.0	97.0	138.0	65.0	69.0	..
Household water consumption index (per capita)	..	..	..	..	..	..	..	..
Nutrient and organic water pollution in rivers	..	..	..	..	..	..	..	..
BOD (tons)	..	..	..	..	..	..	..	..
Ammonium (tons)	..	..	..	..	..	..	..	..
Nitrates (tons)	..	..	..	..	..	..	..	..
Phosphates (tons)	..	..	..	..	..	..	..	..
Nitrates in the groundwater	..	..	..	..	..	..	..	..
Untreated and insufficiently treated wastewater (%)	..	..	..	..	..	..	..	..
Hazardous substances in coastal and marine waters (landbased sources)	..	..	..	..	..	..	..	..
Accidental and illegal discharges of oil at sea (tons)	..	..	..	..	..	..	..	..

Notes:

[1)] Survey on water consumption by households was frozen between 1999 to 2004.

Biodiversity and living resources	1999	2000	2001	2002	2003	2004	2005	2006
Protected areas								
Total area (km^2)	..	4,114.0	5,046.0	5,100.0	5,154.0	5,154.0	5,247.0	5,427.0
% of national territory	..	4.65	5.71	5.77	5.83	5.83	5.93	6.14
by categories (IUCN Red list)	..	..	..	..	..	..	..	..

Biodiversity and living resources (continued)	**1999**	**2000**	**2001**	**2002**	**2003**	**2004**	**2005**	**2006**
Forests								
Total area (km^2)	19,847.0	19,847.0	19,847.0	19,374.0	19,374.0	19,374.0	19,845.0	..
% of land area	..	..	..	..	..	..	..	..
volume of the wood (thousand m^3)	..	238,994.9	..	..	..	..	..	..
harvesting intensity (harvest/growth)	..	..	..	..	..	..	..	..
Flora and fauna species richness in proportion to surface area of the countries	..	..	..	..	..	..	..	..
Number of threatened species	..	642 fauna-427 flora-215	642 fauna-427 flora-215	642 fauna-427 flora-215	642 fauna-427 flora-215	642 fauna-427 flora-215	642 fauna-427 flora-215	642 fauna-427 flora-215
Annual fish catch by species (tons)	789.0	838.0	646.0	1119.0	1309.0	1910.0	1988.0	..

Land resources and soil	**1999**	**2000**	**2001**	**2002**	**2003**	**2004**	**2005**	**2006**
Arable land (in thousand ha) 2)	3352	3356	3355	3351	3345	3344	3330	..
Land use (in % of total) 3)	83.3	83.3	83.2	83.3	83.1	83.2	83.2	..
Soil erosion (area in thousand ha)	348.6	..	..	28.4	..	..	163.5	..
% of total land area	6.8	..	..	0.6	..	..	3.2	..
% of agricultural land	..	..	..	..	..	..	..	..
Pesticide consumption (tons) 4)	3,410.0	3,173.0	3,328.0	2,925.0	2,587.0	2,654.0	2,966.0	..
Fertiliser consumption (tons)	187,000.0	217,166.0	271,554.0	258,118.0	222,626.0	202,049.0	231,911.0	..

Notes:

2) Arable fields and gardens

3) Cultivable area (arable fields and gardens, orchards, vineyards and meadouws)

4) Enterprises and cooperatives, only

Energy	**1999**	**2000**	**2001**	**2002**	**2003**	**2004**	**2005**	**2006**
Total energy consumption (Mtoe)	..	..	..	12.44	12.75	14.11	15.07	..
Total Final Energy Consumption (TJ)	..	..	..	6.94	7.31	7.66	8.47	..
- by fuel								
Coal and Lignite	..	..	..	263,768.40	272,560.68	296,006.76	332,431.92	..
Oil	..	..	..	140,676.48	149,887.44	168,728.04	172,077.48	..
Gas	..	..	..	70,756.92	74,106.36	85,829.40	85,410.72	..
Import-Exports of electricity	..	..	..	7,117.56	837.36	837.36	-2,512.08	..
Renewables	..	..	..	38,937.24	36,425.16	40,193.28	43,542.72	..
Energy intensity (energy consumption per unit of GDP)	..	..	..	100.00	100.06	101.27	101.58	..
Energy productivity (GDP / toe)	..	..	..	1.22	1.22	1.20	1.20	..
TPES/Population (toe per capita)	..	..	..	..	..	..	..	..

Transportation	1999	2000	2001	2002	2003	2004	2005	2006
Number of transport accidents, fatalities and injured (land, air and maritime) [5]	14,491.0	15,076.0	11,562.0	14,899.0	12,385.0	13,373.0	12,752.0	..
In which:								..
Died	1,154.0	1,146.0	769.0	1,480.0	769.0	863.0	765.0	..
Injured	13,337.0	13,930.0	10,793.0	13,419.0	11,616.0	12,510.0	11,982.0	..
Size and composition of vehicle fleet (in 1,000)								..
Freight vehicle fleet (in thousand vehicle) [6]	150.0	111.0	121.0	120.0	127.0	138.0	134.0	..
Trucks state owned	57.0	47.0	48.0	49.0	52.0	58.0	60.0	..
Trucks private	73.0	64.0	73.0	71.0	75.0	80.0	74.0	..
Passenger vehicle fleet (in thousand)	1,583.0	1,283.0	1,391.0	1,353.0	1,397.0	1,463.0	1,491.0	..
Busses	11.0	9.0	9.0	9.0	9.0	9.0	10.0	..
Cars	71.0	57.0	58.0	57.0	61.0	67.0	73.0	..
Private cars	1,501.0	1,217.0	1,324.0	1,287.0	1,327.0	1,387.0	1,408.0	..
Passenger transport demand by mode (million passenger kilometres)	3,675.0	5,157.0	6,213.0	6,134.0	5,945.0	5,883.0	6,754.0	..
Freight transport demand by mode (million ton kilometres)	2,932.0	3,948.0	4,206.0	4,682.0	4,809.0	5,603.0	6,829.0	..

Notes:

[5] Road transport only

[6] Freight vehicle fleet - coverd lorries and special lorries

Waste	1999	2000	2001	2002	2003	2004	2005	2006
Generation of waste								
Total waste generation (tons)	..	..	..	..	..	..	..	..
Hazardous (toxic) waste (tons)	..	..	..	..	..	..	..	..
Industrial waste (tons)	67,580.0	82,658.0	91,959.0	91,674.0	87,515.0	158,854.0	198,519.0	176,020.0
Municipal waste (tons) 7)	2,322,000.0	..	..	..	..	..	..	..
Radioactive (nuclear) waste (tons)	..	..	..	..	..	..	..	..
Transboundary movements of hazardous waste (tons)	..	..	..	..	9,204.0	25,323.3	34,035.0	..
Waste intensity (total waste generated per unit of GDP)	..	..	..	..	..	..	..	..
Waste recycling and reuse (%)	..	..	..	..	..	..	..	..

Notes:

[7] Municipal waste (tons) - collecting only

Health and Demography	1999	2000	2001	2002	2003	2004	2005	2006
Drinking water quality (proportion of samples failing the standard)	..	..	..	..	..	..	..	..
Population with access to safe drinking water (%)	..	..	..	..	..	..	..	..
Population with access to improved sanitation (%)	..	..	..	..	..	..	..	..
Incidence of typhoid, paratyphoid and other salmonella infections (per 100,000 population)	..	..	..	..	..	..	..	..
Salmonella infections (per 100,000 population)	..	..	..	..	..	..	..	..
Morbidity rates for selected causes (per 100,000 population)	..	..	..	..	..	..	..	..
Tuberculosis incidence rate (per 100,000 population)	..	..	..	..	..	..	..	..

Health and Demography (continued)	**1999**	**2000**	**2001**	**2002**	**2003**	**2004**	**2005**	**2006**
Viral hepatitis incidence rate (per 100,000 population)	..	..	..	..	..	..	..	..
Health expenditure (% of GDP)	..	..	..	..	..	..	..	..
Birth rate (per 1,000)	9.6	9.8	10.5	10.4	10.6	10.5	9.7	..
Fertility rate (average number of babies born to women during their reproductive years)	40.7	39.5	43.1	43	43.7	41.7	41.3	..
Mortality rate (per 1,000)	13.5	13.8	13.2	13.7	13.9	14	14.3	..
Infant mortality rate (deaths/ 1,000 live births)	11.0	10.6	10.2	10.1	9.0	8.1	8.0	..
Female life expectancy at birth, (years)	74.7	74.8	74.9	75.0	75.1	75.4	75.4	..
Male life expectancy at birth (years)	69.7	69.6	69.6	69.7	69.9	69.9	70.0	..
Life expectancy at birth (years)	72.1	72.1	72.2	72.3	72.5	72.6	72.7	..
Population aged 0-14 years (%)	16.8	16.5	16.2	16.1	15.9	15.9	15.8	..
Population aged 65 years or over (%)	15.7	16.1	16.4	16.7	16.9	17.0	17.2	..
Ageing index (over 64 / under 15)	94.0	97.8	101.1	103.8	105.9	107.5	108.9	..
Population								
Total population (millions)	7,540	7,516	7,503	7,500	7,480	7,463	7,441	..
% change (over previous year)	-0.32	-0.17	-0.05	-0.26	-0.23	-0.30	..	..
Population density (inhabitants / km^2)	85.3	85.1	84.9	84.9	84.7	84.5	84.2	..

Socio economic issues	**1999**	**2000**	**2001**	**2002**	**2003**	**2004**	**2005**	**2006**
GDP (million national currency)	893,161	933,534	978,750	1,020,117	1,045,570	1,133,651	1,204,065	..
(% change over previous year)	..	4.5	4.8	4.2	2.5	8.4	6.2	..
per capita (US$)	1,518.6	1,199.1	1,390.2	1,622.9	2,155.4	2,809.2	..	..
Industrial output (% change over previous year)	21.7	23.4	21.6	20.2	19.0	18.7	17.8	..
Agricultural output (% change over previous year)		-12.8	18.6	-3.4	-7.2	19.5	-5.1	..
Share of agriculture in GDP (%)	14.1	11.8	13.3	12.3	11.2	12.3	11.0	..
Labour productivity in industry (% change over previous year) [8)]	-21.6	16.9	4.1	12.7	10.9	12.5	9	14.7
CPI (% change over the preceding year, annual average) [9)]	43.5	79.6	93.3	16.6	9.9	11.4	16.2	12.3
PPI (% change over the preceding year, annual average) [10)]	43.2	102.6	87.7	8.8	4.6	9.1	14.2	14.4
Registered unemployment (% of labour force, end of period) [11)]	21.0	22.2	23.2	25.3	27.8	25.9	26.8	27.1
Labour force participation rate (%, 15-64 year old) [12)]	68.2	68.2	68.9	68.4	68.5	66.4	65.2	..
Employment in agriculture (%) [13)]	4.4	4.4	4.1	4.1	4.0	3.8	3.6	3.4
Current account balance								
Total (million US$)	..	..	..	..	..	..	..	..
(as % of GDP)	..	..	..	..	..	..	..	..
Balance of trade in goods and non-factor services (million US$)	..	..	..	..	..	..	..	..
Net FDI inflows (million US$) [14)]	..	..	165.0	475.0	1,360.0	966.0	1,481.0	961.0
Net FDI flows (as % of GDP)	..	..	..	..	..	..	..	..
Cumulative FDI (million US$)	..	..	..	..	..	..	..	..

Socio economic issues	1999	2000	2001	2002	2003	2004	2005	2006
Foreign exchange reserves	..	..	..	..	..	..	..	..
Total reserves (million US$)	..	..	..	..	..	..	..	..
(as months of imports)	..	..	..	..	..	..	..	..
Exports of goods (million US$) [15)]	1,368.6	1,557.8	1,720.7	2,075.2	2,756.0	3,523.0	4,482.0	4,515.0
Imports of goods (million US$) [16)]	2,880.8	3,329.8	4,260.8	5,613.8	7,477.0	10,753.0	10,461.0	9,267.0
Net external debt (million US$)	..	..	..	..	..	..	..	..
Ratio of net debt to exports (%)	..	..	..	..	..	..	..	..
Ratio of net debt to GDP (%)	..	..	..	..	..	..	..	..
Exchange rate: annual averages (national currency / US$) [17)]	..	..	66.84	64.19	57.44	57.94	72.22	65.43

Notes:

[8)] 2006 is Jan-Sep 2006 / Jan-Sep 2005

[9)] 2006 is Jan-Sep 2006 / Jan-Sep 2005

[10)] 2006 is Jan-Sep 2006 / Jan-Sep 2005

[11)] National Employment Service; Agriculture, hunting and related service activities (NACE, rev 1); Previous data for 2006

[12)] Activities rate

[13)] Up to 2001 do not include employees in small size enterprises (to 50 employees) do not covere by other surveys; Data on individual agricultures are not included; Previous data for 2006

[14)] Jan-Jul 2006

[15)] Provisional data for period Jan-Sep 2006.

[16)] Provisional data for period Jan-Sep 2006.

[17)] July 2006

Income and poverty	1999	2000	2001	2002	2003	2004	2005	2006
GDP per capita (1,000 US$/capita)	..	1,071.0	1,256.3	1,459.5	2,001.4	2,571.7	..	..
Poverty (% of pop.<50% median income)	..	..	..	..	..	..	..	..
Minimum to median wages (minimum wage as a percentage of median wage)	..	..	..	..	..	..	..	..
Education expenditure (% of GDP)	..	..	3.8	4.0	3.5	3.7	3.8	..
Communications								
Telephone lines (per 100 population)	..	..	..	..	..	..	..	..
Cellular subscribers (per 100 population)	..	..	..	..	..	..	..	..
Personal computer in use (per 100 population)	..	..	..	..	..	..	..	..
Internet users (per 100 population)	..	..	..	..	..	..	..	..

Education	1999	2000	2001	2002	2003	2004	2005	2006
Literacy rate (percent)	..	..	..	..	..	..	..	..

Annex IV

LIST OF NATIONAL ENVIRONMENT-RELATED LEGISLATION

Legislation
2001

- Law on Ratification on the Convention on International Trade in Endangered Species of Wild Fauna and Flora (OG SUSM No. 11/2001)
- Law on Ratification on the Convention on biodiversity (OGSUSM No. 11/2001 and OGSUSM No. 16/2005)
- Law on Genetically Modified Organisms (OG FRY No. 21/2001)
- Regulation on conditions and the manner of selection, packaging and storing of secondary substances (OG RS, No. 55/2001)
- Regulation on method of destroying plants for which measures of destroying are ordered (OG FRY No. 67/2001)
- Regulation on types of packaging for pesticides and fertilisers and on destroying pesticides and fertilisers (OG FRY No. 35/99, No. 63/2001)
- Regulation on trade, import and sampling of fertilisers (OG FRY No. 59/2001)
- Regulation on trade, import and sampling of pesticides (OG FRY No. 59/2001)
- Regulation on methods of organic plant production and on collecting forest fruits and curative plants as products of organic agriculture (OG FRY No. 51/2001)
- Decree on Specific Conditions for the Importation and Processing of Crude Oil and Oil Derivates in 2001 (OG RS No. 16/2001, 23/2001, 28/2002, 54/2002, 37/2003, 90/2003, 56/2005, 76/2005 and 8/2005)
- Excise tax law (OG RS Nos. 22/2001, 73/2001, and 80/2002)

2002

- Law on Local Self-government (OG RS No. 9/2002, 33/2004, 135/2004, 62/2006)
- Law on Determination of Certain Competencies for the Autonomous Province (OG RS No. 6/2002)
- Decree on road and railroad transport of dangerous substances (OG RS No. 53/2002)
- Regulation on detailed conditions which must be fulfilled by professional organizations which perform emissions and imissions measurement (OG RS No. 5/2002)
- Regulation on methods of organic livestock production (OG FRY No. 51/2002)
- Regulation on conditions which must be fulfilled by legal persons performing examination of methods of organic production process (OG FRY No. 67/2002)
- Regulation on restricted use of genetically modified organisms (OG FRY No. 62/2002)
- Regulation on content and data of register of genetically modified organisms and products from genetically modified organisms (OG FRY No. 66/2002)
- Regulation on trading with genetically modified organisms and products from genetically modified organisms (OG FRY No. 62/2002)
- Regulation on introducing into production genetically modified organisms and products from genetically modified organisms (OG FRY No. 62/2002)
- Water Master Plan of the Republic of Serbia (OG RS No. 7/2002)
- Regulation on the requirements that legal persons must fulfil for conducting systematic examination of the contents of radionuclides in the environment (OG FRY 32/98, 67/2002 and 70/2002)

2003

- Law on Planning and Construction (OG RS No. 47/2003 and 34/2006)
- Law on the Customs Service (OG RS No. 73/2003).

- Law on Ratification of Convention on Cooperation for the Sustainable Use of Danube River, (OGSUSM No. 2-2/2003).

2004

- Law on Environmental Protection (OG RS No. 135/2004)
- Law on Strategic Environmental Impact Assessment (OG RS No. 135/2004)
- Law on Environmental Impact Assessment (OG RS No. 135/2004)
- Law on Integrated Environmental Pollution Prevention and Control (OG RS No. 135/2004)
- Law on the free access to information(OG RS No 120/2004)
- Law on Energy (OG RS No. 84/2004)
- Draft Law on Ratification on Amendments to the Montreal Protocol on Substances Depleting Ozone Layer (OG SUSM No. 2/2004)
- Decree on the Establishment of the Air Quality Control Programme in 2004 and 2005 (OG RS No. 48/2004)
- Resolution on Accession to the EU (OG RS No. 48/2004)

2005

- Law on State Administration (OG RS No. 79/2005)
- Law on Ministries (OG RS No. 19/2004, 84/2004 and 79/2005)
- Law on standardization (OG SUSM 44/2005)
- Law on technical requirements for products and their harmonization with legislative requirements (OG FRY No. 44/2005)
- Law on accreditation (OG FRY No., 44/2005)
- Law on metrology (OG FRY No. 44/2005)
- Decree on validation of projects for which impact assessment is obligatory and list of projects for which environmental impact assessment could be requested (OG RS No. 84/2005)
- Regulation on the content of the request for decision making on the need for the impact assessment completion, and the content of the request for definition of the extent and content of the environmental impact assessment study (OG RS No. 69/2005)
- Regulation on the content of the environmental impact assessment study (OG RS No. 69/2005)
- Regulation on the content, appearance and the way of keeping official book on managed procedures and decisions made regarding environmental impact assessment (OG RS No. 69/2005)
- Regulation on activities of the technical commission for evaluation of the environmental impact assessment study (OG RS No. 69/2005)
- Regulation on the public access, presentation and public discussion of the environmental impact assessment study (OG RS No. 69/2005)
- Decree on type of activities and facilities for which integrated permit is issued (OG RS No. 84/2005)
- Decree on the contents of programmes of measures for bringing of operation of the existing installation and activities with prescribed conditions for activities (OG RS No. 84/2005)
- Decree on the criteria for determining of the best available techniques, environmental quality standards and of emission limits values in the integrated permit (OG RS No. 84/2005)
- Regulation on the content and the way of administration of the register of issued integrated permits (OG RS No. 69/2005)
- Decree type of pollution, criteria for calculation of charges, polluters, the amount and manner of calculation and payment of charges (OG RS No. 113/2005)
- Decree on criteria and conditions for refund, waiving or reduction of charges for environmental pollution (OG RS No. 113/2005)
- Regulation on control of use and trade of wild flora and fauna (OG RS No. 31/2005 and 45/2005)
- Regulation on type of equipment, content and mark/badge of inspector for environment protection (OG RS No. 35/2005)
- Regulation on the form of the legal identification card of inspector for environment protection (OG RS No. 35/2005)
- The Decree on Importation of Motor Vehicles (OG RS No. 106/2005)
- Decree on oil derivatives price (OG RS No. 42/2005 and 111/2005)

2006
- Law on Agricultural Land (OG RS No. 62/2006)
- Law on Amendment of the Law on Mining (OG RS No. 44/1995, 85/2005, 101/2005 and 34/2006)
- Decree on the Establishment of the Air Quality Control Programme in 2006 and 2007 (OG RS No 23/2006)
- Regulation on the Conditions Which are to be fulfilled by professional organization for waste research (OG RS No 53/2006)
- Regulation on the technical and other requirements for liquid fuels originated from oil derivates (OG FRY No 51/2004,54/2005 and 18/2006)
- Regulation on criteria for issuing energy permits, content of the request and the method of issuing energy permits (OG RS No 23/2006)
- Regulation on limit values, imission measuring methods, criteria for establishing measuring sites and data evidence (OG RS No. 54/92, 30/99, 19/2006)
- Regulation on content and method of filling of the integrated permit issuing (OG RS No. 30/2006)
- Regulation on content and format of integrated permit (OG RS No. 30/2006)
- Council Decision of 30 January 2006 on the principles, priorities and conditions contained in the European Partnership with Serbia and Montenegro including Kosovo as defined by the United Nations Security Council Resolution 1244 of 10 June 1999 and repealing Decision 2004/520/EC, Official Journal of the European Union L25/32 7.2.2006

2007
- Law on Nature Protection

Plans, Programmes, and Strategies

2002
- Study of Sustainable Development of the Water Sector in the Republic of Serbia

2003
- Water Master plan of Serbia 2002-2012.
- Poverty Reduction Strategy
- National Waste Management Strategy
- General Flood Defence Plan for 2003-2008 (OG RS No.34/2003)

2004
- European Partnership
- Energy Development Strategy of the Republic of Serbia by 2015

2005
- National Environmental Strategy (adopted by Government 2006)
- National Strategy of the Republic of Serbia for Serbia and Montenegro's EU Accession, 2005
- Food Safety Strategy, 2005
- National Action Plan for Gasification of the Republic of Serbia, 2005
- National Strategy for Development of Agriculture

2006
- Forestry Development Strategy, (adopted by Government 2006)
- Strategy for Development of Tourism, 2006
- Study of Sustainable Development of the Water Sector of Serbia (2006)
- National Strategy for Economic Development of Serbia until the 2012.
- Strategy for Official Statistics (2006)

SOURCES

Individual authors:

1. Bajec, J., Milutinovic, S., and Ilic, M. Report of the team for analysis of strategic documents of the government of the Republic of Serbia (2002-2005). Belgrade, January 2006.
2. Barreira, A. Support for preparation and revision of draft water law. World Bank. 2005.
3. Dimovski, M., and Glaser, R. Edited by Kristiina Soone. Environmental Enforcement and Compliance in South Eastern Europe Compiled Report on Legal Structures and Resources Currently Available to Environmental Protection Agencies and Inspectorates in South Eastern Europe. A Bercen Publication. Szentendre, Hungary. February 2002.
4. Fankhauser, S. and Tepic, S. Can poor consumers pay for energy and water? An affordability analysis for transition countries. EBRD Working Paper No. 92. 2005.
5. Kennedy, D. Senior Energy Economist. World Bank Support for the Gas Market in South East Europe. World Bank. Europe and Central Asia Region. Belgrade, March 10th, 2005.
6. Lund, J.W., Freeston, D.H. and Boyd, T.L. "World-Wide Direct Uses of Geothermal Energy 2005", published in Proceedings of the World Geothermal Congress 2005, Antalya, Turkey, 24-29 April 2005.
7. Markovic, M. Cooperation possibilities with the energy industry in Serbia. (PowerPoint presentation)
8. Mikičič, D., Radičevič, B., and Đurisic, Z. Wind Energy Potential in the World and in Serbia and Montenegro. 2006.
9. Mileusnic-Vucic, V. Directorate for water Republic of Serbia. Economic Instruments in Water Management. 2006.
10. Milovanovic, D. Directorate for Water of the Republic of Serbia. Transboundary cooperation Serbia & Montenegro and neighbouring countries. Belgrade. May 2004.

Material from Serbia:

11. Belgrade Times (The). The mountain of red tape blocking renewable energy resources in Serbia. October 19, 2006.
12. Directorate for Environmental Protection. Ministry for Science and Environment and EAR. National Environmental Strategy of the Republic of Serbia. Draft submitted for inter-ministerial consultation. October 2005.
13. Directorate for Water of the Republic of Serbia. Framework Environmental Impact Study, Serbia Irrigation and Drainage Rehabilitation Project. Belgrade. 2005.
14. Electric Power Industry of Serbia (EPS). Annual Report 2002.
15. Electric Power Industry of Serbia (EPS). Annual Report 2003.
16. Electric Power Industry of Serbia (EPS). Annual Report 2004.
17. Electric Power Industry of Serbia (EPS). Report on the state of environment protection for 2003. 2004.
18. Electric Power Industry of Serbia (EPS). Report on the state of environment protection for 2004. 2005.
19. Electric Power Industry of Serbia (EPS). Report on the state of environment protection for 2005. 2006.
20. Fund for Environmental Protection. Annual Working Program 2006. Belgrade, March 2006.
21. Fund for Environmental Protection. Medium-Term Working Program 2006-2009. Belgrade, April 2006.
22. Ministry for Protection of Natural Resources and Environment and Federal Hydro-meteorological Institute. Report on the joint investigation of the Tisa river on the territory of the fr Yugoslavia within the international. JDS-ITR program. Belgrade 2002.
23. Ministry of Science and Environmental Protection, Directorate for Environmental Protection and SIDA. Strengthening Environmental Management in the Directorate for Environmental Protection, Phase II. Inception Note, Final. June 2006.
24. Ministry of Science and Environmental Protection. Fact Sheets Serbia. 2006.
25. Project Jugolex. Editor: Slavko Bogdanović. Development of Environmental Legislation in Serbia and Montenegro. Towards the Compliance with the Community Acquis. Laws on EIA, IPPC and SEA of the Republic of Serbia. Novi Sad 2005.

26. Republic Environmental Inspection in Serbia. Annual Report. Republic Hydrometeorological Service. Yearbook. 2005.
27. Republic of Serbia and UNDP. Government Partner Agency: Ministry of International Economic Relations, Ministry of Energy and Mining, Ministry of Science and environmental protection. Promoting investments for energy efficiency and renewable energy through carbon financing in the Republic of Serbia. 20 January 2006.
28. Republic of Serbia. Ministry for Protection of Natural Resources and Environment. Environmental Sector Report Serbia-Montenegro. World Bank. 2003.
29. Republic of Serbia. Ministry for Protection of Natural Resources and Environment. Serbia 2002 is on the right track. (WSSD)
30. Republic of Serbia. Ministry for Protection of Natural Resources and Environment. The national waste management strategy - including the program of harmonization with the EU. Belgrade, 2003.
31. Republic of Serbia. Ministry for Protection of Natural Resources and Environment, Report of the State of the Environment in 2000 and Priorities in 2001+ for Serbia. June 2002.
32. Republic of Serbia. Ministry for the Protection of Natural Resources and the Environment. Serbia - approaching the summit on sustainable development - Johannesburg 2002 - preliminary seminar Belgrade, April 26, 2002.
33. Republic of Serbia. Ministry of Agriculture, Forestry and Water Management. Financial Study of Water Infrastructure Operation and Maintenance (Draft/Unofficial Translation).
34. Republic of Serbia. Ministry of Agriculture, Forestry and Water Management. Directorate of Forests. Forestry development strategy for Serbia. Draft. Belgrade, 2006.
35. Republic of Serbia. Ministry of Finance. Memorandum on budget and economic and fiscal policy for 2007 with projections for 2008 and 2009. Belgrade, November 2006.
36. Republic of Serbia. Ministry of International Economic Relations. Report on International Assistance to the Republic of Serbia in 2005. Belgrade, March 2006.
37. Republic of Serbia. Ministry of Mining and Energy. Energy Sector Development Strategy of the Republic of Serbia by 2015. 2005.
38. Republic of Serbia. Ministry of Mining and Energy. National Action Plan for Gasification on the Territory of Serbia. Belgrade, September 2005.
39. Republic of Serbia. Ministry of Science and Environmental Protection. Directorate for Environmental Protection. Communication strategy - a dialogue for 2005-2006. May 2005. "Strengthening Environmental Management at the Directorate for Environmental Protection".
40. Republic of Serbia. National Environmental Strategy. Draft. 2005.
41. Republic of Serbia. Poverty Reduction Strategy Paper for Serbia - Executive Summary and Activity Matrices. Belgrade 2003.
42. Republic of Serbia. Republic Statistical Office. Communication No. 295, Issue LII, December 24, 2002. Final results of the census 2002.
43. Republic of Serbia. Road Directorate, Building tomorrow's transport infrastructure in south east Europe. PowerPoint presentation by B. Jocic. Belgrade, 16-17 November 2005.
44. Republic of Serbia. Statistical Office of Republic of Serbia. Municipalities of Serbia 2005. Belgrade, March 2006.
45. Republic of Serbia. Statistical Office of the Republic of Serbia. Energy Balance of Electricity and Heat, 2004-2005. 2006.
46. Republic of Serbia. Statistical Office of the Republic of Serbia. Statistical Yearbook 2005. Belgrade 2005.
47. Republic of Serbia. The review of the implementation - The Millennium Development Goals in Serbia 2006.
48. Republic of Serbia. Water Master plan of Serbia. 2002.
49. SEPA. Fact sheet water. 2005.

Regional and international institutions:

50. Acquis. IV environmental chapter environmental impact assessment (EIA).
51. Bise – Energy Efficiency Networking Activities.
52. Consortium: Dr Pecher & Vassilev Water Consultants, Dr. Dahlem, BeoInzennjering."Global Waste Water Study in Serbia & Pre-feasibility Study for Belgrade Waste Water Management" founded by EAR. 2005.
53. Department for International Development (UK). Regional Assistance Plan for the Western Balkans 2004/05 – 2008/09.
54. EBRD. Information. EBRD activities in Serbia Montenegro. September 2005.

55. EBRD. South Eastern Europe.
56. EBRD. Strategy for Serbia and Montenegro, as approved by the Board of Directors at its meeting on 2 November 2004.
57. EBRD. Strategy for Serbia and Montenegro. 24 November 2004.
58. EEA - European Environment Agency. Using the market for cost-effective environmental policy. EEA Report No. 1/2006.
59. EIU. Country Profile 2005. Serbia and Montenegro. 2005.
60. EIU. Country Report. Serbia and Montenegro, April 2006.
61. EU. Commission of the European Communities. Commission Staff Working Document, Serbia 2006 Progress Report, [COM(2006) 649 final] Brussels, 8.11. 2006 SEC (2006) 1389.
62. EU. Commission of the European Communities. Commission Staff Working Paper, Federal Republic of Yugoslavia, Stabilisation and Association Report [COM(2002) 163], Brussels, April 4, 2002 SEC(2002) 343.
63. EU. Commission of the European Communities. Commission Staff Working Paper, Serbia and Montenegro, Stabilisation and Association Report 2003 [COM(2003) 139 final], Brussels, 26.3.2003 SEC(2003) 343.
64. EU. Commission of the European Communities. Commission Staff Working Paper, Serbia and Montenegro, Stabilisation and Association Report 2004 [COM(2004) 206 final], Brussels, xxx SEC(2004) 376.
65. EU. Commission of the European Communities. Communication from the Commission to the European Parliament and the Council, Enlargement Strategy and Main Challenges 2006-2007, [SEC (2006(1383-1390], Brussels, 8. 11. 2006, COM(2006) 649.
66. EU. EAR - European Agency for Reconstruction. On the Road to Europe. Helping the Western Balkans help themselves. January 2006.
67. EU. EAR - European Agency for Reconstruction. The European Union at work in Montenegro. July 2003.
68. EU. EAR. Annual Report to the European Parliament and the Council, January to December 2005. Thessaloniki, 12 June 2005.
69. EU. European Commission. External Relations Directorate General. Federal Republic of Yugoslavia, Country Strategy Paper 2002-2006.
70. EU. European Commission. Serbia and Montenegro 2005 Progress Report, {COM (2005) 561 final}. Brussels, 9 November 2005 SEC (2005) 1428.
71. EU. European Council. Serbia and Montenegro Multi-Annual Indicative Programme 2005-2006, European Commission, External Relations Directorate General, Directorate Western Balkans. 2004.
72. EU. European Council. Communication from the Commission, 2005 enlargement strategy paper, Commission of the European Communities, COM(2005) 561 final. Brussels, 9.11. 2005.
73. EU. European Council. Council adopts new instrument to govern EU financial assistance to candidate and potential candidate countries for EU membership. Press Release, IP06/1004, 17 July 2006.
74. EU. European Council. Council decision of 30 January 2006 on the principles, priorities and conditions contained in the European Partnership with Serbia and Montenegro including Kosovo as defined by the United Nations Security Council Resolution 1244 of 10 June 1999 and repealing Decision 2004/520/EC. Official Journal of the European Union. 7.2.2006.
75. EU. European Council. Report on the preparedness of Serbia and Montenegro to negotiate a Stabilisation and Association Agreement with the European Union, Commission Staff Working Paper, Commission of the European Communities, Brussels, SEC(2005) 478 final. Brussels, 12.04.2005.
76. EU. Main administrative structures required for implementing the acquis. (updated: May 2005).
77. European Commission. External Relations Directorate General, Directorate Western Balkans. Annex 2(a) of the 2002-2006 FRY Country Strategy Paper.
78. FAO consultant report. Serbia and Montenegro. Serbia Danube River Enterprise Pollution Reduction Project. 8 January 2004.
79. Fifth ministerial conference. Environment for Europe. Kiev, Ukraine 21-23 may 2003.
80. First South-East Europe sub-regional workshop on the implementation of the UNECE strategy for education for sustainable development. Intervention by Serbia and Montenegro. Reform of educational system in Montenegro. 28 November 2005, Athens, Titania Hotel.
81. Government of Serbia and Montenegro, UNDP, and Global Environment Facility. National Capacity Self-Assessment for Environmental Management in Serbia and Montenegro.
82. Grid-Arendahl. The municipality of Bor. Local environmental action plan. March 2003, Bor.
83. ICPDR. Flood Action Programme. December 2004.

84. ICPDR. Roof Report. 2004.
85. IEA. International Energy Statistics - CO2 emissions from fuel combustion. 1971-2003. 2005.
86. IMF. Country report No.06/96. Serbia and Montenegro: Serbia – Financial System Stability Assessment, including Reports on the Observance of Standards and Codes on the following topics: Monetary and Financial Policy Transparency, Banking Supervision, and payment System. March 2006.
87. IMF. Republic of Serbia, Staff Report for the 2006 Article IV Consultation and Post-Program Monitoring Discussions. August 10, 2006.
88. IMF. Serbia and Montenegro – 2006 Article IV Consultation and Post-Program Monitoring. Serbia: Concluding Statement of the Mission. June 27, 2006.
89. IMF. Serbia and Montenegro: Letter of Intent, Memorandum of Economic and Financial Policies and Technical Memorandum of Understanding. January 11, 2006.
90. IMF. Serbia and Montenegro: Poverty Reduction Strategy Paper. IMF Country Report No. 04/120. 2004.
91. Institute "Jaroslav Cerni". Study on Rational Water Catchments on the Aquifers Aimed at Loss Reduction in Regional Water Supply Systems for Urban Settlements in the Republic of Serbia. 2006.
92. Memorandum of Understanding on the Regional Electricity Market in South East Europe and its Integration into the European Union Internal Electricity Market (The Athens Memorandum – 2002).
93. OECD and EC. Sigma. Public Management Profiles of Western Balkan Countries: Serbia and Montenegro, State Union Level. (as of October 2003)
94. OECD and EU. Sigma Balkans Report 2002. FRY/Republic of Serbia. Public Expenditure Management.
95. OECD and EU. Sigma Balkans Report 2002. FRY/Republic of Serbia. Tax Administration.
96. OECD. Foundations for investment: Progress and Challenges in Regulatory Reform in South East Europe. 2-3 October 2001.
97. OECD. Pollution abatement and control expenditure in OECD countries. 17 July 2003.
98. OECD. Progress in Policy Reform in South East Europe Monitoring Instruments. Fourth edition, April 2004.
99. OECD. Stability Pact. Ministerial Statement. Fourth South East Europe Ministerial Conference. “Maximising the impact of investment on employment and human resources”. Sofia, 10 June 2005.
100. OECD. Stability Pact. Tax Policy Assessment and Design in Support of Direct Investment. A study of Countries in South East Europe. April 2003.
101. OECD. Thematic Review of National Policies for Education: Serbia. CCNM/DEELSA/ED (2001)11. 22. June 2001.
102. Oxford Analytica. Friday, November 4 2005. Serbia-Montenegro: SRS could enter power in Serbia.
103. Regional Environmental Center and City Secretariat for Environmental protection. Quality of environment in the City of Belgrade. 2005, 2006.
104. Regional Environmental Center and ECENA. Key findings and Recommendations of the Peer Review of the IPPC System and the Minimum Criteria for Environmental Inspection of Republic of Serbia (Serbia and Montenegro). Szentendre, Hungary, December 2005.
105. Regional Environmental Center Office in Serbia and Montenegro. Vodič za primenu lokalnih ekoloških akcionih programa u Centralnoj i Istočnoj Evropi (Guide to Implementing Local Environmental Action Programs in Central and Eastern Europe). Belgrade, May 2003 (in Serbian)
106. Regional Environmental Center Serbia and Montenegro. Compendium of Achievements 2001/2004. Solutions for People and the Environment. 2004.
107. Regional Environmental Center, Country Office Yugoslavia. LEAP u Jugoslaviji – dosadašnja praksa (LEAP in Yugoslavia – Contemporary Practice). 2001. (in Serbian)
108. Regional Environmental Center. Environmental Reconstruction and EU Approximation in South Easter Europe. REReP Highlights 2003-2005. June 2005.
109. Regional Environmental Center. Status Report on Clean Fuel and Vehicles in Central and Eastern Europe. Szentendre, 2006.
110. Regional Environmental Center. Targeting the Environmental Investment Challenge in South Eastern Europe. Szentendre, November 2005.
111. Regional Environmental Center. The Regional Environmental Reconstruction Program for South Eastern Europe (REReP). Building a Better Environment for the Future. Edited by Jennifer Braswell. Szentendre, Hungary. October 2000.
112. Sida. Assessment of Lessons Learned from Sida Support to conflict Management and Pease Building. Annex 1-5, Case Studies. Sida Evaluation 00/37:2. December 2000.

113. Sida. Guidelines. Swedish Assistance to the Roma Population in the Western Balkans. February 2006.
114. Strategija lokalnog održivog razvoja (Strategy of Local Sustainable Development). Standing Conference of Towns and Municipalities, Belgrade, May 2005 (in Serbian).
115. Swiss Agency for Development and Cooperation (SDC). Evaluation 2005/3. Independent evaluation of the SDC/seco Medium Term Concept 2002-2006 in Serbia and Montenegro. Berne, December 2005.
116. The Role of the UN System Agencies in the Poverty Reduction Strategy Paper (PRSP). Powerpoint presentation.
117. UN. Commission on Sustainable Development. CSD. Freshwater Country Profile. Serbia and Montenegro. 2004.
118. UN. Commission on Sustainable Development. CSD. Human Settlements Country Profile. Serbia and Montenegro.
119. UN. Commission on Sustainable Development. CSD. National Sustainable Development Strategies.
120. UN. Commission on Sustainable Development. CSD. Part III. National Reporting Guidelines for CSD-14/15 Thematic areas. B. Energy.
121. UN. Commission on Sustainable Development. CSD. Serbia and Montenegro. A case study on commitments-related best practice or lessons learned in sanitation.
122. UN. Commission on Sustainable Development. CSD. Wastewater Country Profile. Serbia and Montenegro.
123. UNDP and SIDA. Developing strategies for sustainable development in the member states of Serbia and Montenegro through country-to-country cooperation. 24 October 2003.
124. UNDP United Nations Development Programme. Global Environment Facility. Proposal for self-assessment exercise - Expedited Financing of Initial National Communications to the UNFCCC.
125. UNDP. Government of Serbia and Montenegro. Global Environment Facility. Biodiversity Strategy, Action Plan and National Report.
126. UNDP. Human Development Report Serbia 2005. The Strength of Diversity. Belgrade 2005.
127. UNDP. Serbia - Assessment of Development Results – Evaluation of UNDP's Contribution. New York 2006.
128. UNDP. Stuck in the past. Energy, Environment and Poverty. Serbia and Montenegro. Belgrade 2004.
129. UNDP. The Sustainable Difference – Energy and Environment to Achieve the MDGs. August 2005.
130. UNDP. United Nations Development Programme. Project Document. Feasibility Study for the Remediation of the Bor Mine Surface- and Groundwaters.
131. UNECE and Republic of Serbia. EPR-interim report on the fulfilment of the recommendations of the Environmental Performance Review 2002. 2006.
132. UNECE. Environmental Performance Review – Yugoslavia. New York and Geneva, 2003.
133. UNECE. Steering Committee On Education For Sustainable Development. First meeting Geneva, 13-14 December 2005. Intervention by Serbia and Montenegro. Ms. Vesna Fila, Deputy Minister, Ministry of Education and Sports, Republic of Serbia. Current situation and trends in Serbian education system for sustainable development.
134. UNEP. Mediterranean Action Plan. 14th Ordinary Meeting of the Contracting Parties to the Convention for the Protection of the Marine Environment and the Coastal Region of the Mediterranean and its Protocols. Portoroz (Slovenia), 8-11 November 2005. (DEPI)/MED IG.16/13.
135. United Nations. Progress in the implementation of the Aarhus policy statement on environmental management in enterprises: Central and South Eastern Europe. Submitted by The Regional Environmental Center for Central and Eastern Europe through the Ad Hoc Working Group of Senior Officials. Background document.
136. WHO and UNICEF. Global water supply and sanitation assessment 2000 report.
137. Witteveen+Bos. Master plan and feasibility study Inland waterway transports for Serbia, founded by EAR. April 2005.
138. World Bank. Environmental Sector Report. Serbia and Montenegro. Belgrade, 2003.
139. World Bank. Federal Republic of Yugoslavia. Environmental Sector Review. Annexes. September 2002. Draft.
140. World Bank. Serbia and Montenegro – Poverty Reduction Strategy Paper and Joint IDA/IMF Staff Assessment. Report No. 27918-YF. February 18, 2004.
141. World Bank. Serbia and Montenegro. Country Environmental Analysis. February 2003.
142. World Bank. Serbia and Montenegro. Country Environmental Analysis / Environmental Sector Review. Annexes. February 2003.
143. World Bank. Serbia Montenegro. Recent Progress on Structural Reforms. November 11, 2003.

Internet Addresses:

Ministries and government institutions:

144. Energy Agency of the Republic of Serbia http://www.aers.org.yu/IndexEng.asp
145. Federal Republic of Yugoslavia—Letter of Intent and Revised Memorandum of Economic and Financial Policies. December 26, 2001 http://www.imf.org/external/np/loi/2001/yug/03/index.htm
146. Government of Serbia. The Progress Report on the Implementation of the Millennium Development Goals in Serbia, May 2005. http://www.undp.org.yu/mdgs/2005/mdg_report_eng.pdf
147. Ministry for the Protection of the Natural Resources and Environment, Republic of Serbia. State of the environment in 2000 and priorities in 2001 http://enrin.grida.no/htmls/yugo/serb/index.htm
148. Ministry of Environmental Protection http://www.ekoserb.sr.gov.yu/dokumenti/index.php
149. Ministry of Environmental Protection. Ministry of Science and Environment Protection - Directorate for the Environmental Protection http://www.ekoserb.sr.gov.yu/dokumenti/index.php
150. Ministry of Environmental Protection. National Environmental Strategy 2004 http://www.ekoserb.sr.gov.yu/dokumenti/razno/NES.pdf
151. Ministry of Environmental Protection. NEAP http://www.ekoserb.sr.gov.yu/index.php?code=1
152. Ministry of Mining and Energy http://www.mem.sr.gov.yu/index.php?jezik=eng
153. Ministry of Mining and Energy. Energy Demand Forecast. http://www.seenergy.org/index.php?/countries&stat=5&type=3&col=2124
154. Ministry of Mining and Energy. Energy Sector Paper. http://www.seenergy.org/index.php?/countries&stat=5&type=3&col=2117
155. Ministry of Mining and Energy: http://www.mem.sr.gov.yu/index.php?jezik=eng
156. Serbia Government http://www.srbija.sr.gov.yu/pages/article.php?id=312
157. Serbia Montenegro. Ministry of international economic relationships http://www.umier.gov.yu/code/navigate.php?Id=16
158. Serbian Energy Efficiency Agency http://www.seea.sr.gov.yu/English/Prezentacija1.htm
159. Serbian Government. www.srbija.sr.gov.yu
160. Serbian Government. The EU Integration Office http://www.seio.sr.gov.yu/code/navigate.asp?Id=223

Other internet sites:

161. Bern Convention (Convention on the Conservation of European Wildlife and Natural Habitats) http://conventions.coe.int/Treaty/EN/Treaties/Html/104.htm
162. Bonn Convention (Convention on Migratory Species) http://www.cms.int/
163. CIA factbook http://www.cia.gov/cia/publications/factbook/geos/yi.html
164. CITES. GRID Arendal http://www.grida.no/index.htm
165. City of Belgrade. Statistical data http://www.beograd.org.yu
166. Convention on Biological Diversity http://www.biodiv.org/
167. Danube Commission (ICPDR) http://www.icpdr.org/
168. DREPR Danube River Enterprise Pollution Reduction http://www.drepr.org/indexeng.htm
169. EBRD. Annual Review 2003 http://www.ebrd.com/pubs/general/ar03.htm
170. EBRD. Project summaries http://www.ebrd.com/projects/psd/index.htm
171. EBRD. Serbia homepage http://www.ebrd.com/country/country/serbia/index.htm
172. EEA http://countries.eea.eu.int/SERIS/view_on_coverage?country=yu
173. EIA. South eastern Europe country analysis http://www.eia.doe.gov/emeu/cabs/seeurope.html
174. Electric Power Industry of Serbia http://www.eps.co.yu/ecology.htm
175. Energy Regulators Regional Association http://www.erranet.org/

176. Energy Saving Group. Ilic, Mladen. Biomass Energy Potential and Biomass Projects in Serbia. http://www.energyagency.at/publ/pdf/cei06_ilic.pdf
177. Energy Strategy http://www.mem.sr.gov.yu/index.php?jezik=lat (in Serbian)
178. EU http://europa.eu.int/index_en.htm
179. EU / World Bank. Energy in South East Europe http://www.seerecon.org/infrastructure/sectors/energy/
180. EU. European Commission's Delegation http://www.eudelyug.org/en/index.htm
181. to the Republic of Serbia
182. European Environment Information and Observation Network (EIONET) http://www.eionet.europa.eu/
183. FAA SECTION 119. Biodiversity Assessment Update for Serbia and Montenegro. USAID / Serbia-Montenegro. September 8, 2005. http://pdf.dec.org/pdf_docs/PNADE196.pdf
184. FAO Country profile http://www.fao.org/countryprofiles/index.asp?lang=en&iso3=YUG
185. FAO Statistics http://faostat.fao.org/default.jsp?language=EN
186. Geographic guide http://serbia.europe-countries.com/
187. Global Environmental Facility GEF http://www.gefweb.org/
188. Governments on the net http://www.gksoft.com/govt/en/yu.html
189. GTZ. Serbia http://www.gtz.de/en/weltweit/europa-kaukasus-zentralasien/661.htm
190. GTZ. Serbia and Montenegro http://www.gtz.de/en/weltweit/europa-kaukasus-zentralasien/serbien-montenegro/2625.htm
191. Human Rights Watch. Serbia Montenegro http://hrw.org/doc?t=europe&c=serbia
192. ICPDR. International Commission Pollution Danube River. www.icpdr.org
193. IMF and Serbia Montenegro http://www.imf.org/external/country/SCG/index.htm
194. IMF. Serbia Montenegro Poverty Reduction Strategy Paper http://www.imf.org/external/pubs/ft/scr/2004/cr04120.pdf
195. Implementing Sustainable Winter and Summer Tourism in Northern & Central Montenegro: An Assessment of Current Strategies and Next Steps. A Report to the Rockefeller Brothers Fund and UNDP. by: Martha Honey, Ph.D., Arthur DeJong, Auden Schendler, November 27, 2005 http://www2.undp.org.yu/montenegro/files/reports/TIES%20-%20en.pdf
196. Jaroslav Cerni Institute http://www.jcerni.co.yu
197. NationMaster.com http://www.nationmaster.com/country/yi
198. OECD Sigma http://www.oecd.org/pages/0,2966,en_33638100_33638151_1_1_1_1_1,00.html
199. OECD. Sigma: Serbia Montenegro http://www.oecd.org/document/3/0,2340,en_33638100_33638200_34923779_1_1_1_1,00.html
200. OSCE Mission to Serbia http://www.osce.org/serbia/
201. OSCE. Renewable Energy for energy security http://www.osce.org/documents/fry/2005/09/16189_en.pdf
202. RAMSAR Convention http://www.ramsar.org/
203. REC http://www.rec.org/
204. REC Serbia and Montenegro. Publication overview http://www.recyu.org/eng/publications/izdanja-pregled.htm
205. REC. REREP http://www.rec.org/REC/Programs/REREP/
206. REC. Sava Commission http://www.rec.org/rec/programs/sava/Default.html
207. REC. Serbia Montenegro http://www.recyu.org/indexe.asp
208. Republic of Serbia. Republic Statistical Office http://www.statserb.sr.gov.yu/
209. SEE. Environment Info http://see-environment.info/index.shtml
210. SEENERGY. EU and World Bank. Document library. http://www.seenergy.org/index.php?/document_library&cat=11
211. SEENERGY. EU and World Bank. Serbia. Energy Sector Strategy http://www.seenergy.org/index.php?/countries&stat=5&type=3&col=2120

212. UN Commission on Sustainable Development http://www.un.org/esa/sustdev/csd.htm
213. UN DESA Sustainable Development http://www.un.org/esa/sustdev/documents/WSSD_POI_PD/English/POI_PD.htm
214. UN DESA Sustainable Development http://www.un.org/esa/sustdev/documents/docs_sdissues.htm
215. UN DESA Sustainable Development http://www.un.org/esa/sustdev/natlinfo/indicators/isdms2001/table_4.htm
216. UN DESA Sustainable Development http://www.un.org/esa/sustdev/publications/publications.htm#indicators
217. UN DESA Sustainable Development http://www.un.org/esa/sustdev/sdissues/sdissues.htm
218. UN in Serbia http://www.un.org.yu/agencies/wb.htm
219. UN. ESA. Agenda 21. Serbia Montenegro http://www.un.org/esa/agenda21/natlinfo/countr/serbiamontenegro/energy.pdf
220. UN. Millennium Development Goals http://www.un.org/millenniumgoals/
221. UN/ECE Helsinki Convention (Convention on the Protection and Use of Transboundary Watercourses and International Lakes) http://www.unece.org/env/water/welcome.html
222. UNCTAD. Statistics on FDI and the operations of TNCs. http://www.unctad.org/Templates/Page.asp?intItemID=1888&lang=1
223. UNDP http://www.undp.org.yu/newsroom/links.cfm
224. UNDP. Human Development Report 2005 http://hdr.undp.org/reports/global/2005/
225. UNDP. Millennium Development Goals (MDGs) http://www.undp.org.yu/mdgs/
226. UNDP. Sava river protection plan http://europeandcis.undp.org/?menu=p_article&ArticleID=303
227. UNDP. Serbia - useful links http://www.undp.org.yu/newsroom/links.cfm
228. UNDP. Serbia and Montenegro http://www.undp.org.yu/
229. UNDP. Serbia, reports and publications http://www.undp.org.yu/tareas/reports.cfm
230. UNDP. The review of the implementation, The millennium development goals in Serbia http://www.undp.org.yu/mdgs/2005/mdg_report_eng.pdf
231. UNECE http://www.unece.org/env/epr/experts/serbia_and_montenegro
232. UNECE. Steering Committee On Education For Sustainable Development http://www.unece.org/env/esd/1stMeetSCIntervent/SerbiaandMontenegro.doc
233. UNECE. Trends http://www.unece.org/stats/trend/yug.pdf
234. UNEP Grida. State of the environmental report http://enrin.grida.no/soe.cfm?country=CS&groupID=2
235. UNEP, UNDP, OSCE. Environment and Security. Projects http://www.envsec.org/projects.php - 24
236. UNEP. Draft Report. Reducing Environment & Security Risks from Mining in South Eastern Europe. Desk-assessment study for the Environment and Security Initiative Project. Philip Peck, November 2004. for UNEP http://www.envsec.org/see/pub/REPORT%20Draft%20Issue%2001-11-04.pdf
237. UNSTATS Environmental accounting http://unstats.un.org/unsd/envAccounting/seea.htm
238. UNSTATS. Millennium goals http://unstats.un.org/unsd/mi/mi_goals.asp
239. US Department of State. Serbia and Montenegro. http://www.state.gov/r/pa/ei/bgn/5388.htm
240. US Embassy – Serbia Montenegro. IMF Approves Serbia-Montenegro Economic Performance http://belgrade.usembassy.gov/policy/regional/040609a.html
241. USAID. Serbia and Montenegro Strategy 2006-2011 http://serbia-montenegro.usaid.gov/code/navigate.php?Id=37
242. USAID/Serbia-Montenegro. Biodiversity Assessment Update for Serbia and Montenegro. http://pdf.dec.org/pdf_docs/PNADE196.pdf
243. Washburn School of Law. Serbia Montenegro Laws http://www.washlaw.edu/forint/europe/
244. WHO. European Environment and Health Committee http://euro.who.int/eehc/implementation/20050526_2
245. WHO. European health for all databases (HFA-DB) http://data.euro.who.int/hfadb/

246. World Bank http://www.worldbank.org.yu/WBSITE/EXTERNAL/COUNTRIES/ECAEXT/SERBIAEXTN/0,,menuPK:300909~pagePK:141159~piPK:141110~theSitePK:300904,00.html
247. World Bank. Environment http://web.worldbank.org/WBSITE/EXTERNAL/TOPICS/ENVIRONMENT/0,,menuPK:176751~pagePK:149018~piPK:149093~theSitePK:244381,00.html
248. Yugolex. Development of environmental legislation in Serbia and Montenegro http://www.yugolex.org.yu/
249. Yugoslav Survey. New taxation system http://www.yusurvey.co.yu/products/ys/showSummaryArticle.php?prodId=1775&groupId=2310