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Montenegro

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Third Review





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Foreword

The United Nations Economic Commission for Europe (ECE) has been engaged in the third cycle of Environmental Performance Reviews (EPRs) since 2011 when the Environment Ministers from the ECE region reaffirmed their support to the EPR Programme during the Seventh "Environment for Europe" Ministerial Conference (Astana, Kazakhstan). The third cycle places a stronger emphasis on environmental mainstreaming in priority sectors and on the enhancement of international environmental cooperation. Also, the third cycle EPRs address policy frameworks for greening the economy and describe specific green economy initiatives

This is the third EPR of Montenegro published by ECE. The review takes stock of progress made by Montenegro in the management of its environment since the country was reviewed for the second time in 2007. It assesses the implementation of the recommendations made in the second review. This third EPR also covers issues of specific importance to the country related to legal and policy frameworks, the financing of environmental policies, greening the economy, climate change mitigation and adaptation, and integrating environmental concerns into selected sectors, in particular water and waste management.

The timing of this publication coincides with the international debate on the post-2015 development agenda and the expected sustainable development goals. The regional commissions are actively engaging in discussions on the implementation and monitoring of progress in the achievement of goals and targets as well as on the peer review mechanisms that could be put in place. The United Nations Secretary-General in his 2014 Synthesis Report on the Post-2015 Agenda supports incorporating and building on the experiences of existing mechanisms, such as the EPRs carried out by ECE.

I trust that this third EPR will serve as a powerful tool to support policymakers and representatives of civil society in their efforts to improve environmental management and to further promote sustainable development in Montenegro. I also hope that the lessons learned from the peer review process in Montenegro will benefit other countries throughout the ECE region and facilitate the achievement and monitoring of the future sustainable development goals.

Christian Friis Bach

Executive Secretary
Economic Commission for Europe

Preface

In 1993, the second Environment for Europe Ministerial Conference (Lucerne, Switzerland) mandated ECE to carry out EPRs for those ECE member States that are not members of the Organisation for Economic Co-operation and Development (OECD). Subsequently, the ECE Committee on Environmental Policy decided to make them part of its regular programme. Since then, the environment ministers affirmed their support for the EPR Programme, decided in 2003 that the Programme should continue with a second cycle of reviews, and formally endorsed the third cycle of reviews in 2011.

Through the peer review process, EPRs also promote dialogue among ECE member States and the harmonization of environmental conditions and policies throughout the region. As a voluntary exercise, an EPR is undertaken only at the request of the country concerned. The studies are carried out by international teams of experts from the region working closely with national experts from the reviewed country. The teams also benefit from close cooperation with other organizations in the United Nations system and outside.

The third EPR of Montenegro began in November 2013 with a preparatory mission. During this mission, the structure of the review report was agreed upon and the time schedule established. A team of international experts took part in the review mission on 3 – 10 February 2014.

The draft EPR report was submitted to Montenegro for comment and to the ECE Expert Group on EPR for consideration in August 2014. During its meeting on 30 September – 1 October 2014, the Expert Group discussed the report with expert representatives of the Government of Montenegro, focusing in particular on the conclusions and recommendations made by the international experts.

The EPR recommendations, with suggested amendments from the Expert Group, were then submitted for peer review to the nineteenth session of the Committee on Environmental Policy on 30 October 2014. A high-level delegation from Montenegro participated in the peer review. The Committee adopted the recommendations as set out in this report.

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

ECE would like to express its appreciation to Sweden for its financial contribution through the Swedish International Development Cooperation Agency, to Portugal for having delegated its experts for the review, and to UNDP for its support of the EPR Programme and this review. ECE would also like to thank Austria, the Netherlands, Norway and Switzerland for their financial support to the EPR Programme.

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KEY ABBREVIATIONS

BAT	best available techniques
CEHAP	Children's Environment and Health Action Plan
CETI	Centre for Ecotoxicological Research
CFC	chlorofluorocarbon
CITES	Convention on International Trade in Endangered Species of Wild Flora and Fauna
EIA	environmental impact assessment
EIB	European Investment Bank
ELV	emission limit value
EMEP	European Monitoring and Evaluation Programme
EPA	Environmental Protection Agency
EU	European Union
FDI	foreign direct investment
GEF	Global Environment Facility
GHG	greenhouse gas
GMO	genetically modified organism
HPP	hydropower plant
HSS	Hydrometeorological and Seismological Service
IPA	Instrument for Pre-Accession Assistance
IPCC	Intergovernmental Panel on Climate Change
IPPC	integrated pollution prevention and control
KAP	Aluminium Plant Podgorica
MSW	municipal solid waste
NEEAP	National Energy Efficiency Action Plan
NSSD	National Strategy for Sustainable Development
ODS	ozone-depleting substances
PENP	Public Enterprise "National Parks of Montenegro"
PCB	polychlorinated biphenyl
POP	persistent organic pollutant
PPCG	EU Accession Programme for the period 2014–2018
PPP	purchasing power parity
PRTR	pollutant release and transfer register
SEA	strategic environmental assessment
SoE	state of environment (report)
SNC	Second National Communication to the United Nations Framework Convention on Climate Change
TNA	Technology Needs Assessment for Climate Change Mitigation and Adaptation for Montenegro – National Strategy and Action Plan
TPP	thermal power plant
UNDP	United Nations Development Programme
UNEP	United Nations Environment Programme
UNFCCC	United Nations Framework Convention on Climate Change
WWTP	wastewater treatment plant

SIGNS AND MEASURES

..	not available
-	nil or negligible
.	decimal point
$	dollar
cap	capita
eq.	equivalent
g	gram
Gg	gigagram
GWh	gigawatt-hour
ha	hectare
kg	kilogram
km	kilometre
km^2	square kilometre
km^3	cubic kilometre
kt	kiloton
kV	kilovolt
kW	kilowatt
kWh	kilowatt-hour
l	litre
m	metre
m^2	square metre
m^3	cubic metre
Mg	Megagram
MW	megawatt
PJ	petajoule
ppm	parts per million
t	ton (1,000 kg)
toe	ton of oil equivalent
TWh	terawatt-hour

Executive summary

The second Environmental Performance Review (EPR) of Montenegro was carried out in 2007. This third review intends to assess the progress made by Montenegro in managing its environment since the second EPR and in addressing new environmental challenges.

Environmental conditions and pressures

Montenegro is a service-based economy. Its tertiary sector accounted for 73.3 per cent of total gross domestic product (GDP) in 2012. The industrial sector produced 12.4 per cent of total GDP in 2012, while primary production – agriculture, forestry and fishing – accounted for 8.8 per cent and construction 5.5 per cent. GDP per capita in current purchasing power parity (PPP) in 2012 was US$13,551 or 40.9 per cent of the EU-28 average.

Sulphur dioxide (SO_2) emissions increased by 236 per cent – from 11,794 tons in 2007 to 39,728 tons in 2011. Practically all SO_2 emissions were emitted from combustion of fossil fuel in the energy and energy-transformation industry. Most of the energy industry emissions came from the thermal power plant (TPP) Pljevlja.

Emissions of nitrogen oxides (NOx) converted to NO_2 grew considerably more slowly, by about 26 per cent (from 8,040 tons in 2007 to 10,152 tons in 2011). Ammonia (NH_3) emissions dropped by 14.7 per cent from 3,400 tons in 2007 to 2,900 tons in 2011. Mercury emissions increased by 24.3 per cent between 2007 and 2011, while cadmium emissions were reduced by 4.3 per cent and lead emissions by 51.5 per cent during the same period.

Total greenhouse gas (GHG) emissions decreased by 17 per cent between 2007 and 2011, while CO_2 emissions increased by 8.1 per cent during the same period. The energy sector, comprising energy supply and consumption in the transport, residential and service sectors, has the highest share of GHG emissions, accounting for nearly 68 per cent of total emissions in 2011. This share was followed by those of industry (20 per cent), agriculture (10 per cent) and waste (2 per cent).

The total water abstraction had a 7.44 per cent increase from 2005 to 2011. Over the same period the amount of water consumed dropped by 7.4 per cent because the water losses increased by 24 per cent – from 48.18 million m^3 in 2005 to 59.77 million m^3 in 2011. Over 80 per cent of the water in 2011 came from ground and spring sources.

The sectoral use of water underwent transformation between 2005 and 2011. Household water use increased by 10.2 per cent while the water used for irrigation decreased by 72.6 per cent. Similar diminishing water use took place in manufacturing (45.6 per cent less) and electricity production (20.3 per cent less).

Forest area had expanded from 7,180 km^2 in 2007 to 9,640 km^2 in 2013 (i.e. by 34.3 per cent). In 2013, forests covered 69.8 per cent of Montenegro's land area. At the same time, the impact of forest fires on forested area diminished.

By the end of 2013, the total protected area had expanded to 1,249.72 km^2, covering 9.05 per cent of the country's territory. The increase was largely due to the establishment of the National Park Prokletije (16.038 ha) in 2009. Most (81.34 per cent) of the total protected area is covered by the five national parks.

Legal and policymaking framework and its practical implementation

Since 2007, Montenegro has significantly changed its legal and policy framework for the environment and sustainable development. A new package of laws and corresponding secondary legislation has been adopted, and a strategic framework for environment and sustainable development has been further developed. However, the implementation of legislation lags behind the intensive efforts to improve the legal and policy framework.

The main driver behind the strengthening of environmental policy and legislation has been the process of accession to the EU. The National Programme for Integration for the period 2008–2012 and the Programme of Montenegro's accession to the European Union 2014–2018 (PPCG) played crucial role in the prioritization of legislative and policy measures, as well as for allocation of financial and other resources for their implementation.

The 2007 National Strategy for Sustainable Development (NSSD), accompanied by the Action Plan, provides an overall strategic framework for activities on environment and sustainable development. As of February 2014, the Government had adopted five reports on NSSD implementation.

Although strategic documents were adopted to define the strategic vision in many specific sectors of environmental protection, yet some areas, e.g. water and climate change, are still not covered by overarching strategic documents. Implementation of some strategic documents, e.g. the Biodiversity Strategy, encounters difficulties because of poor financing. The development of strategies, plans and programmes at the local level faces significant delays.

Since 2007, substantial institutional changes have taken place in the set-up of environmental authorities. Establishment of the Environmental Protection Agency (EPA) in 2008 allowed the separation of law and policymaking from implementation, with the former functions now vested in the Ministry of Sustainable Development and Tourism and the latter being the responsibility of the EPA. Another substantial change was the creation in 2012 of the Administration for Inspection Affairs as a separate institution, bringing together all inspections, including environmental, forestry, water, housing and sanitary-epidemiological ones. The Hydrometeorological Institute and the Seismological Bureau were merged into one institution in 2012. A notable development was the creation of an institutional system for ionizing radiation.

The reform of the National Council for Sustainable Development in 2012–2013 strengthened the climate change dimension in the work of the Council. The mandate of the Council, renamed the National Council for Sustainable Development and Climate Change and headed by the President of Montenegro, includes monitoring NSSD implementation and provision of advice on various legal, strategic and planning documents related to sustainable development.

Montenegro has a number of instruments and initiatives directed at various aspects of green economy. However, the country does not have a strategic document that would explicitly state its commitment to green economy.

Since 2007, the competences of local self-government authorities on environmental matters have increased. They were assigned new responsibilities and were also provided with a range of opportunities to improve environmental policy at the local level. However, local self-government authorities dealing with environmental issues are poorly staffed and trained, and face difficulties in coping with their environment-related responsibilities.

Compliance and enforcement mechanisms

The establishment in 2012 of the Administration for Inspection Affairs separated enforcement from implementation. However the focus of compliance monitoring is on the number rather than quality of inspections. There is no formal methodology behind the current inspection planning approach. No standardized operating procedures for inspections have been adopted to date. The establishment of an efficient enforcement system in the water sector remains a challenge, because of the limited resources of the water inspection, as well as difficulties with data coordination and exchange between the environmental and water authorities.

Laws on EIA and IPPC became applicable in 2008 and relevant secondary legislation has been developed and enhanced. In practice the EIA instrument is overused, especially at the local level. The capacity and ability of local administration bodies to perform IPPC procedures raise doubts. Water permits are not integrated with IPPC permits.

The assistance to the regulated community to act in compliance with environmental matters is very limited. Smaller businesses, in particular, lack expertise and information about means of compliance. Initiatives to

promote resource efficiency and cleaner production are in their inception phase. The adoption of environmental management systems has progressed lately, though the number of certified enterprises is stagnating.

Putting the environmental information system in operation and ensuring the functioning of the integrated register of environmental polluters are urgent priorities. Currently, the lack of these tools hinders compliance and enforcement, making it difficult to identify and profile the regulated community, plan and organize inspections and keep the public informed.

Economic instruments and environmental expenditures for greening the economy

There has been increasing use of economic instruments for promoting environment protection. Pollution taxes that were already legally prescribed long before 2007 were finally implemented in 2008. This was associated with a doubling of tax rates for most pollution taxes compared with the rates that should have applied before. There has also been a reform of the methodology for calculating charges for water pollutants. At the same time, there is no evidence that pollution charges create significant, if any, incentives for polluters to change their behaviour towards the environment.

The 2008 Law on Environment does not mention any earmarking of the revenues from pollution charges. However, the situation differs for water pollution charges as revenues from these charges are earmarked for the financing of water management. An environmental fund, as an additional source of financing, has not yet been established.

There is no direct flow of information concerning the revenues from pollution charges from the State Treasury neither to the EPA, nor to the Water Directorate of the Ministry of Agriculture and Regional Development. Such information is available only upon special request to the Ministry of Finance. This makes it difficult to gauge the incentive effects of pollution charges at the level of individual polluters. Information about revenues and bill collection rates is not in the public domain.

Budget funds allocated to environmental protection at central government level have remained relatively modest. Environmental protection accounted for some 0.3 per cent of the total state budget, corresponding to 0.16 per cent of GDP, in 2013.

The 2011 Law on Public Procurement provides for the possibility to include environmentally related subcriteria and energy efficiency requirements in public tenders. However, there is as yet little experience concerning green procurement, pointing to the need for more training in the area.

Major progress with tariff reform has been achieved in the electricity sector, where cross-subsidies in favour of households have been largely eliminated since 2011. However, there are concerns that current tariffs allow only for covering operating costs but not full costs, which also requires a sufficiently high margin of return on real capital and adequate provision for depreciation. This continues to restrain urgently needed investments in the electricity sector infrastructure.

The management of the five national parks is funded from their own revenues, grants and transfers from the state budget. However total revenues are barely sufficient to finance operating costs and basic maintenance works. There is significant public underinvestment in the national parks.

Environmental monitoring, information and education

Montenegro has made notable strides in the last few years on environmental monitoring. The EPA has taken control over most of the monitoring activities and made efforts to strengthen the various monitoring networks and to organize them in accordance with the latest international practice. At the same time, the legal framework requires amendments to improve the functioning of the networks.

Monitoring budget has been decreasing from year to year since 2009. There is a lack of adequate equipment for some monitoring activities.

Efforts were made to establish an integrated environmental information system, of which the air quality and water information systems are an integral part. However it has been developed partially, and for the parts available no automatic information flows have been ensured. Data reporting by enterprises is still limited.

Montenegro adopted a list of 55 national environmental indicators. However the available data allow calculating only 36 of the adopted indicators.

The first indicator-based state of environment (SoE) report was produced in 2013 and adopted by the Government in 2014. The SoE is based on the 36 indicators from the adopted list of 55 national indicators. However the assessed situation is currently not linked to policy development and its application.

The environmental information and data that are available are made accessible to the public, either through the websites of the Government or upon request. Data acquired through monitoring activities are included in relevant reports but are not accessible directly at webpages, except data on air quality.

Educational reform following internationally accepted practices is implemented in order to move from content-oriented curricula to goal-oriented planning of curricula. Major challenge is the shortage of qualified teacher trainers to provide training on the new curricula and to apply a more multidisciplinary approach to teaching, which is a must for teaching the complex concepts of sustainable development.

Implementation of international environmental agreements

Since 2007, Montenegro has acceded to a number of global and regional multilateral environmental agreements (MEAs). It completed accession to all ECE environmental conventions. The country is not yet a party to two protocols: the Protocol on Water and Health to the Convention on the Protection and Use of Transboundary Watercourses and International Lakes and the Protocol on Pollutant Release and Transfer Registers to the Convention on Access to Information, Public Participation in Decision-making and Access to Justice in Environmental Matters.

The implementation of MEAs strongly depends on international financial support. While Montenegro has enjoyed funding from the GEF, the EU through the IPA, and many other international donors, the situation of high dependence on international aid cannot be sustainable in the future.

Progress was achieved on some indicators with regard to the national commitments on the Millennium Development Goals (MDGs). For example, the country managed to increase the proportion of territory protected to preserve biodiversity, as well as to increase the proportion of renewable energy out of total energy consumption. At the same time, Montenegro is about to fail to reach some of its MDG commitments. There is no progress on increasing the proportion of protected marine ecosystems, on the anthropogenic impact on the quality of surface water, or on reducing losses in the water supply network.

Climate change mitigation and adaptation

Montenegro participates in UNFCCC and Kyoto Protocol. It submitted the Initial National Communication in 2010. The second National Communication is under preparation. Two CDM projects have been registered: the HPP at Otilovici in Pljevlja and the windmill park Mozura near Bar; however, both projects are delayed because of problems with financing.

Montenegro has not yet defined any national targets for GHG mitigation or limitation. The energy sector, comprising energy supply and consumption in the transport, residential and service sectors, has the highest share in GHG emissions, accounting for 68 per cent of the total emissions in 2011. This was followed by the industry (20 per cent), agriculture (10 per cent) and waste (2 per cent) sectors. About 99 per cent of emissions from the industrial sector originated from Aluminum Plant Podgorica (KAP).

The work to develop national strategy on climate change, tackling both mitigation and adaptation, is in progress. Some progress has been made to integrate climate change adaptation into sectoral policies, mainly in the forestry sector. A climate change adaptation strategy for the health sector is under development. Other sectors are less advanced, especially agriculture and coastal zone management.

Although Montenegro has high potential for renewable energy, only hydropower is used for electricity production in considerable quantity, as is biomass for heating purposes. The country faces challenges to increase renewable energy sources. These include improving conditions for investors in renewable electricity production and implementing needed grid improvements.

Montenegro has undertaken steps to increase energy efficiency in the construction sector, mainly for new buildings. At the local level, these steps led to some changes, such as increased efficiency of public buildings and lighting. The process of legalization of illegal settlements can be used as a trigger for improving efficiency standards of existing buildings.

The Government is making efforts to raise public awareness on climate change-related issues. Official websites describe efforts on climate change and energy efficiency. At the local level, awareness is growing and has led to some changes, such as increased efficiency of public buildings and lighting.

Water management

Although policy and legislative improvement has occurred in recent years, a number of challenges remain in the area of water management. Among them is groundwater protection, since most water for human consumption relies upon groundwater from karstic aquifers. Another challenge is coastal zone management, where the introduction of integrated management is required.

Only 44 per cent of the urban population is connected to a sanitary network according to 2012 data, a value that represents 28 per cent of the total population. WWTPs are in operation in Bar, Budva, Mojkovac and Podgorica. Several WWTPs are being built in the coastal area and in the central and northern regions. In addition, some WWTPs are expected to be under construction soon and others are in the public tender process. Nevertheless, wastewater drainage networks are required to be in place.

The 2007 Law on Water defines two river basin districts – the Adriatic and the Black Sea river basin districts. According to the Law, river basin management plans for these districts and a new water master plan for the whole country are to be prepared by 2016. A water information system, which would include data about water use and planning, is not yet developed. However, in the process of negotiations with EU it was agreed to prolong deadline for this activity and insure financial resources through IPA 2014-2020 Programme.

In 2012, about 45 per cent of rivers had good water quality, 30 per cent were very good and 25 per cent were bad. Most polluted rivers include the Veţišnica, Ćehotina in Pljevlja, Morača in the area of Podgorica, Ibar near Bać and Lim near Bijelo Polje. Groundwater is of good quality, in general, although urban and industrial development represents a significant threat. Aquifers are at risk near the major settlements.

Floods potentially threaten 250 km^2 of farmland and urban zones. The need for flood protection measures is particularly evident in the large flat karst plain areas. Most of the constructed drainage systems are not in operation, in general due to insufficient maintenance. Flood protection and mitigation measures have involved the linearization of rivers and the construction of artificial channels.

Waste management

Montenegro established a solid legal framework for a national waste management system by adopting the new Law on Waste Management in 2011. It is currently preparing a new national waste management strategy, along with a new national waste management plan. Key challenges for implementation include low level of coordination, limited cooperation among key stakeholders (including municipalities) in waste management and, in some cases, non-enforcement of legislation.

The new landfills in Podgorica and Bar are a significant improvement for the waste management in central and coastal regions but the mountain region is lacking one. Development of a new sanitary landfill in the mountain region is a priority to allow decommissioning of old disposal sites.

Organizing waste services on a regional level is key to achieving sustainable and effective waste management in the country. Although there have been many discussions with municipalities to strengthen cooperation in

waste management, only three inter-municipal companies for management of regional sanitary landfills have been established.

Data on industrial and municipal solid waste do not seem to realistically reflect waste generation. The data is based on estimations and data verification is lacking. Practically all strategic documents call for improvement of waste inventories.

Fee collection rate in waste management remains very low (56.5 per cent for households and 68 per cent for companies). This has an impact on the financial performance of municipal companies collecting waste.

Montenegro started activities aimed at recovery of secondary raw materials from waste. However these are hindered by the lack of market oriented mechanisms to stimulate recycling of waste. Instruments supporting the sale of recyclables (e.g. compensating part of the costs of exporting recyclables) are not in place.

The situation in medical waste management has improved since 2011. The Ministry of Health signed a concession contract to build seven facilities for the treatment of medical waste within the following 15 years. The first medical waste treatment plant was put into operation in Berane in 2013.

No national PCB monitoring programme is currently in place. The total amount of PCBs in Montenegro is not known, but a survey conducted in 2007 indicated about 2,000 tons of PCBs in transformers and capacitors. A detailed, countrywide inventory of equipment containing PCBs is lacking.

A temporary facility for storage of radioactive waste was built in 2006-2008. A permit for its operation was issued in 2012. This allows safe storage of this waste according to international standards.

Introduction

ENVIRONMENTAL CONDITIONS AND PRESSURES

I.1 Demographic and socioeconomic context

Geography

Montenegro is located in South-Eastern Europe. Within its land area (13,812 km^2) Montenegro has four distinctive geographical climatic zones. A narrow, 2- to 10-km-wide coastal strip of land with a Mediterranean climate lies between the Adriatic Sea and the high Dinaric limestone mountain range (Rumija, Sutorman, Orjen and Lovćen Peaks). Behind the mountains is the Central Montenegrin depression, with an average altitude of between 40 m and 500 m. The fourth geographical zone is the mountain area in northern Montenegro where vast mountain ranges and ridges rise to over 2,000 m and where the 2,523 m Bobotov Peak, the highest elevation point of the country, is situated.

Population

Population indicators have been stable or have changed very little since 2007. The total population, which was 620,556 in 2011, had decreased by less than 1 per cent (0.69 per cent) since 2007. The crude birth rate was 11.9 in 2011, a slight decline from 12.5 in 2007. The fertility rate, which was 1.7 in 2012, had stayed the same since 2007.

The one exception to the very constant figures is the infant mortality rate, which declined from 8.3 per 1,000 in 2007 to 5.5 per 1,000 in 2012 – a 34 per cent drop. Life expectancy, which in 2012 was 77.4 years for men and 78.4 for women had increased 1.2 years and 2.2 years (respectively) since 2007.

Most of the population live in Central Montenegro, where the population density is high and the two largest cities – the capital, Podgorica (population 185,937) and Nikšić (population 72,443) – are located.

Economic and social development

Montenegro is a service-based economy. Its tertiary sector accounted for 73.3 per cent of total gross domestic product (GDP) in 2012. The industrial sector produced 12.4 per cent of total GDP in 2012, while primary production – agriculture, forestry and fishing – accounted for 8.8 per cent and construction 5.5 per cent.

Tourism is an important export income generator; in 2011 it brought in 45.1 per cent of the country's total export receipts. Latest figures from the National Tourism Organisation of Montenegro also show that tourism produced 14.1 per cent of GDP in 2013, which was more than the industrial sector's share in 2011.

Growth in GDP was positive and accelerated almost continuously after 2000, reaching annual growth of 10.7 per cent in 2007. Growth then eased off to 6.9 per cent in 2008 contracted by 5.7 per cent in 2009. In 2010 and 2011 GDP increased slightly but growth was again negative in 2012 when it diminished by 2.5 per cent. In 2013, the growth was again 3.3 per cent positive. GDP per capita in current purchasing power parity (PPP) in 2013 was US$14,281 or 40.3 per cent of the EU-28 average. This was higher than the GDP per capita of neighbouring Bosnia and Herzegovina (US$8,608) and Serbia (US$13,246).

The unemployment rate has been high and almost constant since 2007. There was a slight drop in unemployment from 19.4 per cent in 2007 to 16.8 per cent in 2008 – just before the international financial crisis. However, the annual average unemployment rate over the period from 2007 to 2012 was 19.1 per cent and the latest available rate, for 2012, was 19.6 per cent.

Montenegro has experienced an investment boom since 2007 – a big part of which has been related to the real estate boom of foreigners buying properties in Montenegro's coastal areas. On average, foreign direct investment (FDI) made up 22.84 per cent of the country's GDP between 2007 and 2011. There have been strong annual fluctuations in FDI. FDI grew from 2007 to 2009, when it reached an annual level of US$2,500 per capita. However, in 2010, the level of FDI halved and it diminished still further in 2011; it then returned to a growth path in 2012, when annual FDI per capita reached US$995.

As Montenegro uses the euro as a medium of exchange, there have not been any local currency exchange rate instabilities. Since 2007 the euro rate has fluctuated between €0.68 and €0.78 per US$.

Photo I.1: Lake Susicko, Durmitor

The economy is dependent on trade – exports of goods and services in 2012 made up 44.1 per cent of GDP. The main export partners that year were Serbia (29 per cent) and Croatia (23 per cent). Main importing countries were Serbia (29 per cent) and Greece (9 per cent). Montenegrin exports in 2012 were mostly metals (worth €182.3 million), while imports mostly comprised food, oil and electric energy (€864.9 million).

Inflation, measured by the Consumer Price Index, has been moderate since 2007. As with all other economic indicators, 2008 was the exception – in that year, annual inflation jumped to 9 per cent while the average annual inflation from 2007 to 2012 was only 4.1 per cent. The latest figure, 3.7 per cent for 2012, is below the long-term average.

Montenegro has since 2005 belonged to the group of high human development countries. In 2005, Montenegro scored 0.755 on the Human Development Index (HDI); its 2012 HDI was slightly higher at 0.791, ranking the country 52nd of the 186 countries compared.

The share of the population below the national absolute poverty line was at its lowest in 2008, at 4.9 per cent. Since then, absolute poverty has been on the rise and the population below the poverty line reached 11.3 per cent in 2012, the latest year for which data are available. In 2012, an income less than €182.43 a month was below the poverty line. This limit value, used by the Statistical Office of Montenegro (Monstat), is a nationally specified line; it cannot be used for international comparisons but only for monitoring the state of, and change in, poverty in Montenegro.

Gender

The Constitution of Montenegro states that direct or indirect discrimination on any ground is forbidden; but there is no definition of discrimination therein. However, gender issues in Montenegro are governed, regulated and controlled by the United Nations Convention on the Elimination of all Forms of Discrimination against Women and its optional protocols, to which Montenegro acceded in 2006, and by the 2007 Law on Gender Equality (OG 46/07). The Government also adopted the Initial Report on implementation of the Convention in 2010.

At governmental and parliamentary level, women are underrepresented: in early 2014, four of 17 ministries were headed by women and women held 11 of 81 parliamentary seats. However, women hold a significant proportion of the Government's deputy positions: 40.3 per cent of deputy minister and 44.8 per cent of deputy director positions. In 2012, women held between 0 and 33 per cent of municipal councils' councillor positions.

In education, Montenegro has achieved gender parity. The 2010 female-to-male ratio in primary school enrolment was 1.01 and in secondary school enrolment, 1.00. Female enrolment is higher in tertiary education, where the female-to-male ratio was 1.26 in 2010.

I.2 Key environmental trends

Air and climate change

Air

Sulphur dioxide (SO_2) emissions increased from 11,794 tons in 2007 to 39,728 tons in 2011 (figure I.1). Practically all SO_2 emissions were emitted from combustion of fossil fuel in the energy and energy-transformation industries. Most of the energy industry emissions came from the thermal power plant (TPP) Pljevlja and, consequently, the high annual emission in 2010 and 2011 were likely the result of activity changes at that plant.

Emissions of nitrogen oxides (NOx) converted to NO_2 grew considerably more slowly over the comparable period, by about 26 per cent (from 8,040 tons in 2007 to 10,152 tons in 2011). Ammonia (NH_3) emissions dropped by 14.7 per cent from 3,400 tons in 2007 to 2,900 tons in 2011. More than 90 per cent of NH_3 emissions came from agriculture.

In 2011, electricity and heat production was the source of 51 per cent of the NOx emissions, while mobile sources produced 35.6 per cent of NOx emissions. Mercury emissions increased by 24.3 per cent between 2007 and 2011, while cadmium emissions were reduced by 4.3 per cent and lead emissions by 51.5 per cent during the same period.

Greenhouse gas emissions

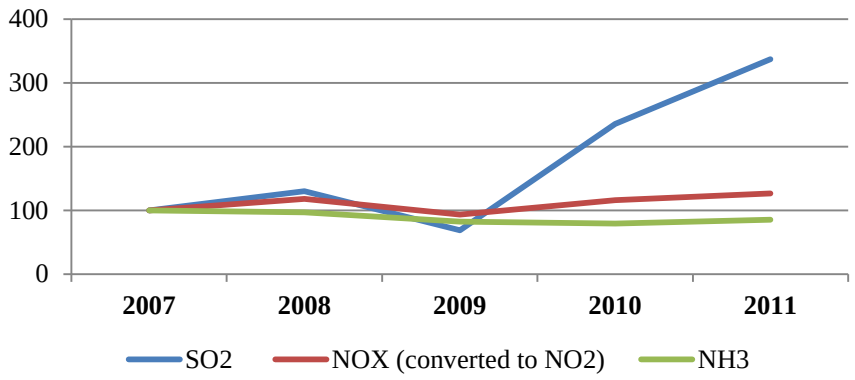
Between 2007 and 2011, total greenhouse gas (GHG) emissions decreased by 17 per cent, while CO_2 emissions increased by 8.1 per cent during the same period. The dipping effect of the 2009 economic slowdown on CO_2 emissions is clearly visible in figure I.2. The energy consumption of industry halved from 2008 to 2009. Over the period 2007-2011, methane emissions diminished by 10.4 per cent, nitrous oxide emissions increased by 1.1 per cent and perfluorocarbons diminished by 62.3 per cent.

The energy sector, comprising energy supply and consumption in the transport, residential and service sectors, has the highest share of GHG emissions, accounting for nearly 68 per cent of total emissions in 2011. This share was followed by those of industry (20 per cent), agriculture (10 per cent) and waste (2 per cent). Energy sector GHG emissions increased by 11.9 per cent between 2007 and 2011. The energy sector produced 51 per cent of total GHG emissions in 2007 and 68.7 per cent in 2011. Emissions from industrial processes and agriculture diminished during the same time period by 57.4 and 11.4 per cent respectively (figure I.3).

GHG emissions from waste decreased during the period 2007-2011 by 20 per cent, producing about 2.2 per cent of total emissions in 2011. There are no emission data available on transportation or solvents for the period 2007-2011.

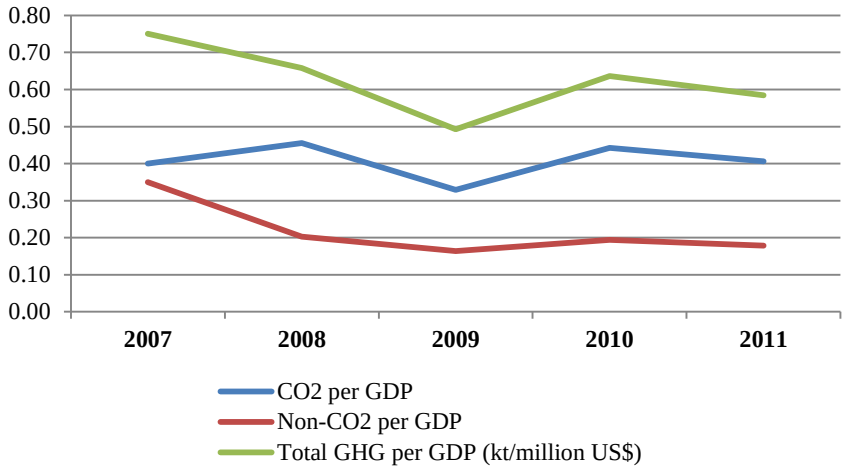
The country's energy intensity has been in decline (figure I.4). The 2007 energy intensity of 0.5 kilotons per € million decreased to 0.3 kilotons in 2011 – a 40 per cent improvement.

Figure I.1: Air emissions, 2007–2011 (2007=100)



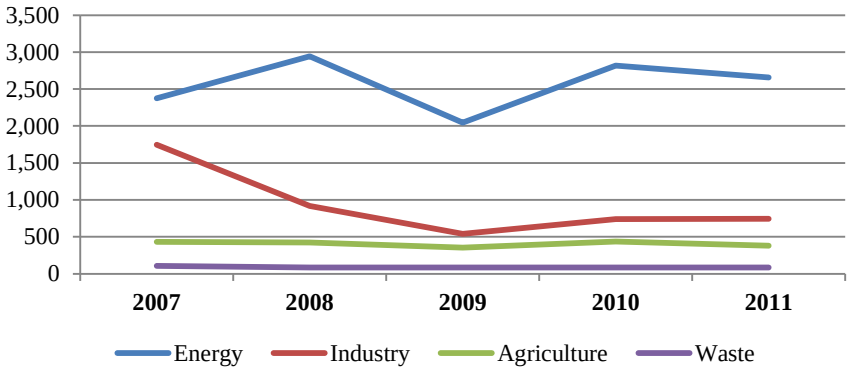
Source: Environmental Protection Agency, 2014.

Figure I.2: Greenhouse gas emissions per GDP, tons per US$1,000 PPP 2005, 2007–2011



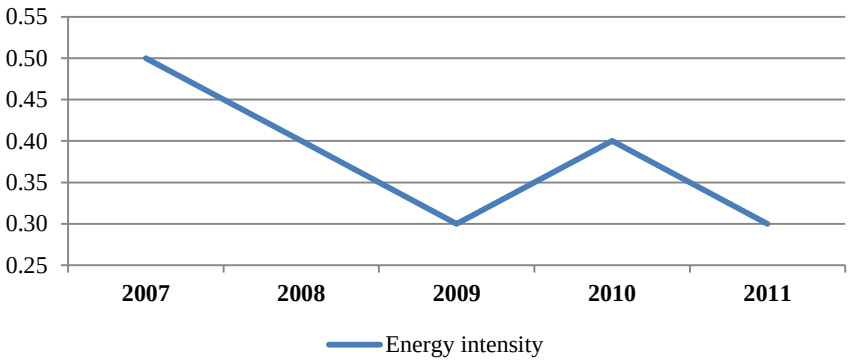
Source: Environmental Protection Agency, 2014.

Figure I.3: Shares of GHG emissions, 1,000 t in CO_2 eq., 2007–2011



Source: Environmental Protection Agency, 2014.

Figure I.4: Energy intensity, primary energy consumption, kt/€ million, 2007–2011



Source: Indicator-based State of Environment Report of Montenegro, 2013.

Surface water and groundwater

Water resources

Surface water flows are equally distributed to the Danube River in the north and the Adriatic Sea in the south. The Black Sea river basin has a total area of 7,545 km^2 in Montenegro (55 per cent of the country's territory) and an average runoff of 7,855 × 10^6 m^3/year. The Adriatic Sea water basin has an area of 6,268 km^2 (45 per cent of the country's territory) and an average runoff of 11,814 × 10^6 m^3/year.

Montenegro has more than 20 large lakes, of which six are glacial. Of these, the most significant is Lake Skadar, a transboundary water body that Montenegro shares with Albania. Lake Skadar is very shallow and its surface area varies from 350 to 500 km^2. Its volume varies between 1.7 km^3 in dry periods and 4.0 km^3 during wet periods.

The Adriatic Sea coastline is 294 km long and the national marine waters cover 6,400 km^2, of which about 2,000 km^2 are territorial waters extending, at most, 12 nautical miles from the coastline.

The northern and central parts of the country are dominated by the Dinaric karst mountain system. The karstic aquifers, which can sustain substantial water yields, exist from the Adriatic shoreline to the north-east border of Montenegro. Groundwater levels are very deep, with some exceptions (the coastal area, Lake Skadar depression, Bjelopavlici Valley and river valleys or canyons in the northern part of the country). The Dinaric Karst Aquifer System, with four other main groundwater bodies, occupies a total area of 6,300 km^2.

Water quality

In 2012, about 45 per cent of rivers had good water quality, 30 per cent had very good quality and 25 per cent were of bad quality. The upper courses of the rivers were, in general, either unpolluted or slightly polluted, while the middle and lower water courses were moderately, critically or strongly polluted.

The coastal bathing water is monitored at 85 locations and water sampling is done at two week intervals during the summer bathing season from May to October. Bathing water along the sea coast is of a good quality with temporary (short term) occasional occurrences of pollution at one to three locations per season.

According to Montenegro's 2011 National Bathing Water Report to the European Environment Agency, 95.2 per cent of the coastal bathing waters met the mandatory water quality in 2011. The rate of compliance with the guide values increased from 0.0 per cent to 71.1 per cent and no bathing waters had to be closed during the bathing season 2011.

Groundwater is of good quality, in general, although urban and industrial development represents a significant threat. Aquifers are at risk near the major settlements, such as Cetinje, Danilovgrad, Nikšić, Podgorica, and also in the Zeta Plain.

Abstraction and use

The total water abstracted was 101.8 million m^3 in 2005 and 109.4 million m^3 in 2011 – a 7.44 per cent increase. During the same period, even though abstraction increased, the amount of water consumed dropped by 7.4 per cent because the water losses increased by 24 per cent – from 48.18 million m^3 in 2005 to 59.77 million m^3 in 2011. Over 80 per cent of the water in 2011 came from ground and spring sources.

The sectoral use of water underwent transformation between 2005 and 2011 (figure I.5). Household water use increased by 10.2 per cent while the water used for irrigation decreased dramatically, by 72.6 per cent. Similar diminishing water use took place in manufacturing (45.6 per cent less) and electricity production (20.3 per cent less).

Wastewater discharges

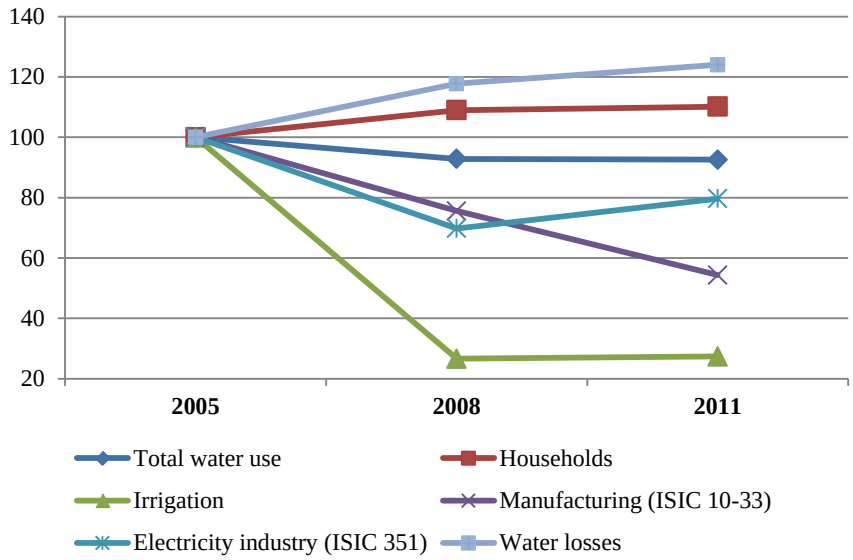
From 1990 to 2007, Montenegro had only one active wastewater treatment plant (WWTP), located in Podgorica, but there are no available data for the period. Data available after the 2008 reconstruction of that treatment plant show the situation in that plant alone.

Another small WWTP in the north of the country started operations in 2008 but there are no data available for it. During the period 2008 to 2012, primary wastewater treatment capacity increased by 8.5 per cent and secondary treatment capacity by 13.08 per cent.

Land cover

There have not been any changes in Montenegro's land cover. The forested area's share of the total land area was 40.4 per cent in 2011 – exactly the same as in 2007. Agricultural land covered 38.1 per cent and arable land 12.8 per cent of the total land area in 2011 – as in 2007.

Figure I.5: Water use, 2005, 2008 and 2011 (2005=100)



Source: Environmental Protection Agency and Statistical Office of Montenegro, 2013.

Table I.1: Forest damage, 2007–2011, m^3

	2007	2008	2009	2010	2011
Illegal cutting	5,447	4,062	4,233	5,671	3,927
Other man-made damages	491	598	569	569	1,310
Damages caused by insects	878	..	1,138	400	438
Natural disasters	..	..	3,866	1,000	1,000
Forest fires	87,811	36,772	3,573	2,661	4,168

Source: Statistical Yearbook of Montenegro, 2012.

Forests

By 2013, forest area expanded from 7,180 km^2 in 2007 to 9,640 km^2 so that total forest area increased by 34.3 per cent and covered 69.8 per cent of Montenegro's land area. Since 2007, damage affecting the forest has contracted in all categories except damage caused by humans (table I.1). The most important trend has been the diminishing effect of fires on forested areas.

Biodiversity

Ecosystems and habitat threats

According to the 2010 Fourth National Report to the Convention on Biological Diversity, the major threats to biodiversity fall into six main categories:

- Uncontrolled urbanization and tourism development of natural habitats with associated infrastructure development;
- Changes in land use practices, particularly in relation to agriculture and forestry;
- Unsustainable and illegal use of natural resources, such as illegal hunting and overharvesting;
- Water, soil and air pollution from industrial and agricultural pollutants and municipal waste;
- Introduction of alien invasive species, a threat which currently is inadequately studied but is expected to be of importance in the near future;
- Impact of climate change, especially the effects of hot and dry periods on forest habitats.

The cumulative effect of the above threats is the loss of rare or endangered habitats and their associated, often endemic, species, particularly on the coast, and a reduction in the functionality and stability of natural ecosystems, particularly of forest and water ecosystems.

Threatened species

According to the Decision on placing some plant and animal species under protection (OG 76/06),

Montenegro had 26 fish, 12 bird, 6 mammal and 2 higher plant species threatened.

Protected areas

In 2007, protected areas covered 1,087.84 km^2, representing 7.88 per cent of the national territory. This area comprised four national parks and over 40 other protected areas, which were divided into several categories, such as natural reserves, nature monuments and special natural sites.

In 2009, the National Park Prokletije was established and by the end of 2013, the total protected area was expanded to 1,249.72 km^2, covering 9.05 per cent of the country's territory. Most (81.34 per cent) of the total protected areas is covered by the five national parks.

Also, 17.22 per cent of the country's territory (total 237.899 ha) is under the international protection, as follows: Ramsar sites 40.000 ha, UNESCO cultural and natural heritage 48.895 ha and M&B biosphere reserve 182.889 ha.

Waste

The available data on total waste generation cover only a two-year period (2011–2012) (table I.2). During that period, total waste generation diminished by 13.78 per cent, from 855,063 tons to 737,278 tons. Data available on municipal waste collection cover a longer period. The amount of municipal waste collected annually diminished between 2007 and 2013 by 44.73 per cent, from 518,169 tons to 286,378 tons.

About two thirds of Montenegro's total waste is non-hazardous industrial waste. Between 2011 and 2012, annual generation of non-hazardous industrial waste diminished by 17.65 per cent, from 551,059 tons in 2011 to 453,792 tons in 2012. Hazardous waste generation diminished by 41.93 per cent, from 6,576 tons in 2011 to 3,819 tons in 2012.

Table I.2: Selected waste generation, 2011–2012, tons

	2011			2012		
	Non-hazardous	**Hazardous**	**Total**	**Non-hazardous**	**Hazardous**	**Total**
Mining and quarrying	1,227.4	563.0	1,790.5	699.7	223.9	923.6
Manufacturing	54,446.6	5,825.2	60,271.8	101,790.3	3,505.9	105,296.2
Electricity, gas and steam supply	495,385.2	188.4	495,573.5	351,301.5	89.4	351,391.0
Total	**551,059.2**	**6,576.6**	**557,635.8**	**453,791.5**	**3,819.2**	**457,610.7**

Source: Statistical Office of Montenegro. Release No. 186, 2 July 2011 and release No. 206, 31 July 2013.

Map I.1: Map of Montenegro

Source: United Nations Cartographic Section, 2014.
Note: The boundaries and names shown on this map do not imply official endorsement or acceptance by the United Nations

PART I: ENVIRONMENTAL GOVERNANCE AND FINANCING

Chapter 1

LEGAL AND POLICYMAKING FRAMEWORK AND ITS PRACTICAL IMPLEMENTATION

1.1 Legal framework

Since 2007, Montenegro has significantly changed its environmental and sustainable development legal and policy frameworks. A new package of laws and corresponding secondary legislation has been adopted. In many cases, new laws were passed in a rather short period of time after the adoption of previous laws in the same subject areas.

The Environmental Protection Agency (EPA) was established in 2008 and became operational in 2009, marking the separation of policy and legislation functions from implementation responsibilities. The main driver behind the strengthening of environmental policy and legislation has been the process of accession to the EU including the beginning of accession negotiations in June 2012.

Environment and sustainable development

Law on Environment

The 2008 Law on Environment (OG 48/08, 40/10, 40/11, 27/14), replacing the 1996 Law on Environment, is a key legal act on the management and protection of the environment. It establishes principles, mechanisms and the institutional framework for environmental protection in line with the requirements stemming from Montenegro's international commitments.

The Law describes such principles as an integrated approach to environmental protection, cooperation among governmental authorities at different levels and between governmental authorities and stakeholders, access to information and public participation, and the polluter pays and user pays principles. It delineates the roles of national and local self-government authorities in planning, implementation, monitoring and reporting, and also defines the sources of financing for environmental protection. The Law recognizes the National Strategy for Sustainable Development (NSSD) as the key document that directs economic and social development and environmental protection in line with sustainable development. It requires that development documents in specific areas are harmonized with the NSSD.

The Law sets the framework and responsibilities for environmental monitoring (chapter 4). It also regulates the responsibilities of legal and natural persons on environmental protection. In addition, it stipulates the size of fines for legal and natural persons for selected categories of offences, mostly connected to failures to participate in monitoring, provision of information and prevention of accidents.

While in some areas, such as the establishment of the EPA or the system for environmental monitoring, the Law on Environment fostered progress, a number of its provisions have not been implemented. For example, the environmental protection fund, to be established in accordance with the Law, has not become a reality. The four-year national environmental protection programme, envisaged by the Law as a main strategic document to define the objectives and priorities on environmental protection and to serve as a basis for local environmental protection plans, has not been developed. The Environmental Protection Information System, to be established and operated by the EPA for the purpose of more efficient processing and recording of environmental information, is still being designed (chapter 4). No national systems of eco-labelling or environmental management to encourage environmental improvements by private sector are in place (chapter 2).

Currently, a new law on environment is being drafted, to allow for more comprehensive alignment of legislation with the requirements of the EU accession process.

Law on Air Protection

In 2010, the Law on Air Protection (OG 25/10, 40/11) replaced the 2007 Law on Air Quality in order to clarify the competences of the recently established EPA and define a strategic framework for air protection, as well as strengthen harmonization with obligations resulting from Montenegro's international commitments and relevant EU directives.

Photo 1.1: Perast, old coastal town

The Law envisages a range of measures for the prevention and reduction of air pollution, such as setting limit values for emissions from stationary and mobile pollution sources and setting national emission ceilings for specific pollutants, as well as phasing out ozone-depleting substances (ODS).

The Law requires the adoption by the Government of a four-year national strategy on air quality management. In those zones where the concentration of pollutants exceeds defined limits or target values, air quality plans should be adopted. In addition to the national air quality monitoring network, monitoring stations may be established by local self-government authorities. Based on data obtained through the annual air quality monitoring programme, the EPA is to prepare an annual briefing document on air quality. An air quality report for the period of four years shall be developed as part of the State of Environment (SoE) report. The Law requires air quality zoning, i.e. dividing the territory of the country into zones on the basis of data on air pollutants.

Compared with other laws, the implementation of the Law on Air Protection is relatively well on track. The National Strategy for Air Quality Management for the period 2013–2016 was adopted in 2013. An air quality plan was developed in 2013 for the municipality of Pljevlja where, in 2011, significant exceedances of PM_{10} were recorded. Air quality plan for the municipality of Nikšić has been adopted in March 2014.

The network for air quality monitoring functions with seven automatic monitoring stations and one European Monitoring and Evaluation Programme (EMEP) station (at Zabljak). The latter has been in operation since 1993 to oversee transboundary emissions (chapter 4). Air quality zoning has been finalized (map 4.1). Further implementation of the Law requires significant investment to introduce new equipment at several installations. Other challenges include the establishment of a laboratory for calibration of the analysers installed at the stationary stations for air quality and the modernization of the EMEP station (chapter 4).

Law on Nature Protection

The 2008 Law on Nature Protection (OG 51/08, 21/09, 40/11, 62/13, 6/14), replacing the 1977 Law, aims to align the nature protection system with obligations resulting from Montenegro's international commitments and relevant EU directives.

The Law describes the classification of protected natural assets. These include: (i) protected areas – strict and special nature reserves, natural parks, nature monuments, protected habitats and landscapes with outstanding features; (ii) protected species of plants, animals and fungi – strictly protected wild

species and protected wild species; and (iii) protected geological and palaeontological sites.

According to the Law, red lists of endangered wild species of plants, animals and fungi should have been finalized by 2011. The Government should identify the ecological network Natura 2000 sites at the latest by accession of Montenegro to the EU. As of February 2014, neither Natura 2000 has been established nor the red lists have been finalized because of the lack of resources and expertise. However, 32 potential sites for the Emerald Network have been proposed to the Secretariat of the Bern Convention.

National parks are designated by the Parliament. Strict and special nature reserves, as well as strictly protected and protected species and habitats are designated by the Government. A regional park and a nature park, a nature monument and a landscape with outstanding features can be proclaimed by local self-government authorities, with the prior approval of the Ministry of Sustainable Development and Tourism and the opinion of the Ministry of Agriculture and Rural Development. No regional parks or nature parks have yet been designated. Work is ongoing to declare Piva and Komovi as the first regional parks.

Each protected natural asset shall be managed by a manager appointed by the Ministry of Sustainable Development and Tourism or local self-government authority. As of February 2014, managers have been designated only for national parks. For nature monuments, where the local self-government authority is to appoint a manager, managers have been designated in only a few cases (Arboretum, Lipska Pećina and Trebjesa). According to the Law, each protected natural asset should have a management plan adopted for the period of five years and an annual management programme. However, management plans and annual management programmes have been adopted for national parks only.

Law on National Parks

The 2009 Law on National Parks (OG 56/09, 40/11) provides for the establishment of the Public Enterprise "National Parks of Montenegro" (PENP) to implement measures related to the management and protection of national parks. It defines borders of the five parks (Biogradska Gora, Durmitor, Lovćen, Prokletije and Lake Skadar), as well as the regime of their operation and management.

Each national park, in addition to the five-year management plan and annual management programme, should also have a special purpose spatial plan. As of February 2014, spatial plans for all national parks were under revision. Management plans for all national parks except Prokletije have been adopted by the Government for the period 2011–2015. In 2013, annual management programmes for all five national parks were in place.

The Law envisages the establishment of a council of national parks with advisory functions to participate in the development of management plans and programmes. However, the council has not been appointed. A different body – the Scientific Council – is in place. It provides scientific advice to the Management Board of the PENP.

Stronger support by local self-government authorities and communities would improve the management and protection of national parks. An adequate number of demarcation signs are lacking at the borders of national parks; these would assist the local population to comply with laws and regulations in the territories of national parks.

The new Law on National Parks (OG 28/14) was adopted in July 2014. The law revises the boundaries of the National Park Durmitor and incorporates the concept of ecosystem services.

Law on Genetically Modified Organisms

In 2008, the Law on Genetically Modified Organisms (GMOs) (OG 22/08, 40/11) replaced the 2001 Law on the same subject. The Law regulates the use of GMOs in closed systems, deliberate release of GMOs into the environment, placing of GMOs on the market, and transit of products containing, consisting of or produced from GMOs.

Although implementing legislation should have been adopted within two years of the entry into force of the Law, this has not taken place. The Law requires the appointment by the Government of the national council for biosafety mandated to give opinions on applications for various uses of GMOs and to advise on draft legislation on GMOs. However, no such council exists. There is no accredited laboratory to test GMOs in Montenegro. Thus, tests for the presence of GMOs are occasionally performed in laboratories in Serbia.

Several institutions are to be involved in GMO regulation. The Ministry of Agriculture and Rural Development and the Ministry of Sustainable Development and Tourism are responsible for developing implementing legislation. The Ministry of Agriculture and Rural Development is in charge of

authorizing testing laboratories and approving the use of GMOs for experimental purposes. The Ministry of Health is to receive applications for authorizing GMOs in food. The EPA is responsible for approving the deliberate release of GMOs into the environment. Yet the Ministry of Sustainable Development and Tourism and the EPA have limited awareness about their respective GMO-related responsibilities.

Law on Waste Management

The 2011 Law on Waste Management (OG 64/11) replaced its 2005 predecessor. The Law requires the waste producer to make all efforts to prevent and reduce the generation of waste. It also provides for extended producer responsibility. Holders of waste are obliged to ensure the treatment of waste. If the treatment is impossible or unjustified from the point of view of cost efficiency or environmental protection, the holder of waste should ensure the disposal of that waste. Separate collection is mandatory for paper, metal, plastic, glass and biowaste. Separate collection, and collection of municipal waste for treatment, are the responsibility of local self-government authorities.

The Law sets up ambitious targets in several areas of waste management. In the area of reuse and recycling, by 2020 at least 50 per cent of the total collected waste materials, such as paper, metal, plastics and glass, shall be prepared for reuse and recycling, and at least 70 per cent of non-hazardous construction waste shall be prepared for reuse and recycling. For biodegradable waste, the baseline year is 2010, with a total amount of 146,000 Mg biodegradable waste. Target years are 2017 – with the aim to reduce biodegradables by 25 per cent, and 2020 – with the aim to reduce biodegradables by 50 per cent. An assessment carried out under the EU Instrument for Pre-Accession Assistance (IPA) project “Preparation and Implementation of the National and Local Waste Management Plans” in 2013 shows that the targets based on the year 2010 cannot be met due to increased overall waste generation, the rise of tourism and other economic activities.

Law on Chemicals

The 2012 Law on Chemicals (OG 18/12) replaced its 2007 predecessor and two former Yugoslav laws related to poisonous substances. The 2012 Law, applicable from 1 March 2013, regulates the classification, packaging and labeling of chemicals, and transport, import and export of dangerous chemicals.

The Law stipulates the obligation of the exporter or supplier to provide a Safety Data Sheet to each distributor or future user of the dangerous chemical, as well as to present to the competent authorities a Chemical Safety Report prepared on the basis of a chemical safety assessment, together with measures to reduce and control the risks. According to the Law, the EPA is mandated to maintain the register of chemicals produced and put into circulation. Environmental inspectors are responsible for the enforcement of the Law (chapter 2).

A number of pieces of implementing legislation have been adopted by the Ministry of Sustainable Development and Tourism during 2012-2013 (annex IV). As of February 2014, some rulebooks are still to be adopted (such as the rulebook on method of classification, packaging and labeling of chemicals and specific products in accordance with the UN Globally Harmonised System of Classification and Labeling of Chemicals and the rulebook on methods of testing of hazardous properties of chemicals). The register of chemicals produced or put into circulation is still to be developed by the EPA. In accordance with the Law, the National Strategy for the Management of Chemicals was adopted in 2014, with the Action plan covering the period 2015-2020. It is also expected to develop a law on biocide products by end of 2015.

Law on Integrated Prevention and Control of Environmental Pollution

The 2005 Law on Integrated Prevention and Control of Environmental Pollution (Law on IPPC) (OG 80/05, 54/09, 40/11) lays down the conditions and procedure for issuance of integrated permits for installations and activities. The Law is applicable from 2008, and a number of implementing regulations have been adopted, including the Regulation on the types of activities and facilities that require integrated permits (OG 7/08). The Law has set the deadline of 1 January 2015 for existing facilities and activities to obtain the permit. The 2012 Programme on the adjustment of certain industries with the Law on IPPC (OG 19/12) listed 10 existing installations in need of an IPPC permit and the approximate timing for the procedure. By the end of 2013, three IPPC permits had been issued by the EPA and one at local level (chapter 2). The Programme was amended in January 2014 to remove two installations from the list (OG 3/14).

Law on Water and other water-related laws

The 2007 Law on Water (OG 27/07, 32/11), replacing the 1998 Law on Water Regime, stipulates

the principles of water management. The basic units of water management are two river basin districts (chapter 7). The Law envisages the development of a water master plan for the whole country and of water management plans for each river basin district or for parts of a river basin district. Following the adoption of the water management plans, the Government should adopt a programme of measures for each river basin district.

The Law regulates concessions for various water uses, organization of water use permitting and designation of zones and strips of sanitary protection at water intakes. Data about water quality status, categories and classes of surface water and groundwater bodies, water documentation, legislative, organizational, strategic and planning measures in the field of water management shall be included in the water information system.

The Law stipulates that local self-government authorities are responsible for supplying drinking water for all settlements exceeding 200 inhabitants or with average annual water demand exceeding 100 m^3/day. Water supply in settlements that do not meet these criteria should be regulated by local self-government authorities. In practice, water supply and sewerage activities are carried out by public utility companies.

In terms of implementation, the water information system demanded by the Law still has to be established. The water management plans, which are envisaged by the Law to be ready in 2016, still have to be developed.

The 2007 Law on Regional Water Supply of Montenegrin Coastal Region (OG 3/07) addresses the deficit in drinking water occurring in peak tourist seasons. It provides the conditions for the construction of regional water supply systems in the coastal region. The 2008 Law on Water Management Financing (OG 65/08) provides for the responsibility of the Government to take part in the financing of works on water supply facilities in rural areas. The funds provided through annual programmes are allocated to local self-governments, which prepare relevant project documentation.

Law on the Protection against Environmental Noise

The 2011 Law on the Protection against Environmental Noise (OG 28/11, 28/12, 1/14) replaced the 2006 Law on the same subject.

A number of responsibilities for implementation of measures prescribed by the Law are vested with local self-government authorities. They are responsible for their own acoustic zoning. In all municipalities, except the recently reestablished municipalities of Gusinje and Petnjica, acoustic zoning has already been done, on the basis of the Rulebook on the limitation of noise in the environment, the methods of determining the noise indicators and acoustic zones and methods of assessment of adverse effects of noise (OG 60/11). The strategic noise maps and action plans still have to be prepared for Podgorica and for one main road.

Law on Ionizing Radiation Protection and Radiation Safety

The 2009 Law on Ionizing Radiation Protection and Radiation Safety (OG 56/09, 58/09, 40/11) bans the construction of nuclear power plants. It establishes a system for control and management of ionizing radiation sources and radioactive materials, radioactive waste, as well as working conditions for persons professionally exposed to ionizing radiation. On the basis of the Law, licenses for performing radiation activities and for export, import and transport of ionizing radiation sources are issued by the EPA. Currently, it is envisaged to replace the Law with a new one in 2016–2017 in light of the need for harmonization with two relevant EU directives issued in 2013.

Law on Protection from Non-Ionizing Radiation

The 2013 Law on Protection from Non-Ionizing Radiation (OG 35/13), applicable from 1 July 2015, requires the EPA to organize annual monitoring of the non-ionizing radiation sources and maintain the electronic register for non-ionizing radiation. Provisions related to bans of using optical source of radiation (solariums) for persons under 18 years old are in force from August 2013. The Law defines permitting procedures for various activities involving non-ionizing radiation. It also provides for the conditions of public access to data on non-ionizing radiation.

Environment-related provisions in sectoral laws

Law on Energy

The 2010 Law on Energy (OG 28/10, 6/13), replacing its 2003 predecessor, regulates public services in the energy sector, organization of the

electricity and gas market, conditions for use of renewable energy sources, energy efficiency, and other matters of relevance for the energy sector. The Law describes the competences of the Energy Regulatory Agency (ERA), set up in 2004, on licensing in the energy sector.

The Law describes the strategic and policy framework for the energy sector. Energy policy is to be adopted by the Government. It is to be implemented through the Energy Development Strategy, the Action Plan for implementation of the Strategy, and the Energy Balance. Other strategic documents required by the Law include the national renewable energy action plan and national action plan for development and use of district heating and/or high efficiency cogeneration. In July 2014, the Government adopted the Energy Development Strategy by 2030 while the National Renewable Energy Action Plan was adopted in December 2014.

The Law requires local self-government authorities to adopt local energy plans. In 2012, the Ministry of Economy issued a model of a local energy plan. As of February 2014, three municipalities (Andrijevica, Bijelo Polje and Cetinje) have adopted local energy plans.

A new law on energy has been drafted.

Law on Energy Efficiency

The 2010 Law on Energy Efficiency (OG 29/10), applicable from May 2011, describes basic conditions and responsibilities for the implementation of energy efficiency measures. The Law also requires the determination of the national indicative energy saving target. Such a target was subsequently adopted by the Government in 2011 in the amount of 9 per cent of the final production of primary energy to be reached by the end of 2018.

The Law introduces the concept of an energy service company – a legal entity that delivers energy services in order to improve energy efficiency in a facility or premises, and accepts some financial risks related to the repayment of the investments through the savings of energy costs. No energy service company has yet been created due to the lack of interest from potential beneficiaries and the financial and banking sector. The Ministry of Economy is working on the development of the legal framework for energy service companies.

The Law requires the adoption by the Government of an energy efficiency strategy and action plan. Today, the 2005 Energy Efficiency Strategy and the second National Action Plan for Energy Efficiency for 2013–2015 are in place.

The Law places an emphasis on energy efficiency obligations in the public sector. It requires the development of annual operational plans for energy efficiency in public administration institutions. Such plans were adopted by the Government in 2012 and 2013. However, they mostly reinstated ongoing projects in the public sector on reconstruction of educational and health facilities and did not provide for new measures and resources.

Also in 2012, the Ministry of Economy adopted the Instruction on energy efficiency measures and guidelines for their implementation (OG 51/12), including templates for the preparation of energy efficiency programmes and plans of the local self-government authorities. As of February 2014, energy efficiency programmes had been developed by two municipalities (Bar and Tivat).

Specifics of the law-making procedure

The law-making procedure is regulated by the Constitution (OG 01/07), the Rules of the Parliament (OG 51/06, 66/06, 88/09, 80/10, 39/11, 25/12, 49/13), the Rules of the Government (OG 48/09), and the Legal and Technical Rules for the Development of Legislation (OG 02/10) issued by the Secretariat for Legislation under the Government. According to the Legal and Technical Rules for the Development of Legislation, in the case that more than half of the provisions of an existing legal act are to be amended, it is required to adopt a new legal act rather than revise the existing one.

Implementation

Since 2007, Montenegro has been making steady efforts to align its legislation on environment and sustainable development with the requirements of the EU accession process. However, there are difficulties and gaps in implementation of the adopted legislation in Montenegro. Some provisions of the key legal act on environment – the 2008 Law on Environment – have not become a reality, therefore preventing further progress in the development of environmental policy. A number of provisions in the Law on Nature Protection, Law on National Parks, Law on GMOs, Law on Waste Management, Law on Water, Law on Energy and Law on Energy Efficiency remain unimplemented, and many other provisions have had delayed implementation. Although gaps in implementation of the current legislation are well known to governmental officials, in a view of the priority to formally harmonize Montenegrin

legislation with EU acquis communautaire and the progress achieved in such harmonization, it is generally not regarded as a problem.

1.2 Policy framework

EU accession process documents

The National Programme for Integration for the period 2008–2012 and the Programme of Montenegro's accession to the European Union 2014–2018 (PPCG) embraced many measures prescribed by other strategic documents and laws. The status of these programmes, in view of the importance of the EU accession process for Montenegro, determines their crucial role in the prioritization of measures, as well as for allocation of financial and other resources for implementation.

National Programme for Integration for the period 2008–2012

The 2008 National Programme for Integration for the period 2008–2012 (NPI) represented a plan of transposing EU law into the national legislation. In each area, the NPI specified activities of relevant institutions in the normative field and with regard to institutional strengthening. The implementation of the NPI lasted until the end of 2013. Many new strategic documents, laws and secondary legislation have been adopted, and Montenegro joined many international treaties as envisaged in the NPI.

At the same time, many measures in the area of environment were implemented with a delay of three to four years compared with what was planned under the NPI, and a number of measures remained unimplemented. Major gaps in implementation of the NPI are the non-establishment of the environmental fund, non-adoption of the national environmental action plan, non-development of the national plan for abating climate change, non-development of river basin management plans and non-development of the national strategies for the implementation of the Aarhus Convention.

Programme of Montenegro's accession to the European Union 2014–2018

The 2013 Programme of Montenegro's accession to the European Union 2014–2018 (PPCG) provides an overview of existing policy, and legislative and regulatory instruments, as well as strategic documents and legal acts to be adopted, with responsibilities and tentative timeframes for their elaboration. Among new strategic documents to be adopted are: the national climate change strategy until 2030; the plan to protect waters from pollution; river basin management plans; Energy Development Strategy of Montenegro until 2030 and Action Plan for 2014–2018; national action plan for the use of renewable energy for 2014–2020; action plan for energy efficiency 2016–2018; strategy on radon; strategy on the protection from ionizing radiation, radiation safety and radioactive waste management (from 2016); national biodiversity strategy and action plan 2015–2020; national strategy for chemicals management and action plan 2015–2018; national strategy for emergency situations; and national strategy for waste management. The new laws to be adopted include: the law on environment; law on national parks; law on energy; law on the efficient use of energy; law on protection against ionizing radiation, nuclear and radiation safety; law on climate change; law on the collection and storage of carbon dioxide; law on carbon dioxide emissions from motor vehicles; law on industrial emissions; law on the transport of dangerous goods; law on biocides; and several others.

Strategic documents on environment and sustainable development

The Government has not adopted a four-year national environmental protection programme even though it is a requirement in the Law on Environment. Governmental officials give the existence of the NPI with a list of laws and regulations to be adopted on environmental protection as a reason; however, it only lists legislative and regulatory interventions and is not a substitute for sectoral strategic documents.

National Strategy for Sustainable Development and National Communication Strategy for Sustainable Development

The 2007 National Strategy for Sustainable Development (NSSD), accompanied by the Action Plan for the period 2007–2012, set the following general objectives: accelerate economic growth and development and reduce regional development disparities; reduce poverty and provide equal access to services and resources; ensure effective control and reduction of pollution, and sustainable management of natural resources; improve governance and public participation in environmental matters; and preserve cultural diversity.

As of February 2014, the Government had adopted five reports on NSSD implementation. Based on the NSSD provisions, the NSSD Action Plan was revised in 2011. A working group of the National Council for Sustainable Development and Climate Change is working on the development of a revised NSSD for

the period 2014–2020. The revised strategy is envisaged to be more horizontal, in line with the Rio+20 outcomes and Europe 2020 (the EU's 10-year growth strategy), with clear targets and indicators.

The 2010 National Communication Strategy for Sustainable Development (NCSSD) includes recommendations and guidelines for the promotion of sustainable development to be applied by various governmental authorities. The first and only annual report on the implementation of the NCSSD was adopted in December 2011. The NCSSD suffers from lack of resources and currently its systematic implementation is not ensured.

National Strategy for Air Quality Management and related documents

The 2013 National Strategy for Air Quality Management for the period 2013–2016 describes measures to be implemented within this period and provides a broader picture of challenges that need to be addressed in the longer term. The Strategy shows synergies with relevant EU directives and the fulfilment of Montenegro's international obligations under the air-related conventions and protocols.

The first report on implementation of the Strategy (December 2013) highlights such achievements as the commissioning of new equipment at Željezara Nikšić and installation of a filter plant at TPP Pljevlja. However, the allocation of funding for the remote heating system of the urban zone of Pljevlja to address the concentration of particulate matter will most likely not be implemented in the near future. The reason is that Member States of the European Energy Community agreed in October 2013 in Athens on the mechanisms that extend the deadline for compliance with the emission limit values (ELVs) for TPPs.

Of five legislative measures that should have been implemented by the Ministry of Sustainable Development and Tourism, only the Rulebook on volatile organic compounds (VOC) emissions from paints and varnishes (OG 49/13) was adopted. As of February 2014, legislation prohibiting the use of polychlorinated biphenyls (PCBs) in closed systems, prohibiting the increased content of heavy metals (mercury and cadmium) in batteries and accumulators, and prohibiting the construction of housing in the vicinity of industrial plants was not adopted, as respective bans should be reflected first in the new law on environment. Among the measures that had to be implemented by the EPA, communication with facilities that must obtain an IPPC permit was intensified. The EPA also took first steps to ensure that the data on air quality would be available in real time.

Key measures envisaged for 2014 include: full transposition of the Directive 2001/81/EC on national emission ceilings for certain atmospheric pollutants; and establishment of a centre for validation of air quality data within the EPA; and development of the national strategy on climate change. However the measure achieving the membership of Montenegro in the 1999 Gothenburg Protocol to Abate Acidification, Eutrophication and Ground-level Ozone to the Convention on Long-range Transboundary Air Pollution (LRTAP) was not realised (chapter 5).

Other strategic documents on air protection include the Action Plan for the Implementation of the Stockholm Convention (2014–2021) and the Action Plan for Approval and Implementation of the Protocol on Heavy Metals, Protocol on Persistent Organic Pollutants and the Protocol to Abate Acidification, Eutrophication and Ground-level Ozone to the LRTAP Convention (2011–2014). At local level, the Air Quality Plan of Pljevlja was developed in 2013, as significant exceedances of PM_{10} (95.61 µg/m^3 in 2011 compared with the prescribed annual mean concentration of 40 µg/m^3) had been recorded there. In 2014 the Air Quality Plan for Municipality of Nikšić was adopted as well.

National Biodiversity Strategy

The 2010 National Biodiversity Strategy with the Action Plan for the period 2010–2015 encompasses detailed analyses of the challenges faced for the conservation and sustainable use of biodiversity. These include the lack of data on specific components of biodiversity, insufficient institutional and staff capacities, and challenges connected with economic development in the sectors of tourism, spatial planning and large infrastructure development. The practice of involving the local population in the management structures responsible for protected areas is not developed. The European habitats typologizations (Emerald, Natura 2000) were not used in identification of the existing protected areas, which makes it a challenge to bring the existing protection system in line with those systems.

The measures in the Action Plan for the period 2010–2015 include the development of remaining regulations specified by the Law on Nature Protection with simultaneous harmonization of legislation on agriculture, energy, fisheries, forestry,

hunting, spatial planning, tourism, transport and water management.

The implementation of the Biodiversity Strategy and Action Plan faces many challenges. The Action Plan provides for the intensification of research, inventory and monitoring of biodiversity, and the development of the Natura 2000 network. However, limited resources were allocated for these purposes, so efforts to develop Natura 2000 are at the initial stages (chapter 4).

The Action Plan required the development in 2012 of local action plans for biodiversity in all municipalities. Only four municipalities (Pljevlja, Pluzine, Tivat and Žabljak) had developed such plans by February 2014.

The Action Plan also envisaged including additional natural areas under protection, and extension of some existing areas. However, no new areas have been placed under protection since proclamation of the National Park Prokletije in 2010. Decisions on the proclamation of regional parks Piva and Komovi are expected to be taken by local self-government authorities. Despite clear prioritization in the Action Plan, no managers have been appointed for protected assets other than national parks and several nature monuments.

Three annual reports on implementation of the Strategy and Action Plan have been prepared. The third report (October 2013), accounting for the period November 2011 to November 2012, shows fragmented efforts to implement the Strategy by means of selected measures and studies carried out through donor-funded projects. The resources actually allocated by the State budget for various measures (e.g. €7,000 in 2013 for research on biodiversity) are much smaller than those envisaged in the Action Plan. On the content side, difficulties are encountered with integrating biodiversity conservation into other sectors (infrastructure development, forestry, spatial planning and tourism).

The revision of the Biodiversity Strategy and Action Plan started in 2013. It is not clear whether and how the revision process will address the need to direct adequate efforts and resources to the implementation of the Strategy.

Strategy on the Protection from Ionizing Radiation, Radiation Safety and Radioactive Waste Management

The 2011 Strategy on the Protection from Ionizing Radiation, Radiation Safety and Radioactive Waste Management and Action Plan for the period 2012–2016 envisages the creation of a division for radiation protection and safety within the EPA, to be in charge of licensing, inspection and monitoring. Such a unit – the Section for Protection against Ionizing Radiation and Radiation Safety – has been set up in the EPA with a capacity of five staff. In 2012, the Administration for Inspection Affairs was set up, with the environmental inspection, responsible for the enforcement of the Law on Ionizing Radiation Protection and Radiation Safety being part of it.

A central register of radioactive sources, professionally exposed persons, radioactive waste and other relevant data is maintained by the EPA. The 2011 Strategy provides for an update of the inventory of radioactive waste, which was first made by the EPA in 2009.

During 2006–2007, a temporary radioactive waste storage facility was built in Montenegro with a total outer area of 185 m^2. The Strategy includes measures to ensure that operation of the storage facility and transport of radioactive waste and disused sealed radioactive sources are performed by licensed institutions. Under a five-year contract with the Ministry of Sustainable Development and Tourism as owner of the storage facility, the facility is managed by the limited liability company "Centre for Ecotoxicological Research" (CETI), which received a licence for this purpose in June 2012. A final solution on export or disposal of disused sealed radioactive sources has yet to be decided upon.

The first report on the implementation of the Strategy was issued in December 2013. The Ministry of Sustainable Development and Tourism intends to develop a strategy on radon in parallel to the revision of the 2011 Strategy planned for 2016.

Strategic documents on water management

Montenegro lacks an overarching strategy for water resources management. The draft amendments to the Law on Water recognize the need for a national water management strategy. The 2001 Water Master Plan for the whole country was adopted for the period 2001–2011 and is still applied.

No national plan covering water supply for the whole country has been developed. Under the activities provided for by the 2005 Master Plan of Water Supply for Montenegrin Coastal Region, a large part of the existing water supply network has been rehabilitated in towns in this region, and new networks have been built.

The 2005 Strategic Master Plan for Sewage and Wastewater in Central and Northern Region of Montenegro covers 14 municipalities and divides them into three groups in terms of prioritization of measures envisaged by the Plan (high priority – Nikšić, Pljevlja, Podgorica and Rožaje; medium priority – Bijelo Polje, Berane, Danilovgrad, Kolašin, Mojkovac and Žabljak; low priority – Andrijevica, Plav, Plužine and Šavnik).

The 2005 Master Plan for Removal and Treatment of Wastewater of Montenegrin Coast and Municipality of Cetinje foresees the rehabilitation of pumping stations, construction of new collectors and pumping stations, expansion of the sewerage network and reconstruction of the existing network during the first phase (2005–2009), as well as construction of WWTPs, in addition to the works in the network, during the second (2009–2018) and third (2019–2028) phases. The 2012 Operational Programme for Regional Development for the period 2012–2013 indicates that project documentation for the construction of a number of new WWTPs and segments of the sewerage network was prepared on the basis of the Master Plan. The remaining priorities for the water sector are the development of river basin management plans and of the water information system, enhancement of monitoring (chapter 4), extension of water supply and sewerage networks in urban and rural areas, and construction of WWTPs (chapter 7).

Strategic documents on waste management

In 2004 the Government adopted the National Policy on Waste Management. The 2005 Strategic Master Plan for Solid Waste Management for the period 2005–2012 defines priorities in regulating waste management.

The National Waste Management Plan for the period 2008–2012 was adopted in 2008. According to the 2005 Law on Waste Management, municipal waste management plans had to be prepared by all municipalities but not all municipalities did so. In general, lack of investment and poor capacities of local self-government authorities and public enterprises responsible for waste management have been commonly recognized as restricting factors for implementation of the waste management policy.

A new national waste management strategy is under development. It would form the basis for the adoption of a new national waste management plan in accordance with the 2011 Law on Waste Management, and for the preparation of the new local waste management plans.

Children's Environment and Health Action Plan

The 2011 Children's Environment and Health Action Plan (CEHAP) 2012–2016, developed under the auspices of the Ministry of Health, prioritizes measures aimed to ensure better access to safe water for children living in rural/suburban areas, increase awareness on the importance of adequate hygiene practices, reduce the number of child injuries and fatalities in traffic, reduce child exposure to unsafe residences and construction materials, and reduce exposure of children and youth to indoor air pollution and tobacco smoke. There is little awareness about CEHAP among decision makers. No implementation report has been prepared. No formal coordination mechanisms exist between the environment and health sectors. Also, no national environment and health action plan is in place.

Strategic documents on economic and social development

Development Directions of Montenegro for the period 2013–2016

The 2013 document *Development Directions of Montenegro for the period 2013–2016* describes three development directions: smart growth, sustainable growth and inclusive growth. Coordination of implementation is led by the Prime Minister. In the area of environment, the document identifies a number of objectives: preservation and restoration of ecosystems; improved water quality and wastewater treatment; sustainable waste management; prevention of exposure to harmful effects of air pollution, noise and radiation; climate change mitigation and adaptation; control of the use of chemicals; minimizing industrial pollution; and introduction of clean technologies. The document envisages the development of a strategy for financing environmental activities. No such strategy has yet been developed.

Strategic documents on regional development

Montenegro experiences unbalanced levels of socioeconomic development. Its northern part has a primarily rural population and suffers from the absence of investment projects. The strategic objectives of the 2010 Regional Development Strategy of Montenegro for the period 2010–2014 include more balanced regional development and rapid development of the less-developed local self-government units, as well as environmental

protection. The Strategy gives directions for the use of international donor funds.

The Operational Programme for Regional Development for the period 2012–2013 focused on environment and transport as priority areas. It concentrated the IPA assistance in the northern region, allocating 70 to 80 per cent of funds there and including projects to improve water supply, wastewater management systems, waste management infrastructure and the transport system, with a special emphasis on rail infrastructure.

Sectoral development with a possible impact on environment

Energy-related strategic documents

The 2011 Energy Policy of Montenegro until 2030 defines the main priorities of the energy policy as: i) security in the energy supply; ii) development of the competitive energy market; and iii) sustainable energy development. The 2011 Energy Policy prioritizes energy efficiency and the use of renewable energy sources. The document states that Montenegro should reach an indicative target of increased energy efficiency, which represents a 9 per cent savings in the average final energy consumption of the country by 2018, compared with the average consumption in the period 2002–2006 (excluding the Podgorica aluminium plant). Creating a favourable environment for development of renewable energy sources and increasing their share in transport are emphasized.

Based on the 2011 Energy Policy, the Ministry of Economy has developed the Energy Development Strategy of Montenegro by 2030. A Strategic Environmental Assessment (SEA) for the draft Strategy was carried out in 2013-2014. In July 2014, the Government adopted the Energy Development Strategy of Montenegro by 2030. In this new Strategy, Montenegro accepted obligations for implementation of energy reforms in line with the Energy Community Treaty. Also, the country committed to improve energy efficiency in production and consumption, increase the share of renewable energy sources in total consumption of primary energy, develop rational use of hydroenergy potential in the river basins of Morača, Komarnica, Lim, Piva, Zeta, Ibar and Ćehotina, and reduce the impact of coal exploitation and TPPs on the environment.

The 2005 Energy Efficiency Strategy is implemented through the National Action Plan for Energy Efficiency (for 2010–2012 and 2013–2015), providing for measures in the housing, services and transport sectors and cross-sectoral measures. Currently, it is envisaged not to update the Energy Efficiency Strategy but instead to have energy efficiency covered in the Energy Development Strategy of Montenegro until 2030. According to the 2012 decision of the 10th Ministerial Council of the Energy Community on the implementation of EU Directive 2009/28/EC on the promotion of renewable energy, Montenegro's target for renewable energy sources as a proportion of gross final consumption of energy is 33 per cent by 2020. The National Renewable Energy Action Plan was adopted in December 2014

Subnational policies

In 2008, the reform of the National Council for Sustainable Development provided it with a mandate to assist municipalities in forming local councils for sustainable development. In 2010, the municipality of Danilovgrad became the first local authority to establish one and adopt a local strategy for sustainable development (LSSD) together with an action plan. Following this example, six other municipalities committed to the process of developing an LSSD. The National Council tries to secure donor support for this initiative. Another approach supported by the National Council is to encourage municipalities to include sustainable development aspects in the socioeconomic strategies and plans that they have to develop in accordance with the Law on Regional Development (OG 20/11). This approach has been followed by the municipality of Pljevlja where the Strategic Development Plan for the period 2013–2018 can be regarded as an LSSD.

Whereas the adoption of an LSSD is not obligatory, according to the Law on Environment each municipality has to develop a four-year local environmental action plan (LEAP) based on the national environmental protection programme. In the absence of such a programme and of guidance on the preparation of a LEAP, few municipalities (e.g. Kolasin, Kotor, Nikšić, Pljevlja and Podgorica) adopted LEAPs. A sustainable development vision was incorporated in the LEAP of Podgorica for the period 2010–2014.

1.3 Strategic environmental assessment

Legal framework

The 2005 Law on Strategic Environmental Assessment (SEA) (OG 80/05, 73/10, 40/11, 59/11), applicable since 2008, sets down the conditions and procedures for SEA of plans and programmes. At the

national level, the authority responsible for preparing a plan or programme has to carry out the SEA procedure. The local administration body responsible for preparing a plan or programme carries out SEA of plans and programmes envisaged for adoption at local level.

The Law defines its scope of application to include "plans, programmes and documents" prepared and/or adopted at national or local level. The SEA is mandatory for plans, programmes and documents in areas specified by the Law that lay down the framework for future development of projects that are subject to environmental impact assessment (EIA). SEA is also mandatory for plans and programmes that may have an impact on protected areas, natural habitats, and wild flora and fauna. SEA is not obligatory but may be required when minor amendments are introduced in the plans and programmes under the above categories.

The decision on preparing or not preparing an SEA (so-called screening) has to be taken by the authority responsible for preparing a plan or programme, taking into account the comments of the EPA (for national plans and programmes) or the local environmental protection authority (for local plans and programmes), health authorities, other authorities concerned and the public concerned, who are given 15 days to provide their opinion. The decision on preparing an SEA shall be taken simultaneously with the decision to prepare a plan or programme.

The SEA report is prepared by a local or foreign company chosen by the authority responsible for preparing a plan or programme, on the basis of a tender. The content of the SEA report is defined in the Law. The evaluation and approval of an SEA report is done by the EPA (for national plans and programmes) or local environmental protection authority (for local plans and programmes).

Implementation

In the Ministry of Sustainable Development and Tourism, one person is responsible for policy and legislation on both EIA and SEA. In the EPA, two staff are responsible for: issuing opinions on whether there is a need for SEA (for both national and local level plans and programmes); issuing opinions on the draft SEA reports (for both national and local level plans and programmes); and issuing approvals of SEA reports (for national level plans and programmes). At local level, 34 employees in total are responsible for both EIA and SEA.

By now, SEA is actively used at both national and local levels (table 1.1) and there is a body of practical experience that allows gaps to be identified and defining lessons learned. Short time frames are reported as one of the problematic areas. When the authority responsible for preparing a plan or programme submits a draft decision on proceeding or not proceeding with SEA elaboration to the EPA or to the local authority responsible for environmental protection, to the state administration responsible for health issues, and to other authorities and organizations concerned and the public concerned, the deadline of 15 days for the provision of comments by those stakeholders is hardly complied with by any authority other than the EPA. Another deadline stipulated by the Law – 30 days for comments on the draft SEA report – is also reported to be too short, taking into account the usual complexity of draft SEA reports and diversity of expertise needed to assess them.

In the process of evaluation and approval of the draft SEA report, the Law gives an opportunity to the EPA and to the local authority responsible for environmental protection to request opinions of other ministries and agencies or experts in particular fields or to establish an evaluation committee.

However, practical realization of these opportunities remains a challenge Ministries and agencies are not obliged to provide their responses to the EPA. The EPA does not have funding for hiring independent experts in a particular field. The establishment of an evaluation committee requires time and reportedly presumes paid work by the committee members, whereas no funding for such purposes is available at the EPA. These considerations basically place the evaluation of the SEA report fully onto the shoulders of staff of the EPA or the local authority.

Low capacity for implementation and enforcement of the Law on SEA at local level is a commonly recognized problem. Excessive use of SEA at local level is reported, as well as the fact that the local authorities often do not request the opinion of the EPA on a draft decision to conduct an SEA procedure and on a draft SEA report. Where such opinions are requested, the EPA often receives no feedback on decisions taken. There are cases of SEA application not only to plans and programmes but also to strategies. For example, in 2013, decisions were taken to prepare an SEA for a draft strategy and plan on forestry development and for a draft energy development strategy by 2030. This practice is not applied consistently.

Table 1.1: EPA's involvement in SEA procedures, 2008-2013

	2008	2009	2010	2011	2012	2013	Total
Number of the SEA reports approved by EPA	..	3	12	6	1	5	26
Number of the SEA reports rejected by EPA	0	0	0	0	0	0	0
Number of EPA opinions on draft SEA reports prepared at local level	13	32	30	38	49	13	175
Number of EPA opinions on draft SEA decisions prepared at local level	..	..	..	..	..	6	..

Source: Environmental Protection Agency, 2014.

For example, the revised NSSD is not expected to go through an SEA procedure. In another case, an SEA was carried out for the draft national waste management plan but not for the draft national waste management strategy.

Public participation in SEA

The authority responsible for preparing a plan or programme shall consult the public at the screening stage, inform the public of the procedure and deadlines for review and commenting on the content of the draft SEA report, and organize a public hearing. A report on the participation of authorities and the public in the SEA procedure is submitted to the EPA or to the local authority responsible for environmental protection along with the draft SEA report. Evidence shows that non-governmental organizations (NGOs) are more likely to participate in the SEA procedures for highly debated issues. For example, the SEA of the Energy Development Strategy until 2030 gathered formal comments from four Montenegrin and two international NGOs. However, most environmental NGOs in the country do not have the capacity to engage in SEA procedures.

SEA at transboundary level

The Ministry of Sustainable Development and Tourism is responsible for organizing transboundary consultations. In 2010–2013, Montenegro was notified about one transboundary SEA. In the same period, as a party of origin, Montenegro made notifications in four cases (chapter 5).

The Law on SEA requires sending to the other state, along with notification, the description of plans and programmes, together with all available information on their possible impacts; the nature of the decision that may be adopted; and the period within which the other state can inform its intention to participate in the procedure. It does not explicitly require sending the SEA report; however, in practice, the SEA report is sent to notified states as part of "all available information".

1.4 Green economy policy framework

While Montenegro has a number of instruments and initiatives directed at various aspects of green economy, it does not have a strategic document that would explicitly state the country's commitment to transition to a green economy. Prior to the Rio+20 Conference, the report *Ecological State of Montenegro +20* was prepared. According to this report, Montenegro identified three economic sectors – agriculture, energy and tourism – as priorities for greening the economy by 2020. Investments in science, research and innovation, and attention to climate-change issues have been defined as horizontal issues. The report recommends 10 priority areas for green economy investments in Montenegro. However, the status of this document is unclear and it has not been referred to in any strategic documents of the Government.

The document *Development Directions of Montenegro for the period 2013–2016* mentions the concept of green economy. It names four priority sectors of development – tourism, energy, agriculture and rural development, and industry – and has an ambitious objective to serve as a mid-term investment and development plan for all investment and development projects to be implemented in Montenegro. However, the document is not well known among governmental officials and is generally not perceived as a green economy framework in the country.

The Ministry of Economy and the Ministry of Sustainable Development and Tourism are the two institutions dealing with green economy matters. The green economy agenda is also promoted by the United Nations Development Programme (UNDP) in Montenegro. In 2012, a study entitled "Assessing the impact of green economy investments in Montenegro: A sectoral study focused on energy (transport and buildings) and tourism" was prepared by UNDP and the United Nations Environment Programme (UNEP), following guidance from the Government. The current process of preparing a revised NSSD for the period 2014–2020 provides an

opportunity to include a green economy vision and objectives in the national strategic framework.

1.5 Institutional framework

Since 2007, substantial institutional changes have taken place in the set-up of environmental authorities in the country. Establishment of the EPA in 2008 allowed the separation of law and policymaking from implementation, with the former functions now vested in the Ministry of Sustainable Development and Tourism and the latter being the responsibility of the EPA. Another substantial change was the creation in 2012 of the Administration for Inspection Affairs as a separate institution, bringing together all inspections, including environmental, forestry, water, housing and sanitary-epidemiological inspections.

The Hydrometeorological Institute and the Seismological Bureau were merged into one institution in 2012. A notable development was the creation of an institutional system for ionizing radiation, with policy issues decided by the Ministry of Sustainable Development and Tourism, implementation vested with a separate unit in the EPA, enforcement assigned to one inspector in the Administration for Inspection Affairs and emergencies handled by the Ministry of the Interior. No efforts were applied to address the multiplicity of actors in the water sector. The key act for regulating the system of public authorities and their responsibilities is the Regulation on the Organization and Operation of Public Administration (OG 05/12, 25/12, 61/12, 20/13).

Ministry of Sustainable Development and Tourism

Following the governmental restructuring in 2006, environmental policy has been in the competency of the Ministry of Tourism and Environment, reformed into the Ministry of Spatial Planning and Environment in 2009 and restructured again to become the Ministry of Sustainable Development and Tourism in 2011.

The Ministry of Sustainable Development and Tourism (figure 1.1) is the main governmental authority responsible for policymaking on environment and sustainable development. The portfolio of the Ministry is much broader than the environment alone, and also includes spatial planning, construction, tourism development and housing, as well as coordination of international cooperation and the management of EU funds in all the above areas.

The Directorate of Environment and Climate Change and the Directorate of Waste Management and Communal Development are directly responsible for environmental policy matters. The Section to Support the National Council for Sustainable Development provides administrative support to the Council. The total budget of the Ministry for 2014 is envisaged at €7,949.540, of which the cumulative budget of these two Directorates and the Section is €2,844.505, or 35.8 per cent (table 1.2). As of February 2014, 21 of the 159 staff of the Ministry work on environmental and sustainable development issues, which is an increase on the 15 staff who worked in the Sector for Environmental Protection of the then Ministry of Environmental Protection and Physical Planning in November 2006. A recent positive development in the staffing situation in the Ministry of Sustainable Development and Tourism (as in other public authorities) has been the adoption of amendments to the legislation which prohibit keeping staff on fixed-term contracts for longer than two years, therefore forcing employers to hire people on indefinite-term contracts (Labour Law, OG 49/08, 26/09, 59/11, 66/12).

The work of the Ministry of Sustainable Development and Tourism is supported by the Hydrometeorological and Seismological Service (HSS), the Directorate of Public Works and the EPA. The Ministry does not have local branches.

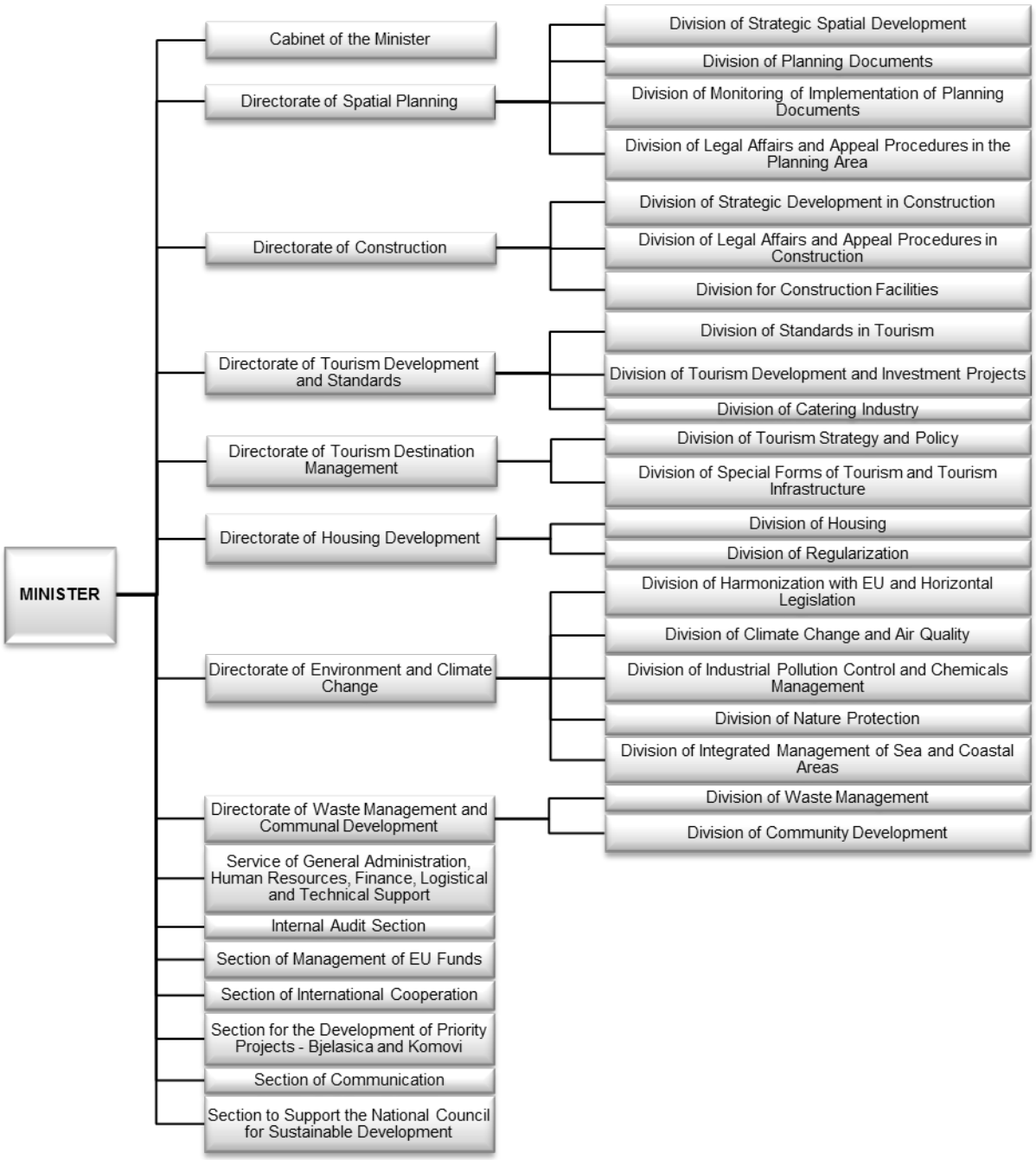
Sectoral ministries

Policy and legislation on a number of environmental issues are developed by sectoral ministries. The Ministry of Agriculture and Rural Development has responsibilities for: the management, use and protection of water resources; protection from adverse effects of water; protection of water against pollution; water supply in rural communities; conservation and management of forests; hunting; food safety; and application of modern technology in agriculture.

The Ministry not only deals with policy development on these issues but also supervises the authorities responsible for implementation, which are part of the Ministry. In particular, the Phytosanitary Administration is responsible for plant variety protection, food safety and GMOs.

The Veterinary Administration is in charge of veterinary control. The Forest Administration deals with the tasks of forest management and protection of forests from illegal logging, poaching and fire.

Figure 1.1: Organizational chart of the Ministry of Sustainable Development and Tourism



Source: Ministry of Sustainable Development and Tourism, 2014.

Table 1.2: Budget of the Ministry of Sustainable Development and Tourism and of its environmental programme, €, 2011–2014

	2011	2012	2013	2014
Ministry of Sustainable Development and Tourism	11,927,768	6,795,554	6,498,241	7,949,540
Programme 1602	2,588,102	1,148,530	1,121,900	2,844,505

Source: Ministry of Sustainable Development and Tourism, 2014.
Note: Programme 1602 is implemented by the Directorate of Environment and Climate Change, Directorate of Waste Management and Communal Development and Section to Support the National Council for Sustainable Development. All figures include salaries.

The Water Administration is responsible for water use and allocation, including integrated water resources management, flood control, water use fees and development of the water information system.

The Ministry of Economy is in charge of development policy, energy policy, energy efficiency, exploitation of mineral resources and other raw materials, geological research, and hydrocarbon exploration and production activities.

The Ministry of Health carries out tasks related to licencing, import/export and use of toxines, protection of the population from infectious diseases, drinking water quality and medical waste management. Monitoring and processing of water quality data for all public water supply systems is carried out by the Institute for Public Health in cooperation with hygiene epidemiology services and the CETI.

The relevant competences of the Ministry of Transport and Maritime Affairs are related to the prevention of and response to marine pollution from vessels, and transportation of hazardous materials by air, water and rail. The Maritime Safety Authority is responsible for collecting hydrographic, oceanographic and meteorological data.

The Ministry of the Interior is responsible for risk management and civil protection and rescue in the event of natural and technological disasters and other emergency situations, as well as emergencies with regard to radiation safety.

Environmental Protection Agency

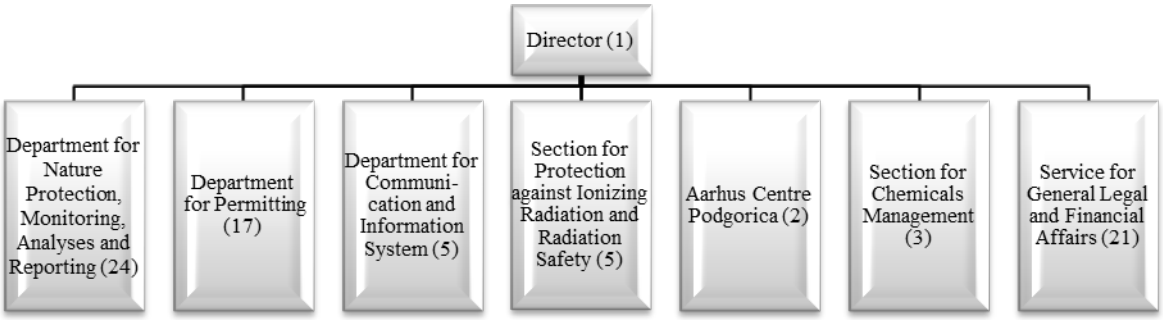
The EPA (figure 1.2), established in 2008 (Regulation amending the Regulation on the Organization and Operation of Public Administration (OG 68/08)) and operational since 2009, ensures implementation of environmental legislation. Its mandate includes implementation of strategies, programmes, laws and regulations in the field of environment, implementation of international treaties within its jurisdiction, environmental permitting, EIA, SEA, IPPC licensing, environmental monitoring, keeping relevant registers and databases, and reporting and coordination of reporting on the state of the environment. The EPA is also responsible for the provision of information to national and international organizations and to the public. As of February 2014, 78 of 88 available positions in the EPA have been filled. In 2012, the EPA opened a regional office in Berane, which functions as Aarhus Centre Berane.

The EPA's budget (table 1.3) has decreased over the last few years, mostly due to the general economic situation. Although some organizational changes have also taken place (in particular, environmental inspection was taken out of the EPA, while the Institute of Nature Protection was integrated into the Department for Nature Protection, Monitoring, Analyses and Reporting within the EPA), they did not have a major influence on the budget of the Agency.

Hydrometeorological and Seismological Service

The HSS, created in 2012 by the merger of the Hydrometeorological Institute and the Seismological Bureau, has a wide range of competences in the areas of data collection and research on meteorology, hydrology, environment, agrometeorology, climatology, cartography and geology. In addition to providing data and analyses to relevant authorities and stakeholders, it also prepares forecasts.

Figure 1.2: Organizational chart of the Environmental Protection Agency



Source: Environmental Protection Agency, 2014.
Notes: The regional office in Berane is not represented in the EPA structure. Number of staff is indicated in parenthesis.

Table 1.3: Budget of the Environmental Protection Agency, €, 2011–2014

	2011	2012	2013	2014
Budget	1,910,297	1,476,651	1,215,818	1,242,248

Source: Ministry of Sustainable Development and Tourism, 2014.

Administration for Inspection Affairs

The Administration for Inspection Affairs was established in 2012, bringing together all inspections that were previously subordinated to the line ministries.

Within the Administration, two departments are specifically responsible for environment-related inspections. The Department of Environment and Spatial Planning is in charge of, among other matters, environmental inspection, geodetic inspection and water inspection. The Department of Health and Safety of Humans, Animals and Plants is in charge of, among other matters, health and sanitary inspection, veterinary inspection, phytosanitary inspection, sea fisheries inspection and forestry inspection.

The status and conduct of individual inspectors is governed by the 2003 Law on Inspection Control (OG 39/03, 76/09, 57/11). Supervision of the legality of actions of the Administration for Inspection Affairs in specific areas is performed by the ministries responsible for those areas. Supervision of the overall work of the Administration for Inspection Affairs is performed by the Government through the Ministry of Economy.

While it is too early to assess the effects of the establishment of the Administration for Inspection Affairs, some observations already can be made. When individual inspections were brought into the Administration, some experienced staff cuts (chapter 2). For example, 12 staff (seven permanent and five temporary) were employed by the environmental inspection under the EPA, but only seven staff moved to the Administration. The water inspection under the Ministry of Agriculture and Rural Development had six inspectors, but only four posts were assigned to water inspection in the Administration for Inspection Affairs and only two posts are filled as of February 2014. At the same time, the Administration is now able to respond in a more timely manner to various requests, since such requests do not need to go through the line ministries. Also, the existence of legal support available to all sectoral inspections in the Administration for Inspection Affairs contributes to their efficiency. At the same time, some disconnection of inspectors with the line ministries is felt to be a negative consequence of the merger.

National Parks of Montenegro

The Public Enterprise "National Parks of Montenegro" (PENP), employing about 20 staff responsible for the management and development of the five national parks – Biogradska Gora, Durmitor, Lovćen, Prokletije and Lake Skadar. The Director and the Management Board are appointed by the Government upon the proposal of the Ministry of Sustainable Development and Tourism. Each national park has a director, a protection department (employing rangers), a department for sanitary issues and an administrative department. Rangers are still to be recruited for the National Park Prokletije.

Centre for Ecotoxicological Research

The CETI, a limited liability company which employs 66 staff, deals with the analysis of soil, sediments, surface water, groundwater, seawater, wastewater and drinking water, and fish for export, as well as the monitoring of air, ionizing radiation, noise, vibration and radon pollution. It manages a radioactive waste storage facility. The CETI seems to be the only institution which has all necessary certificates and accreditations to be able to bid for various tenders related to analysis and monitoring, as no other institutions of comparable scale and competence exist in Montenegro.

PROCON

"Project – Consulting" Ltd (PROCON) was founded by the Government in 2008 to provide expert support in implementation of projects on environmental protection and communal services, adopted by the Government and/or local self-government authorities and supported by international financial institutions.

PROCON provides assistance in the preparation of documentation for the implementation of projects, reviews the projects in the light of their correspondence to strategic planning documents, carries out activities related to the organization of tender procedures and prepares project implementation reports. In 2012, the work programme of PROCON included support for the

implementation of projects related to waste waters and water supply financed by European Investment Bank (€57 million) and European Bank for Reconstruction and Development (€5.35 million), while solid waste was financed from EIB credits (€27 million). Also, there was a support for the implementation of 13 grants with a total portfolio of €42.48 million which covered implementation of projects including development of technical/tendering documentation, supervision.

Centre for Sustainable Development

In early 2014, the Centre for Sustainable Development was established as a programme jointly implemented by the Government and UNDP.

Decentralization and vertical coordination

According to the Law on Local Self-Government (OG 42/03, 28/04, 75/05, 13/06, 88/09, 3/10, 38/12, 10/14, 57/14), local self-government is organized into municipalities, Capital City of Podgorica and Old Royal Capital Cetinje. Together they make up 23 local self-government units.

In Podgorica, there are eight employees in local self-government authorities performing activities on environment, in the municipality of Nikšić there are nine, and in the municipality of Pljevlja, three. Other municipalities have only one or two employees in charge of environmental issues. For the provision of services (water supply, sewerage, waste collection) municipalities establish limited liability companies.

The environmental responsibilities of local self-government authorities have increased since 2008, when a number of laws were adopted or became applicable. As a result of this move towards decentralization, local self-government authorities have to: adopt a four-year LEAP (Law on Environment); prepare every four years a report on the state of the environment in their territory as input to the national SoE Report (Law on Environment); maintain a local register of environmental polluters (Law on Environment); designate regional parks, nature parks, nature monuments and landscapes with outstanding features (Law on Nature Protection); adopt management plans for regional parks, nature parks, nature monuments and landscapes with outstanding features, with prior approval of the Ministry of Sustainable Development and Tourism (Law on Nature Protection); adopt local biodiversity action plans (National Biodiversity Strategy); adopt local waste management plans (Law on Waste Management); perform acoustic zoning (Law on the Protection against Environmental Noise); conduct SEA, EIA and IPPC procedures (Laws on SEA, EIA and IPPC); and adopt local energy plans (Law on Energy) and local energy efficiency programmes and plans (Law on Energy Efficiency). However, compliance with many of these provisions is rather poor.

There are a number of activities that are not mandatory but can be initiated by local self-government authorities. For example, they can introduce monitoring programmes in their territory and local taxes for the protection of the environment in order to use collected revenues for the protection and improvement of the environment in a given territory (Law on Environment).

While the above provisions allege a certain degree of decentralization, actual implementation appears problematic. For example, in 2010, the Constitutional Court declared invalid the decision of the municipality of Pljevlja on special fees for environmental improvement and protection in accordance with the specificities and needs of Pljevlja Municipality.

The Court recognized that, although a legal possibility exists for local self-government units to introduce certain taxes/fees to secure funds for environmental protection, polluters cannot be double charged. The 2010 Law on Improvement of Business Environment (OG 40/10) makes the introduction of a fee for environmental improvement subject to prior consent by the Government. Podgorica has consulted the Government on opportunities to introduce local taxes for the protection of the environment; however, consultations did not reveal any such opportunities. The Law on Environment is not precise on this issue, and no secondary legislation clarifies it.

With regard to the power of local self-government authorities to organize monitoring in their territory, municipalities are interested to have more data on air pollution, nature and biodiversity than is provided by the national monitoring network. However, they have difficulties in allocating funding for these purposes. For example, expenditures for the introduction of additional monitoring of air quality at several crossroads in Podgorica were not approved in the Capital City budget. This reflects the general tendency that environmental issues are not a priority at local level and are often superseded by transport, tourism and infrastructure development projects.

Employees in charge of environmental issues in local administration bodies are subordinated to the local self-government authorities, not to the Ministry of Sustainable Development and Tourism.

Communication between local self-government authorities and the Ministry takes place when certain obligations are to be implemented in accordance with legislation and upon official requests. No mechanism for systematic exchange of information is in place, and personal relations are key for cooperation between the Ministry of Sustainable Development and Tourism and the local level. Another problem is the limited capacity at the local level to attract foreign funding for implementation of plans, programmes and projects.

Horizontal coordination

National Council for Sustainable Development and Climate Change

The National Council for Sustainable Development was established by the Government in 2002 as a cross-sectoral advisory body on issues of sustainable development. In 2006, the Council's composition was expanded to include a wider range of stakeholders. The first reform of the Council took place in 2007–2008, when its composition was reduced from 45 to 23 members and working groups were introduced. The second reform took place in 2012–2013. It resulted in strengthening the climate change dimension in the work of the Council, which was renamed the National Council for Sustainable Development and Climate Change. The reform also institutionalized the working groups of the Council as permanent bodies.

Following the second reform (Decision on the establishment of the National Council for Sustainable Development and Climate Change, OG 49/13), the composition of the Council includes: the Minister of Sustainable Development and Tourism, Minister of Economy, Minister of Labour and Social Welfare, Minister of Agriculture and Rural Development, Minister of Transport and Maritime Affairs, one representative of the Ministry of Sustainable Development and Tourism, one representative of the Ministry of Finance, the Director of the HSS, three representatives of local self-government units, one representative of academia, three representatives of employers' associations, one representative of trade unions, two representatives of NGOs (one for sustainable development and one for climate change), and two independent experts (one for sustainable development and one for climate change). The President of Montenegro presides over the Council.

The mandate of the Council is broader than monitoring NSSD implementation. The Council advises on various legal, strategic and planning documents related to sustainable development. Meetings of the Council should take place at least twice a year, while the working groups are to meet more frequently. On 2 December 2013, the Council held its 25th meeting. As of February 2014, the Council has three working groups: on the revision of the NSSD, on sustainable management of natural resources and on climate change.

Members of the Council are entitled to compensation in accordance with the Decision on the criteria for determining the compensation for the members of boards or other forms of work (OG 26/12, 27/13). Funds for the work of the Council are provided from the budget of the Ministry of Sustainable Development and Tourism. The Council is serviced by the Section to Support the National Council for Sustainable Development, within the Ministry.

Water Council

The Water Council was established in conformity with the 2007 Law on Water as an advisory and professional committee to coordinate various interests in the water sector. The Council, appointed by the Government (OG 9/07), comprises a chairperson and 10 members nominated from among the prominent scholars and professionals in the water sector, local self-government authorities, water users and NGOs.

The Council is mandated to give opinion on draft laws and regulations related to water management and participate in development of the Water Master Plan and water management plans. Activities of the Council are supported by the Ministry of Agriculture and Rural Development. Compared with the National Council for Sustainable Development and Climate Change, the Water Council has been more of an expert (rather than political) body. The draft amendments to the Law on Water envisage the discontinuation of the activities of the Water Council.

Public participation and stakeholder involvement

Strengthening the involvement of NGOs and other stakeholders and creating a system for their effective participation in policy- and decision-making has been the focus of specific efforts by the Government in the last few years. The 2013 Strategy for NGO Development with Action Plan for 2014–2016 replaces the Strategy for Cooperation between the Government and NGOs with Action Plan for 2009–2011.

A Council for Cooperation of the Government with NGOs was set up in 2011. The Council consists of 24

members: 12 representing public authorities and 12 from NGOs. Environmental NGOs have one member on the Council. Ministries and other administrative bodies have to submit to the Council semi-annual and annual reports on cooperation with NGOs. The National Council for Sustainable Development and Climate Change functions as a multi-stakeholder body and includes, among others, representatives of NGOs, employers' associations and trade unions, and academics.

Apart from the Law on Non-Governmental Organizations (OG 39/11), the Regulation on the procedure and manner of conducting public debate in preparing laws (OG 12/12) and Regulation on the procedure and manner of developing cooperation between public administration bodies and non-governmental organizations (OG 07/12) have been adopted to guide public authorities. Procedures for public participation exist in other legal acts, including the laws on EIA, SEA and IPPC.

In 2010, the then Ministry of Spatial Planning and Environment signed a memorandum of cooperation with 26 NGOs. In 2010, an action plan for cooperation between the Ministry and NGOs was prepared. In recent years, the Ministry of Sustainable Development and Tourism has regularly issued public invitations to NGOs to propose candidates in the composition of the various working groups for drafting laws or secondary legislation, organized public hearings when drafting laws or strategic planning documents, and published texts of draft regulations on the websites of the Ministry and of Aarhus centres with a call for the submission of comments.

The network of Aarhus centres opened through the joint efforts of the Ministry of Sustainable Development and Tourism, the EPA and the Organization for Security and Cooperation in Europe (OSCE) Mission to Montenegro includes three centres: Podgorica (opened in 2011 as an organizational unit of the EPA), Nikšić (opened in 2011 as part of the NGO Ozone) and Berane (opened in 2012 in cooperation with local self-government authorities as an organizational unit of the EPA). The salaries of employees of the centres in Podgorica and Berane are financed from the state budget, while the OSCE supports the concrete activities of the centres. Financing of the centre in Nikšić is project based.

While the above opportunities for participation exist, their use by environmental NGOs is limited. The majority of public invitations to NGOs to take part in the various working groups for drafting laws and secondary legislation receive no applications from NGOs. One of the reasons is that many laws and secondary legislation documents are rather technical and not appealing enough to spur NGOs to become engaged. There are also complaints from NGOs that gathering the long list of documents to apply for participation in the working groups is too burdensome. The lack of real impact by NGOs on draft legislation and during SEA procedures is also given by NGO representatives as a reason for poor engagement. However, the major reason behind the limited use of the existing system is the weak capacity of environmental NGOs to provide effective input to environmental policy development.

The community of environmental NGOs is rather small. The vast majority of environmental NGOs, which are mostly local, operate irregularly, with no permanent staff. They rarely participate in the development of environmental policy and legislation. There is no national funding for environmental NGOs. The Lottery Fund, which is operated by the Ministry of Finance and allocates funding to civil society organizations, does not support environmental projects. Local self-government authorities make calls for NGO proposals but allocate little funding for these purposes (around €20,000 per year for all NGO projects in a municipality). The capacity problem with environmental NGOs is clearly recognized by the NGO community and the Ministry of Sustainable Development and Tourism. In November 2013, the Ministry had a meeting with NGOs to discuss ways to improve cooperation. Aarhus centres are one of the means to address the capacity issue, but more efforts are needed to achieve sustained results.

Another issue is the absence of a tradition of environmental public advocacy in the country. There are no public interest lawyers who systematically bring environmental cases to the courts. The Aarhus Centre in Nikšić has recently developed cooperation with a law firm to ensure the provision of free legal assistance to the public.

1.6 Conclusions and recommendations

During the period 2007–2013, Montenegro has made notable efforts to harmonize its legislation with EU law. In fact, a new package of laws was adopted in this period. These laws replaced the earlier adopted laws on the same issues, although many of the latter were only three to six years old.

Now, the Government plans once again to adopt new laws in several areas covered by relatively recent laws. In particular, the 2013 EU Accession Programme for the period 2014–2018 (PPCG)

envisages the adoption of new laws on the environment, national parks, energy, the efficient use of energy, and protection against ionizing radiation, nuclear and radiation safety. Since the legal prerequisite for the adoption of a new legal act in Montenegro is the revision of at least 50 per cent of an existing legal act, it appears that every three to six years Montenegro drastically changes its legal framework for environmental protection and management. Taking into account that every time a new law is adopted it takes time and resources to adjust the institutional system and responsibilities for implementation and to adopt secondary legislation, the implementation of laws lags behind the intensive efforts to improve the legal framework.

In order to put implementation of the current legislation on track, both governmental institutions and stakeholders need a period of legal stability with a clear focus on implementation. During such a period, only significant legal gaps revealed by the actual experience of implementation could be addressed through the adoption of amendments.

Recommendation 1.1:
The Government should:

- *(a) Ensure that decisions on the development and adoption of new environment-related laws are taken carefully and that the political will is in place to implement and enforce the adopted legislation;*
- *(b) Prioritize implementation of environment-related legislation, in particular the Law on Environment, the Law on Nature Protection, the Law on Water, the Law on Chemicals and the Law on GMOs.*

Since 2007, the Government has adopted a number of strategic documents to define the strategic vision in specific sectors of environmental protection and sustainable development. Furthermore, it has developed plans and programmes to specify measures, timelines and resources for implementation.

Yet some areas, e.g. water and climate change, are still not covered by overarching strategic documents. The development of some strategic documents, e.g. a national renewable energy action plan, is facing significant delays. Some strategic documents are incoherent: *Development Directions of Montenegro for the period 2013–2016*, for example, envisages the elaboration of a strategy on financing of measures on the environment, whereas no such strategy is planned under the PPCG.

Implementation of some strategic documents, e.g. the Biodiversity Strategy, faces difficulties because of poor financing. Others, e.g. CEHAP, are not known by the decision makers in charge of their implementation. The preparation of implementation reports for existing strategies and action plans often takes place with delays or, in some cases, does not take place at all for capacity and financial reasons.

Recommendation 1.2:
The Government should improve the quality of strategic planning documents, their implementation and review, and in particular:

- *(a) Achieve stronger coherence between strategic documents;*
- *(b) Allocate adequate resources for the implementation of measures envisaged in strategic documents;*
- *(c) Ensure regular and timely preparation of implementation reports.*

The implementation of the 2005 Law on SEA, applicable from 2008, has been at full speed. SEA procedures are actively applied to plans and programmes at both national and local levels. In some cases, SEA procedures are applied to national strategies. The EPA encounters difficulties in evaluation of draft SEA reports, since the provision of opinion on the draft SEA reports by other ministries and agencies upon request of the EPA is not mandatory, and the EPA has no funding to hire independent experts or pay the independent members of an evaluation committee. The majority of environmental NGOs rarely participate in SEA procedures.

Recommendation 1.3:
The Ministry of Sustainable Development and Tourism should:

- *(a) Consider amending the Law on SEA, and in particular:*
  - *(i) Introduce mechanisms, including financial ones, to ensure the availability of multidisciplinary professional expertise for the evaluation of SEA reports;*
  - *(ii) Ensure consistent application of SEA procedures in relation to strategies;*
- *(b) Raise the awareness of environmental NGOs about SEA procedures and opportunities to participate.*

At the local level, capacity to implement the 2005 Law on SEA is rather low.

Recommendation 1.4:
The Government, in cooperation with the Union of Municipalities, should strengthen capacity for conducting SEA procedures at the local level.

Montenegro has a number of instruments and initiatives directed at various aspects of green economy. However it does not have a strategic document that would explicitly state the country's commitment to green economy. The current process of preparing a revised National Strategy for Sustainable Development for 2014–2020 under the auspices of the National Council for Sustainable Development and Climate Change provides an opportunity to clearly define the green economy vision and objectives in the national strategic framework. Other strategic documents under development (e.g. Energy Development Strategy of Montenegro until 2030) should also integrate the green economy objectives.

Recommendation 1.5:
The Ministry of Sustainable Development and Tourism, in cooperation with other relevant ministries, should ensure that:

(a) The green economy concept has a prominent place in the revised National Strategy for Sustainable Development for the period 2014–2020;
(b) Green economy transition approaches are integrated into other relevant strategic documents under development.

Since 2007, the competences of local self-government authorities on environmental matters have increased. They were assigned a number of new responsibilities and were also provided with a range of opportunities to improve environmental policy at the local level.

However, local self-government units face difficulties in coping with these responsibilities and using the opportunities provided by legislation (e.g. to introduce local taxes for the protection of the environment). Local self-government authorities in charge of environmental issues are poorly staffed and trained, and are in need of stronger capacity to conduct EIA, SEA and IPPC procedures, as well as to attract donor funding.

The amount of strategic and planning documents required from authorities at the local level is high, whereas assistance in their elaboration from the national Government is poor. In these circumstances, local self-government authorities do not cope with developing the plans and programmes they are expected to adopt. The development of strategies, plans and programmes at the local level faces significant delays.

Cooperation and exchange of information between local self-government authorities and the Ministry of Sustainable Development and Tourism and the EPA need to be improved to ensure that local self-government authorities are assisted in the implementation of responsibilities assigned to them and involved in the preparation of policies and legislation that affect them.

Recommendation 1.6:
The Ministry of the Interior, in cooperation with the Ministry of Sustainable Development and Tourism and relevant authorities, should:

(a) Analyse and optimize the environmental responsibilities of local self-government authorities;
(b) Assist local self-government authorities in the implementation of their environmental responsibilities through the provision of necessary guidance and training, including on how to access donor funding;
(c) Optimize and streamline, for efficiency purposes, the amount of strategic environment-related documents required from the local level and support the preparation of local strategies, plans and programmes through the provision of guidance (e.g., development of model documents);
(d) Ensure regular two-way exchange of information with local self-government authorities in charge of environmental issues and involve them in the development of policies and legislation under their purview.

CHAPTER 2

COMPLIANCE AND ENFORCEMENT MECHANISMs

2.1 Main developments since 2007

Montenegro has made progress in improving environmental legislation. However, implementation has been hampered by a number of factors, including successive economic crises that resulted in limited availability of financial resources, especially at the local level. Relatively little was achieved in improving compliance and enforcement mechanisms.

The establishment of the EPA in 2008 which commenced its activities in 2009 (figure 1.2) was a centrepiece in the country's strategy to improve the institutional framework for environmental management. This is an important achievement that made it possible to draw a clear line between the policymaking and implementation functions of the Government. The establishment of the Administration for Inspection Affairs in 2012 further separated enforcement from implementation. Other important institutional changes included a further decentralization of responsibilities towards the local level.

2.2 Institutional framework for compliance assurance

At the national level, environmental compliance and enforcement constitute a shared responsibility of the Ministry of Sustainable Development and Tourism, the EPA, the recently established Administration for Inspection Affairs and several sectoral ministries, such as the Ministries of Agriculture and Rural Development, Health, Transport and Maritime Affairs, Justice, and the Interior. While having a tradition of centralized governance on environmental regulation and compliance assurance, Montenegro has been gradually moving towards the devolution of environmental responsibilities to local self-government units.

Ministry of Sustainable Development and Tourism

The Ministry of Sustainable Development and Tourism covers a broad range of policy areas, notably environmental assessment, IPPC, nature and biodiversity conservation, radiation safety, environmental noise, integrated coastal area management, chemicals control, air quality, climate change and waste management (chapter 1).

Environmental Protection Agency

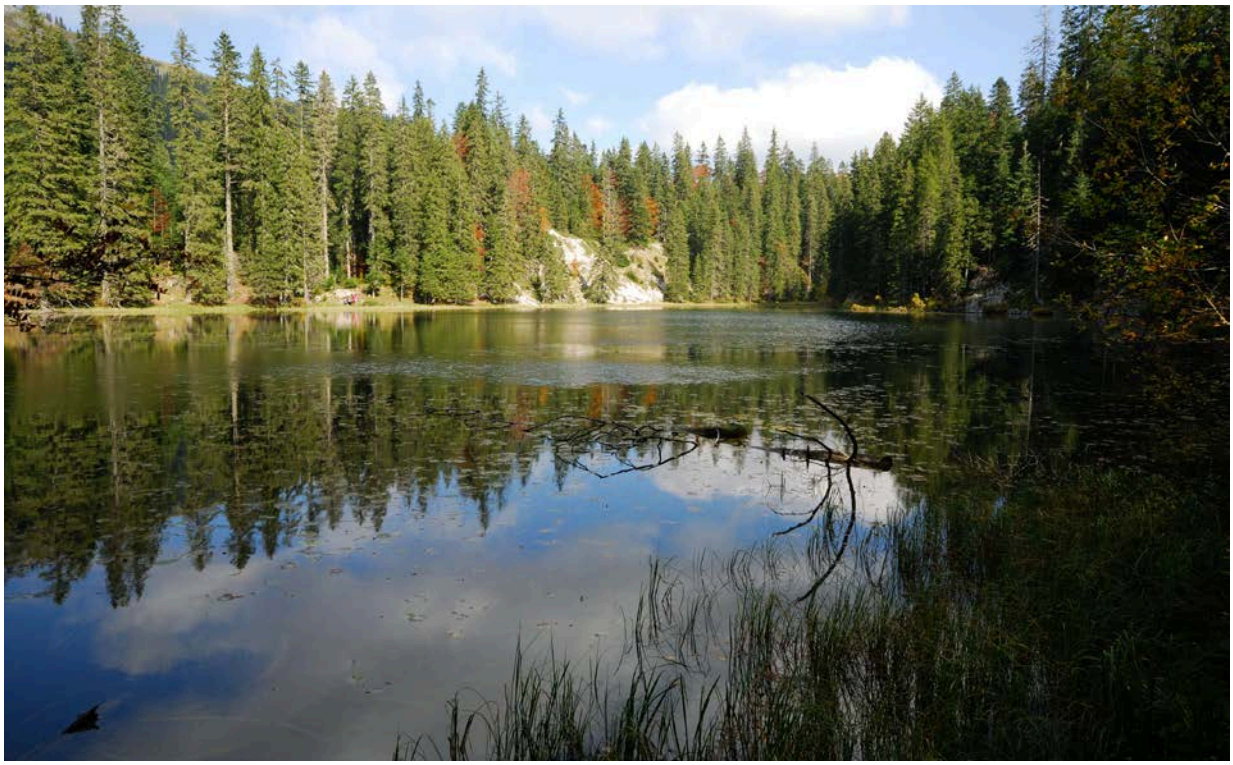
The Agency received a comprehensive mandate comprising, inter alia, environmental assessment, permitting, monitoring, analysis and reporting, and – until recently – inspection and enforcement. In 2012, its environmental inspection arm was transferred to the newly created government-wide Administration for Inspection Affairs. At the same time, the EPA's mandate was extended through including prerogatives on chemicals management.

The EPA's Department for Permitting deals with strategic and project-level environmental assessment, issues integrated permits as well as permits for waste management and cross-border movement of waste, Convention on International Trade in Endangered Species of Wild Fauna and Flora (CITES) permits, permits for export and import of ODS, and air emissions permits. The Department keeps the permits register; it is responsible for the establishment and maintenance of the register of environment polluters and the register of ionizing radiation sources and radioactive materials. Among its tasks is communication with permit holders and applicants, including the consulting and counselling of permit holders and potential permit candidates. Specific permitting tasks belong to the Section for Chemicals Management and the Section for Protection against Ionizing Radiation and Radiation Safety.

In terms of capacity, the EPA has relatively modern facilities and equipment, and sufficient personnel and operational budgets. The number of allocated full-time units increased from 80 positions in 2009 to 88 in 2013 following the enlarged scope of the Agency's work (however, only 78 positions were filled in February 2014).

A number of training programmes have been conducted in connection with *acquis*-related requirements, mostly in the context of international initiatives such as the Regional Environmental Network for Accession (RENA) / Environmental and Climate Regional Accession Network (ECRAN).

Photo 2.1: Lake Zminje, Durmitor



The EPA's operational budget comes from the central budget. None of the revenues from fines, fees or charges are retained within the EPA. This corresponds to good international practice and avoids perverse incentives and conflicts of interests.

Environment-related inspections

Until 2012, environmental inspection has been performed mainly by EPA staff. Other environment-related inspections have operated within various ministries: water inspection, forestry, hunting and plant protection inspection, and fisheries inspection at the Ministry of Agriculture and Rural Development; sanitary inspection at the Ministry of Health; building, and urban and spatial planning inspections at the Ministry of Sustainable Development and Tourism; geological inspection at the Ministry of Economy; nautical safety inspection at the Ministry of Transport and Maritime Affairs; and inspection for safeguarding and rescue at the Ministry of the Interior.

An important organizational change was made in 2012 in order to bring all inspections under a single administrative body, the Administration for Inspection Affairs. The Administration integrated inspectors from the EPA, as well as 22 other inspections. An exception was the nautical safety inspection which remained at the Ministry of Transport and Maritime Affairs. The Administration is an autonomous state agency covering a number of areas. Supervision of the coordinated work of the inspections under the Administration for Inspection Affairs is done by the Ministry of Economy.

Within the Administration for Inspection Affairs, environmental inspection is currently performed by seven people, whereas 12 inspectors were formerly employed by the EPA. Of those seven positions, one is fully dedicated to the supervision of ionizing radiation and radiation safety issues. One more position was recently made available to cover responsibilities on chemicals management. Two inspectors within the water inspection monitor the implementation of the water legislation (as compared with six positions previously dedicated to this work under the Ministry of Agriculture and Rural Development). The forestry, hunting and plant protection inspection employs 11 forestry and wildlife inspectors. The marine fisheries inspection has four inspectors carrying out fish catch controls and combating illegal fishing.

Other central entities

The Ministry of Agriculture and Rural Development has responsibilities for water supply and use, protection of water from pollution, regulation of water and watercourses, policy development in the water sector, forestry, hunting and wildlife management. Within the Ministry, the Water

Administration is responsible, inter alia, for water permitting (both water use and effluent discharge). It has very limited resources (e.g. only five staff) in relation to the tasks ahead. The Forest Administration is responsible for forest management. It has a key role in the implementation of forestry standards.

Other governmental institutions have some regulatory and enforcement responsibilities on environment. The Ministry of Health is responsible for the management of medical waste and drinking water; it issues sanitary approvals for built facilities.

The Ministry of Transport and Maritime Affairs has responsibilities for preventing and mitigating marine pollution from vessels, and emissions from transport vehicles. The Ministry of the Interior is responsible for risk management, emergency situations response, and industrial accidents management (jointly with the Ministry of Sustainable Development and Tourism). It also has the mandate to assess and approve the transport of radioactive materials, which are then submitted to the EPA to issue the respective licences.

The Police Directorate of the Ministry of the Interior often acts in support of inspections, particularly in forestry, marine fisheries and spatial planning. Recently, a memorandum of cooperation was signed between the Ministry of the Interior and the Administration for Inspection Affairs. Police authorities should also ensure the undisturbed performance of inspection, upon an inspector's call. The Customs Administration, together with the Administration for Inspection Affairs, is responsible for controlling the import and export of dangerous chemicals, ODS and species under the CITES Regulation.

Local self-government units

The local self-government units are responsible for various public services, some of which are directly related to environmental protection. The municipalities establish the conditions for municipal and other types of non-hazardous waste management, and issue permits for waste collection, disposal and recycling.

The local administration bodies are entitled to perform EIA for projects and SEA for plans and programmes of local significance. They collect the information on air pollution sources and maintain the local register of environment polluters. Information from the register is submitted to the EPA, which maintains the integrated register of environment polluters.

Municipalities have authority over the management of waters of local importance. The local self-government units are enabled to adopt specific planning documents and regulations concerning water management at the local level, including water permits and concessions.

The municipalities perform inspection control, and initiate misdemeanour procedures and bring criminal charges in the event of violation of their regulations. They decide in the first instance administrative procedure on the rights and obligations of citizens, and legal and other entities.

The communal police are in charge of supervision and enforcement of local regulations relating to waste disposal, water supply, drainage of waste and storm waters, urban sanitation, green areas and noise. The procedural aspects of the communal police activity are governed by the same legal provisions as are the centralized inspections. At the same time, the areas of responsibility on environment are not strictly delimited between local and central enforcement authorities.

2.3 Legal framework

The 2005 Law on Environmental Impact Assessment (EIA), applicable since 2008, enabled the decentralization of the EIA procedure. Its delayed application was rooted in the need to create sufficient capacity at the central, but especially the local, level. Five implementing regulations, including the Regulation on projects requiring environmental impact assessment (OG 20/07, 47/13), were enacted in 2007. The scope of EIA was recently harmonized with the Convention on Environmental Impact Assessment in a Transboundary Context (Espoo Convention) and EIA Guidelines have been issued.

The 2005 Law on Strategic Environmental Assessment (SEA) (OG 80/05, 73/10, 40/11, 59/11), applicable since 2008, sets down the conditions and procedures for SEA of plans and programmes (chapter 1).

The 2005 Law on Integrated Prevention and Control of Environmental Pollution (Law on IPPC) (OG 80/05, 54/09, 40/11) became applicable in 2008. Subsidiary legislation was enacted including the Regulation on types of activities and installations for which an integrated permit is issued (OG 07/08) and several acts providing for the content of the integrated permit and the IPPC application, the register of issued IPPC permits and other aspects. For existing installations and activities, an operator is obliged to obtain a permit by 2015.

The Law on Chemicals (OG 18/12), applicable from 1 March 2013, established the responsibility of the Ministry of Sustainable Development and Tourism and the EPA for chemicals. This had previously been under the jurisdiction of the Ministry of Health, and its implementation was monitored by the sanitary inspection. The environmental inspection is now in charge of its enforcement.

Enforcement of the 2011 Law on the Protection against Environmental Noise (OG 28/11, 28/12, 1/14) is shared by the environmental inspection and the communal police.

The Law on Environment (OG 48/08, 40/10, 40/11, 27/14) and the Law on Ionizing Radiation Protection and Radiation Safety (OG 56/09, 58/09, 40/11) stipulate that the Ministry of Sustainable Development and Tourism deals with policy- and law-making on radiation protection, radiation safety and radioactive waste management, while expert and related tasks in the area of radiation protection and safety are carried out by the EPA. The Law states that radiation practices may be carried out only by a source holder having obtained a permit from the EPA under set conditions. The EPA issues licences for activities related to radiation protection. The Administration for Inspection Affairs (specifically, the environmental inspection) is in charge of law enforcement.

The Law on Air Protection (OG 25/10, 40/11) requires industrial operators to perform self-monitoring and reporting. Information from pollution sources is to be submitted to the local administrations and, further, to the EPA. The EPA keeps the integrated register of environment polluters based on the 2010 Rulebook on the detailed content and method of keeping the register of environment polluters (OG 43/10). The Law stipulates the setting of limit values for emissions from stationary and mobile pollution sources as well as limit values for pollutants in specific products, among the measures aimed at prevention and reduction of pollution.

The Law on Environment contains general provisions on the environmental management scheme and environmental labelling to encourage environmental improvements by private sector; however, there are no national systems of eco-labelling or environmental management in place.

The environmental inspection's activity is governed by the 2003 Law on Inspection Control (OG 39/03, 76/09, 57/11) and relevant provisions of the Law on Environment and sectoral environmental laws. The Law on Inspection Control sets forth the principles of inspection control, the method and procedure of conducting inspections, and the responsibilities and powers of inspectors. The Law provides for the inspection procedures that apply beyond the environmental protection area. Inspection powers, as well as administrative and penal sanctions for non-compliance, are often mentioned in laws that govern specific environmental areas. The Law requires joint inspections to be carried out where more than one inspection authority has responsibility or where necessary for practical reasons, such as to reduce costs or to more efficiently address complex situations or those where there are recurring irregularities. Joint inspection should also be carried out in cases of immediate threat to the life and health of people or when urgent measures are necessary.

The Criminal Code (OG 70/03, 13/04, 47/06, 40/08, 25/10, 32/11, 40/13) was aligned with most of the provisions of Directive 2008/99/EC on environmental crime, thus better outlining areas for criminal response.

Ambient quality standards

Most ambient environmental quality standards have been revised in the context of harmonization with the EU regulatory framework. The key areas are air and water quality regulation.

Ambient air quality regulation was modernized in 2010–2012. Montenegro established air quality standards, air quality zones and an air quality monitoring network.

Montenegro is at a very early stage of alignment with the EU water quality standards. An environmental quality standards regulation is to be developed in this context. Work is ongoing on quality objectives for surface waters and for groundwater. Sensitive areas in relation to urban wastewater treatment and vulnerable zones for nitrate pollution from agriculture sources have not been designated. Yet both are important for planning investments and administrative resources.

Categories of surface water and groundwater were defined by the Regulation on the classification and categorization of surface and groundwater (OG 2/07). Surface waters are grouped into waters for drinking and food industry purposes, fishery and shellfish waters, and bathing waters. Each category has subcategories, e.g. water for drinking purposes is divided into four quality classes based on the limit values of 50 parameters.

The 2007 Law on Water and the Regulation (OG 2/07) transposed several parts of the Bathing Water Directive 2007/6/EC. During the 2010 bathing season, when Montenegro reported for the first time to the European Environment Agency under Directive 2007/6/EC, all 17 monitored coastal bathing water sites in the country were in compliance with the mandatory values. At the same time, no bathing water sites met the more stringent guide values.

Emission standards

The 2011 Regulation on emission limit values for air pollutants from stationary sources (OG 10/11) defined specific environmental norms for different sectors, including ELVs for large and medium-sized combustion plants. Those sectoral standards were aligned with relevant EU directives and multilateral environmental agreements (MEAs) to which Montenegro is a party. In its transitional and final provisions, the Regulation defines existing plants as those put into operation by 21 January 2011. These plants are granted a derogation period on compliance with the ELVs until 31 December 2025, and are given the possibility to exceed the ELVs until the given date by a maximum of 250 per cent.

The 2012 Regulation on the activities that affect or may affect air quality (OG 61/12) lists a range of categories of industrial installations which are subject to regulation by the environmental authorities. These installations shall obtain from the EPA an emission permit (based on set ELVs) which carries a number of environmental obligations, including self-monitoring and reporting to local administrations. This Regulation also applies to medium-sized polluters that are not mentioned in the Regulation on emission limit values for air pollutants from stationary sources (OG 10/11).

At national level, an air pollution inventory exists, although it is not based on the integrated register of environmental polluters.

The 2010 Law on Air Protection requires the local administration bodies to keep the local register of environment polluters. Collected data shall then be submitted to the EPA for integration into the national register of environment polluters. To date, relevant information (if collected at all) has been kept at the local level or sent to the EPA in simple electronic sheets. Sanctions for the non-provision of information on pollution sources are not enforced.

The relevant secondary legislation has been updated in order to introduce quality requirements for effluent discharges into the recipient and the public sewerage system that would be harmonized with the EU requirements. Some effluent standards were actually relaxed. The secondary legislation (Rulebook on the qualitative, sanitary and technical conditions for wastewater discharge into the recipient and the public sewerage system, method and procedure for testing the quality of wastewater, the minimum number of tests and the contents of the report on the established quality of wastewater (OG 45/08, 9/10, 26/12, 52/12, 59/13)) includes 47 parameters. For chemicals and microbiological parameters, which are not listed in this rulebook, the maximum concentration is to be determined according to the applicable EU standards.

Product standards

As of 1 January 2011, the use of gasoline with additives based on lead and the content of sulphur in liquid fuels of petroleum origin are regulated in accordance with the EU *acqui*s. The 2010 Regulation on the limit values for pollutants in liquid fuels of petroleum origin (OG 39/10, 43/10) limits the lead content in fuel to 0.005 g/l while the maximum allowable sulphur content of both petrol and diesel has been brought to 15 ppm. The content of lead and sulphur in fuel is monitored annually through a programme in accordance with the standard EN 14274.

2.4 Regulated community

All natural and legal persons engaged in business activity must enter the Central Registry of the Commercial Court and then obtain registration with the Statistical Office. In 2012, there were 23,788 registered business entities. The environmentally relevant groups include: tourism (2,579); construction (2,112); manufacturing (2,033); transport and storage (1,633); agriculture, forestry and fishing (265); mining and quarrying (61); water supply, wastewater and waste management (48); and energy production and supply (33). Among these, the number of large (47) and medium-sized (260) enterprises is relatively limited, more than half of them being located in the capital city, with most of the remainder being on the coast.

The EPA is providing public access to information on projects undergoing EIA and maintains a register of integrated permits. Information is available on the 229 installations that underwent the EIA procedure in 2009–2012. Since 2012, specific environmental permits (e.g. waste, air emission, and chemicals) are also publicly disclosed by the EPA. This is a valuable source of information for inspection planning.

The number of large polluting installations in Montenegro is limited. Most of the Montenegro IPPC installations are in the industrial sector; there are also one large combustion plant, two landfills and one large pig farm. The country has not yet identified Seveso installations.

The annual plan of the environmental inspection for 2014 contains a list of 21 large and 41 medium-sized installations to be supervised. The plan also specifies 21 types of low-polluting activities that are subject to inspection. Inspection campaigns are used to identify and profile the smallest installations.

According to the water inspection, the number of inspected entities is in the order of hundreds. This basically comprises all entities in possession of a water act, i.e. the document stipulating terms and conditions for use of water.

Information gaps on the regulated community remain significant due to a lack of coordination between the central and local authorities and delays in making the Environmental Protection Information System operational. More than 500 EIA (and, lately, one IPPC) procedures were carried out during the last five years at the local level; however, information on those projects is currently not publicly available in one place. Besides, the integrated register of environment polluters is not yet functional, mostly for technical reasons. With installations regularly reporting data on air emissions, discharges and waste, the register would have a central role in identifying and profiling the regulated community.

2.5 Environmental assessment tools and permitting

Environmental impact assessment

By the mid-2000s, the main procedural elements of EIA were in place in Montenegro, and a substantial number of EIAs were carried out. The 2005 Law on EIA further elaborated the scope and content of this procedure, including from a transboundary perspective, and significantly strengthened public participation. The Law also provided for the right to appeal and inspection supervision in the post-EIA period. Secondary legislation, issued in 2007, was amended in 2013. As a result, the legal framework for EIA is well aligned with the EIA Directive 2011/92/EU and the Espoo Convention.

Concerning the criteria for projects requiring an EIA, for some activities (e.g. poultry and livestock farms) Montenegro has chosen to apply stricter thresholds as compared with the EU mandatory list of EIA installations. Furthermore, the Law on Nature Protection (OG 51/08, 21/09, 40/11, 62/13, 6/14) takes into consideration the need for an "appropriate assessment" that is required for projects that could have significant effect on the conservation and integrity of ecologically significant areas, i.e. the future Natura 2000 sites. For projects that need both an EIA and appropriate assessment, the latter should be done as part of the EIA procedure. If an EIA is not necessary but appropriate assessment is needed, it is to be done by the EPA as a separate procedure. As yet, there is no practice of applying this legal requirement.

The EIA procedure is implemented at the early stage of project planning, being a prerequisite for obtaining a building and other subsequent permits. This procedure results in a formal decision by the competent authority on the approval of the EIA study. The decision may prescribe additional environmental protection measures. These requirements become an integral part of the project's technical documentation. EIAs are carried out at both central and local levels. The competent authority for the implementation of the EIA procedure is: a state authority responsible for environmental protection, for projects for which approvals, permits and licences are issued by other state authorities; or a local authority responsible for environmental protection, for projects for which approvals, permits and licences are issued by other local authorities.

The quality of EIA reports is reviewed by a commission established for each specific case. Its members are appointed from the staff of the competent authority and external experts. The project proponent is obliged to cover the costs of the commission's work. A decision is adopted by the competent authority for each project, stipulating the costs of project handling, and indicating, inter alia, the remuneration for each member of the EIA commission. Based on this decision, the members of the EIA commission, including the competent authority's representatives, were paid directly by the project proponent. This system of direct payment to the members of the EIA commission by the project proponent was introduced in 2013 and replaced the previous practice by which the project proponent transferred money into the state budget, with subsequent transfer to the commission members. The practice was changed in mid-2014, which means the project proponent payment goes directly to the state budget. The members of the EIA committee employed in the competent authority are not paid. The other members of the EIA committee are paid through the state budget.

Montenegrin legislation does not include the requirement permitting only authorized physical or legal persons to participate in the EIA study elaboration. On the one hand, this excludes a formal barrier preventing the involvement of different experts in the EIA process; on the other hand, this implicitly means that the EIA commission bears the full responsibility for evaluation of the quality of the EIA study. The scoping phase of EIA is very rarely requested (there has been only one case, concerning an aeolian installation).

The EIA commission is required to submit the proposed decision on EIA to the competent authority within 30 days of receipt of the documentation. However, this term does not take into account the time given by the commission to the project proponent to amend the EIA study, if deemed necessary. The commission may require the project developer to make certain amendments to the submitted EIA as many times as are needed to obtain the necessary quality. Consequently, the statutory duration of the EIA procedure (99 days – about 3 months) often takes more time: it can take five to six months, and even reach 18 months, as in the case of a windmill project. Following the last amendments to the Law on EIA, the EIA materials can be returned to the project developer only twice before a final rejection or approval.

After the EIA study approval, the project developer can apply for the building permit. Such permits are delivered by local administration bodies, except for the largest infrastructure projects, which are dealt with by the Ministry of Sustainable Development and Tourism. A positive decision has a validity period of two years. An adequate mechanism of administrative appeal is in place. Appeal can be filed not only against the final EIA decision but also against decisions taken in the screening and scoping phase of the procedure. Competent authorities check compliance with and enforce the decision on the EIA study, as well as any measure recommended to the project developer. In principle, non-compliance may lead to a ban on project implementation and refusal to issue an operation permit.

Since 2008, when the Law on EIA came into force, most EIA procedures have been carried out at the local level. Between 2008 and 2012, local administration bodies completed about 500 EIA procedures, while the EPA assessed 284 projects in the period 2009–2013 (table 2.1). Most EIAs concern infrastructure projects (petrol stations, mobile telephone base stations, tourism infrastructure, WWTPs), mining, and small HPP installations.

The number of negative EIA decisions pronounced by the competent bodies is very limited and is gravitating towards zero at the local level. For example, during 2008–2013, of the 159 EIA dossiers considered by the Podgorica municipality, it was decided that no EIA was required for 82 projects. None of the EIA reports was rejected over a period of six years. Similarly, in the municipality of Nikšić, about 60 EIAs have been considered since 2008 and only two of them were rejected. This can be partly explained by the culture of lengthy communication between the EIA commission and the project developers before the EIA study is accepted, but it is probably also indicative of the limited capacity of the authorities to be sufficiently critical in the examination of applications. At the same time, the cases of EIA rejection usually involve activities with potentially significant impact, e.g. an electric arc furnace at Nikšić steelworks, a detour road around Tivat or a quarry in Kotor.

Capacity-development activities contributed to the improvement of EIA outcomes over the last five years. The EIA toolkit developed with the support of the Regional Environmental Centre Montenegro (REC), as well as the training received, improved the capabilities of the competent authorities to apply the EIA procedures.

The competent authorities (the EPA and municipalities) must keep records of procedures and decisions on approval and rejection of requests for approval of the EIA. National-level data for 2009–2012 are available on the EPA website. However, in some municipalities, access to this information is difficult.

The Ministry of Sustainable Development and Tourism is responsible for the notification procedure under the Espoo Convention (chapter 5).

Integrated permitting of large industrial installations

Integrated (IPPC) permitting (box 2.1) was introduced for large industrial installations in 2005. The legal framework provided for a period of three years to build up capacities to comply. At the same time, there still is no guidance on how to determine permit conditions, assess best available techniques (BAT) and use best available techniques reference documents (BREFs).

Table 2.1: Number of EIA assessments conducted at the central level (EPA), 2009–2013

	2009	2010	2011	2012	2013	Total
Number of projects screened	53	59	62	55	55	284
No need for EIA	20	16	18	17	18	89
Approval granted	33	39	38	38	34	182
Approval rejected	-	4	3	-	1	8
Withdrawal	-	-	3	-	2	5

Source: Environmental Protection Agency, 2014.

Box 2.1. Key steps in IPPC permitting

- Development of an application and its submission to the competent authority (CA);
- Preliminary assessment of the application by the CA and its adjustment by the applicant, if necessary;
- Informing interested organizations and the public on the IPPC application and circulation of the application among them (at their request), and collecting potential opinions (15 days from notification);
- Preparing the draft permit (within 45 days of the day of receipt of the regular application), taking into account the opinions of the other bodies and the interested public;
- Informing the interested organizations and the public on the draft IPPC permit and circulation of the draft permit among them (at their request), and collecting potential opinions (15 days from notification);
- Submitting the draft permit, along with the application of the operator and follow-up documentation, opinions of the interested bodies and the public, to a technical committee formed by the CA;
- Assessment of the IPPC dossier by the technical committee;
- Submission of the assessment report prepared by the technical committee to the CA;
- CA decision on permit issuance or refusal (within 120 or 240 days of receipt of complete application).

IPPC permitting procedures can be carried out either by the EPA (for plants for which a building/operation permit is issued by a state administration body) or by municipalities, if the construction/operation permit is issued by a local authority. Three persons are working on IPPC issues in the EPA's Department for Permitting. In municipalities, integrated permitting is the task of local secretariats for spatial planning and environment. Only one integrated permit has been issued so far by the local authority of Podgorica. Serious doubts can be raised about the capacity and ability of local administrative bodies to assess very detailed and technically complex IPPC applications, notably in smaller municipalities.

Installations that were put into operation after 1 January 2008 were categorized as new ones. They must undergo the integrated permitting procedure and comply with permit requirements immediately. Existing installations have been given the right to prepare adjustment plans in order to achieve compliance gradually. The deadline for harmonizing the permits of existing installations with requirements in the Law on IPPC was set at 1 January 2015. The Law on IPPC requires that requests for issuing integrated permits must be submitted, at the latest, one year prior to the time limit set for harmonization.

The 2012 Programme on the adjustment of certain industries with the Law on IPPC (OG 19/12) contains individualized time planning for issuance of IPPC permits (adjustment permits) to 10 existing installations. Its content was discussed and agreed upon by the competent authority (EPA) and the operators. As of 1 February 2014, three of the 10 installations identified as subject to IPPC have received adjustment permits. Three other applications for adjustment permits were recently submitted to the competent authorities. In January 2014, amendments (OG 3/14) were introduced into the Programme, which excluded two facilities from the list.

The phase in which operators develop IPPC applications has not received much attention in terms of capacity building. Currently, the applications are developed by the companies themselves and/or by hired consulting companies. No system of accreditation for those companies exists certifying their expertise and competence in the respective technical fields.

A technical committee is established by the competent authority in order to evaluate the IPPC dossier. The committee is constituted of representatives of the competent authority, other organizations and independent experts, all having relevant competences and experience. Under certain circumstances, the EIA commission can also serve as the technical committee for IPPC issues. The costs of the technical committee activity are borne by the

applicant and the same payment procedure is applied as for EIA commissions.

Water permits are not integrated into the IPPC permitting process; for new installations, IPPC and water permits are two separate acts. Where an existing IPPC installation has a water permit, it must be submitted as a part of the application documentation. Conversely, the Law on Waste Management (OG 64/11) clearly states (art. 31) that, for IPPC installations, the waste treatment permit is part of the integrated permit.

The Law on IPPC clearly stipulates the obligation of the competent authority to inform interested organizations and the public on the stages of IPPC application submission, the draft integrated permit and the final decision on issuance of the permit or rejection of the application, in writing through local media as well as via the internet. The public participation component is not laid down explicitly, neither is there a reference to a public hearing. At the same time, the Law provides for the right to appeal against the decision adopted by the competent body (art. 14).

The term of validity of an IPPC permit is five years. In the event of substantial changes, the permit conditions shall be revised. The register of issued permits shall be kept by the competent authority and the EPA keeps a public register of issued IPPC permits at the central level.

Overall, IPPC implementation in Montenegro is at the initial stages, and the experience accumulated is limited. So far, applications for four installations falling under the scope of IPPC have been made and have received integrated permits. Among them are two landfills and two industrial installations (organic chemical manufacturing and metal processing). The only new installation that recently applied for and received an integrated permit is the municipal landfill in Bar, in 2013.

The entire process of issuing IPPC permits for these four installations took between three and nine months. The Law on IPPC requires the competent body to decide on issuance of the permit within 120 days (exceptionally, 240 days) from the day of receipt of the application.

Single medium permits

Air protection

Permitting of air emissions has been in place only since late 2013. The EPA issues licences for import/export of ODS and alternative substances (74 have been delivered so far, 2 applications rejected) and licences for maintenance and/or repair and exclusion from use of products containing ODS and/or alternative substances (39 licences have been issued so far and 14 applications rejected).. Special licences are also issued for air quality monitoring, measurement of stationary source emissions and fuel quality monitoring.

Waste management

The import of hazardous waste to Montenegro is prohibited, as well as the import of other types of waste intended exclusively for disposal and incineration. The export and transit, storage, treatment and disposal of hazardous waste are all subject to permitting. The procedure for export and transit of hazardous waste is carried out in accordance with the Basel Convention on the Control of Transboundary Movements of Hazardous Wastes and their Disposal, the Law on Waste Management and the Regulations on the detailed content of documents to be submitted with the request for licences for the import, export and transit of waste, as well as the classification of waste (OG 71/10). Most permits are issued for export/import/transit of non-hazardous waste (table 2.2).

Permits are delivered to companies for the processing and disposal of waste. The rules require the enterprise to possess suitable equipment and have the required number of employees. Similar requirements are in place for permits for the collection and/or transport of waste. Waste treatment or disposal may be carried out without a separate permit if this is done at a facility that has an IPPC permit: in this case, the waste processing and disposal permit is included in the integrated permit for the plant.

Table 2.2: Waste permits issued by the EPA, 2009-2013

Permits	2009	2010	2011	2012	2013
Export of hazardous waste	4	7	5	2	4
Import and transit of non-hazardous waste	247	449	480	410	217
Waste processing and disposal	n.a.	n.a.	2	2	9
Collection and transport	n.a.	2	10	n.a.	n.a.

Source: Environmental Protection Agency annual reports.

Nature protection

The EPA issues permits for export, import and transit of endangered wild flora and fauna species pursuant to its obligations under CITES. Between 2009 and 2013, 67 CITES permits were issued. The Law on Nature Protection foresees 17 types of permits to regulate the field of nature protection; not all of them are in place yet since implementing legislation is lacking. Permits cover the following areas (the number delivered since 2009 is indicated in brackets):

- Collection and export of non-protected, wild-growing plants, animals and fungi (100);
- Activities in protected natural areas (6);
- Research in relation to protected areas (23);
- Speleological research (9);
- Hydrographic research (2);
- Holding protected species in captivity (3);
- Introduction of native species into ecosystems (1).

Noise

Licences are issued for environmental noise measurements (five issued to date) and for strategic noise mapping (one issued).

Chemicals

The EPA is the permitting body for chemicals, except for explosives and their precursors. Since August 2013, the Chemicals Department (with two staff) issued 320 permits for import, 5 for transit and 1 for export of chemicals.

Radiation safety

A number of permits have been issued, mainly for transboundary movement of radiation equipment and for performing radiation activities. A permit to operate radioactive waste storage was issued in June 2012, preceded by a large public discussion and a public hearing. Since October 2009, the EPA has been using the Regulator Authority Information System (RAIS) software application, a database of sources of ionizing radiation. The RAIS is continuously updated, thus providing valuable information for inspection planning. To date, 288 radioactive sources have been inventoried.

Water

Water permitting has remained with the Water Administration of the Ministry of Agriculture and Rural Development and is carried out jointly with municipalities. This includes water use and wastewater discharge permits, setting water conditions as part of a project's technical documentation, and giving water approval prior to the initiation of construction. The Water Administration's jurisdiction extends over the waters of national importance (large water bodies and water used for drinking purposes), while local waters are under the jurisdiction of local self-government units. Water permits are generally issued with a validity of 10 years.

The water permit integrates both the water use and water discharge conditions. The number of water permits issued by the Water Administration is between two and four permits annually. Developers are often not aware of, or simply disregard, the legal requirements concerning the need to obtain permits for certain water uses. The water inspection, whose primary responsibility is to enforce water legislation, does not have the capacity to prevent such situations. The competent governmental agencies often grant operation permits without water permits.

A large number of water permits are issued by the local administration bodies.

The results of the water permitting process are not currently available in any form of electronic database that could be widely accessed by third parties. A water information system is under development. However, data coordination and exchange between the environmental and water agencies is an issue and it is not clear how the environmental protection and water information systems will be connected.

Hunting and fishing

The Ministry of Agriculture and Rural Development issues permits and determines fishing bans for commercially important fish species and other sea organisms, in particular in areas proposed by the Institute for Marine Biology.

2.6 Compliance promotion and voluntary schemes

The process on improving environmental legislation has triggered more intensive dialogue with the private sector to raise its awareness about legal development. The Ministry of Sustainable Development and Tourism and the EPA have organized a few meetings in cooperation with the Chamber of Commerce aiming to explain the obligations arising from the newly adopted or planned environmental laws. In these meetings, special attention was paid to the Law on IPPC, the

Law on Waste Management and the Law on Chemicals. The EPA also held bilateral meetings with industry representatives in order to discuss legal obligations, establish partnerships and more generally enhance communication. Information dissemination is, unfortunately, still limited and unstructured. The National Cleaner Production Centre, which was established with the support of the United Nations Industrial Development Organization (UNIDO), is not yet fully operational.

Sustainable public procurement is seen as a key instrument for greening enterprises. The 2011 Law on Public Procurement (OG 42/11) introduced the sustainable public procurement concept and a few environmentally related criteria, mainly energy efficiency (chapter 3). Additional criteria may be introduced as part of the ongoing amendment of this Law. According to the EU accession dossier, public procurement procedure is "highly competitive" in Montenegro. Hence, sustainable public procurement has a good chance to become a powerful driver of change.

Neither eco-labelling nor an environmental management scheme is in place in Montenegro, though the legal basis for their use has been partially established. Some elements of an environmental management scheme and eco-labelling are reflected in the 2008 Law on Environment. According to this Law, the EPA has to establish a register of certified legal persons and entrepreneurs applying an environmental management scheme. The register is not yet in place, following delays in the development of secondary legislation. Eco-labelling is not yet applied, for the same reason.

Some 10 per cent of large and medium-sized enterprises are ISO 14000 certified, though an important number of certificates (10–15 per cent of certified companies) are withdrawn every year.

According to the 2012 *Eurobarometer Survey*, some 24 per cent of small and medium-sized enterprises (SMEs) in Montenegro declare themselves ready to take environmental action that goes beyond mere compliance with current legislation – a level comparable with the EU average. The Government and private sector focus on promoting corporate social responsibility (CSR) may have contributed to this, although, according to the same source, key factors seem to be new business opportunities and gaining competitive advantages. In Montenegro, the significance of the SME sector is explained by the fact that it provides 62 per cent of total employment and 31 per cent of total exports.

One of the key actors in the process of CSR promotion is the Chamber of Commerce. In 2007, it established a committee for energy efficiency and environmental protection. One of its tasks is encouraging FDI and projects that are environmentally sustainable. Since 2007, CSR awards have been issued by the Chamber of Commerce annually.

The UN Global Compact network in Montenegro was established in 2012. The network now has 37 members and includes representatives of state and academic institutions, business and professional associations, and civil society organizations working to advance the Compact's principles. A team of trainers and consultants for CSR practices has been established and more than 200 representatives of Montenegrin companies have been involved in educational activities.

2.7 Identification of non-compliance

Self-monitoring

The Law on Environment, Law on Air Protection and Law on Water establish legal requirements for self-monitoring of air emissions and wastewater quality by enterprises. Montenegro is at the beginning of the process of developing systems for environmental self-monitoring and reporting. Large installations contract accredited laboratories to conduct air quality monitoring. Except for the TPP Pljevlja, there are no enterprises or installations that have automated self-monitoring for air emission measurements or wastewater. Self-monitoring data are reported to the local authorities. If installations exceed ELVs, they are required by law to report to local administration bodies and the EPA. Compliance with self-monitoring and reporting is verified during site visits.

The lack of measurements frequently poses problems for assessing the quantity of pollutant releases. Instrumental checks of emissions quality for inspection purposes are rare. It is considered that the use of a contracted accredited laboratory is sufficient proof of the reliability of self-monitoring results. For some types of analysis, only one certified laboratory is available in the country. Furthermore, inspectors could be discouraged from doing analytical checks as costs of sampling and analysis cannot be recovered if laboratory tests do not show non-compliance.

Inspection

Inspection remains the main mechanism for supervising environmental compliance. Inspectors' powers are generally sufficient, largely

corresponding to international practice. No manual, guidelines or standardized operating procedures for inspections have been adopted to date.

There are routine and non-routine site visits, as well as thematic inspections and site visits related to complaints or requests from other authorities. Inspections take place during both the construction and operation periods to verify compliance with the EIA conditions. Another key objective of inspection is checking conformity with permit conditions. In addition to performing site visits, environmental inspectors are required to carry out other tasks, including conducting environmental audits, supervising implementation of environmental monitoring, monitoring ionizing radiation, supervising the management of natural protected areas, and checking the level of environmental noise. Prior notification of inspection is not mandatory; therefore, most site visits are not announced. In carrying out an inspection, the inspector primarily performs a preventive function and carries out administrative measures and actions when a preventive function is insufficient for the purpose and objective of oversight.

The current inspection workload is not sufficiently well balanced with available resources and capacity. The scope of activity is large, areas of inspection are very diverse, and some of these require particular technical competences and skills. The environmental inspection tries to look for external expertise, as much as and when this is possible. Reportedly, the environmental inspection has sufficient material resources to carry out its day-to-day work (i.e. cars, computers, cameras, consumables), even though the car fleet is said to be old.

There is no systematic approach to capacity building that would ensure the smooth implementation of newly adopted laws. In the majority of cases, implementation needs are neither addressed nor even considered prior to the law's entry into force. There are examples of decision reversals because of implementation problems. For example, the Law on Chemicals made environmental inspectors responsible for its enforcement. For a year, the environmental inspection within the Administration for Inspection Affairs was not able to recruit a person with relevant technical expertise. Currently, the environmental inspection (that has the mandate but lacks capacity), jointly with the sanitary inspection (that was previously responsible for chemicals control and preserved some of its capacity in this field), initiated the proposal by the Administration for Inspection Affairs for amendment of the Law in order to restore the original institutional responsibilities.

Environmental inspection is conducted according to an annual plan that takes account of risk-based criteria and operators' performance. The plan lists priority sectors and specific installations to be inspected. The scope of inspection is defined based on the analysis of environmental and compliance data available from the inspection's database, as well as from the EIA, IPPC and permitting registers. Information from local authorities is also used. The 2014 work plan specifies 62 controlled installations ("potential large and medium-sized polluters", including IPPC installations and a few potential Seveso sites) and 21 categories of "small polluters", such as hotels, petrol stations, sources of ionizing radiation and base stations. The plan also contains tasks related to enforcement of the Law on Nature Protection (quarterly inspections in each of the five national parks), the annual programme for monitoring the quality of liquid oil fuels, and the control of all sources of ionizing radiation and radioactive materials as well as their transboundary movements. The plan is not publicly disclosed.

The standard frequency of inspections poses questions. According to the 2014 inspection plan, large installations are to be checked five times per year (but, reportedly, this can be done twice as often), middle-sized ones are to be controlled monthly ("if necessary"), and small ones twice per year, depending on the need. This planning poses the problem of inspection frequency in absolute terms. Too frequent but inevitably short checks do not necessarily mean better control. Less frequent but more integrated and better prepared site visits could be more effective and efficient.

During recent years, the number of environmental inspections has generally been on the rise: this corresponded to the period of inspection build-up initiated by establishment of the EPA (table 2.3). The drop in number of environmental inspections in 2012 is related to the institutional change (i.e. transfer of the inspection function from the EPA to the Administration for Inspection Affairs). Some 20–30 per cent of inspections are ad hoc checks. More than half of routine inspections require follow-up. Numerous gaps in the information on different categories of inspections do not allow for a more thorough analysis.

Almost 2,500 inspections carried out by seven people in 2013 means that every environmental inspector undertook about 350 inspections per year, which is an unusually high number compared with other inspections. For example, a water inspector conducted 100–150 site visits per year in 2012–2013, while 11 forestry inspectors made about 1,148 checks

in 2013. A possible root cause of this excessive number of environmental inspections is the definition of inspection and likely inclusion in overall statistics of the small desk reviews of documentation and administrative checks carried out on site. In any case, current reporting on environmental inspections is limited so the roots of the problem are not understood. More generally, administrative checks of enterprises are important but should not replace technical checks of compliance.

While the environmental inspection is responsible for nature protection control, this task does not receive high priority: only 1 per cent of site visits are related to this mandate. Thus, the scope of inspection is not balanced. Currently, environmental inspectors' activity in this field is primarily confined to administrative supervision of the implementation of management plans/programmes in protected areas, while the day-to-day supervision of the protection regime is mostly implemented by the national park guards.

Cooperation with other enforcement authorities is mostly ad hoc. Recently, memoranda of cooperation were signed between the Administration for Inspection Affairs, the Ministry of the Interior and the Customs Administration. The most effective examples of joint action are the campaigns for fighting irregularities (e.g. illegal construction) on the coast, where common actions are undertaken by the spatial protection inspection, the environmental inspection and the municipalities (communal police), supported by the Police Directorate. The ad hoc joint actions of several inspections can be mobilized very quickly and this is said to be one of the benefits of gathering all inspections under one roof in the Administration for Inspection Affairs.

At local level, the communal police, reportedly, often prefer to notify the environmental inspection of irregularities rather than to act themselves within their competencies (e.g. on municipal waste dumps or environmental noise cases).

Communication and cooperation with the EPA remain good, after the latest institutional reform: the inspection receives information on environmental assessments and permits from the EPA and provides feedback on all major pollution events. In accordance with the 1997 Regulation on the amount, method of calculation and payment of charges for environmental pollution, the environmental inspection is submitting to the EPA data on emissions of pollutants into the air, use of ODS, and quantities of hazardous waste generated and stored. The grounds for calculation of the charges are established based on inspection protocols.

Pursuant to the Law on Free Access to Information (OG 44/12) the Administration for Inspection Affairs has specified a procedure for access to information. Authorized persons are nominated to act on requests for access to information.

Since 2013, aggregated annual reports and monthly activity reports are regularly posted on the website of the Administration for Inspection Affairs. Information on the activity of environment-related (fishery, water and forestry) inspections is available. The Administration's information system is currently better connected to other state authorities' databases: for example, all data on misdemeanour fines are automatically transferred into the register of fines and misdemeanour records held by the Ministry of Justice.

2.8 Non-compliance responses

Administrative enforcement

In cases of administrative non-compliance (table 2.4), the inspector issues orders/decisions with time limits for execution, typically 15 days. The operator may ask for an extension. Follow-up inspections are performed to verify compliance with orders.

Increasingly, inspectors use the temporary prohibition of economic activities as a non-compliance response. In 2013, 73 bans on activity pending the elimination of irregularities were decided, i.e. nearly 10 per cent of the total number of decisions taken. The majority of the decisions are related to non-compliance with the legislation on waste management and air protection and, to a lesser extent, EIA and radiation safety. Most irregularities found by the forestry inspection refer to handling and trade in wood products, failure to comply with prescribed measures, documentation irregularities, illegal logging and poaching.

The Law on Inspection Control authorizes inspectors to impose fines as administrative measures in specific cases. Inspectors are authorized to collect the fine on the spot or issue a mandatory fine payment order. Without proof of payment of the mandatory fine within the time frame, the inspector is to initiate misdemeanour proceedings. In practice, the instrument of administrative fines has not been used much before 2011, the inspectors preferring to enforce the law through the judicial procedure in misdemeanour courts.

Table 2.3: Selected indicators of inspection work on environment, 2009-2013, number of inspections

Indicators	2009	2010	2011	2012	2013
Environmental inspectorate					
Total number of inspections	1,302	1,398	2,259	1,900	2,471
Routine inspections	n.a.	n.a.	n.a.	952	1,766
Follow-up inspections	n.a.	n.a.	n.a.	767	598
Emergency inspections	n.a.	n.a.	n.a.	181	107
Water inspectorate					
Total number of inspections	n.a.	n.a.	n.a.	214	299
Routine inspections	n.a.	n.a.	n.a.	104	159
Follow-up inspections	n.a.	n.a.	n.a.	39	75
Emergency inspections	n.a.	n.a.	n.a.	71	65
Forestry, hunting and plant protection inspectorate					
Total number of inspections	n.a.	n.a.	n.a.	787	1,148
Routine inspections	n.a.	n.a.	n.a.	602	930
Follow-up inspections	n.a.	n.a.	n.a.	133	174
Emergency inspections	n.a.	n.a.	n.a.	52	44

Source: Environmental Protection Agency, Administration for Inspection Affairs, 2014.

Table 2.4: Administrative and judicial non-compliance measures taken by inspections on environment, 2009-2013

Indicators	2009	2010	2011	2012	2013
Environmental inspectorate					
Total number of inspections	1,302	1,398	2,259	1,900	2,471
Decisions on prescriptive measures	699	838	897	576	712
Misdemeanor warrants	-	-	13	14	24
Misdemeanor charges	46	24	18	33	59
Criminal charges	3	4	5	3	-
Water inspectorate					
Total number of inspections	n.a.	n.a.	n.a.	214	299
Decisions on prescriptive measures	n.a.	n.a.	n.a.	17	39
Misdemeanor warrants	n.a.	n.a.	n.a.	-	1
Misdemeanor charges	n.a.	n.a.	n.a.	-	-
Criminal charges	n.a.	n.a.	n.a.	1	3
Inspectorate for forestry, hunting and plant protection					
Total number of inspections	n.a.	n.a.	n.a.	787	1,148
Decisions on prescriptive measures	n.a.	n.a.	n.a.	114	200
Misdemeanor warrants	n.a.	n.a.	n.a.	9	36
Misdemeanor charges	n.a.	n.a.	n.a.	61	65
Criminal charges	n.a.	n.a.	n.a.	3	20

Source: Environmental Protection Agency, Administration for Inspection Affairs, 2014.

There is a relatively standard appeal procedure against administrative decisions that can be used by individuals and legal entities. Since the transfer of the environmental and water inspection to the Administration for Inspection Affairs, appeals against inspectors' decisions are resolved in the first instance administrative procedure at the Administration for Inspection Affairs and, in the second instance, at the Ministry of Sustainable Development and Tourism (regarding environmental inspection) and the Ministry of Agriculture and Rural Development (regarding water inspection). The appeal does not delay the execution of the decision.

Previously, appeals filed against a decision made in the first instance administrative procedure by the EPA were decided by the Ministry of Sustainable Development and Tourism. Between 2010 and 2012, the Ministry of Sustainable Development and Tourism ruled on 35 appeals, most of them filed against environmental inspectors' decisions (16) and against the EPA's decisions on permitting and EIA (14).

The Ministry has issued seven decisions rejecting the appeal as unfounded and nine decisions annulling the decision of environmental inspectors and returning

the case to reconsideration. This contrasts with the verdicts on EPA decisions – only three decisions were annulled while 11 appeals were rejected. At the same time, 14 appeals were filed at the Ministry of Agriculture and Rural Development against the decisions of water authorities in the period 2011–2013 but only a few of them concerned the decisions of water inspectors.

Enforcement based on misdemeanour procedures

Certain cases of environmental non-compliance can lead to enforcement based on misdemeanour proceedings. The Law on Misdemeanours (OG 1/11, 39/11) allows complaints to be filed by a competent authority or a person who has been harmed. The penalty can be in the form of a fine or imprisonment.

The Law provides for a special regime of sanctioning violations relating to the environment: a fine of up to twice the amount of the maximum stipulated by this Law may be imposed for misdemeanours on environmental protection (300 times the monthly minimum wage, €193, at May 2013). Both legal and natural persons can be held liable.

Court practice on environmental cases is limited. Between 2009 and 2013, the competent environmental authorities submitted 180 requests in total to initiate legal proceedings for misdemeanour violations (table 2.4). Before that, 50 cases were brought in 2007 and 37 in 2008. Most of these cases were for disposal and/or collection of waste without a licence, non-compliance with the decisions of the inspectors, and beginning projects without EIA and consent of the competent authority. Fines are the common response to misdemeanour cases concerning the environment. Decisions on such cases are often delayed.

The share of terminated cases (dismissed, along with the defendant's acquittal) is significant (one third), pointing to possible capacity issues on collecting and interpreting evidence. Judges tend to apply the minimum level of fines and use mitigating circumstances when the Law provides for a fixed fine. In many cases, the judges face significant difficulties in establishing causal links between an offence and its environmental impact. Inspectors are not informed about the results of misdemeanour proceedings despite the legal obligation of judicial authorities to do so.

Simplified misdemeanour procedures were introduced in 2011 in order to reduce the load on the courts and enable inspectors to address the simplest cases outside the courts. Following the reform, inspectors can issue a "misdemeanour warrant" if non-compliance is discovered during a site visit. If the offender does not contest the fact of non-compliance, the inspector imposes the minimum prescribed penalty from the legally allowed range. Using the misdemeanour warrants, the majority of lighter misdemeanours are sanctioned on the basis of the offender's admission and thus a large number of cases are resolved out of court.

Since September 2011, environmental inspectors imposed 51 fines by issuing misdemeanour warrants. In 2012, the environmental inspection issued 14 misdemeanour warrants, of which 12 were enforced; the total amount of collected fines was €2,510. The introduction of misdemeanour warrants did not change much in the practice of environmental enforcement: the number of judicial misdemeanour proceedings did not decrease. Offenders prefer to have recourse to a court trial, where they have the chance to obtain a reduced fine or dismissal.

The register of fines and misdemeanour records is a passive system of tracing fines, with a central database, which contributes to more efficient and systematic collection of fines. Fines and costs of procedure imposed on the basis of misdemeanour warrants and court decisions remain as debt in the database, until the fined person pays the fine and costs of procedure in full.

The collection rate of fines imposed for environmental misdemeanours is poor. Between September 2011 and March 2014, fines in the amount of €47,270 were imposed on the basis of misdemeanour warrants and court decisions, mostly for infringements to waste management, environmental noise, EIA and air protection law; of these, only €20,518 (43 per cent) was actually collected. It is worth noting that regarding several environment-related matters (nature protection, chemicals and radiation safety, and also EIA and IPPC), the misdemeanour fines applied were insignificant or non-existent.

Criminal enforcement

Cases of major environmental pollution, illegal shipments of hazardous waste, illegal trade in protected species, destruction of protected species and violation of the right to be informed on the state of the environment are all subject to criminal enforcement. Environmental crimes are addressed in the Criminal Code. Legal entities are held responsible for criminal offences based on the principle of objective accountability, and the responsible persons

in a legal entity are held responsible based on the principle of subjective accountability.

The number of criminal environmental enforcement cases is limited (table 2.4). Between 2009 and 2013, the environmental inspection submitted 15 criminal charges to the State Prosecutor's Office, most of them for environmental pollution, illegal mining in protected areas, killing protected animal species or poaching. Six criminal charges have been rejected by the prosecution and no information was brought to the inspection concerning the other nine cases. The forestry inspection filed 20 criminal charges in 2013.

In the implementation of efficient criminal environmental enforcement, Montenegro faces the problems of capacity within environmental inspection and lack of cooperation between environmental inspection and judicial authorities. The judges' lack of environmental law knowledge and experience on environment-related cases leads to difficulties in defining and quantifying the environmental, health and social risks of certain activities and determining whether a particular violation falls under criminal law. In specific cases, judges face difficulties in identifying the content of damages and the link between consequences and the offence.

The general vagueness of legal stipulations leads to different interpretations of the rules by the judiciary. The judicial system relies greatly on court experts, who bring technical expertise in particular areas during court proceedings. Environmental inspectors face difficulties in gathering evidence and providing information to the prosecution. There is a lack of joint training seminars and other forms of capacity building for inspection authorities, prosecutors and judges.

Environmental liability

The Law on Environmental Liability (OG 27/14), applicable since September 2014, establishes a framework based on the polluter pays principle to prevent and remedy environmental damage. The Law defines "environmental damage" as damage to protected species and natural habitats, water and soil.

The principle of strict environmental liability (i.e. with no requirement to prove fault) applies to waste management activities, IPPC installations, installations producing dangerous chemicals and several other categories listed in the Law. Operators carrying out activities other than those listed in the Law are liable for fault-based recompense for damage to protected species or natural habitats. The Law introduces mandatory environmental insurance.

Monetary compensation for damage to individuals and legal persons is outside the scope of the Law; this is to be handled through the civil law procedure. There is no information on cases of compensation for environmental damage in Montenegro.

2.9 Conclusions and recommendations

The institutional framework for compliance assurance remains weak. Communication and coordination among various authorities is not yet effective. Local self-government units have been transferred many responsibilities while their capacity for environmental management is limited, in particular for implementing EIA and IPPC-related legislation. Serious doubts can be raised about the capacity and ability at local level to assess technically complex IPPC applications. At the same time, the central authorities complain of a lack of reporting as to what is happening at the local level.

Central authorities are more adequately resourced, with the notable exception of the water authorities. There are competency overlaps between the environmental inspection and the communal police. Coordination between environmental and water permitting is weak. The integrated register of environment polluters is not yet operational. Environmental protection and water information systems do not yet exist. Lack of competent staff is sometimes flagrant, with competent authorities failing to recruit a chemicals inspector, for example. A clear misbalance exists between resources allocated to EIA and permitting in comparison with those allocated for inspection and administrative enforcement.

Recommendation 2.1:
The Government should establish mechanisms that will improve communication and coordination within the environmental compliance system, and strengthen capacity at all levels, with a focus on environment-related inspections, by:

- *(a) Enhancing information management and sharing among the different agencies responsible for compliance assurance, and developing more structured coordination and cooperation mechanisms;*
- *(b) Operationalizing the integrated register of environmental polluters;*
- *(c) Centralizing responsibilities on IPPC matters at the national level, and systematically*

assessing human capacity for environmental regulation, implementation and enforcement.

The EIA instrument is overused in Montenegro, especially at the local level. The system of direct payment of the members of EIA commissions and of IPPC technical committees, especially to governmental officials, by the applicant developer may jeopardize the integrity of these bodies. The practice was changed in mid-2014. The project proponent payment goes to the state budget. The members of the EIA committee employed in the competent authority are not paid. The other members committee are paid through the state budget.

The best practice would be that project proponents/applicants pay a fee for respective procedures that would include all administrative costs, including fees for independent experts who are members of these bodies.

There is a very complex and intricate system of single-medium permitting. Water permits are not integrated with IPPC permits. There is no adaptation of relevant information to the needs and understanding of the general public; among other issues, this leads to a very low degree of interest in public hearings organized as part of the assessment procedures.

Recommendation 2.2:
In order to further increase the procedural soundness, transparency and cost recovery of EIA and permitting:

- *(a) The Ministry of Sustainable Development and Tourism should improve capacity to conduct project screening, especially at the local level, thus reducing the excessive use of EIA procedures;*
- *(b) The Environmental Protection Agency should develop schemes for payment to independent experts who are members of EIA commissions and IPPC technical committees, ensuring that the integrity of these bodies is not jeopardized;*
- *(c) The Ministry of Agriculture and Rural Development, in cooperation with the Ministry of Sustainable Development and Tourism, should take legislative steps to ensure that water permits are integrated into IPPC permits.*

The focus of compliance monitoring is on the number rather than quality of inspections. High numbers of inspections per inspector denote their limited content and single-medium orientation. Risk-based criteria are said to be applied, though there is no formal methodology behind the current inspection planning approach. It would be good practice to make an analysis of the general risks of each category of installations, not only from a prioritization perspective but also from a frequency perspective. The use of further prioritization criteria for inspections will enable more effective use of resources. The establishment of an efficient enforcement system in the water sector remains a challenge. No standardized operating procedures for inspections have been adopted to date. Joint inspections and close cooperation with the EPA on feedback for IPPC is lacking. There is a lack of specialized inspectors.

Recommendation 2.3:
The Administration for Inspection Affairs should focus environment-related inspection on performance, and enhance its transparency and accountability by:

- *(a) Developing a clear and transparent approach for inspection planning and reporting, backed by the enactment of relevant standard operating procedures;*
- *(b) Building capacity in and strengthening the practice of joint and integrated inspections, especially for IPPC installations;*
- *(c) Enhancing the system of data collection and analysis in support of inspection;*
- *(d) Revising the frequency of inspection.*

There is very limited assistance to the regulated community to act in compliance with environmental matters. Smaller businesses, in particular, lack expertise and information about means of compliance. The adoption of environmental management systems has progressed lately, though the number of certified enterprises is stagnating. Initiatives to promote resource efficiency and cleaner production are in their inception phase.

Recommendation 2.4:
The Government should assess the effectiveness of compliance promotion mechanisms, identify relevant measures, define responsibilities and start implementing compliance promotion activities.

The outcomes of judicial enforcement remain to be improved. Challenges include gathering evidence, building cases for prosecution, unclear and lengthy procedures, a lack of effective communication and limited individual capacity. Knowledge of environmental specifics is very low in the courts.

Recommendation 2.5:

The Administration for Inspection Affairs, in cooperation with the Ministry of Sustainable Development and Tourism, the Ministry of Justice and the judicial authorities, should:

(a) Provide joint capacity-building for inspectors and judges and strengthen communication mechanisms between them;

(b) Develop manuals on environmental misdemeanours and crime to facilitate evidence gathering and prosecution.

Chapter 3

ECONOMIC INSTRUMENTS AND ENVIRONMENTAL EXPENDITURES FOR GREENING THE ECONOMY

3.1 Economic instruments

The 2008 Law on Environment (OG 48/08, 40/10, 40/11, 27/14) reaffirms the importance of the application of the polluter pays and user pays principles as well as defines a number of environmental policy instruments.

Pollution charges

The Law on Environment stipulates that legal and natural persons have to pay compensation for environmental pollution, based on the polluter pays principle. The Law stipulates the payment of pollution charges for:

- Discharge of air pollutants;
- Use of fossil fuels and lubricating oil;
- Import of substances that deplete the ozone layer;
- Generation and disposal of hazardous waste;
- Use of motor vehicles, aircraft and vessels.

Among these, the levy on use of fossil fuels and lubricating oil, a sales tax to be paid by legal persons dealing with trade of these products, was abolished in 2009. Total revenues collected amounted to some €1.2 million in 2008. In a more general way, the removal of this tax was "compensated for" by increases in excise duties on mineral oil products in 2009.

The 1996 Law on Environment had established a fee for investment projects that required an EIA. The fee amounted to 1 per cent of the investment. Revenues were to be paid into a special account of the state budget and earmarked for environmental protection, but this provision was not implemented. This fee, which was not really an economic instrument, is not mentioned in the 2008 Law on Environment and was abolished in 2008.

The Law on Environment provides for the possibility to provide economic incentives, such as subsidies and tax incentives, for enterprises that use or are engaged in trading of environmentally friendly technologies and products. The Law provides also for the use of eco-labelling for environmentally friendly products. None of these options have been implemented to date. The Law on Environment does not explicitly mention charges for water protection which, rather, are established by the Law on Water (OG 27/07, 32/11) and the Law on Water Management Financing (OG 65/08).

The application of charges for air pollution, ODSs and hazardous waste has been determined by specific regulation, viz. the Regulation on the amount of fees, method of calculation and payment of compensation for environmental pollution (OG 26/97, 9/00, 52/00, 33/08, 05/09, 64/09, 40/11, 49/11). The Regulation, which dates from 1997, was enforced only as from 2008. This reflected, in a more general way, the concerns of the Government about the weak financial state of the major polluters in the industrial sector. Tax rates for these pollution charges remained unchanged between 2000 and 2007, but they were all raised by 100 per cent as from 2008 and have remained at that level since then.

Air emission charges from stationary sources

Air emission charges have to be paid for a range of pollutants, which have mainly been originating from the aluminium plant in Podgorica, the steel plant in Nikšić and the TPP Pljevlja (table 3.1). Total annual emissions are extrapolated from sample emissions measured or estimated by the environmental inspection and the CETI. Since 2011, fees due are calculated by the EPA; previously, this was done by the then Ministry of Tourism and Environment, based on information about emissions of pollutants and waste generated provided from the environmental inspection.

The dominant industrial air pollutants in Montenegro are solid particles (dust), SO_2, fluorides (HF), NOx and CO. Charge rates applied are, on average, quite low and unlikely to create incentives for polluters to change their environmental behaviour. To illustrate, the charge rate for SO_2 (€4 per ton) is only a small fraction of the corresponding charge rates applied in Croatia (€43) and Serbia (some €53).

Photo 3.1: Traditional dried grass: Straw hays on the field

The system of air pollution charges is, however, not part of a policy mix that also comprises the regulation of ELVs (chapter 2). However, in 2012, the Government adopted the Regulation on the types of pollutants, limit values and other air quality standards (OG 25/12). But ELVs apply only for new stationary emission sources. Existing polluting facilities have a transition period up to 2025 to meet new emission standards.

Charges for import of ozone-depleting substances

Legal entities that import ODS are subject to a charge which has been applied since 15 June 2008. The charge rate is €0.9 per kg of imported substance. Import of ODS requires an import licence for which there is an administrative fee of €50. In 2014, there were only two companies engaged in this activity.

Payment for generation and disposal of toxic waste

Enterprises have to pay a charge of €151.50 per ton of hazardous waste generated. Given the lack of adequate treatment facilities, a considerable part of this waste is stored on company premises, and the rest is exported. Waste that is stored on the premises is subject to an additional charge of €75.75 per ton. Companies will have an incentive to export this kind of waste only if the total costs per ton are below the charge rate for leaving the waste on the premises.

Table 3.1: Air emission taxes, €/ton

Pollutant	€ / ton
Carbon monoxide(CO)	2.2
Sulfur dioxide (expressed as SO_2)	4.0
Nitrogen oxides (expressed as NO_2)	3.2
Gaseous inorganic compounds of fluor expressed as HF	13.5
Heavy metals	31.6
Solid particles	18.9
Pyrene, Phenantrene, Anthrazene	26.7
Benzo(a)pyrene	180.7

Source: Regulation on the amount of fees, method of calculation and payment of compensation for environmental pollution, 2012.
Notes: Partial list of substances subject to pollution charges. Charges are applied to enterprises with furnaces and installed electricity capacity of more than 1 MW.

Water pollution charges

Charges for water pollution are due from legal and natural persons that discharge wastewater into water recipients, or manufacture or import fertilizers, chemical plant protection products or phosphate-based detergents. Payments are regulated by the Decision on the amount and method of calculating water charges and the criteria and method of determining the degree of water pollution (OG 29/09). It replaced a 1996 Decree on water pollution

charges (OG 15/96), which used a different approach to determining charges for discharge of effluents. The former approach was to set charge rates per kg for each of a number of pollutants and to calculate the effective total charge based on a formula which took into account the measured concentrations of the different pollutants and the pH value in the effective concentration of pollutants and pH value in the recipient, and quantity of wastewater.

The new approach, since 2009, establishes a uniform charge rate of €0.006 per m^3 of wastewater discharged. The effective charge rate is calculated based on a formula that measures the pollution content of water discharged. The substances taken into account comprise general organic pollutants (BOD, COD), nutrients (nitrates and phosphorus), heavy metals and suspended solids. Another factor influencing the effective charge rate is the technology used for wastewater treatment, viz. primary stage, secondary (or biological) stage and advanced tertiary treatment. The more advanced the treatment, the lower the effective charge rate per m^3 of effluents.

This approach is, however, mainly directed to the future, given the general lack of appropriate measurement of pollution content as well as the lack of WWTPs. In the face of this, the effective charge rates per m^3 are almost entirely established by multiplying the basic charge rate (€0.006 per m^3) with an industry-specific coefficient used as a proxy for the effluent quality. The higher the coefficient, the lower the effluent quality. The highest coefficient (30) is applied to industries such as metallurgy, production of oil products, textiles and leather, implying a charge rate of €0.180 per m^3. A coefficient of 22 is applied to, e.g., wastewater from enterprises in the food and electrical industries. Wastewater from public utility companies that is discharged into sewers has a coefficient of 2, implying a charge rate per m^3 of €0.012. In 2007, the corresponding charge rate was significantly lower at €0.0029.

Water pollution fees have also to be paid for the production or import of mineral fertilizers, chemical plant protection products and phosphate-based detergents. The basic fee has been set at €0.0025 per kg (or litre) of these materials.

Revenues from pollution charges

The 1996 Law on Environment stipulated that revenues from pollution charges be paid into a special account of the state budget and used for financing environmental protection. But this provision was not implemented given the non-collection of these taxes. The current Law on Environment does not mention any earmarking of these revenues. Enterprises pay pollution charges directly to the State Treasury. The EPA, which establishes the annual pollution fees to be paid by the polluting entities, obtains information on the effective bill collection rates only upon special request to the Ministry of Finance. But this information is not in the public domain.

The annual payments for emissions of air pollutants, import of ODS and generation and disposal of hazardous waste, that should have been made based on the "bills" established by the EPA, amounted to €343.5 million in 2013, down from €525 million in 2012 (table 3.2). The development of these potential revenues over time has been influenced by the varying levels of activity of the major polluters, notably Aluminium Plant Podgorica (KAP), for which bankruptcy procedures were launched in 2013. Total potential revenues from these pollution charges corresponded, however, to only 0.01 per cent of GDP in 2013, down from 0.02 per cent in the previous years (table 3.2).

The State Treasury also collects revenues from water pollution charges, which are administrated by the Water Directorate of the Ministry of Agriculture and Regional Development. But these revenues are earmarked for the financing of water management. As is the case for the pollution charges mentioned above, there is no direct flow of information concerning these revenues from the State Treasury to the Water Directorate of the Ministry of Agriculture and Regional Development – it is available only upon special request. According to the communication from the State Treasury to the Water Directorate, total revenues from water pollution charges amounted to €2.52 million in 2012 of which €2.3 million was charged to KAP, which is not connected to a WWTP and for which there is no measurement of the actual pollution content of effluents. Data for other years were not available at the time of writing this report.

Natural resource use charges

The use of natural resources is subject to fees, which, according to the Law on Nature Protection (OG 51/08, 21/09, 40/11, 62/13, 6/14), should be based on the user pays principle. Use of natural resources requires a permit/licence. In the case of legal entities, user rights are, in general, awarded within the framework of concession agreements for areas such as water abstraction, mineral resource extraction and forest exploitation.

Table 3.2: Potential revenues from pollution charges, 2008–2013, € thousand

	2008	2009	2010	2011	2012	2013
Emissions of air pollutants	153.84	249.68	228.64	224.44	226.37	190.41
Import of substances that deplete the ozone layer	0.20	8.08	0.00	6.24	9.79	3.43
Generation and disposal of hazardous waste	520.67	418.71	418.71	564.30	289.63	149.69
Discharge of water pollutants	..	..	..	..	2518.50	..
Total above	**674.71**	**676.47**	**647.34**	**794.98**	**3044.29**	**343.53**
Total above as per cent of GDP	0.02	0.02	0.02	0.02	0.09	0.01
Total above as per cent of state budget revenues	0.05	0.04	0.05	0.06	0.15	..

Source: Environmental Protection Agency, direct communication; Ministry of Agriculture and Regional Development, Water Directorate.
Note: ECE Secretariat calculations.

In 2007, water abstraction charges were calculated as a percentage of the "price" of the services or products for which the water abstracted was used. Thus, water used for electricity production was charged at 0.22 per cent of the average price 1 kWh. Water abstraction for bottling of mineral water was charged at 3 per cent of the average price of mineral water. Since 2009, a new approach to setting water abstraction charges has been used based on the Decision on the amount and method of calculating water charges and the criteria and method of determining the degree of water pollution. In general, total payments depend on the volume of water abstracted. Fees for use of water for electricity generation are based on the quantity of electricity (kWh) generated on the grid. There is also a separate charge rate per kW for the use of water for other energy purposes by power plants (table 3.3). Total revenues from these water resource use charges amounted to €1.9 million in 2012. Industrial use and hydropower generation accounted for some 60 per cent of these revenues; public water companies accounted for another 35 per cent.

Charges for the concessions for exploitation of river sediments (gravel and sand) continue to be based on the volume in m^3 of materials extracted. Total revenues from these charges amounted to only €88,100 in 2012. As regards forest resources, the concessions awarded range from 7 to 30 years. They include the right to forest utilization as well as the sale of timber, but they also comprise the obligation to engage in forest resources management based on forest management plans and strict controlling mechanisms. Other important sources of revenues are concessions for commercial fishing in Lake Skadar.

The Law on Local Self-Government Financing (OG 42/03, 5/08, 74/10) stipulates that 70 per cent of the revenues from concessions and other fees for using natural resources accrue to the municipality governing the territory within which these resources are located. The remainder is allocated to the state budget. This is the reverse of the distribution of funds prevailing before 2011. Revenues from charges for use of water resources are earmarked for purposes of water management (such as water protection and the maintenance and extension of water sector infrastructure). This holds also for the revenues from water pollution charges.

Table 3.3: Water abstraction charges, 2014, €cents

Usage	Charge base	Charge rate € cents
Public water supply	m^3	1.50
Industrial use	m^3	2.00
Irrigation	m_3	0.40
Bottling of mineral water	litre	0.30
Hydropower	kWh	0.01
Fish farms	kg of produced fish	1.00

Source: Ministry of Agriculture and Regional Development, 2014.
Note: Fees for fish farms vary depending on the type of fish. The figure in the table is for sea bass.

The Commission on Concessions within the Ministry of the Economy administers concession contracts, including the collection of revenues. The Union of Municipalities of Montenegro has pointed to the lack of transparency with regard to total revenues collected from concessions for use of natural resources on the territory of Montenegro. Total revenues allocated to municipalities amounted to €6.3 million in 2012, which implies overall revenues of some €9 million. Local self-governments do not have any information on the amounts of fees fixed in the corresponding contracts or on revenue collection. A major problem appears to be inadequate control of the operations of contractors, as well as collection of the fees, reflecting the lack of staff.

Charges for use of national protected areas

Some limited activities of natural resource use are also permitted in the Protected Areas System of

Montenegro. However, neither the economic exploitation of forests nor hunting is allowed in the national parks. The single most important sources of direct revenue for the national parks are entrance fees and activities directly related with tourism, such as rafting. The corresponding revenues were boosted by a strong increase in the number of tourists during 2010–2012. Revenue growth was also supported by increases in entrance fees and fees for using facilities in the national parks. To illustrate, while in 2007 there was a uniform entrance fee (€1 per person), entrance fees in 2014 are much higher (€4 at National Park Durmitor and National Park Lake Skadar). The overall fee structure has been differentiated to better reflect the different nature and tourist attractions offered by the national parks.

An important source of revenue for national parks is licences for sport fishing and commercial fishing, notably in National Park Lake Skadar. There is a concession agreement concerning the catch of bleak fish (*Alburnus alburnus alborella*) from Lake Skadar in order to prevent overfishing. Other sources of revenue include, notably, wood harvesting and the related sale of fuel wood; fees for collection of wild berries, herbs and mushrooms; concession fees for sand and gravel extraction and for bottling of mineral water by commercial companies; and lease of land for production of wine and other commercial activities.

Total own revenues of national parks amounted to €1.2 million in 2012, of which some 50 per cent originated from entrance fees and another 15 per cent from fees for rafting (table 3.4). All the revenues collected from the various activities inside the national parks are allocated to their financing. But revenues collected from user charges (including entrance fees) are barely sufficient to cover operating and maintenance costs.

Municipal waste management and water supply services

The organization of public utility services, such as municipal waste collection and disposal and water supply and sewerage services is the responsibility of local self-governments, which have delegated the provision of these services to a municipal public utility company. In the large majority of municipalities, the originally established multi-service public utility companies were broken up during the past decade and separate companies were established that specialize in either water supply and wastewater services or waste management. In many municipalities (including Podgorica), the activities of the local waste company also include other activities, such as street cleaning, maintenance of public parks and assistance with local construction works.

There is a legal obligation for public utility companies to be transformed into joint stock companies or limited liability companies in accordance with the Law on Business Entities (OG 6/02, 17/07, 80/08, 40/10) and the Law on Improvement of Business Environment (OG 40/10). This involves the transfer of assets and liabilities, staff and the ongoing business of the utility into the new company, with separate shareholding, board of directors, accounting and reporting lines. This process, which may also be seen as a first step for promoting private sector involvement in these companies has, however, made little progress so far.

Table 3.4: Major sources of own revenues of national parks, 2011–2012, € thousand

Item	2011	2012
Entrance fees	443.5	615.0
Rafting fees	180.1	199.7
Sales of souvenirs	23.6	20.7
Renting of facilities	61.5	69.6
Fishing licenses	75.2	70.2
Concession for catching of bleak in Skadar Lake	35.0	54.8
Concession for exploitation of gravel and sand	55.9	3.8
Fees for use of wetlands	37.0	52.1
Sales of fuelwood	16.1	43.4
Other	98.1	56.8
Total above	1025.8	1186.2
Grants	107.1	105.1
Total own resources	1132.9	1291.3

Source: Public Enterprise "National Parks of Montenegro", direct communication.

Given the small size of the country, the Government has been encouraging municipalities to cooperate in the organization of utility services in order to benefit from economies of scale and associated lower unit production costs. This was the rationale for the construction of the regional water supply system in the Montenegrin coastal area, which gives the six Montenegrin municipalities there the option of using the water from the regional supply system, which started operations in 2010 (chapter 7). A regional approach has also been pursued for the construction of landfills (chapter 8).

Local self-governments are legally responsible not only for the provision of utility services. They also regulate the activities in the sector, including, notably, the setting of tariffs for utility services. The overall economic and financial performance of municipal waste and water supply companies in Montenegro has remained, in general, a matter of concern, given that own revenues are hardly sufficient to cover operating costs. This reflects, notably, the local policy considerations that are influencing tariff setting, but also the fact that public utility companies are overstaffed.

Municipal waste management tariffs

The 2011 Law on Waste Management (OG 64/11) stipulates a number of waste management principles, among which is the application of the polluter pays and user pays principles: waste producers should bear the cost of waste management and preventive action as well as the costs of remedial action associated with the negative impacts on the environment and public health. Municipal waste is collected in each municipality, but rural areas within the municipalities are only partially covered by waste services. In 2012, some 75 per cent of the population was using the services of municipal waste companies.

The tariff system for waste services distinguishes two main user categories, viz. natural persons (households) and legal persons (such as enterprises and public institutions). Fees continue to be levied in proportion to the size of occupied residential and commercial premises. Waste tariffs for legal persons also depend, in general, on the kind of economic activity they are engaged in.

Average household tariffs for municipal waste collection and transport in Montenegro amounted to €0.063 per m^3 in 2012. There are only small variations in household waste tariffs across the country. The average tariff for legal entities was €0.40, much higher than the average household tariff (table 3.5). There are, moreover, significant differences in waste tariffs applied to legal entities, depending on the kind of economic activity involved. The higher tariffs for legal persons do not, generally, reflect higher costs of waste collection and transport; rather, they mainly represent a surcharge designed to subsidize waste collection from households as well as other activities – not related to waste management – undertaken by the waste companies.

Currently applied waste tariffs cover only waste collection and transport to dumpsites, given the general lack of adequate landfills (chapter 8). There is a separate fee for waste disposal at landfills only in Podgorica. That landfill is operated by a separate public landfill company established by the municipality. The tariff applied for disposal of waste at the landfill is the same as the tariff for waste collection. The Podgorica waste collection company collects the two bills from customers simultaneously. Direct disposal of municipal waste at the Podgorica landfill by entities other than the local waste company is charged at €26 per ton.

Table 3.5: Municipal waste tariffs, €/m^3

	Households	Legal entities
Southern region		
Bar	0.05	0.13/1.00
Kotor	0.07	0.07/2.40
Ulcinj	0.04	0.25/1.93
Central region		
Danilovgrad	0.1	0.14
Niksic	0.06/0.07	0.03/0.08
Podgorica	0.03	0.06/0.80
Northern region		
Berane	0.04	0.10/0.30
Pluzine	0.07	0.4
Savnik	0.03	0.3

Source: Ministry of Sustainable Development and Tourism, 2014.
Note: Tariffs for waste collection and transport to landfill or dumpsite. Figures for legal entities indicate minimum and maximum charges applied, depending on the sector of activity. Figures refer to 2012, but, 2014 for Podgorica.

Bill collection rates for households are quite low, at 63 per cent compared with some 80 per cent for legal entities. In Podgorica, the average bill collection rate from households was about the same, but the bill collection rate for legal entities was as high as about 95 per cent in 2013. The low bill collection rate from households reflects the cumbersome and costly legal procedures involved in the event of non-payment. In contrast, payment by legal entities is much more reliable, reflecting also the fact that it is easier to cut them off from waste services in the event of non-payment.

At the same time, this provides a rationale for the significantly higher waste tariffs charged to legal entities in the business sector, which allows for offsetting, at least partly, the revenue shortfalls from households. Payments due from households are, in general, collected directly "at the door" of the dwelling, which is a costly and inefficient method. A case in point is bill collection from households by employees of the local waste company in Podgorica. Bill collection costs could be significantly reduced by imposing bank transfers, to the extent possible, which is the case already for legal entities.

The establishment of waste tariffs does not follow a strict methodology designed to ensure cost recovery for waste management activities. In general, revenues collected hardly cover the operating costs of waste collection and transport to the landfill or designated dumpsites. Investments in new machinery and equipment generally require the financial support of the municipality or foreign financial assistance. Given the involvement of waste companies in a multitude of other activities not related to waste management, and a lack of separate accounting for separate activities, the overall financial performance of public utilities with regard to waste management is difficult to gauge.

It is estimated that, on average, private households currently spend some 1 per cent of their monthly net income on waste services. Data from the household budget survey 2012 indicate that spending on refuse collection amounted to only €2 per month, which corresponded to 0.3 per cent of the average monthly household budget. On average, in Europe, the affordability threshold is set at some 1–2 per cent of the average monthly household budget.

But these averages can still mask significant affordability problems for lower-income households. There are no data on household income by region in Montenegro. Furthermore, this single indicator does not take into account the affordability issues raised by other utility services, such as electricity and water supply and sewerage services.

The building of new landfills and the upgrading of machinery and equipment for waste management will require significant capital expenditures. At the same time, a challenge remains: in many areas that are to be served by regional landfills, the population density is relatively low. Combined, these factors will lead to high unit costs for solid waste management (chapter 8). The challenge is to reconcile – in the medium- and longer term – the need for achieving and maintaining financial sustainability of waste collection companies and landfill operators with the affordability constraint in the provision of waste services. Given that tariffs will likely need to be raised in the future to ensure full cost recovery – including, notably, the costs of construction and operation of new landfills – affordability issues will likely move up on the municipal policy agenda.

Charges for management of special waste

The Law on Waste Management stipulates that manufacturers, importers and distributors of products that generate special types of waste have to bear the costs of waste management. The corresponding fees have been determined by the Regulation on criteria, amount and manner of payment of a special fee for waste management (OG 11/09, 46/09, 15/11). The effective management of each type of special waste will be entrusted to a specialized company, but this is still at an initial stage. Revenues from fees for special waste management will be earmarked (in a special account) for the co-financing of projects in the field of waste management as well as the costs of acquisition, collection and treatment of special wastes. Payment obligations shall only commence, however, with the effective accession of Montenegro to the EU.

Charges for water supply and sewerage services

As is the case for municipal waste tariffs, there are substantial cross-subsidies between the two main consumer groups, viz. private households and legal entities. Average water tariffs for private households are significantly lower than those for legal entities (table 3.6), which only partly reflects differences in the corresponding supply costs. In 2012, the average municipal household tariff for water supply and sewerage amounted to €0.67 per m^3, while the average tariff for legal entities was nearly three times as high at €1.87.

Tariffs have nearly doubled in nominal terms since 2005, which has also translated into a substantial increase in real terms, i.e. taking into account the average increase in the Consumer Price Index by some 30 per cent in 2012 compared with 2005. The average costs of water supply and sewerage services mask only modest tariff levels for sewerage services, given the widespread lack of wastewater treatment facilities.

More than 90 per cent of water that is sold is metered. But in the private household sector shared meters are still widespread, requiring a division of water bills on a per capita basis.

Table 3.6: Tariffs for water supply and sewerage services, €/m^3, and collection rate, 2012

	Households	Legal entities	Bill collection rate	Non-revenue water
	€/m^3	€/m^3	per cent	per cent
Southern region	*1.12*	*2.32*	*85.00*	*60.00*
among which				
Bar	1.12	2.09	84	66
Budva	1.12	2.24	98	56
Kotor	1.62	2.72	96	64
Central and Northern regions	*0.47*	*1.66*	*68*	*58*
among which				
Berane	0.35	1.38	77	73
Cetinje	0.78	3.17	52	85
Danilovgrad	0.85	1.71	75	48
Niksic	0.57	1.91	84	35
Pljevla	0.42	1.23	92	64
Pluzine	0.45	1.93	76	78
Podgorica	0.61	1.99	69	55
Montenegro	*0.67*	*1.87*	*72*	*59*

Source: Ministry of Sustainable Development and Tourism. Information about the situation in the areas of water supply and wastewater management in 2012 (July 2013).
Note: Non-revenue water: Volume of water produced as a percentage of volume of water billed.
VAT rate: 7 per cent. Regional and national tariffs are unweighted arithmetic averages of municipal tariffs.

Bill collection rates have improved in recent years. They are now quite high in some municipalities in the southern coastal region (e.g. 98 per cent in Budva and 96 per cent in Kotor in 2012), where the water sector infrastructure was significantly improved with foreign financial and technical assistance during recent years as well as advisory services provided by Vodacom.[1] Efforts were also made to improve the financial sustainability of water companies based on tariffs that moved closer to cost recovery levels. In Podgorica, the bill collection rate was only some 70 per cent in 2012 and the unweighted average national collection rate for water bills was only 72 per cent in 2012 (table 3.6). In other words, collection rates can still be significantly improved in almost all the municipalities.

A major challenge is to reduce the large gap between the volume of produced water and the volume that is invoiced to consumers. The main reasons for this large gap are deficiencies in the water transport network (technical losses) as well as unregistered and illegal connections to the network, and inaccurate metering of water consumption (administrative losses). Illegal connections to the water supply system seem to be a major problem. The average share of non-revenue water is estimated at some 60 per cent, but there is likely a large margin of uncertainty in this indicator.

In many municipalities, revenues collected allow for recovery of operating costs, but achieving full cost recovery is still a major challenge. This requires further improvements in the tariff structure and tariff levels as well as a substantial reduction of the share of non-revenue water. In municipalities where operating revenues are falling short of operating costs, water companies have to rely on municipal subsidies. Revenues from water supply services do not suffice to generate significant funds for investments. In other words, financial sustainability of the water supply and sewerage sector has still to be achieved. This challenge will increase in view of the high costs involved in the construction and operation of new WWTPs.

According to the household budget survey 2012, households spent €8, on average, on water supply, corresponding to 1.3 per cent of the average monthly household budget. But water tariffs vary considerably across the country, leading to large differences in water bills among regions. The affordability of water bills is, however, difficult to gauge, given the lack of

[1] Vodacom was set up in 2005 as the agency for execution of projects supported by Financial Cooperation initiatives. The budget of Vodacom is funded by the municipalities and the utility companies. Vodacom has been providing advisory services to the municipalities and the utility companies.

regional income statistics. To ensure their adequate supply with water, vulnerable persons can benefit from municipal subsidies.

Electricity tariffs

Electricity tariffs[2] are regulated by the Energy Regulatory Agency (ERA). This is an autonomous public non-profit organization that is functionally independent from the state authorities or private bodies. It was established in 2004. The ERA has a budget independent from the state budget and finances its activities through licence fees. All regulated tariffs therefore include an implicit component designed to ensure financing of the regulatory agency. In principle, tariff calculations should also include environmental cost elements, but this is apparently not the case.

The tariff methodology requires the application of cost-reflective tariffs, but this principle has not been applied consistently. Tariffs below cost-recovery levels have led in the past to significant operating losses by the electricity company Montenegrin Electric Enterprise (EPCG), which prevented adequate investments in the energy sector infrastructure. Moreover, a low tariff applied to Aluminium Plant Podgorica (KAP) has been tantamount to a significant implicit industrial subsidy based on a long-term supply contract with EPCG. Furthermore, other industrial customers (mainly SMEs) paid high tariffs that were used for cross-subsidization of private household customers. A rebalancing of the tariff structure started in 2010, when tariffs for commercial customers were reduced significantly. However, household tariffs were also reduced significantly, pointing to a shift from cross-subsidies to direct government subsidies for financing electricity supply of households (table 3.7). In fact, the ERA notes that all cross-subsidies were eliminated in 2011.

Although household tariffs were raised in 2012 and 2013, they are still below the level attained in 2009. Tariffs will rise beyond this level only upon implementation of the tariff changes planned for August 2014 (table 3.7). It is also not clear to what extent the tariffs approved by the ERA adequately take into account the need for a sufficient real return on capital that would allow EPCG to raise capital for the modernization and extension of the electricity network.

There have been important commercial losses in electricity distribution in recent years, to a large extent reflecting the non-payment of bills by KAP, the economically fragile aluminium company located in Podgorica. At the end of 2012, KAP's outstanding bills to EPCG amounted to €44 million. This debt may not be recoverable by EPCG and has endangered its financial viability. KAP was declared bankrupt in 2013, and the outstanding bills will likely have to be settled by the Government.

All households have individual metering devices. EPCG is progressively replacing conventional meters with new ones ("smart meters"), which should allow for better monitoring of effective consumption and also should raise the rate of the bill collection.[3] Bill collection rates are rather low because of the difficulty of disconnecting non-paying household customers and other commercial entities. The overall bill collection rate has also been reduced due to the non-payment of bills by KAP. EPCG reported a bill collection rate of 94 per cent from customers supplied through distribution systems in 2012, but these and figures for earlier years exaggerate the effective annual bill collection rate as they include settlements of customer debt from previous years. The bill collection rate from high-voltage consumers, such as KAP, was only 82 per cent in 2012.

The household budget survey 2012 indicates that the average monthly expenditure on electricity amounted to €41 in 2012, corresponding to some 8 per cent of the average budget. In July 2007 the Government adopted a programme for subsidizing the most socially vulnerable groups in order to ensure supply of minimum needs for electricity and heat. Moreover, as stipulated by the 2010 Law on Energy (OG 28/10, 6/13), the ERA establishes a methodology for establishing a special tariff for supply of vulnerable consumers connected to electricity distribution systems.

The Government covers the difference between the cost-reflective tariff and the social tariff. Access to these subsidies is granted and monitored by the Ministry of Labour and Social Affairs. Montenegro adopted legislation for the promotion of electricity from renewable energy sources in the internal electricity market, including the establishment of differentiated feed-in tariffs (chapter 6). Feed-in tariffs and secondary legislation to promote renewable energy sources were introduced during 2012.

[2] There is no gas market or related infrastructure in Montenegro.

[3] Some 70,000 meters had already been replaced in 2012. The plan is to replace some 300,000 electricity meters with new multifunctional devices by 2015.

Table 3.7: Electricity tariffs, 2009-2014, € cents/kWh

Consumers	Voltage level kV	Tariffs as from					
		1.06.2009	1.10.2010	1.04.2011	1.08.2012	01.08.2013	1.08.2014
Aluminium plant KAP	110	3.68	3.97	4.02	4.59	..	..
Steelworks Nikšić	110	5.64	4.03	3.93	4.70	..	..
Railways of Montenegro	110	6.21	4.70	4.55	5.60	..	..
Industrial consumers I	35	6.33	4.83	4.69	5.42	5.24	5.96
Industrial consumers II	10	7.72	5.99	6.01	6.81	6.69	7.30
Industrial consumers III	0.4	15.21	10.93	8.83	10.07	10.16	10.84
Households two tariffs	0.4	8.21	7.40	7.19	8.13	8.32	9.13
Household single tariff	0.4	9.85	8.03	7.45	9.52	9.71	10.48
All customers	..	7.42	6.26	5.65	6.54	8.15	8.88

Source: Energy Regulatory Agency, 2013.
Note: As from January 2013, prices for high voltage customers (110 kV) are no longer regulated.

The tariff rules for renewable energy are stipulated in the 2011 Decree on tariff system for determining the incentive prices for electricity produced from renewable energy sources and high efficient cogeneration (Feed-in Tariff) (OG 52/11, 28/14).

In 2014, Montenegro adopted the Decree on fee for stimulating electricity produced from renewable energy sources and cogeneration (OG 8/14), which determines the manner of determining the amount of fee for stimulating production of electricity from renewable energy sources and cogeneration and distribution of funds collected from fees.

The Ministry of Economy in accordance with the aforementioned Decree brings annually Rulebook on amount of the fees for stimulating electricity produced from renewable energy sources and cogeneration. The Rulebook defines the amount of the fees, on the basis of data on capacity of renewable energy plants that will be put into operation in the year for which the fee is determined. The first small hydro power plant "Jezerstica" started to work, and charging off fees for stimulating renewable energy production on electricity bills, for final customers started in May 2014.

Excises on fossil fuel products

Excise duties are levied on certain types of mineral oils, their derivatives and substitutes in line with the Law on Excise Duties (OG 65/01, 12/02, 76/05, 76/08, 50/09, 78/10, 40/11, 61/11). In contrast to the EU, there are no excise duties on electricity, natural gas or bituminous coal in Montenegro.

At the beginning of 2014, most excise rates were above the minimum rates applied in the EU.[4] Only the excise duty on liquid petroleum used as motor fuel is slightly below the EU minimum rate (table 3.8). There is a right to a refund of part of the paid excise tax for certain products used for a specific purpose, e.g. diesel used for industrial and commercial purposes, mineral oils used as propellants for agricultural and forestry machinery and gas oils used for heating.

Excises on fossil fuel products constitute a major source of Government revenue, corresponding to some 6 per cent of GDP in 2013. Among these, the excises on petrol and diesel for motor vehicles are earmarked for the construction and maintenance of national roads.

Petrol prices

There are no refineries in Montenegro; all oil products have to be imported. Domestic retail prices of hydrocarbons are subject to regulation, based on the Regulation on method of establishing maximum retail prices of oil derivatives (OG 52/02, 55/02, 23/03, 32/05, 73/08). The Ministry of Economy establishes maximum prices that oil companies are obliged to observe every two weeks. These maximum prices are based on a cost-plus methodology.

Prices are regularly adjusted to account for: changes in world market prices (Platts European marketscan); the exchange rate of the € against the US$; fees and taxes; distribution, handling and storage costs; and operating margins. The downstream petrol market is liberalized, however, in the sense that companies are free to offer petrol at prices below the established maximum.

[4] The EU system of minimum rates of taxation is applied to motor fuel, motor fuel for industrial and commercial use, heating fuel and electricity. The rationale is to improve the functioning of the internal market but also to encourage a more efficient use of energy.

Table 3.8: Excise duty rates on mineral oils, their derivatives and substitutes, €

Product	Unit	€ per unit			EU minimum excise rate € per unit
		2009	2010	2014	
Leaded petrol	1,000 litres	364.0	464.0	464.0	421
Unleaded petrol	1,000 litres	359.0	459.0	459.0	359
Kerosene used as					
motor fuel	1,000 litres	120.0	156.0	330.0	330
heating fuel	1,000 litres	69.0	89.7	89.7	0
Gas oil used as					
motor fuel	1,000 litres	270.0	370.0	350.0	330
motor fuel for industrial and commercial purposes	1,000 litres	130.0	169.0	169.0	21
heating fuel	1,000 litres	90.0	117.0	117.0	21
Fuel oil	1,000 kg	15.0	19.5	19.5	15
Liquid petroleum used as:					
motor fuel	1,000 kg	95.0	123.5	123.5	125
motor fuel for industrial and commercial purposes	1,000 kg	58.5	58.5	58.5	41
heating fuel	1,000 kg	20.0	26.0	26.0	0

Source: Ministry of Finance. European Commission, Excise duty tables, Part II Energy products and electricity. July 2013 (http://ee.europa.eu/taxation_customs/index_en.html).

But as a result, there has been for regular convergence of prices at the established maximum value. Fuel quality standards have improved in Montenegro (chapter 2).

Charges for use of road motor vehicles

Road motor vehicles are subject to various levies which are, however, only indirectly related to effective road user charges. Most of these charges are based on the Law on Roads (OG 42/04, 54/09, 36/11), with the amount of charges being determined by special regulations. These include, notably, an annual registration tax with different tax bases depending on the type of vehicle. For passenger cars and motorcycles, the tax base is the engine capacity; for buses it is the number of seats. Cargo vehicles are taxed depending on the load capacity.

Payment of the annual registration fee is combined with payment of a special fee for road motor vehicles and their trailers (Decision on determination of special fee for road motor vehicles and their trailers (OG 60/05)) that is raised for the purpose of ensuring safe traffic movement and for providing traffic information services to road users. The annual fee for passenger cars amounts to €4.30; there are also fees for buses (€5.50) and motorcycles (€1.30). The corresponding revenues flow to the state budget. Based on the Decision on fee for foreign road vehicles in favour of roads (OG 36/05), this fee is collected at the time of border crossing by cargo vehicles. There are exemptions for neighbouring countries based on bilateral agreements. The tax base is the gross ton-kilometre. This is defined as the movement over a distance of one kilometre of one ton of vehicle and contents excluding the weight of the tractive vehicle. The fee per gross ton-kilometre is €0.006.

The only road toll in Montenegro is levied for using the Sozina tunnel, which is located between Lake Skadar and the Bar coastal area; it is based on the 2008 Decision on amount of fee – toll for usage of Sozina tunnel and access roads (OG 48/08). The toll depends on the vehicle type, dimensions and load capacity. The fee ranges from €2.50 for passenger cars to €18 for cargo vehicles with more than four axles. A so-called eco-tax on use of roads by domestic and foreign motor vehicles was introduced by the Government in 2009, but it was short lived and abolished as from 2012 (Box 3.1).

Besides these levies, there is a separate tax on the use of motor vehicles, which is based on the Law on Tax on Use of Passenger Motor Vehicles, Vessels, Airplanes and Aircraft (OG 28/04, 37/04; 86/09). As is the case for the registration tax, the tax base for passenger cars and motorcycles is the engine capacity (cm^3). As regards passenger motor vehicles, the tax ranges from €25 (vehicles up to 1,300 cm^3) to €1,500 (over 5,000 cm^3).

For motorcycles, the tax ranges from €10 (up to 125 cm^3) to €300 (more than 1,100 cm^3). The tax rates were raised significantly in 2009 compared with those prevailing in 2007. The tax is reduced by 5 per cent for each full aging year of the vehicle, up to a maximum reduction of 50 per cent (earlier, 70 per cent) of the established total amount.

Box 3.1: Montenegro's eco-tax on road motor vehicles

In 2008, the Government introduced a so-called eco-tax to be paid by natural and legal persons for road motor vehicles that use the national roads. The modalities for the tax were established in the Regulation on the amount of fees, method of calculation and payment of compensation for environmental pollution. But the eco-tax was abolished with effect on 1 January 2012. Revenues collected from the tax were earmarked for the financing of projects related to environmental and nature protection, but also for promoting balanced regional development and social support for people with special needs.

The eco-tax was based on a recommendation from the World Tourism Council, and the major rationale was to collect revenues that helped to compensate for the adverse environmental impacts of tourism associated with the use of road motor vehicles as well as the environmental impacts of heavy trucks. The level of the tax depended on the specific vehicle category. The tax was paid by domestic residents at the time of payment of the annual car registration tax. Non-residents paid the tax at the time of border crossing, i.e. when entering Montenegro. Evidence for payment of the tax was provided by a special car sticker ("vignette"). As from February 2010, foreigners could also pay a daily, weekly or monthly tax (as an alternative to an annual tax). This was designed to ensure that the fee was proportional to the length of use of infrastructure. The level of the tax depended on vehicle characteristics (number of passenger seats and vehicle mass). It ranged from €10 to €150.

During 2008 alone, the eco-tax generated over €6.5 million in revenue, of which €5 million came from foreigners. Revenues collected from 1 January 2009 to 31 October 2009 amounted to €7.48 million, of which €2.28 million came from citizens of Montenegro and €5.2 million from foreigners. But the eco-tax was abolished as from the beginning of 2012, reflecting concerns that it was not in line with the Stabilization and Association Agreement between Montenegro and the EU, nor with the EU Directive on road infrastructure charging for heavy goods vehicles. The EU Directive allows EU Member States to set tolls at levels required to maintain and replace infrastructure. It is, however, not designed to recover other costs such as the external costs of environmental pollution.

The abolishment of the eco-tax had significant implications for the financing of environmental protection projects in Montenegro. This pertains, notably, to the financing of sustainable tourism projects, given that the eco-tax revenues provided for up to 30 per cent of total government spending on tourism. The Government plans to institute new eco-taxation on tourism activities as of 2014, in line with the Stabilization and Association Agreement.

Annual revenues were within a range of €7.5 million to €8 million during 2010–2013 and were fully allocated to the state budget.

Green public procurement

Public procurement is a major economic factor in Montenegro. The total value of awarded public contracts corresponded to some 12 per cent of GDP in 2012. Basic principles and general objectives for this area are contained in the Strategy of the Public Procurement System in Montenegro for 2011–2015 and the Action Plan for its implementation. The public procurement system is managed by the Public Procurement Authority (PPA) and monitored by the Commission for Control of Public Procurement Procedure.

The 2011 Law on Public Procurement (OG 42/11) provides for the possibility to include environmentally related subcriteria and energy efficiency requirements in public tenders. The law stipulates that the criteria and subcriteria must not be discriminatory and must be related to the content of the subject of public procurement. However, there is as yet little experience in Montenegro concerning green procurement, pointing to the need for more training in the area.

From an institutional perspective, the implementation of procurement policy would be done in collaboration with other line ministries such as the Ministry of Sustainable Development and Tourism (green procurement), Ministry of Economy (energy efficiency and renewable energy) and Ministry of Transport (fuel efficiency of motor vehicles).

Green economy initiatives

Montenegro plans to integrate green economy considerations into its National Strategy for Sustainable Development (NSSD), which is currently under revision. The key priority sectors identified by the Government in *Development Directions of Montenegro for the period 2013–2016* are agriculture, tourism, energy, industry and rural development. A key constraint for the promotion of green economy initiatives is the need to develop a stronger domestic base for science and innovative activities.

A quantitative assessment of the impacts of green economy investment on the energy efficiency of buildings, transport and tourism was carried out with the support of UNEP and UNDP in 2012. Two scenarios simulate the impact of additional investments and interventions designed to increase energy efficiency in transport and buildings (for the

latter, the emphasis was on electricity consumption) as well as (greater) reliance on domestic supply chains in the tourism sector.

Total investments in the so-called GE12 scenario (12 per cent energy efficiency improvement by 2020) amount to €66 million over the period 2012–2020. In the more ambitious GE20 scenario (20 per cent energy efficiency improvement by 2020) total investments would amount to €140 million. Both scenarios show that cumulative avoided energy costs can significantly exceed total investments made over a period of eight years.

The upshot is that green economy investments lead to substantial reductions in energy consumption and emissions compared to "business as usual", which is basically tantamount to an extrapolation of past trends. Higher energy efficiency will, however, go along with higher energy prices compared with business as usual, which points to the importance of incentives and other supplementary support measures for low-income groups.

3.2 Domestic expenditures on environmental protection

Environmental protection expenditures in Montenegro have been financed from the state budget, municipal budgets and international sources (loans and grants). An environmental fund, which is mentioned in the 2008 Law on Environment as an additional source of financing, has not yet been established. There are apparently a number of unresolved issues concerning the responsibilities, organizational structure and funding methods of such an environmental fund.

The Law on Environment provides for the possibility of financing environmental protection measures from private sources through concession systems, public–private partnerships and other instruments based on separate regulations. This option has been partly used as regards concessions for use of natural resources, such as water and forests, where revenue collected is earmarked for financing of environmental expenditures, notably infrastructure investments. There is no published information on environmental protection expenditures in industry and other sectors of the economy.

State budget funds

State (i.e. central government) budget funds allocated to environmental protection have remained relatively modest. A large part of these funds were used to finance current and capital expenditures of government environmental institutions, such as the subprogramme "Environment and Communal Development" of the Ministry of Sustainable Development and Tourism and the EPA. The Government has also provided funds for the co-financing of projects financed by foreign loans and grants. The significant fiscal consolidation started by the Government in 2010 has focused mainly on reducing public expenditures and thereby the budget deficit, which increased in the wake of the international financial crisis. This also led to restraint in operations and maintenance costs and the budget for investments in the environmental domain.

A breakdown of state budget expenditures by functions of government, based on the international classification of functions of government (COFOG), shows that environmental protection accounted for some 0.3 per cent of the total state budget, corresponding to 0.16 per cent of GDP, in 2013. Expenditures peaked in 2009, followed by a downward trend between 2010 and 2013 (table 3.9, panel A).

Table 3.9: Central government environmental expenditures, 2008–2014, € million

	2008	2009	2010	2011	2012	2013	2014
PANEL A: COFOG							
Current expenditures (€ million)	4.2	6.5	7.0	8.3	5.9	4.5	4.3
Capital expenditures (€ million)	1.5	3.5	2.4	0.7	0.3	0.8	3.5
Total (€ million)	5.7	10.0	9.3	9.0	6.2	5.3	7.8
Total as per cent of total state budget	0.4	0.7	0.6	0.6	0.4	0.3	0.5
Total as per cent of GDP	0.2	0.3	0.3	0.3	0.2	0.2	0.2
PANEL B: "POLICY AREA Environment"							
Total expenditures (€ million)	14.0	32.9	10.2	9.0	..	..	..
Per cent of total budget	1.0	2.2	0.7	0.6	..	..	..
Per cent of GDP	0.5	1.1	0.3	0.3	..	..	..

Source: Panel A: Ministry of Finance, direct communication; Panel B: Ministry of Finance, *Development Directions of Montenegro for the period 2013–2016*, March 2013.
Notes: State budget expenditures: budget figures for 2014 are planned expenditures. GDP for 2014 is forecast.

It should be recalled that only expenditures on water supply are not included in total environmental expenditures within the COFOG framework. But expenditures on wastewater infrastructure are included.

A recent study prepared by the Ministry of Finance presents expenditure of budgetary funds for 18 key policy areas that are seen to shape the development directions of Montenegro. Among these is the policy area "Environment (including sustainable development)". The methodology used is similar to the COFOG approach, but details have not been published. Overall expenditure for environmental protection during 2007–2011 follows the trend of expenditures based on COFOG (table 3.9, panel B). But the levels of expenditures for 2008 and 2009 are much higher. They peaked at 2.2 per cent of the state budget in 2009 (or 1.1. per cent of GDP) and declined to 0.6 per cent (or 0.3 per cent of GDP) in 2011.

Municipal budget funds

Local self-governments are responsible for the organization of utility services, notably, water supply and wastewater services as well as municipal waste management.

This also includes the responsibility for the creation and maintenance of an adequate infrastructure for the provision of these utility services. Municipal investment projects on improving the water supply and wastewater infrastructure have been taking place within the framework of long-term plans from 2005, viz.:

- Master Plan of Water Supply for Montenegrin Coastal Region;
- Master Plan for Removal and Treatment of Wastewater of Montenegrin Coast and Municipality of Cetinje;
- Strategic Master Plan for Sewage and Wastewater in Central and Northern Region of Montenegro.

To reach applicable standards and to comply with EU Directives, it is estimated that total investments in the water supply and sewerage sector will amount to some €830 million over a period of 25 years, of which €560 million will be for wastewater infrastructure.

The financing of these projects relies predominantly on access to foreign loans and grants. Projects implemented from 2006 to 2012 had a total project value of €26.5 million, of which some €19.5 million were financed by foreign loans and grants supplemented by funds from municipal budgets and the state budget (table 3.10).

Another major priority is the rehabilitation of the waste management infrastructure. The 2005 Strategic Master Plan for Solid Waste Management for the period 2005–2012 estimated that €72 million would be needed for construction of eight regional landfills; another €4 million is required for remediation and closure of dumpsites. The implementation of the 2008 National Waste Management Plan for the period 2008–2012 has only made slow progress (chapter 8).

Furthermore, the number of regional landfills that is actually required is still uncertain (chapter 8). The first phase of the construction of a regional landfill based on the cooperation of the municipalities of Bar and Ulcinje was completed in 2012, financed fully by a loan from the World Bank. Total implemented projects in the waste sector during 2006–2012 had a total value of €13 million, which was fully financed from foreign funds (table 3.10). An annual investment survey conducted by the Statistical Office shows much higher investment expenditures, which amounted to about €154 million during 2007–2012 (table 3.11). The reasons for this discrepancy are not clear.

Municipalities finance their activities from a range of local taxes and revenue-sharing arrangements for some national taxes. A mechanism for transferring funds from economically stronger municipalities to poorer municipalities – the so-called Equalization Fund – is in place. The Law on Environment stipulates that local self-governments may raise a special levy for financing environmental protection.

There is a corresponding reference in the Law on Local Self-Government Financing, but no existing secondary legislation specifies the modalities for the introduction of such a fee. An attempt by the municipality of Pljevlja to introduce such a fee was struck down by the Constitutional Court. The Law on Improvement of Business Environment (OG 40/10), moreover, has made the introduction of such a fee subject to approval by central government.

During the economic boom years (2007–2009), many municipalities witnessed a construction boom associated with a surge in FDI in the tourism sector (hotels) and a surge in private housing investment.

Table 3.10: Expenditures on municipal infrastructure projects, € million

Area / Municipality	Period	PV	Financing sources			
			Donor	Amount	Loans L / Grants G	Domestic
		€ million		€ million		€ million
I. Water supply and wastewater						
Bar	2006-2009	4.8	KfW	4.3	L	MB 0.5
Budva	2006	0.1	KfW	0.1	L	
Hercq Novi	2006-2009	3.0	KfW	3.0	L	
Kotor	2008-2009	1.3	KfW	1.3	L	
Tivat	2007-2009	7.3	KfW	3.9	L/G	MB 3.4
Tivat	2009-2011	6.5	KfW	3.5	L	MB 3.0
Niksic	2009-2012	3.5	IPA	3.5	G	
Total WSS		***26.5***		***19.6***		***6.9***
II. Waste management						
Regional landfill of Bar/Ulcinj (Phase I)	2009-2012	8.2	WB	8.2	L	
Procurement of vehicles for PUC in northern region of Montenegro	2009	4.8	IPA	4.8	G	
Total waste sector		***13.0***		***13.0***		
Grand total		**39.5**		**32.6**		**6.9**

Source: PROCON/Ministry of Sustainable Development and Tourism.
Notes: Implemented projects only. PV = project value; L = loan; G = grant; MB = municipal budget; WSS = water supply and sanitation.

Table 3.11: Expenditures in the water supply and sewerage, and waste sectors, 2007-2012, € million

	2007	2008	2009	2010	2011	2012	Total
€ million	7.7	32.7	47.4	42.9	12.5	10.7	153.9

Source: Statistical Yearbook of Montenegro.
Note: Annual investment survey conducted by the Statistical Office. Financing sources comprise own funds of public utility companies, transfers from municipal and state budgets, and loans and grants.

This, in turn, spurred the municipalities' current revenues due to sales of municipal residential land and fees for construction works undertaken to connect the new buildings to the municipal utility infrastructure. Against this background, many municipalities engaged in large infrastructure projects that were expected to be financed, at least partly, by high and rising current revenues. The fading of the boom and the associated weakening of local self-government revenue, however, has created fiscal problems, which has resulted in an accumulation of considerable arrears. In 2011, total expenditures of all municipalities amounted to €156 million, of which €21 million (13.5 per cent) was allocated to repayment of arrears. Total municipal expenditures corresponded to 4.9 per cent of GDP in 2011. State budget expenditure was €1.254 billion, or 39.5 per cent of GDP. As a result, municipalities and their public utility companies had to substantially cut back their capital expenditures on water sector and waste sector infrastructure after 2010 (table 3.11).

Although municipalities can take on loans to finance infrastructure investments, this is subject to approval by central government. The Law on Local Self-Government Financing has, moreover, established a debt threshold in order to ensure the financial sustainability of municipalities. The total payments associated with municipal debt (annual payments of principal and interest) should not exceed 10 per cent of the realized current revenues in the year preceding the borrowing. It appears that most municipalities have reached their debt ceiling during recent years, which narrowly circumscribes their scope for further loan financing of municipal infrastructure investments.

Apart from the recent shortage of their own financial resources, municipalities have only quite limited capacities for managing the budgeting cycle for infrastructure projects, notably as regards budget preparation, planning and implementation, and financial reporting.

Table 3.12: Revenues and expenditures of the Public Enterprise "National Parks of Montenegro", 2011-2012, € thousand

	2011			2012		
Spending/Funding unit	**Revenues**	**Expenditures**	**Balance**	**Revenues**	**Expenditures**	**Balance**
Durmitor NP	400.5	403.6	-3.1	472.3	374.8	97.5
Skadar Lake NP	527.3	605.1	-77.8	591.1	468.2	122.9
Biogradska Gora NP	99.9	241.8	-141.9	122.1	193.2	-71.0
Lovcen NP	105.3	191.5	-86.2	105.8	181.7	-76.0
Prokletije NP	0.0	0.0	0.0		18.5	-18.5
Total above	1,133.0	1,441.9	-308.9	1,291.3	1,236.4	54.9
State budget funds	900.0		900.0	550.0		550.0
PENP support services		588.2	-588.2		603.9	-603.9
Total budget	**2,033.0**	**2,030.1**	**2.9**	**1,841.3**	**1,840.3**	**1.0**

Source: Public Enterprise "National Parks of Montenegro", direct communication, 2014.
Note: National Park Prokletije became operational only in 2012.

Financing of national parks

The PENP is responsible for the protection and management of the five national parks. The management of national parks is funded from own revenues – collected by the PENP – grants and transfers from the state budget. In 2012, the total budget of the PENP was some €1.8 million, of which some 64.5 per cent was accounted for by own revenues, and the remainder by state budget transfers (30 per cent) and foreign grants (5.5 per cent). The financial support from the state budget was reduced substantially in 2012 compared with the preceding year, when it accounted for some 44 per cent of the total PENP budget. In fact, adding grants to this, only about half of the PENP budget for 2011 was financed from own revenues (table 3.12). It appears that total revenues are barely sufficient to finance operating costs and basic maintenance works. In fact, there is significant public underinvestment in the national parks. It has been estimated that the budget required for effective management of the protected areas is more than twice the budget of €2 million for 2012. Own revenues could possibly be raised significantly by pricing services provided in national parks closer to their real economic value.

Foreign financial support

Investments in water sector and waste sector infrastructure were neglected over a long period in the past. This led to decay and the technological obsolescence of equipment and installations. Rising investments in recent years have led to improved water and waste services in some parts of the country. Financing of these investments has relied strongly on access to foreign loans and grants. Foreign funds have also been instrumental to overcoming resource shortages in other areas, such as nature protection.

Montenegro has been benefiting from EU financial assistance under the Instrument for Pre-accession Assistance (IPA). The total IPA allocation for 2007–2013 amounted to €235.7 million. The IPA addresses a wide range of issues, including environment and climate change. Montenegro has also obtained financial support within the Western Balkan Investment Framework. Other important actors in the environmental field have been the EBRD, EIB, World Bank, Global Environment Facility (GEF) and, on a bilateral basis, Kreditanstalt für Wiederaufbau (KfW).

PROCON (chapter 1) is in charge of preparing and coordinating communal infrastructure projects (management of waste, water supply and wastewater) that are supported by foreign loans and grants. PROCON also maintains, in cooperation with the Ministry of Sustainable Development and Tourism, a register of such municipal investment projects.

3.3 Conclusions and recommendations

There has been increasing use of economic instruments for promoting environment protection and ensuring a more rational use of natural resources in Montenegro in recent years. Pollution taxes that were already legally prescribed long before the second EPR was carried out have finally been implemented, since 2008. This was associated with a doubling of tax rates for most pollution taxes compared with the rates that should have applied before. There has been, moreover, a reform of the methodology for calculating charges for water pollutants, but it is not yet applicable given the overall lack of WWTPs and tools for measuring the pollution content of effluents. In other respects, however, the situation has not changed very much since 2007. Levying pollution charges is, moreover, not automatically tantamount to the effective

application of the polluter pays principle. In Montenegro, there is no evidence that pollution charges create significant, if any, incentives for polluters to change their behaviour towards the environment. Furthermore, pollution charges are not applied in combination with stringent regulatory instruments to raise the overall incentives for a targeted level of pollution abatement. In addition, the amount of revenues collected are available to the EPA only upon special request, which can make it difficult to gauge the incentive effects of pollution charges at the level of individual polluters. In the event, the main effect of pollution charges has been to generate government revenue.

Recommendation 3.1:
The Ministry of Sustainable Development and Tourism, in cooperation with the Ministry of Economy and the Ministry of Finance should:

- *(a) Conduct a review of the existing system of pollution charges, keeping in mind medium-term strategies, ensuring an adequate gradual increase of such charges;*
- *(b) Create stronger incentives for enterprises to adopt pollution abatement measures;*
- *(c) Take into account the complementary roles of pollution charges and stringent regulation of pollution sources in achieving an effective environmental policy mix;*
- *(d) Ensure a regular and automatic flow of information from the State Treasury to the Environmental Protection Agency about pollution charges collection;*
- *(e) Ensure an effective collection of pollution charges by the State Treasury;*
- *(f) Make information on aggregate revenues from pollution charges publicly available.*

The tariff system for municipal utility services (water supply and wastewater, and waste collection and disposal) is characterized by private households paying much less than enterprises and other legal entities do for similar services provided by the public utility companies. There is thus an indiscriminate cross-subsidization of households, which benefits, notably, the better-off households which tend to generate more waste and consume more water than do low-income households.

Tariff levels are, moreover, insufficient to ensure a stream of revenues that ensures the viability of utility companies because they cover, in general, only operating and basic maintenance costs. This problem has been accentuated by often low bill collection rates from households. In the event, utility companies have to rely on (state and municipal budget) support for financing much-needed investments for rehabilitation, modernization and extension of the waste and water sector infrastructure. Given that municipalities are the owners of the utility companies, they should have a strong interest in setting adequate tariffs to improve the financial viability of their companies.

Recommendation 3.2:
The Ministry of Sustainable Development and Tourism, in cooperation with the Ministry of Economy and local self-governments, should design mechanisms that aim at:

- *(a) Phasing out the current tariff policy for utility services and introducing effective measures to ensure the affordability of higher tariffs for low-income households, if needed, by involving independent regulatory agencies (e.g., the Energy Regulatory Agency);*
- *(b) Ensuring the financial viability of utility companies and internalizing externalities by gradually raising tariffs to levels that allow for full cost recovery and reflect the real supply costs of services provided to the main customer groups;*
- *(c) Regionalizing communal utility services to exploit the scope for public-private partnerships in the provision of these services;*
- *(d) Increasing bill collection rates, notably from households;*
- *(e) Introducing in the waste sector (in the more advanced regions) more innovative tariffs (such as per capita-based or weight-based tariffs).*

Limited capital investments and inadequate maintenance have led to significant deterioration of the environmental infrastructure in Montenegro. Given the pent-up investment needs and increasing requirements for upgrading the environmental infrastructure that are associated with the EU accession process, it is clear that financing of the resources required will have to be based on a mix of instruments which – besides a gradual shift to tariffs that ensure cost recovery (see above) – include, notably, foreign financing sources, commercial bank lending and public sector funds.

Government and municipal budgets have been adversely affected in recent years by the effects on Montenegro of the global financial crisis in 2008/2009, which led to a sizeable reduction in government revenues and an associated need for more restrictive expenditure policies. This has also adversely affected financing of environmental

projects, including municipal infrastructure projects, given the emerging financing gaps due to the inability of the Government and municipalities to cofinance these projects. In a more general way, the current situation recalls the need (also in good economic times) for a medium-term expenditure framework based on clear and transparent criteria for allocation of scarce government financial resources.

Recommendation 3.3:
The Government and the local self-government authorities should:

(a) Integrate medium-term environmental investment plans with the annual and multi-annual budget processes and allocate the necessary funds for prioritized, results-oriented programmes, taking into account the results of a cost-benefit analysis;

(b) Strengthen the capacities at the municipal level for managing the budget cycle of projects, such as budget preparation, planning and implementation, and financial reporting;

(c) Consider the possibility of entrusting a governmental institution to act as an environmental investment centre able to implement medium-term environmental investment plans.

Chapter 4

ENVIRONMENTAL MONITORING, INFORMATION AND EDUCATION

4.1 Environmental monitoring

Air quality

The territory of Montenegro was divided in 2010 into three zones for monitoring the level of air quality: maintenance zone, north critical zone and south critical zone. These zones were determined through a preliminary assessment of data available from the past on the concentration of air pollutants and their modelling. The zones coincide with the administrative borders of municipalities within them (map 4.1). For each zone, air pollutants were defined and measuring points were determined for continuous monitoring of air quality with stationary automatic stations (table 4.1).

The network of stationary automatic monitoring stations was developed gradually over a few years with the support of international organizations and donors, except for the station located in Zabljak. The oldest station of the network is that located in Podgorica, which dates from 2006. The stations in Bar, Nikšić and Pljevlja were installed in 2009, and those in Tivat, Golubovci and Gradina were installed in 2012. The Golubovci and Gardina stations were donated to the country by the International Atomic Energy Agency (IAEA). The current network replaced the air monitoring network based on semi-automated stations. In addition, there is a station located in Zabljak for measuring transboundary air pollution in accordance with the requirements of the Convention on the Long-range Transboundary Air Pollution and its European Monitoring and Evaluation Programme (EMEP). Unfortunately, to date, the station has not been equipped with the necessary analysers to meet the EMEP's requirements.

The network, operational since 2012, was designed with the purpose of meeting the requirements of the national legislation. A review of the network is expected to be carried out in 2016 – four years after it was put into full operation – to assess its effectiveness and, if necessary, to introduce corrective measures.

Table 4.1: Monitoring points and air pollutants measured, 2012

Zone	monitoring point	Pollutants measured to protect	
		human health	ecosystems
Maintenance zone MN0003	Tivat MNE_03_02	NO_2, PM_{10}, $PM_{2.5}$	
	Zabljak MNE_03_01	SO_2, NOx	
North critical zone MN0001	Pljevlja MNE_01_01	SO_2, NO_2, PM_{10}, $PM_{2.5}$, cadmium, arsenic, nickel, benzo(a)pyrene	
	Gradina MNE_01_02	O_3	NOx, SO_2, volatile organic compounds
South critical zone MN0002	Bar MNE_02_03	NO_2, SO_2, PM_{10}, $PM_{2,5}$, cadmium, arsenic, nickel, benzo(a)pyrene, O_3, CO, benzene	
	Golubovci MNE_02_04	O_3	NO_x, SO_2, volatile organic compounds
	Nikšić MNE_02_02	NO_2, SO_2, PM_{10}, $PM_{2.5}$, cadmium, arsenic, nickel, benzo(a)pyrene, O_3, CO, benzene	
	Podgorica MNE_02_01	NO_2, PM_{10}, CO, benzene, benzo(a)pyrene, lead	

Source: Environmental Protection Agency, 2014.

Photo 4.1: Durmitor, Black Lake

Map 4.1: Air quality monitoring

Source: Environmental Protection Agency, 2014.
Notes: The boundaries and names shown on this map do not imply official endorsement or acceptance by the United Nations.
MNE_XX_YY: XX corresponds to zone and YY to number of the station.

Since early 2014, data collected through the network are made available in real time on the website of the EPA, which can be considered an important development.

At the same time, in parallel with the network of stationary automatic monitoring stations, air quality is monitored through a network of 18 hydrometeorological stations located in 17 towns, which measure SO_2 and smoke concentrations.

However, in accordance with domestic and EU legislation, results from these stations can be used only as indicative measurement, that is as supplementary data.

The establishment of the air quality monitoring network based on stationary automatic monitoring stations is a step forward as compared with the previous situation.

Water

Water quality monitoring is performed on surface waters and groundwaters. The measuring network includes 36 sampling locations on rivers. Depending on the particular river, there are from one (e.g. Vežišnica) to six (e.g. Morača, Lim) sampling locations. Furthermore, there are 11 sampling locations at the three main lakes: Crno (1), Plasvsko (1) and Skadar (9). The sampling frequency for rivers and lakes is from four to eight sampling sessions per year. The quality of groundwater is measured at eight locations with a sampling frequency of four times per year. The measuring network for coastal seawater includes 16 sampling locations with a frequency of eight sampling sessions per year.

Quality is measured on 38 parameters including 31 physicochemical, five microbiological and two saprobiological parameters. Of these, four new physicochemical parameters (total nitrogen, orto-phosphorus, total organic carbon and chlorophyll-A) have been added, with measurement to start from 2014.

Water quantity monitoring is also performed on rivers and lakes. There are 44 monitoring stations at the various rivers and streams which measure the water flow and level and, at some stations, water temperature. Water level is also measured on five lakes: Biogradsko (1), Crno (2), Plavsko (1), Skadar (2) and Sasko (1).

Regarding drinking water monitoring, tests are being performed on microbiological, biological, physical, chemical and physicochemical parameters to ensure safe drinking water. Basic tests are performed on a daily basis and periodic reviews are also undertaken.

With regard to the monitoring of the ecosystems of coastal seawater, there is a comprehensive programme, managed independently, for the monitoring of: (i) the quality of coastal, transitional and marine waters; (ii) eutrophication; (iii) biological and ecological indicators (the determination of bio-indicators, biomarkers and biological effects of pollution); (iv) water quality in aquaculture; (v) hotspots; (vi) tributaries; and (vii) effluents.

The monitoring plan for (i) to (iv) forecasts monthly sampling; for (v), half-yearly sampling; and for (vi) to (vii), yearly sampling. The sampling locations are determined with exact GPS coordinates, and there are usually several locations for each type of monitoring.

The monitoring of coastal seawater in accordance with the comprehensive programme was not performed in 2013 for administrative reasons.

In addition, there is monitoring in place for bathing seawater. To date, this has been conducted independently of the formal monitoring of environmental media. The monitoring results are essential for attracting tourists to the Montenegrin seaside; hence, institutions managing Montenegrin beaches have an interest in information on the quality of bathing seawater being available.

The water monitoring system has not been through a development process as has the air quality monitoring system, and does not seem to deliver equally good results. In addition, as with air quality monitoring, there are two parallel coastal seawater monitoring networks in place, and it is not clear whether these networks are complementary to each other and, if they are not, what the benefits and costs of maintaining both of them are.

Soil

There are two types of soil monitoring: the monitoring of soil contamination by hazardous substances and the monitoring of soil quality.

With regard to soil contamination monitoring, a programme is in place to monitor agricultural land near traffic lines, landfills and industrial facilities. In 2009, it covered 15 of the country's 22 municipalities with 87 samples being taken at 52 locations. However, due to a reduction in the budget, in 2010, monitoring was conducted in only 9 municipalities at 28 locations, and between 2011 and 2013, in 10 municipalities at 36 locations. At the majority of

locations there is one sampling session annually, though in the period 2009–2011, at several locations there were two sampling sessions.

The municipalities of Nikšić, Pljevlja and Podgorica have the highest number of sampling locations.

The soil is examined for the following hazardous inorganic substances: cadmium, lead, arsenic, nickel, copper, cobalt, chrome, fluorine, zinc, boron, molybdenum; and for the following organic substances: polycyclic aromatic hydrocarbons, polychlorinated biphenyls and terphenyls, organotin compounds and pesticides.

To date, soil contamination monitoring covers only local soil contamination. No diffuse soil contamination monitoring is conducted. It is not clear, however, what the country's approach to local soil contamination is, whether an inventory of contaminated sites has been developed, and what should be the approach to manage such an inventory (i.e. a hazard-based versus a risk-based approach).

Noise and vibration

A monitoring programme for noise foresees that noise levels will be checked in the main towns near schools and hospitals and along the main roads. At the same time, the decision on establishment of the acoustic zones for monitoring purposes is to be implemented at the community level by the relevant territories, which is still a work in progress.

The monitoring of a given location is to include four annual sampling sessions, each session lasting seven consecutive days. It is to be conducted with mobile devices, which have beeen available for use since 2011.

Since vibration monitoring has no legal basis, vibration is not monitored.

Radioactivity

A routine monitoring programme is in place to measure the gamma dose rate in air as well as radionuclides in air, solid and liquid precipitation, rivers, lakes, sea, soil, construction materials, drinking water, food and animal feed. Furthermore, radon concentration levels in dwellings are measured.

As far as gamma radiation in the air is concerned, to date, Montenegro has only one gamma dose rate station, which is considered insufficient to properly monitor gamma radiation in the air throughout the territory of the country. To this end, Montenegro seeks assistance in establishing a network of five stations. If established, the network would also constitute an early warning system in the event of radiological or nuclear accident. Due to the absence of a network, gamma radiation is measured in the main cities semi-annually with thermo-luminescent dosimeters.

The measurement of radionuclides in air is conducted at one location only, with an air sampling pump. The examination of radionuclide content in solid and liquid precipitation is also done at one location only. Therefore, to have a more representative picture for the whole territory of the country it seems necessary that additional air sampling pumps and precipitation collectors be acquired and installed at different locations throughout the country.

Financial resources for implementation of the Programme of monitoring of radioactivity in Montenegro are not the same each year, but generally tend to fall. Therefore, the sampling frequency of the rivers, lakes and sea (as well as the number of samples of food, drinking water and building materials, the number of residency room in which indoor radon concentration have to be tested) often change from year to year. Nevertheless, samples planned according to the Programme of monitoring of radioactivity met certain criteria, which are necessary for properly assessment of radiological burden of the population. The country would continue strengthening the monitoring in this area and increasing the number of samplings, as well as funds necessary for its implementation enhancing the level of transposition of EU Acquis in this area into national system, especially because of the newly adopted EU Directive 2013/59/EURATOM.

Soil sampling for radionuclide content is done in spring and autumn on fallow and arable lands at six different locations (in the south, central area and the north). Montenegro has done mapping of background γ-rays using in-situ γ-spectrometry, thus a map with distribution of 40K, 238U, 232Th and 137Cs in soil is available. There are also data available from additional measurements from a site with increased background radiation in the area of the Durmitor tectonic unit (in the northeastern part of Montenegro).

Biodiversity

Montenegro changed its approach to the monitoring of biodiversity in 2010, from species- and habitats-focused monitoring to location-focused monitoring of species and habitats. The current monitoring activities are directed at establishing baseline data for

selected locations. The data are collected in line with the methodology of Natura 2000, and refer to the status and state of species and their habitats at those locations.

Since the change to the monitoring approach, 24 locations were examined in 2011, six in 2012 and five in 2013, to establish the necessary baseline information. Biodiversity monitoring is still at an initial stage of development, though it follows the internationally practised approach. The low budget for monitoring activities and dependence on funding from projects can undermine the sustainability of the monitoring programme. At the same time, it is appreciated that project funding helps to accelerate the work on establishing the baselines.

Forests

With regard to forest monitoring, a national forest inventory is in the final stage of development.

Analytical laboratories

Analytical laboratories are operated by several institutions in Montenegro which have been accredited by the Montenegrin National Accreditation Body to carry out the analysis and testing of samples as well as to use certain devices and equipment in accordance with specific methods. The accredited methods used by the laboratories cover analysis of samples of all the environmental media: air, water, sediments and soil.

At the moment, there is no laboratory for calibration of the analysers installed at the stationary air quality monitoring stations. The necessary service is purchased from abroad and takes a considerable stake of the air quality monitoring budget.

4.2 Environmental information and data reporting

Data reporting by enterprises

Enterprises operating in Montenegro are to report through surveys of waste generation and water use managed by the Statistical Office, and surveys of emissions managed by the EPA. However, these are not surveys as known under pollutant release and transfer register (PRTR) procedures. There are also numerous reporting obligations pertaining to economic data from which environmental pressures can be evaluated.

With regard to waste generation, surveys are conducted on industrial and municipal waste. Survey questionnaires are sent out on the basis of a business register, to enterprises with more than 10 employees in the production industry. Data on municipal waste generation are also collected from the enterprises which manage the landfills and those responsible for waste collection and treatment. The response rate is above 50 per cent.

Discussions are under way with municipal waste collection and treatment enterprises to separate data on municipal waste generated by households and by businesses.

With regard to water, there are regular surveys conducted on:

- Water abstraction, use and disposal by industry – sent to industrial enterprises annually;
- Water abstraction for irrigation by agriculture – sent to agricultural enterprises annually;
- Public water supply – sent to owners of the water network once every three years;
- Public sewerage system – sent to owners of the water network once every three years.

With regard to emissions, industrial enterprises operating facilities qualified as point sources for air emissions are sent questionnaires to report on the emissions.

Statistical data

Data pertaining to the environment are collected, analysed, interpreted and presented for several thematic areas, including air, agriculture, biodiversity, energy, fisheries, soil, tourism, transport, waste and water. They are collected through monitoring activities and/or annual statistical surveys.

To improve the accuracy of data, there are ongoing developments to introduce new sampling methods (e.g. for calculating waste generation by the services sector) or on validation of data (e.g. cooperation with Eurostat for validating waste generation data).

Database management

The majority of data are stored and managed in Excel sheets. Various data managers create Excel sheets into which they introduce data upon their availability. There is no automatic data flow.

In addition, for monitoring data for air, soil and water, databases have been created based on

relational database software. For the moment, these databases are populated from Excel sheets.

Technical specification and common protocols are under preparation for a system of databases for maintaining and managing all the necessary environmental data. Implementation of the system is expected to be facilitated through the IPA funding. When it is implemented, Montenegro will have a modern environmental information system, of which the integral part should be air quality or water information systems.

Environmental indicators and their use

At the beginning of 2013, Montenegro adopted a list of 55 national environmental indicators on the basis of which the following should be measured: (i) changes in the state of the environment; (ii) changes in impacts on the environment; (iii) trends in pressures on the environment; (iv) driving forces for environmental damage; and (v) effectiveness of response measures to protect the environment. The list has been elaborated following consultations with experts in different thematic areas and representatives of relevant national ministries and agencies, and with the support of the UNDP office in Montenegro.

Of the adopted indicators, 28 are from the European Environment Agency's core set of environmental indicators. The full set refers to 12 thematic areas as specified under the section on statistical data, including the separate areas of climate change and marine ecosystem.

To date, enough data are available to calculate 36 of the adopted indicators; for 29 of these, data are available to assess trends (comparison with 1990, 2000, 2005 and 2009 data). For the remaining indicators, no data are available yet to enable the calculation of trends.

The selected set of indicators is reasonable to serve as a basis to understand the changes under way in the environment, including environmental pressures exercised by the main economic sectors. At the same time, it is crucial that collection of data necessary for the calculation of all the agreed and adopted indicators is ensured.

Environmental reporting, publication of environmental data, indicator-based assessment reports

Montenegro has been producing state of environment (SoE) reports annually since 2009. These reports provide an insight into the state of air, biodiversity, climate change, noise, the marine ecosystem, soil, waste and water, and the level of radioactivity. They also include brief information on environmental pressures deriving from the main economic sectors. These reports refer to data analysis, where relevant, and provide conclusions and recommendations with proposed measures to improve the existing situation, under each thematic area.

Environmental data are published through the available SoE reports – *Information on the state of environment* – in both paper and electronic formats. In addition, data on water use and waste generation are published on the website of the Statistical Office. The website of the EPA provides descriptive information on a monthly basis regarding air quality, including open access to real-time data on air quality from the monitoring stations.

Montenegro has also produced its first indicator-based SoE report, in 2013. It was adopted by the Government at the beginning of 2014. The SoE is based on the 36 indicators from the adopted list of 55 national indicators. The report for each indicator contains:

- Key question: what the indicator is measuring;
- Key message: the brief answer to the question asked with rating of the trend/change;
- Indicator definition: what kind of indicator it is in relation to the driver–pressure–state–impact–response (DPSIR) framework;
- Impact on human health and ecosystem, whether direct or indirect;
- Reference legislation: the legislative basis for the indicator;
- Indicator evaluation: the trends and changes over years (based on the data showed on graphs and tables) and the explanation for the situation;
- Source of data: where the data comes from.

Taking into account that the report based on indicator-based assessment was produced for the very first time, its structure as well as its content is fairly good, although there is inconsistency with regard to the kind of information provided under the same sections of various indicators. For example, for some indicators, the information under the key message explains the definition of the indicator first and sometimes does not give any direct answer to the question asked, whereas for others, it answers the question posed with further brief explanation on the subject matter, including on the definition of the indicator. The second approach is better oriented

toward the reader, whether they be a decision maker or a member of the public.

Furthermore, the assessed situation is currently not linked to policy development and its application in order to understand how efficient policy is. It could be further linked to SWOT[5] analysis, include comparisons of national values vis-à-vis those of comparable countries and provide clear policy recommendations.

Use of environmental information as a decision-making tool

Environmental information, in particular as contained in the SoE reports, is considered when developing new regulations, programmes, strategies and measures, especially by the Ministry of Sustainable Development and Tourism. Collected data are used to establish baseline information (e.g. for biodiversity monitoring) or to develop inventories (e.g. for managing contaminated sites). Environmental data further assist in understanding the progress achieved in the implementation of programmes, strategies and measures. Nevertheless, there is great potential to use the available data and information more extensively in the future for policymaking and policy evaluation.

4.3 Availability of and access to information

Environmental information (except for information defined by laws as restricted) is freely available in Montenegro at no charge, and can be accessed either online or, in the case of published information not available online, upon request from public authorities. In the latter case, however, the applicant is obliged to follow the legal prescription for providing a complete and legible request for information, or else the request can be rejected. The applicant has the right to choose the mode in which the information will be made available, provided that such a mode is technically feasible.

Public authorities have the obligation to prepare, publish and regularly update a guide on access to environmental information. The guide must include a catalogue of the types of information the authority holds, the procedure for access to information, contact details and the form for requesting access to information. Such a guide is available on the EPA website. That website also contains:

- Texts of treaties and EU law;
- Regulations relating to the environment;
- Plans and programmes relating to the environment;
- Reports on the state of the environment;
- Data acquired through monitoring of the environment;
- EIA and risk assessments relating to sectors of the environment.

With regard to the accessibility of data acquired through monitoring activities, the EPA website has to be further populated with information. At the moment, only information on air quality is regularly updated (i.e. monthly) on the website and there is a link to real-time air quality data. The accessibility of data for other environmental media and themes is only provided through reports such as the annual descriptive reports or the indicator-based SoE report. Hence, the accessibility of data can still be considered as being not entirely satisfactory.

Public access to environmental information is further facilitated by the Aarhus centres, of which there are three in Montenegro:

- Podgorica (an organizational unit of the EPA), which opened on 15 April 2011;
- Nikšić (part of the NGO Ozone), which opened on 11 November 2011;
- Berane (an organizational unit of the EPA), which opened on 21 September 2012.

The centres promote the right of access to environmental information; raise awareness and knowledge on environmental protection; encourage public participation in planning and decision-making in the environmental field; organize public hearings, round tables and panel discussions on topics in the field of environmental protection; and organize training and seminars, and media campaigns on environmental issues. They also provide free legal advice for citizens and NGOs on environmental matters.

Despite the efforts taken by the public authorities and Aarhus centres to provide the public with environmental information, there is little interest from the public regarding the environment (chapter 1) and thus the need to access environmental information. The authorities are thus making efforts to improve public awareness and interest in the environment. Such efforts relate to formal and informal education, the involvement of media and the launching of various campaigns.

[5] SWOT = strengths, weaknesses, opportunities and threats

4.4 Education

Education is seen in Montenegro as an evident fact and a premise for economic growth as well as for social, environmental, cultural and ethical progress. In this context, the educational system is going through systematic changes.

A reform is currently being implemented that changes the approach to forming curricula. Montenegro is moving away from content-oriented curricula to goal-oriented planning of curriculum content. An important point is that environmental awareness and sustainability concepts find their place among the goals to be achieved through teaching.

Preschool

One of the main goals of preschool education is the creation of ecological consciousness in upcoming generations. This should be realized through adequate and appropriate play. Unfortunately, the training of teachers to implement this goal effectively has not been yet achieved, for which further efforts are needed.

Primary schools

The primary schools aim to help pupils acquire basic knowledge related to laws on the development of nature and society, as well as to encourage healthy lifestyles and a responsible attitude towards the environment.

These goals are to be achieved through teaching subjects such as 'Nature and society' in grades 1-3, 'Nature and technology' in grade 4, 'Nature' in grades 5-6 and 'Biology with ecology' in grade 7 but also through compulsory elective subjects, such as e.g. 'Healthy lifestyles'. However the elective subjects depend on what the schools and local communities can offer taking into account the knowledge and qualifications available.

It is important also to note that the new subject curricula are open, which means that 20 per cent of their content can be shaped by the teachers and school principals in cooperation with local communities to address the issues of importance locally. This content can address, among other matters, environmental protection and sustainable development, and indeed it seems that this kind of content is increasing in the subject curricula.

Furthermore, to make it possible for pupils to get to know better the environmental and cultural diversity of Montenegro, the new curricula include outdoor activities to be organized in accordance with a plan which would allow pupils to visit different regions of the country during their primary education.

While the approach adopted in Montenegro is welcome, its success depends on the adequate preparation and training of teachers and availability of relevant teaching materials, as well as funding. However, these remain a challenge. Therefore, training programmes and teaching materials, as well as textbooks and handbooks such as those included in the "green pack junior", are needed to properly prepare teachers to implement the new curricula.

Another challenge is helping instruct teachers to apply a multidisciplinary approach to ensure the better correlation of subjects, which is necessary to teach the complex concepts of sustainable development.

Secondary schools

Among the goals to be achieved with secondary education is to develop individuals who will be responsible towards themselves, other people and the natural and social environment. This goal is to be achieved through teaching the regular as well as the elective subjects. Hence, the approach is similar to that described for primary education, as are the challenges and problems faced.

Vocational training

Students of the four-year vocational schools should also gain the knowledge required to achieve the curriculum goal related to taking responsibility for the natural and social environment. This knowledge should be developed through both the general and the specific and more profound profession-related subjects.

For students in three-year vocational education, special attention is given to practical on-the-job training. This involves a certain number of courses through which students gain the practical knowledge and skills necessary for doing certain jobs. Nevertheless, environmental protection and sustainable development is also to be included in job training.

In terms of challenges to be faced, a considerable portion of environmental and sustainable development education is to be taught through elective subjects, for which the teaching programmes are still underdeveloped. The introduction of the new curricula requires adequate preparation of teachers, including those responsible for vocational subjects.

Table 4.2: Key environmental programmes and subjects at the University of Montenegro

Study programme	Environmental subjects
Applied study on environmental protection	Principles of Environmental Protection Legal Aspects in Environmental Protection Environmental Impact Assessment Waste Management Water Management Protection of soil and air Remediation
Specialist study on environmental protection	Cleaner technologies Modeling in environmental protection Environmental monitoring Design and planning in environmental protection
Postgraduate specialized and master programme in chemical technology	Pollution and environmental degradation Technology of environmental protection Environmental protection in the process industry

Source: University of Montenegro, 2014.

Higher education

Higher education in Montenegro offers programmes related to the environment and sustainable development. At the University of Montenegro (table 4.2), the Faculty of Metallurgy and Technology offers applied and specialist study programmes on Environmental Protection, as well as specialized postgraduate and master's programmes in Chemical Technology, including a module on ecology.

The Faculty of Natural Sciences and Mathematics offers master's and doctoral programmes in Biology as well as specialized, one-year programmes in Ecology, Environmental Protection, and Experimental Biology and Biotechnology. The Faculty for Food Technology, Food Safety and Ecology of the private University of Donja Gorica offers training on sustainable food production.

Sustainable development is also taught in various programmes at other institutions. The Faculty of Tourism at the private Mediterranean University of Montenegro, for example, includes sustainable development among the key areas to be studied.

Training of teachers

The training of teachers is an ongoing activity. Nevertheless, due to limited funding, training, in particular for teachers from outside Podgorica, is mainly provided through projects, when available. The training material is also mainly prepared under projects. Last but not least, the qualifications of teacher trainers need to be further enhanced. This all creates a challenge with regard to effective introduction of the new curricula.

Training and retraining of civil servants

There are no specific training programmes for civil servants other than the programmes offered for adult education.

Informal and non-formal education

Efforts have been made to develop and introduce new curricula for adults with the aim of establishing an education system that will guarantee lifelong training possibilities which, in turn, should support economic and social development. By the end of 2011, some 69 institutions for adult education had been licensed, offering 120 accredited adult education programmes.

As with formal education, informal education requires the development of training programmes incorporating the aspects of sustainable development and environmental protection, as well as the adequate preparation of teachers. Awakening the interest of adults to get involved in such training is also required. All this remains a challenge, however.

With regard to non-formal education, efforts are being made to involve the media in promoting environmental protection and creating environmental awareness. At the moment, media engagement in this area is considered unsatisfactory.

4.5 Legal framework

Monitoring and assessment

The main law setting up and governing the monitoring and assessment of the state of the environment is the Law on Environment (OG 48/08, 40/10, 40/11, 27/14). This Law designates the EPA as the state authority responsible for monitoring

activities, authorizes the Agency to engage other legal or natural persons in implementation of the monitoring activities, and obliges it to elaborate the national list of environmental indicators and publish the collected and assessed information on the environment. The Law also:

- Declares the state budget to be the source for financing monitoring activities;
- Enables local self-governments to organize monitoring programmes in their territories;
- Requires the definition of types of emissions, natural phenomena and other occurrences which should be subject to monitoring, as well as the number and placement of measurement spots, the network of measuring spots, scope and frequency of measurement, environmental pollution indicators, methodology of sampling and measuring, and deadlines and methodology for data submission in other government regulations;
- Establishes the requirement for preparation of the SoE report once every four years, to be prepared by the agency based on the assessment of indicators;
- Provides for the establishment of the environmental protection information system, defining its components, designates the agency to operate the system, and also obliges environmental data holders to share data with the agency at its request.

In addition, the Law on Environment obliges legal persons and entrepreneurs managing facilities that pollute the environment to organize self-monitoring and report data collected through the self-monitoring to respective local self-government authorities and the Agency. Further, it sets the requirement for establishing a cadastre of environmental polluters to be managed by local self-government authorities (local cadastre) and the Agency (national cadastre).

The Law on Environment sets out a good basis for conducting environmental monitoring and assessment as well as for providing the public with environmental information. At the same time, the Law has to be looked at in conjunction with the complementary media-specific laws (on air, water and biodiversity), their compatibility and enforcement of the whole environmental legal framework.

The Law on Air Protection (OG 25/10, 40/11), complemented by the Regulation on determining the types of pollutants, threshold limit values and other air quality standards (OG 45/08, 25/12), Rulebook on the conditions of air quality monitoring (OG 21/11), Rulebook on the content and the method of preparing the annual report on air quality (OG 27/12) and the Regulation on the establishment of a network of measurement points for monitoring air quality (OG 44/10, 13/11), is in line with the Law on Environment as well as providing the necessary framework to monitor and assess changes to the state of air in Montenegro.

The Law on Water (OG 27/07, 32/11) prescribes only surveillance monitoring. In addition, the Law on Water addresses mainly inland waters, whereas coastal waters are included only as far as pollution from land is concerned. Furthermore, the Law on Water is not in line with the Law on Environment regarding the designation of authorities responsible for the monitoring activities.

There is hence no law in force dedicated to maritime protection and which would regulate the monitoring of coastal waters accordingly. Therefore, the Agency uses the requirements of the Convention for the Protection of the Mediterranean Sea Against Pollution (Barcelona Convention) in organizing the monitoring. At the same time, the Ministry of Sustainable Development and Tourism is preparing a law for maritime protection.

The monitoring of soil is regulated by the Law on Agricultural Land (OG 15/92, 59/92, 27/94), which is complemented by the Rulebook on permissible concentrations of harmful and hazardous substances in soil and methods for their testing (OG 18/97). The legal framework that should further specify the general obligations of the Law on Environment is considered insufficient for the monitoring of soil contamination and the differentiation between local and diffuse soil contamination.

The monitoring provisions of the Law on the Protection against Environmental Noise (OG 28/11, 28/12, 1/14) are fully in line with the Law on Environment and provide sufficient basis for the monitoring activities. The monitoring of contents of radionuclides in the environment is done in accordance with the Law on Ionizing Radiation Protection and Radiation Safety (OG 56/09, 58/09, 40/11) and complemented by the Decision on systematic examination of contents of radionuclides in the environment (OG 45/97), the Rulebook on limits of radioactive contamination of the environment and the methods of decontamination (OG 9/99) and the Rulebook on intervention levels and measures for protection of the population, livestock and agriculture in the event of emergency (OG 18/92).

Biodiversity monitoring is governed by the Law on Nature Protection (OG 51/08, 21/09, 40/11, 62/13, 6/14) and complemented by the Rulebook on detailed content of the annual programme for monitoring the state of nature conservation and the conditions that must be met by the legal entity that monitors (OG 35/10), the Rulebook on monitoring the number and status of the population of wild birds (OG 76/06), the Rulebook on the types and criteria for determining habitat types, the method of preparing maps of habitats, methods of monitoring the status and threat of habitats, the content of annual reports, measures of protection and preservation of habitat types (OG 80/08) and the Decision on placing some plant and animal species under protection (OG 76/06).

With regard to the monitoring of forest, the Law on Forests (OG 74/10, 40/11) also applies. The laws are considered sufficient to regulate biodiversity monitoring. At the same time, the availability of red lists is required. There are also other legislative acts of relevance to environmental monitoring and assessment activities. Two of them are relevant with regard to collection of data, calculation of environmental indicators and preparation of environmental assessments: the Law on Official Statistics and the System of Official Statistics (OG 18/12) and the Regulation on the national list of environmental indicators (OG 19/13).

There is no law on a PRTR, which is considered important in collecting data on pollution from enterprises. At the same time, the responsibilities of enterprises for provision of data are described in the Rulebook on the detailed content and method of keeping the register of environmental polluters (OG 43/10). There was no evidence provided to the review mission that these requirements are enforced.

In addition, in the area of monitoring, and taking into account the right of the EPA in accordance with the Law on Environment to engage other legal and natural persons in monitoring activities, the Law on Public Procurement (OG 42/11) is very relevant in this context. While this Law should ensure transparency and the cost-effective and efficient use of public funds as well as competition among bidders, it can delay or interrupt monitoring activities.

The procurement procedure can be initiated only after the monitoring budget is adopted – often at the end of November or December – which leaves insufficient time for concluding the procedure before the end of the calendar year, when the new monitoring period starts. In addition, it should be kept in mind that, for certain monitoring activities, there is a limited number of accredited institutions available to carry them out. The monitoring of coastal water was not performed in 2013 since the only institution accredited to carry it out – the Institute for Marine Biology – was, as reported, not in position to present the documents required by the tender procedure organized in line with the procedures of the Law on Public Procurement. With regard to enforcement of the legal framework, there is a difficulty in establishing the environmental protection information system, of which the air quality and water information systems are an integral part. The main obstacle in this regard is the lack of necessary resources.

Availability of and access to information

The legislative basis for the right to and governing of public access to environmental information is contained in several acts, chief among which is the Law on Free Access to Information (OG 44/12). The Law, along with the clauses on access to information in other laws, provides a sufficient basis to ensure public access to environmental information as well as to create environmental awareness. However, as the latter is a long-term process, it would require quite some effort to ensure that availability of and access to environmental information is a demand-driven process.

Education

The goals of educating upcoming generations and wider society on the protection of nature and application of sustainable development have their legal basis in the:

- General Law on Education and Upbringing (OG 39/13, 44/13);
- Law on Preschool Upbringing and Education (OG 64/02, 49/07, 80/10);
- Law on Elementary Education and Upbringing (OG 64/02, 49/07, 45/10, 39/13);
- Law on Secondary School (OG 45/10, 73/10, 39/13);
- Law on Vocational Education (OG 45/10, 39/13).

4.6 Institutional framework

Monitoring, assessment and information accessibility

As stipulated in the Law on Environment, the EPA is the state authority responsible for monitoring activities, assessment of the state of environment and publishing of information on the environment.

Through tender procedures, the Agency continuously engages the CETI to perform the monitoring of soil, noise and radioactivity, and the Institute for Marine Biology to perform the monitoring of coastal seawater. Monitoring of air quality is intrusted to CETI by EPA through specific regulation adopted by the Government.

The monitoring of biodiversity, carried out in the past by the Institute for Nature Protection, has been carried out by the EPA since 2012, when the Institute was integrated into the Agency.

The monitoring of the quantity and quality of surface waters and groundwaters is performed by the Hydrometeorological and Seismological Service (HSS) without Agency engagement, and also because the monitoring programme is prepared by the Ministry of Agriculture and Rural Development.

While this situation is not in line with the Law on Environment, it is compliant with the Law on Water and hence a conflict between these two laws can be established.

Separately from the Agency, the Forest Administration under the Ministry of Agriculture and Rural Development performs forest monitoring with the support of the Forestry Institute, while the Public Enterprise "National Parks of Montenegro" (PENP) is responsible for national parks and involved in the relevant monitoring activities at the territory of the parks. The Institute for Public Health under the Ministry of Health monitors drinking water quality. The systematic monitoring of bathing water quality in accordance with the Law on Water is not carried out. The Public Enterprise "Coastal Zone Management Agency" realizes annual monitoring of bathing water quality on public beaches along the sea coast.

All institutions that are performing monitoring activities and are not subordinated to the EPA, including the HSS, are obliged by the Law on Environment to provide all the data relevant to environment to the Agency, and they do so, with the exception of the Ministry of Agriculture and Rural Development with regard to the data on the quality of soils.

However, where the Agency is not involved in the monitoring programme, it has difficulties in ensuring that certain priority data, e.g. related to some international obligations, are collected. Furthermore, data are sometimes shared, e.g. by the HSS, in the form of a report, which is not considered as the most efficient method of data sharing today.

Finally local self-governments, in accordance with the Law on Environment, are entitled to organize environmental monitoring in their territories. However, due to lack of funding, such local monitoring does not take place. The Statistical Office is responsible for collection and processing of the environmental data obtained through statistical surveys.

Education

The institutions involved in education are the Ministry of Education, Bureau for Education Services and Centre for Vocational Education, which seem to cooperate well with each other, bearing in mind the limited resources available.

4.7 Policy framework

Monitoring

Monitoring activities are carried out based on the annual monitoring programmes prepared, in the majority of cases, by the EPA for approval by the Government. The monitoring activities are affected by decreasing resources – the budget for monitoring decreased by nearly half between 2009 and 2012 (table 4.3), with the greatest reductions in the programmes for monitoring soil, radioactivity and the marine ecosystem. Except for 2011, the budget for air quality monitoring remains at a stable level.

Availability of and access to information

The Ministry of Sustainable Development and Tourism concentrates efforts on raising public awareness about the environment and encourages the public to become interested in environmental information and to participate in environmental decision-making processes. In 2010, an action plan for cooperation between the Ministry and NGOs was prepared, to better engage NGOs in environmental matters.

Education

An action plan was prepared for implementation between 2007 and 2009 on the integration of sustainable development into the educational system. The plan is comprehensive and, since there is little evidence that it was implemented, it is still relevant in terms of the implementation of educational reform and, with this, to enable individuals as well as society to gain the knowledge necessary to ensure sustainable development in Montenegro.

Table 4.3: Monitoring budget of the Environmental Protection Agency, 2009–2012, €

Monitoring programme	2009	2010	2011	2012
Air quality	175,000	170,000	65,000	160,000
Soil	85,000	45,000	39,800	29,000
Radioactivity	102,000	60,000	75,000	40,000
Marine eco-system	160,000	115,000	70,000	40,000
Environmental noise	20,000	..	13,000	6,000
Biodiversity	..	40,000	75,000	30,000
Total	**542,000**	**430,000**	**337,800**	**305,000**

Source: Environmental Protection Agency, 2014.

4.8 Conclusions and recommendations

Montenegro has made notable strides in the last few years in the area of environmental monitoring. The Environmental Protection Agency, established in 2008 and operational since 2009, has taken control over most of the monitoring activities and made efforts to strengthen the various monitoring networks and to organize them in accordance with the latest international practice. At the same time, the monitoring budget has been decreasing from year to year since 2009. Administrative procedures may impede monitoring activities. Adequate equipment for some monitoring activities is lacking.

Recommendation 4.1:
The Government should increase the performance and efficiency of environmental monitoring activities, in particular by:

- *(a) Ensuring the necessary funding to perform these activities;*
- *(b) Ensuring the continuity of monitoring activities through necessary adjustments to administrative procedures;*
- *(c) Acquiring the necessary monitoring equipment;*
- *(d) Considering the need to establish a laboratory for the calibration of analysers.*

Despite good progress in improving the national legal framework for monitoring activities, there has not been equal progress for the various environmental media. The monitoring provisions of the Laws on Water and on Agricultural Land do not follow international standards and latest practice. The Law on Water is also not in line with the Law on Environment regarding the monitoring competences. There is no law that would govern the monitoring of coastal seawater and there is no requirement for bathing water monitoring. Furthermore, there are some inconsistencies in the legal framework, which require clarification and relevant amendments of the respective laws to improve the functioning of the networks and to ensure that various institutions carry out complementary rather than overlapping monitoring activities.

Recommendation 4.2:
The Government should clarify responsibilities related to environmental monitoring (of soil and water) and amend accordingly the related legislation to provide an effective legal basis for monitoring activities.

Environmental information and data reporting have also improved over recent years. The national environmental indicators have been defined and adopted. The EPA prepared the very first indicator-based SoE report, including the majority of the adopted national indicators. The report was approved at the beginning of 2014 by the Government. The monitoring activities are being refocused to supply data for elaboration of the indicators and hence to create better understanding about the changes to the state of the environment in Montenegro. At the same time, despite efforts made to establish an integrated environmental information system, it has been developed only partially, and for the parts available no automatic information flows have been ensured. Data reporting by enterprises is still limited.

Recommendation 4.3:
The Ministry of Sustainable Development and Tourism, through the Environmental Protection Agency, and in cooperation with relevant environment data holders, should:

- *(a) Accelerate the development of the integrated environmental information system and establish protocols for data and information flows;*
- *(b) Establish data collection and processing for indicators where such data are not available;*
- *(c) Improve the indicator-based state-of-the-environment report by making it more oriented towards policymaking;*
- *(d) Enforce reporting by enterprises.*

The environmental information and data that are available are also made accessible to the public, either through the websites of the Government or upon request. At the same time, the majority of the information and data published currently are only available through the reports posted on the websites rather than being provided directly on the web pages. There is great potential with a relatively small budget to publish, in particular, environmental indicators on a dedicated web page, which would allow for more easy access to them.

Recommendation 4.4:
The Government should improve the online accessibility of environmental information and data, including by providing direct access to monitoring data and information as well as to the indicators.

Montenegro is implementing educational reform following internationally accepted practices. This is, however, a slow process, mainly due to the lack of funding for training teachers in teaching the new curricula. There are not sufficient, qualified teacher trainers to provide training on applying the new curricula and to apply a more multidisciplinary approach to teaching. The latter is a must for teaching the complex concepts of sustainable development.

Recommendation 4.5:
The Ministry of Education, with the support of the Bureau for Education Services and the Centre for Vocational Education, should accelerate teacher training for the effective introduction of the new curricula related to environment and sustainable development.

PART II: DOMESTIC–INTERNATIONAL INTERFACE

Chapter 5

IMPLEMENTATION OF INTERNATIONAL ENVIRONMENTAL AGREEMENTS

5.1 Global and regional multilateral environmental agreements

Conservation and sustainable use of biodiversity and nature

Convention on Wetlands of International Importance especially as Waterfowl Habitat

Since 2006, Montenegro has been a party to the Convention on Wetlands of International Importance especially as Waterfowl Habitat (Ramsar Convention). Montenegro presently has two sites designated as wetlands of international importance, with a surface area of 20,150 hectares.

In 2007, Lake Skadar was the only Ramsar site in the country. In 2013, Tivat Saline (Tivatska solila) was designated as the second site on the territory of 150 hectares. This designation contributed to one of the goals contained in the Ramsar Convention's Strategic Plan for the period 2009–2015. Situated in the coastal strip of Tivat Bay, the site comprises a centuries-old former salt works and includes the underwater site of Jankove Vode. It is an important resting and feeding area for migratory birds such as the black-tailed godwit *Limosa limosa*, Eurasian curlew *Numenius arquata* and ferruginous duck *Aythya nyroca*, as well as the regional population of pygmy cormorant *Phalacrocorax pygmeus*. The site also supports such endangered reptile species as *Ophisaurus apodus*, sea turtles such as *Caretta caretta* and the endangered amphibian *Rana shqiperica*. Hunting activities are allowed in the site. Potential factors threatening the ecological character of this wetland are poaching, pollution and the pressures of tourism. A management plan for the site is currently under preparation.

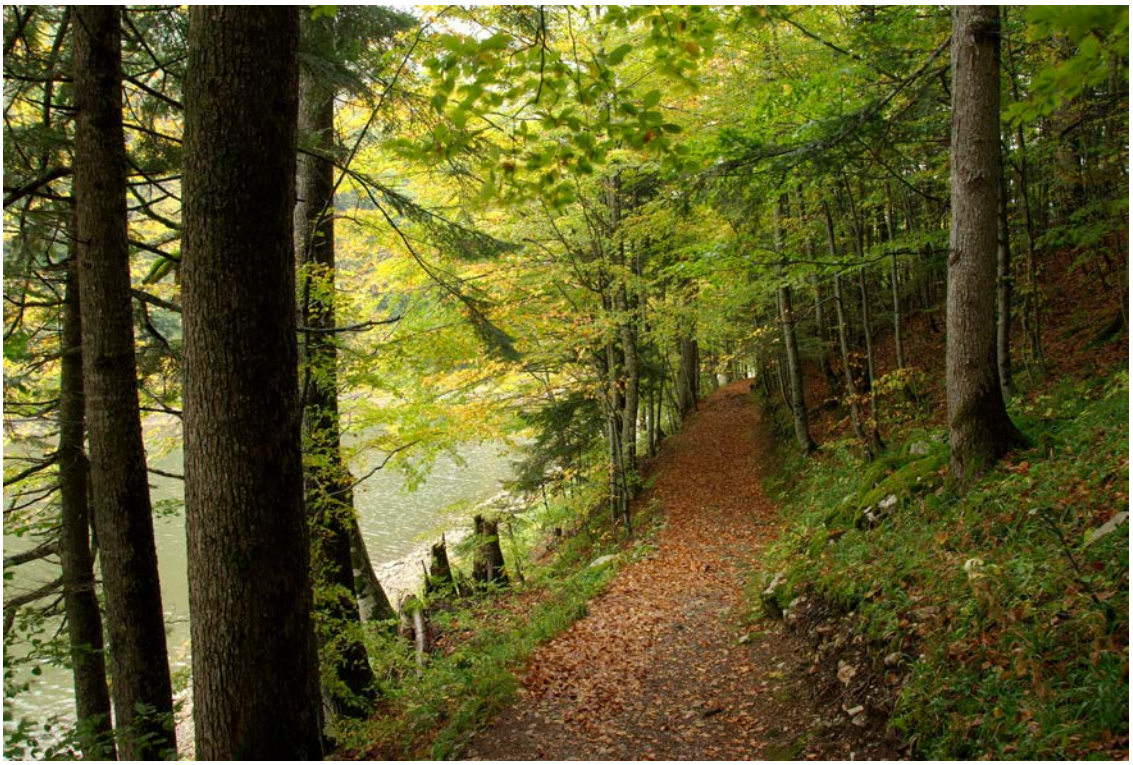
To assist the Governments of Albania and Montenegro in achieving more sustainable use of the natural resources of Lake Skadar and its watershed, the GEF project on Lake Skadar-Shkodra Integrated Ecosystem Management was implemented in 2007–2012. Key project results are as follows:

- Joint bilateral structures (Lake Skadar-Shkodra Commission [SLC], SLC Secretariat and working groups) are operational and implement priority joint activities identified in the 2007 Strategic Action Plan. The mandate of the SLC is to monitor implementation of strategic documents drawn by the two parties for the conservation and management of the lake. The mandate of the working groups is to facilitate discussions on specific issues and to steer joint programme implementation. It has been agreed that these joint structures (the SLC, Secretariat and working groups) will remain sustainable beyond the project closure;
- Solutions for decreasing toxic and non-toxic pollutants entering Lake Skadar-Shkodra have been identified and actions taken to reduce contamination;
- Regulatory capacity, infrastructure and community-level mechanisms and incentives are in place to support natural resource management and sustainable tourism development.

A memorandum of understanding on cooperation on environmental protection and sustainable management of natural resources was signed in 2010 between the Ministry of Spatial Planning and Environment of Montenegro and the Ministry of Environment, Forestry and Water Administration of Albania, through which the parties agreed to develop bilateral cooperation on environmental protection and sustainable management of natural resources including Lake Skadar-Shkodra, and functioning of cross-border structures such as the SLC and working groups.

A transboundary diagnostic analysis has been conducted and a joint strategic action programme for Lake Skadar-Shkodra was prepared in 2007. Both documents have been approved and the programme endorsed by the Albanian and Montenegrin ministries responsible for the environment.

Photo 5.1: Biogradska gora, National Park



Convention Concerning the Protection of the World Cultural and Natural Heritage

Since 2006 Montenegro has been a party to the Convention Concerning the Protection of the World Cultural and Natural Heritage.

In the period from September 2013 to July 2014, the country has been undergoing the second cycle of Periodic Reporting. During the first cycle of this exercise, Montenegro was still a part of the State Union of Serbia and Montenegro.

Montenegro has two properties inscribed on the World Heritage List: the Culturo-Historical Region of Kotor, since 1979, and National Park Durmitor, since 1980. Four properties were submitted to the Tentative List in 2010: Cetinje Historic Core, the Old Town of Bar, and Doclea and Biogradska Gora National Parks. One property was submitted in 2011 (Stećci medieval tombstones), and one property in 2014 (the Venetian Works of Defence, erected between the 15th and 17th centuries).

Since 2007, the World Heritage Committee has adopted eight decisions on Montenegro, including two on National Park Durmitor and five on the Natural and Culturo-Historical Region of Kotor.

In 2011 Montenegro adopted the management plan for the World Heritage property and it is currently being implemented. Additional studies are being undertaken for the protection of cultural properties within the Spatial Urban Plan of the Municipality of Kotor.

Convention on International Trade in Endangered Species of Wild Fauna and Flora

Montenegro submits annual reports to the Convention on International Trade in Endangered Species of Wild Fauna and Flora (CITES). These have been submitted in 2008-2013 and included information on, inter alia, the number and types of permits and certificates granted, the states with which such trade occurred, the quantities and types of specimens, and the names of species as included in appendices I, II and III. The CITES trade data on Montenegro are publicly accessible via the CITES trade database on the CITES website. Montenegro, as a CITES Party, must submit biennial reports on legislative, regulatory and administrative measures taken to enforce the Convention. It submitted one for 2007-2008 but none thereafter.

The basis for the implementation of CITES is contained in the Law on Nature Protection (OG 51/08, 21/09, 40/11, 62/13, 6/14). The Regulation of cross-border trade of endangered plant and animal species is in the process of adoption and will define:

- The conditions of import, export, transit, trade and breeding of endangered plant and animal species;
- Licensing and other documents (certificates, opinions);
- Exemptions from licensing;
- Lists of species for which licenses are issued, the content and method of application;
- List of species whose import or export is prohibited, restricted or suspended;
- Documentation submitted with the application for licenses, content and form of license, a way of marking animals and shipments;
- Methods of disposal of confiscated specimens, the competent authorities for the implementation of monitoring, record keeping and reporting, and other requirements necessary for the operation of cross-border trade in wild species under the Convention.

Training of customs and other relevant authorities has been regularly carried out. To ensure a good cooperation in combating illegal trade in endangered species the Customs Administration and the EPA signed a Memorandum of understanding.

Convention on Biological Diversity

Since 2006 Montenegro has been a party to the Convention on Biological Diversity (CBD). Its fourth National Report to the Convention was submitted in 2010. The report presented the results achieved in the implementation of the Convention in the period 2006–2010, and identified six main categories of anthropogenic threats to biological diversity in Montenegro.

The Law on Nature Protection (OG 51/08, 21/09, 40/11, 62/13, 6/14) transposed relevant provisions from various international agreements on nature protection, including the CBD, and the relevant regulations of the EU.

The 2010 National Biodiversity Strategy and Action Plan for the period 2010–2015 determines long-term goals and numerous actions for the conservation and sustainable use of biological diversity and protected natural assets, as well as ways for its implementation taking into account the overall economic and social circumstances of the country. In 2011–2013, three annual reports have been prepared on the implementation of the National Biodiversity Strategy and Action Plan.

Following the adoption of the CBD Strategic Plan for Biodiversity for the period 2011–2020, the Ministry of Sustainable Development and Tourism, in cooperation with the United Nations Office in Montenegro, began work on revising the National Biodiversity Strategy and Action Plan for the period 2010–2015. This work was supported by the GEF project "National Biodiversity Planning to Support the Implementation of the CBD Strategic Plan 2011–2020 in Montenegro". It is expected to produce measurable targets for biodiversity conservation and sustainable use by ensuring that the value of ecosystems' goods and services, as well as the challenges and opportunities for ecosystem-based adaptation and resilience, are taken into consideration.

In 2009–2013, the GEF project "Strengthening the Sustainability of the Protected Area System of Montenegro" was implemented. Preliminary results of the project include, but are not limited to, the following:

- Studies for proclamation of the areas of Komovi and Piva (Bioc–Volujak–Maglic) as regional nature parks have been prepared;
- The legal framework for the functioning of national parks has been improved by amending the Law on National Parks (OG 56/09, 40/11);
- The EPA's environmental protection information system has been designed;
- A gap assessment has been conducted as a precondition for developing the planning framework for the establishment of a long-term, ecologically representative protected areas system;
- Business clusters in proximity to protected areas have been supported.

Another GEF project, "Catalyzing Financial Sustainability of the Protected Area System in Montenegro", helps to find ways to raise the funds needed to effectively manage Montenegro's expanding protected area system. The project started in October 2009. To date, the project has:

- Developed an economic valuation of the protected areas system to support the case for sustained public investment in protected area establishment and management;
- Developed a national protected area financial plan;
- Designed a "help desk" to assist protected areas in improving their cost effectiveness;

- Prepared a recommendation for strengthening the financial planning and reporting capacities of the PENP.

The two projects supported the establishment of educational programmes in protected area management and rural development, with the objective to improve management and planning capacities and a focus on financial planning and management of protected areas.

Convention on the Conservation of European Wildlife and Natural Habitats

Montenegro has been a party to the Convention on the Conservation of European Wildlife and Natural Habitats (Bern Convention) since 2009.

The Project on Establishing an Emerald Network was implemented in 2005–2008. This resulted in identification of 156 habitat types, 5 plant species, 5 moss species and 162 species of invertebrates and vertebrates important for conservation in Montenegro. The Emerald Network in Montenegro includes 32 sites covering 240,077 ha. Other designated areas in Montenegro include:

- 5 Important Bird Areas (IBAs);
- 27 Important Plant Areas (IPAs) covering a total area of 708,606 ha;
- 5 Primary Butterfly Areas (PBAs).

There is good coincidence between the Montenegrin IPA network and the Emerald Network (designated under the Bern Convention) and 11 IPAs are protected either fully or partially. This, however, leaves nearly 60 per cent of Montenegro's IPAs unprotected. Other than national parks, protected areas in Montenegro do not have management plans or any regulation of potentially damaging activities.

Most IPAs in Montenegro are owned partly by the State and partly by private land owners. Tourism and recreation are the dominant land uses at 81 per cent of sites and thus, unsurprisingly, development threatens 78 per cent, with over half the sites threatened specifically by tourist development. This is a particular problem on the coast. Forestry and mixed agriculture take place on almost half of Montenegrin IPAs and low-level wild plant harvesting on one third of them. One third of sites are also threatened by deforestation and burning of vegetation. The mismanagement of water resources threatens five lakes and coastal IPAs at an acute level.

The project "Strengthening the Capacity of Governments and the Civil Sector in Serbia and in Montenegro to Adapt to the EU Nature Protection Acquis" was implemented in 2009–2012. Technical support was given to the Montenegrin Government: EU reference lists for species and habitats were prepared; a catalogue of Natura 2000 habitats in Montenegro was prepared; the guidelines for field mapping for flora and fauna were prepared and cartographers were trained; species and habitats distribution maps were prepared; and a biodiversity information system was set up.

Convention on the Conservation of Migratory Species of Wild Animals

Montenegro has been a party to the Convention on the Conservation of Migratory Species of Wild Animals (Bonn Convention) since 2009. It has also been a party to the Agreement on the Conservation of Populations of European Bats (Eurobats) and a contracting party to the Agreement on the Conservation of African-Eurasian Migratory Waterbirds (AEWA) since 2011.

Montenegro lies within the Black Sea/Mediterranean Flyway and provides habitats for many migratory bird species. Five of these habitats meet the criteria for IBAs: the Ulcinj saltpans, Biogradska woods, National Park Durmitor, Lake Sasko and Lake Skadar. According to the Wings Over Wetlands (WOW) Critical Site Network (CSN) Tool, 131 different migratory waterbird species occur in Montenegro, including some near-threatened species of global conservation concern, namely the corncrake *Crex crex*, great snipe *Gallinago media*, black-winged pratincole *Glareola nordmanni*, black-tailed godwit *Limosa limosa* and Eurasian curlew *Nurmenius aquata*.

Montenegro has been a party to the Agreement on the Conservation of Cetaceans of the Black Sea, Mediterranean Sea and Contiguous Atlantic Area (ACCOBAMS) since 2009. The project Network for the Conservation of Cetaceans and Sea Turtles in the Adriatic – NETCET was approved in mid-2012 for financing from the IPA Adriatic Cross-border Cooperation Programme 2007–2013. The main objective of the project is to develop common strategies for the conservation of sea turtles and cetaceans in the Adriatic through regional cooperation. The project is being implemented by Albania, Croatia, Italy, Montenegro and Slovenia. The project foresees carrying out an aerial survey.

This activity aims at establishing the baseline data on distribution, abundance and hotspots for cetaceans and sea turtles in the Adriatic Sea. These data, necessary for further activities, are aimed at conservation, mitigation or monitoring and future review of the effectiveness of conservation measures. In addition, boat-based photo ID surveys on cetacean populations will be carried out. This activity is to provide more detailed information on the presence and numbers of cetaceans in areas identified as hotspots through aerial monitoring.

Work on the conservation of the cetaceans and sea turtles has been limited to date, mostly for financial reasons. From the NETCET project, the Institute of Marine Biology will gain the necessary knowledge for the monitoring and conservation of cetaceans and sea turtles, and a public campaign will also be carried out to inform interested parties of the necessity of the protection of cetaceans and sea turtles in the Adriatic Sea.

United Nations Convention to Combat Desertification

Montenegro has been a party to the United Nations Convention to Combat Desertification (UNCCD) since 2007. Information is not easily available on the implementation of the Convention in the country. Montenegro has not yet submitted any national reports to the Convention's Secretariat.

In order to assist Montenegro in implementing the Convention, a project proposal entitled "Support for Development of National Action Programme Aligned to the UNCCD 10 Year Strategy and Reporting Process" was developed with UNEP. A national plan to combat desertification and a system for reporting under the Convention are to be developed under the project in 2015.

Water protection and sea and coastal zones

Transboundary waters

Montenegro became a party to the Convention on the Protection and Use of Transboundary Watercourses and International Lakes in 2014. Montenegro is not a party to the Protocol on Water and Health.

Montenegro, together with Albania and the former Yugoslav Republic of Macedonia, is a partner in the Drin Dialogue that was formally launched during a meeting organized in December 2009 in Podgorica. The ECE and the Global Water Partnership Mediterranean facilitate the implementation of the Drin Dialogue. The Drin Core Group was established by the Podgorica meeting as a structure to facilitate communication and cooperation among the riparian countries and coordination of the implementation of the Drin Dialogue.

To support the Drin Dialogue, the Swedish Environmental Protection Agency financed a project that was implemented in 2010–2011. The key issues in the Drin Basin linked with water resources management, and key stakeholders at the national and transboundary levels, were identified. A long-term Strategic Shared Vision for the Management of the Transboundary Drin Basin was elaborated and agreed upon.

The GEF project "Protection and Sustainable Use of the Dinaric Karst Aquifer System" is being implemented since 2010. The Dinaric Karst Aquifer System is shared by four countries and is one of the world's largest. The total project cost is some US$5.4 million, including a GEF grant of US$2,360,000 and is the first attempt ever to introduce sustainable integrated management principles in a transboundary karstic freshwater aquifer. The project aims to:

- Facilitate the equitable and sustainable utilization of the transboundary water resources of the Dinaric Karst Aquifer System;
- Protect the unique groundwater-dependent ecosystems that characterize the Dinaric Karst region of the Balkan Peninsula.

The Project "Enabling Transboundary Cooperation and Integrated Water Resources Management in the Extended Drin River Basin" was approved by the GEF Council. The total project cost is some US$27.1 million, including a GEF grant of US$4.6 million. The project aims at promoting joint management of the shared water resources of the extended transboundary Drin River Basin, including coordination mechanisms among the various sub-basin commissions and committees (Lakes Ohrid, Prespa and Skadar).

Montenegro has been a party to the Convention on Cooperation for the Protection and Sustainable Use of the Danube River since 2008.

The memorandum of understanding on cooperation between the International Sava River Basin Commission and Montenegro was signed in 2013.

Convention for the Protection of the Marine Environment and the Coastal Region of the Mediterranean

Montenegro, as an independent state, has been a party to the Barcelona Convention for the Protection of the Mediterranean Sea (renamed as the Convention for the Protection of the Marine Environment and the Coastal Region of the Mediterranean) since 2007. The same year, the country joined the protocols for the Protection of the Mediterranean Sea against Pollution from Land-Based Sources and Activities; Concerning Cooperation in Preventing Pollution from Ships and, in Cases of Emergency, Combating Pollution of the Mediterranean Sea; Concerning Specially Protected Areas and Biological Diversity in the Mediterranean; and on the Prevention of Pollution of the Mediterranean Sea by Transboundary Movements of Hazardous Wastes and their Disposal. In 2012, Montenegro ratified the Protocol on Integrated Coastal Zone Management (ICZM) in the Mediterranean.

Following the ratification of the Protocol on ICZM, the Memorandum of understanding on CAMP Montenegro was signed between UNEP/MAP and Government of Montenegro in 2011. The CAMP Montenegro project area is the entire coastal zone comprising six coastal municipalities with a total surface of 1,591 km^2 and internal waters and territorial sea with a surface of around 2,500 km^2. It has been prepared in order to define conditions for protection and use of the key coastal resources as baselines for planning and for determining capacities for economic development of the coastal zone. Many activities have been successfully implemented so far within the CAMP Montenegro. The results include:

- The assessment of general vulnerability of the coastal zone of Montenegro;
- A detailed vulnerability assessment for the narrow coastal belt;
- The assessment of the coastal zone's attractiveness for agriculture development;
- The analysis of land uses in the coastal zone, as well as the preparation of targeted sectoral studies having vulnerability assessments as their starting points (i.e. a biodiversity and nature protection study);
- Studies on hydrology, geology and water quantity and quality;
- A study on the assessment of anthropogenic impacts on the environment and human health;
- The analysis of natural hazards and coastal processes.

Along with analyses of the current state, processes of transformation of the coastal zone are studied in detail. This is primarily done through a targeted analysis of socio-economic processes and development, especially for agriculture and tourism (including the methodology for carrying capacity assessment for tourism), as well as through the analysis of institutional and legal conditions (which represent a starting point for the application of ICZM) and of the key sources of pressures. These analyses have been also used for:

(a) Development of criteria and guidelines for determining land uses, primarily for the needs of the Special Purpose Spatial Plan for the Coastal Zone of Montenegro);
(b) Elaboration of key instruments for integration and participation, land-use and fiscal policies, through the development of the National Strategy on Integrated Coastal Zone Management and its concretisation through elaboration of the governance structure, objectives and indicators, as well as through an action plan for its implementation.

In December 2013, the Government declared that all CAMP results are obligatory for the spatial plan of relevance for coastal area (new Coastal Area Spatial Plan of Montenegro as the regional plan and local spatial plans of coastal municipalities).

International Convention for the Prevention of Pollution from Ships

Montenegro has been a party to the International Convention for the Prevention of Pollution from Ships (MARPOL) since 2006.

In 2013 the Parliament ratified the Annex VI on prevention of air pollution from ships. As of January 2015 Montenegro has not yet deposited an instrument of ratification, acceptance, approval or accession to Annex VI. The air pollution requirements of Annex VI establish limits on nitrogen oxides (NOx) emissions and require the use of fuel with lower sulfur content, protecting people's health and the environment by reducing ozone-producing pollution. Any lack of certification or failure in demonstrating the necessary compliance with Annex VI can effectively impede a ship from international trade.

Air protection, ozone layer protection and climate change

Convention on Long-range Transboundary Air Pollution

Since 2006, Montenegro has been a party to the Convention on Long-range Transboundary Air Pollution, and its Protocol on Long-term Financing of the Cooperative Programme for Monitoring and Evaluation of the Long-range Transmission of Air Pollutants in Europe (EMEP). In 2011, Montenegro became a party to the Protocol on Heavy Metals, and in 2012, to the Protocol on Persistent Organic Pollutants (POPs).

The country is not yet a party to the Gothenburg Protocol to Abate Acidification, Eutrophication and Ground-level Ozone. In 2012, Montenegro submitted a proposal to the Executive Body (EB) of the Convention to adjust annex II to the Gothenburg Protocol by adding to it its name together with emission levels and emission ceilings. However, the proposal had not been accepted as it did not meet the objective of the Gothenburg Protocol, i.e. to reduce emissions of the key pollutants. Montenegro is expected to submit a revised proposal in accordance with articles 2 and 13 of the Protocol. The acceptance of the proposal by the Executive Body is the necessary condition to accept Montenegro's accession to the Protocol.

The National Strategy for Air Quality Management and the Action Plan for the period 2013–2016 was adopted in February 2013. The Action Plan contains 54 measures. According to the Law on Air Protection (OG 25/10, 40/11), in areas where pollutant concentrations exceed any established threshold or target value, the Ministry of Sustainable Development and Tourism, in collaboration with the EPA and the local self-government unit in whose territory the exceedance has occurred, is obliged to produce an Air Quality Plan.

In February 2013, the Ministry, in collaboration with the EPA and the municipality of Pljevlja, passed the Air Quality Plan for the Municipality of Pljevlja in order to reach the values determined by the Regulation on determining the types of pollutants, threshold limit values and other air quality standards (OG 45/08, 25/12). In March 2014, the Ministry, EPA and the municipality of Nikšić adopted the Air Quality Plan for the Municipality of Nikšić.

Montenegro has one transboundary air quality monitoring station in Žabljak; however, according to the EMEP Programme, it is not functional. Reporting to the EMEP Programme has not been carried out since 1996 and the data produced since 2010 is not of the quality and content requested by the EMEP Programme.

Currently, the station serves for monitoring of concentration of SO_2 and NO_x, precipitation (pH, conductivity and major ion species) but with semi-automatic methods which are not recognized as reference methods by the EU. It is necessary to equip the station with automatic analysers for SO_2, NO_x, O_3, PM, NH_3 and CO, as well as to acquire laboratory instruments in order to insure analysis of ions and heavy metals in particulate matters in accordance with EMEP requirements. Revitalization of work at the station is an obligation in both programme and technical terms. It is enhanced by the reporting obligations under the Protocol on Heavy Metals and the Gothenburg Protocol to Abate Acidification, Eutrophication and Ground-level Ozone. Financial resources for revitalization of EMEP station are insured through IPA funds 2014 -2020.

Convention for the Protection of the Ozone Layer

Since 2006, Montenegro has been a party to the Vienna Convention for the Protection of the Ozone Layer, its Montreal Protocol, and four amendments to the Montreal Protocol. The country phased out CFCs in 2009 (table 5.1), under the Country programme for phasing-out of ozone depleting substances and Terminal phase-out management plan for CFCs, with the financial support of Multilateral fund for implementation of Montreal Protocol, and UNIDO as implementing agency.

Licences for maintenance and/or repair and decommissioning of products containing controlled (ODS) and alternative substances are issued in accordance with article 33 of the Law on Air Protection and the Regulation on substances that deplete the ozone layer and alternative substances (OG 5/11). So far, 39 licences have been issued and 14 requests for licences have been rejected. The EPA issues licences for import/export of ODS and alternative substances (74 have been delivered so far, 2 applications rejected). Montenegro reports to the Ozone Secretariat on consumption of controlled substances in a timely manner. Information on consumption of ODS for Montenegro (table 5.1) is available on the website of the Ozone Secretariat.

Table 5.1: Ozone-depleting substances consumption, 2007-2013, ODP tons

Annex	Grp	AGN	2007	2008	2009	2010	2011	2012	2013	Baseline
Annex A, Groups I and II substances' baseline is the average of 1995–1997	I	CFCs	3.5	0.1	0.0	0.0	0.0	0.0	..	104.9
Annex A, Groups I and II substances' baseline is the average of 1995–1997	II	Halons	0.0	0.0	0.0	0.0	0.0	0.0	..	2.3
Annex B, Groups I, II and III substances' baseline is the average of 1998–2000.	II	Carbon Tetrachloride	0.0	0.0	0.0	0.0	0.0	0.0	..	1.1
Annex C, Group I substances baseline is 2009-2010 for consumption. For production, the baseline is the average of production and consumption in 2009-2010	I	HCFCs	0.70	0.40	0.90	0.60	0.72	0.94	0.75	0.80

Source: ozone.unep.org, accessed in April 2014.
Note: AGN: Annex Group Name.

United Nations Framework Convention on Climate Change

Montenegro has been a party to the United Nations Framework Convention on Climate Change (UNFCCC) since 2006 and to the Kyoto Protocol since 2007. The country has not accepted the Amendment to Annex B of the Kyoto Protocol. Montenegro, as a non-Annex I country, has only general obligations such as reporting to the Convention (chapter 6).

Waste management and hazardous chemicals

Convention on the Control of Transboundary Movements of Hazardous Wastes and Their Disposal

Montenegro has been a party to the Basel Convention on the Control of Transboundary Movements of Hazardous Wastes and Their Disposal since 2006. Montenegro restricts import and export of hazardous wastes and other wastes for both recovery and final disposal. The country also restricts the transit of hazardous wastes and other wastes. The restriction is in accordance with the provisions of the Basel Convention and its Ban amendment (chapter 8).

Convention on Persistent Organic Pollutants

Montenegro has been a party to the Stockholm Convention on Persistent Organic Pollutants since 2011. The National Implementation Plan for this convention was adopted in November 2013.

The Law on Chemicals regulates the procedure of registration of and putting on the market new and existing chemicals, the process of evaluation and risk assessment of chemicals, classification, packaging and labelling of chemicals, import and export, and other issues relevant for the protection of human health and the environment.

Management of plant protection products and thus POP pesticides which are intended for plant protection, is the responsibility of the Phytosanitary Administration under the Ministry of Agriculture and Rural Development, established in mid-2008. Control of emissions of PCDD/PCDF (dioxins and furans), HCB (hexachlorobenzene), PCBs (polychlorinated biphenyls) and PeCB (pentachlorobenzene) is the responsibility of the Ministry of Sustainable Development and Tourism and the EPA.

In Montenegro, pesticides are marketed in accordance with the Law on Plant Protection Products (OG 51/08, 40/11, 18/14). This Law regulates the manner of classification, registration, marketing and use of plant protection products and active matters; maximum allowed level of residues in plant protection products; manner of keeping registers and records; exchange of data; and other issues of significance for plant protection products. It also regulates the method of registration of plant protection products that contain, are comprised of or are obtained from genetically modified organisms, provided that the release of such organisms to the environment is allowed only in accordance with an environmental risk assessment, pursuant to the Law on Genetically Modified Organisms.

Based on the Law on Plant Protection Products, a list of active matters allowed to be used as plant protection products is published every year by the Phytosanitary Administration. Pursuant to this list,

plant protection products are imported to Montenegro, and given that there is no Montenegrin production of plant protection products, only imported plant protection products are used and they are under strict control. The List of active matters allowed to be used as plant protection products for 2012 (OG 14/12) includes no active matters that are listed as a POP pesticide.

The control of the use of plant protection products (pesticides) is carried out through implementation of the Monitoring Programme for Residues of Plant Protection Products that is adopted every year. All the mentioned active matters are included in the list for implementation of monitoring of pesticide residues.

The Programme is carried out in view of assessing the threat to the health of the population, in accordance with the prescribed levels of pesticide residues established by the Rulebook on the quantities of pesticides, metals and metalloids and other toxic substances, chemo-therapeutics, anabolics and other substances that may be found in foods (OG 5/92, 11/92, 32/02) and the Regulation (EC) No. 396/2005 of the European Parliament and of the Council on maximum residue levels of pesticides in or on food and feed of plant and animal origin. Currently, as regards pesticides, the phytosanitary inspection is applying a number of rulebooks (annex IV).

Pesticides, PCBs and polychlorinated terphenyls (PCTs) are not produced on the territory of Montenegro, nor is their production planned in the near future. Import of equipment and fluids containing PCBs is banned. Imports of plant protection products (pesticides) that are registered for application are subject to approval by the Phytosanitary Administration. On the border crossings, phytosanitary inspection approves the import of pesticides based on prescribed conditions and the register.

Use of POP pesticides has been banned for over 20 years, except for lindane, which has not been used for the last six or seven years, and endosulfan. After 2006, lindane was no longer present in the market. The Ministry of Health, in the period from December 2007 (when the 2007 Law on Chemicals came into force) to March 2013, approved the import of 10,000 litres of endosulfan (35 per cent concentration); in 2009, 2,000 litres; in 2010, 2,000 litres; in 2011, 3,000 litres; in 2012, 2,000 litres; and in 2013, 1,000 litres. Imported endosulfan (35 per cent concentration) was used for the purpose of disinfection of stables and basements. Existence of stockpiles of POP pesticides has not been identified. In Montenegro there are two laboratories which have the capacities to test POP compounds: the CETI and the Public Health Institute of the Ministry of Health.

Convention on the Prior Informed Consent Procedure for Certain Hazardous Chemicals and Pesticides in International Trade

Montenegro acceded to Rotterdam Convention on the Prior Informed Consent Procedure for Certain Hazardous Chemicals and Pesticides in International Trade in 2011. According to the Regulation on the organization and manner of work of public administration (OG 7/09), management of chemicals was transferred to the jurisdiction of the Ministry of Sustainable Development and Tourism and the EPA. The 2012 Law on Chemicals is applied as of 1 March 2013. Inspection is performed by the Administration for Inspection Affairs in accordance with the Law on Chemicals and the Law on Inspection Control (OG 39/03, 76/09, 57/11) (chapter 2).

There is no database and systematic monitoring of chemicals and an information system for the exchange of information on trade of hazardous chemicals and hazardous chemical waste is not developed. The National Strategy for the Management of Chemicals was adopted in 2014.

Transboundary environmental impact assessment

Convention on Environmental Impact Assessment in a Transboundary Context

In 2009, Montenegro acceded to the Espoo Convention on Environmental Impact Assessment in a Transboundary Context with two amendments. To date, Montenegro has entered into arrangements with neighbouring countries for three projects: with Croatia for HPP Plat (2010), with Bosnia and Herzegovina for HPPs Buk Bijela and Foča (2012), and with Serbia for HPPs Brodarevo 1 and Brodarevo 2 (2012–2013).

In 2010, Montenegro was twice notified by Croatia, in accordance with the Espoo Convention, regarding HPP Plat, and took part in an EIA procedure. Montenegro also received a notification for the Water Management Plan of Croatia at the end of February 2013, in accordance with the Convention's Protocol on Strategic Environmental Assessment (SEA). As a party of origin, Montenegro has notified neighbouring countries of the draft detailed special plan (DSP) for the multipurpose HPP on the Moraca

River (Albania was notified in 2010 and took part in the SEA procedure), the draft DSP for a submarine cable (Albania, Bosnia and Herzegovina, Croatia and Serbia were notified in 2011), and the draft DSP for the multipurpose HPP Komarnica (Bosnia and Herzegovina, and Serbia were notified in 2012).

In addition, as an affected party, Montenegro requested EIA documentation for the HPP projects Buk Bijela and Foča from Bosnia and Herzegovina (2012), and from Serbia for the HPP projects Brodarevo 1 and Brodarevo 2 (2012/2013).

Public participation

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

Montenegro acceded to the Aarhus Convention on Access to Information, Public Participation in Decision-making and Access to Justice in Environmental Matters in 2009. Montenegro is not a Party to the Protocol on Pollutant Release and Transfer Registers (PRTR) and to the GMO amendment to the Convention.

The Ministry of Sustainable Development and Tourism prepared the first National Report on the implementation of the Aarhus Convention in 2011 and the second National Report in 2014. Public access to information is guaranteed by the Constitution of Montenegro. It defines that everyone shall have the right to obtain information held by the state authorities and organizations exercising public authority. The right to accessibility of information may be limited if this is in the interest of: the protection of life; morality and privacy; carrying of criminal proceedings; security and defence of Montenegro; and foreign, monetary and economic policy.

Public access to information is also prescribed by the Law on State Administration (OG 38/03, 22/08, 42/11) and the Law on Free Access to Information (OG 44/12). The former states that “the work of state administration authorities shall be public” and that “citizens shall have access to data, documents, reports and information of the state administration authorities”. The latter ensures access to all documents held by public authorities, which is based on the principles of free information, equal conditions for practising the right, open transparent work of government authority and procedural emergency. The public authorities upload environmental information to their websites. For example, the website of the EPA contains reports on the status of the environment, texts of regulations on environmental protection, reports on the work of ecological inspection and approvals issued for EIA.

In 2010, the former Ministry of Spatial Planning and Environment signed a memorandum of cooperation with NGOs. Later that year, the Action Plan for cooperation between the Ministry and NGOs was prepared based on the memorandum of cooperation. A list of signatories and their contact details is available at the website of the Ministry of Sustainable Development and Tourism.

Since its accession to the Aarhus Convention, Montenegro has delivered training courses to civil servants, civil society and mass media, and developed a manual for implementation of the Aarhus Convention for representatives of public administration and NGOs, and a manual for access to the judiciary with regard to environmental matters. All of these activities have been implemented with the support of international partners such as the Regional Environmental Centre (REC) Montenegro, Organization for Security and Co-Operation in Europe (OSCE) Mission in Montenegro.

In 2011, the Ministry of Sustainable Development and Tourism, in cooperation with the NGO sector in environmental protection and improvement in Montenegro, launched an eco-campaign entitled “Ecological Thread That Connects Us”. The campaign was aimed at raising the level of citizens’ ecological awareness.

To continue these activities, from February 2012 to June 2013 the project "Raising Awareness of Environmental Protection" was implemented. The project conducted workshops and training throughout Montenegro on various topics that were aimed at raising environmental awareness. It involved officials of the Government, as well as all sectors of the Montenegrin society, including businesses, NGOs, the media, local communities, educational institutions, schools and universities. In 2011-2012, three Aarhus centres were opened in the country (chapter 4). The establishment of Aarhus centres is one of the preconditions for legal and institutional implementation of the Convention, as well as for effective organization of capacity building activities.

Although Montenegro is not yet a party to the PRTR Protocol, the Law on Environment stipulates that the register of environmental polluters shall contain information on the sources, types, quantities, method and place of discharge, transmission and disposal of polluting matters and waste into the environment. The integral register of polluters is managed by the

EPA based on local registers of environmental polluters managed by local self-government units (chapter 2).

5.2 International projects

Global Environment Facility

The Global Environment Facility (GEF) has supported 10 national projects for Montenegro in different focal areas, including biodiversity, land degradation, POPs and climate change. In 2008–2012, the project "Power Sector Policy Reform to Promote Small Hydropower Development in the Republic of Montenegro" was implemented. The total budget was some US$4.5 million (GEF grant, US$978,393). The project was aimed at reducing GHG emissions by creating a favourable legal, regulatory and market environment, and building institutional and administrative capacities to promote development of Montenegro's small hydropower potential for grid-connected electricity generation (chapter 6).

The project's results include, but are not limited to:

- The development of a sound but simplified and transparent tendering procedure complete with secondary regulations and bylaws that reduces risk for potential investors in Montenegro seeking small hydropower plant (SHPP) investment opportunities;
- Approval of the collection of hydrological data facilitated the provision of information on the potential for hydropower generation at a number of SHPP sites and induced investment decisions by potential SHPP investors;
- An informative website that provides potential SHPP investors with the necessary introductory, regulatory, technical and financial information on SHPP development in Montenegro;
- Local energy plans, which have the impact of attracting investment to stimulate sustainable economic development and provide local strategies to reduce energy consumption and increase renewable energy production at the municipal level;

Four other projects are currently under implementation:

- Capacity Building for Environmental Policy Institutions for Integration of Global Environment Commitments in the Investment and Development Decisions/Projects (GEF grant, US$500,000), since 2011;
- Strengthening the Sustainability of the Protected Area System of the Republic of Montenegro (GEF grant, US$950,000), since 2009;
- Catalyzing Financial Sustainability of the Protected Area System (GEF grant, US$950,000), since 2009;
- Montenegro Institutional Development and Agriculture Strengthening (GEF grant, US$4,000,000), since 2009.

Montenegro has participated in, or is currently participating in, nine regional GEF projects. Seven of these are on international waters and two on climate change. Both first and second National Communications of Montenegro to the UNFCCC were supported by GEF.

World Bank

Since 2007, the World Bank has supported seven projects in Montenegro on energy efficiency, sustainable tourism development and land administration (table 5.2). The 2007–2010 Sustainable Tourism Development Project included two main components:

- Integrated Coastal Zone Management Policy and Institutional Capacity Building Component. This component provided financing to improve land-use planning and protection to reduce or prevent uncontrolled construction and development. It envisioned financing for the following: (i) background study on the Bojana-Buna Delta; (ii) detailed urban plans for Ulcinj; (iii) environmental monitoring of the Bojana-Buna Delta; (iv) monitoring of land use and construction activities in the Bojana-Buna Delta; (v) provision of an information centre and office building for the Bojana-Buna Delta Management Unit; and (vi) institutional strengthening for the Regional Water Supply Company (PEW) and the Ministry of Tourism and Environmental Protection;
- Coastal Environmental Infrastructure Component. This component provided financing for the continental and southern part of the Regional Water Supply Scheme to provide water from Lake Skadar to Bar. Extending water supply to other southern branch cities, including Ulcinj and the tourist areas of Valdanos and Velika Plaža, was envisioned under a subsequent project.

Table 5.2: Selected World Bank projects

Project Title	Commitment Amount, in US$ million	Status	Approval year
Montenegro Energy Efficiency Additional Financing (P145339)	6.8	Active	2013
Additional Financing for Montenegro Environmentally Sensitive Tourist Areas Project (P120659)	5.5	Closed	2010
Montenegro Institutional Development and Agriculture Strengthening (MIDAS) (P107473)	15.7	Active	2009
Montenegro Institutional Development and Agriculture Strengthening (MIDAS) (P110602)	4.0	Active	2009
Land Administration and Management Project (P106906)	16.2	Active	2008
Energy Efficiency (P107992)	9.4	Active	2008
Sustainable Tourism Development Project (P093461)	10.0	Closed	2007

Source: http://www.worldbank.org/, accessed in April 2014.

Unfortunately, due to unsatisfactory progress under Component 1, the project was cancelled in January 2010, 20 months before the planned closing date. Early project cancellation had a major impact on the overall project outcomes. Component 2 concerning construction of the regional water supply system has continued to progress, despite cancellation of the remaining credit, and the scheme will be completed with government co-financing.

European Union

In the framework of national programmes IPA 2012 and 2013, the financial agreement for a total amount of approximately €21 million covering five projects was signed in December 2014.

5.3 Millennium Development Goals

In 2010, with United Nations (UN) support, the Government prepared a medium-term report on achievement of the Millennium Development Goals (MDGs). In 2013, the UN Country Team again supported the Government in preparation of the MDG Progress Report 2013. The report provides deeper analysis of the challenges with respect to individual MDGs, with a particular focus on the goals in which Montenegro is lagging behind. Even though some progress is being made, it is not realistic to expect that Montenegro will achieve all the national targets on MDG 7 (Ensure environmental sustainability) by 2015.

As for indicator 1 (the proportion of territory protected to preserve biodiversity), there was an increase to 9 per cent in 2009 as a result of the designation of a new national park. If current activities on the expansion of the network of protected areas on land are implemented, the target value of 10 per cent by 2015 will be achieved or exceeded.

There was no progress on indicator 2 (the proportion of protected marine ecosystems) so there is a low probability that the planned goal of 3 per cent coverage will be achieved by 2015.

A step forward was recorded in relation to indicator 3: the proportion of forests and forestland increased from 54 per cent to almost 70 per cent, thus exceeding the target value set for 2015. However, the increase can be partly attributed to the fact that the new data is based on the actual situation derived from the first National Forest Inventory, which is prepared in alignment with internationally recommended definitions of forests and forestland, while earlier data was based on available forest plans and assessments which used different methodologies. The increase in the indicator value points to, but cannot be fully and unambiguously interpreted as, an actual increase in the forest area.

Indicator 4 (the number of times measured concentrations of suspended particles PM_{10} exceed limit values and tolerance thresholds in Podgorica) shows a downward trend (with some oscillations) in the period 2007–2012. If the appropriate measures for pollution control are not implemented, with further reduction of the tolerance threshold (down to 0 per cent by 2015), an increase in the number of exceedances may be expected in comparison with the values recorded in the last couple of years (which were below the MDG target for 2015).

Data on GHG emissions (indicator 5) is available for several years for which inventories were prepared. Emissions of 6.5 tons CO_2 equivalent per capita in 2010 were around 15 per cent lower than the 1990 level of 7.7 tons. Getting closer to the target value of

5.6 tons CO_2 equivalent per capita in 2015 would be possible through implementation of intensive energy-efficiency measures and technological changes (with a higher share of renewable energy sources), but its achievement is not likely.

Values for indicator 6a on energy intensity, which suggest extraordinary progress, should be cautiously interpreted due to weaknesses and inconsistencies in keeping energy balances in the previous period. The figure of energy intensity in 2010 being one third of the 2000 level does not correspond to the situation on the ground, where progress was recorded (particularly in the period of intensive GDP growth), but with a much more modest trend. Instead, data from the draft energy development strategy by 2030, which suggests that energy intensity decreased by 21 per cent over the period 2000–2010, could be used for MDG 7 monitoring.

For the 6b indicator (the proportion of renewable energy out of total energy consumption), two sets of data are considered – those from the Statistical Office and those from the Ministry of the Economy (the same as with the 6a indicator). Regardless of certain discrepancies, there is a high chance of reaching the targeted value of 27.7 per cent (it has already been reached according to the data of the Ministry of the Economy). The national target set within the framework of the Energy Community Agreement is 33 per cent of energy from renewable sources by 2020.

In the last five years, the value of indicator 7 (the anthropogenic impact on the quality of surface waters) – which is a percentage of exceedances of the limit values calculated as the ratio of the number of parameters on all measuring profiles that exceed the values allowed by the law and the number of representative parameters – ranged between 35 per cent and 40 per cent, and it was much higher than the target value of 15 per cent.

Finally, all the three indicators developed for target 2 (indicators 8, 9 and 10, i.e. losses in the water supply network, the degree of connection to the sewerage network and degree of wastewater treatment) demonstrated slight progress in the observed period, but they are far below the values targeted for 2015.

According to the data of the Ministry of Sustainable Development and Tourism, losses in the water supply network in urban areas in the period 2005–2011 were expressed as a range (from the municipalities with the lowest to the municipalities with the highest losses) and in 2011 they were at the level of 32–72 per cent (in comparison with 35–85 per cent in 2005). For 2012, for the first time, the losses were expressed as an aggregate figure (for the water supply networks in the urban settlements in all municipalities) and they amounted to 57 per cent, which is almost twice as high as the target value of 30 per cent. Once several WWTPs start working, which is expected to happen by 2015, a visible increase in the percentage of treated wastewaters could be achieved (from the current 18 per cent). Therefore, it is assessed that achievement of, or getting near to, the target value of 60 per cent is possible.

5.4 Conclusions and recommendations

State budget (i.e. central government) funds allocated to environmental protection have remained relatively modest. The total central government environmental expenditures declined from €10 million in 2009 to €5.3 million in 2013 (chapter 3). The implementation of multilateral environmental agreements (MEAs) in Montenegro strongly depends on international financial support. Since 2007, Montenegro has enjoyed funding from the GEF, the EU through the IPA, and many other international donors. The situation of high dependence on international aid cannot be sustainable in the future.

Recommendation 5.1:
The Government should systematically and gradually reduce the country's dependence on international aid in order to fulfil its obligations under multilateral environmental agreements, and aim to raise its capacity to act within a scenario in which most of the funds are provided from domestic sources.

Montenegro has made progress on some indicators with regard to the country's commitments on the MDGs. For example, the country managed to increase the proportion of territory protected to preserve biodiversity, and to increase the proportion of renewable energy out of total energy consumption. At the same time, Montenegro is about to fail to reach some of its commitments. The country showed no progress on increasing the proportion of protected marine ecosystems, on the anthropogenic impact on the quality of surface water, or on losses in the water supply network.

Recommendation 5.2:
The Government should ensure that adequate funding is made available for implementation of the country's commitments on MDG7.

Since 2007, Montenegro has acceded to a number of global and regional MEAs. Montenegro also completed accession to all ECE environmental conventions. At the same time, the country is not yet

a party to a few instruments, such as the Protocol on Water and Health and the Protocol on Pollutant Release and Transfer Registers.

Recommendation 5.3:
As soon as appropriate capacities for implementation are available, the Government should accede to the following protocols:

(a) The Protocol on Pollutant Release and Transfer Registers to the Convention on Access to Information, Public Participation in Decision-making and Access to Justice in Environmental Matters;

(b) The Protocol on Water and Health to the Convention on the Protection and Use of Transboundary Watercourses and International Lakes.

In 2013 the Parliament ratified Annex VI of the International Convention for the Prevention of Pollution from Ships (MARPOL).

Recommendation 5.4:
The Ministry of Transport and Maritime Affairs, in cooperation with the Ministry of Sustainable Development and Tourism, should ensure the implementation of the Annex VI Prevention of Air Pollution from Ships of the International Convention for the Prevention of Pollution from Ships (MARPOL).

Chapter 6

CLIMATE CHANGE MITIGATION AND ADAPTATION

Montenegro ratified the United Nations Framework Convention on Climate Change (UNFCCC) in 2006 and the Kyoto Protocol in 2007. As a non-Annex I country, Montenegro has only general obligations such as reporting to UNFCCC. However, those general obligations should be fulfilled if the country is to be eligible for technical and economic assistance.

They include collecting relevant information and submitting national reports with GHG inventories to UNFCCC, developing strategies for climate change mitigation and adaption, cooperation in research and technology transfer, and improving the education and awareness of the public.

Montenegro submitted its Initial National Communication to the UNFCCC in 2010. The Second National Communication (SNC) has been adopted by the Government in March 2015.

6.1 Current and foreseeable economic and environmental impacts from climate change

Environmental impacts from climate change

Meteorological observations in Montenegro over the last 30 years show a clear evidence of changing climatic parameters. The period 1961–2012 shows a trend towards an increase in air temperature in all climatic zones. During the same period, there was no reduction in the total amount of annual rainfall, but an indication of a trend towards a more extreme precipitation regime. In the coastal region, frequency of warm nights and warm days increased while the frequency of cold nights and cold days decreased. According to the SNC, an increase in sea surface temperature and medium sea level, and changes in extreme weather and climate events, might occur.

It is impossible to link an individual natural hazard directly to climate change, but the link between climate change and an overall increase in the frequency and intensity of hydrometeorological natural hazards is recognized. The World Meteorological Organization declared the period 2001–2010 as a decade of climate extremes. Montenegro was also affected by weather extremes in this period.

Podgorica and its surroundings suffered from several heatwaves (temperature up to 45° C) in recent years (mainly in 2011) and the whole country suffered from several severe droughts within recent years (2000, 2003, 2007 and 2011).[6] The International Disaster Database (www.emdat.be) reports that among four natural disasters within the last 10 years in Montenegro, there were three floods (2007, 2009 and 2010). Damage and losses caused by the 2010 flood amounted to around €44 million.

Economic impacts from climate change and costs of mitigation and adaptation

There is no comprehensive model on economic impacts from climate change for Montenegro. The project-based "Technology Needs Assessment for Climate Change Mitigation and Adaptation for Montenegro – National Strategy and Action Plan" (TNA) gives an indication of costs for priority measures of adaptation for the sectors most relevant: health sector, €1.8 million; water sector, €4.3 million; agriculture sector, €2.1 million; coastal area, €1.9 million; and forestry sector, €1.4 million.

In the preparation of the SNC, UNDP is carrying out a study with the objective to quantify economic losses induced by climate change for some selected cases. First results show that climate change would bring mainly negative economic impacts for the near future up to 2030 and strongly negative impacts for the end of the century (2071–2100). Due to lack of data, results are of restricted informational value, as the authors emphasize themselves. However, results indicate that negative impacts have to be expected and adaptation measures are necessary.

This is in line with estimations from the Intergovernmental Panel on Climate Change (IPCC) that predicted shortages of water resources will cause losses for electricity generation in HPPs which could reach up to 25 per cent by 2070. For a safe electricity supply and for the planning of new hydroelectricity plants, models to simulate the run-off from rivers under conditions of climate change are vital.

[6] Drought monitoring only started in 2000, so comparison with earlier periods is not possible.

Photo 6.1: Durmitor Mountain

Annual economic losses due to increasing irrigation demand for crop production are high for relatively small amounts of land; a possible extension of irrigated land should therefore be considered with caution, as the authors indicate themselves.

In the tourism sector in the short term, two models show contradictory results for the close future until 2030, and higher temperatures in summer may have beneficial effects. But in the longer term, all models predict considerable economic losses as tourists will shift to cooler places, at least in the summer period, as the temperature increase is too high. At present, tourism mainly suffers from less snow in winter sport areas. According to the SNC, snowfall in the years 2001 until 2010 was highly variable and also included extreme precipitation.

The comprehensive costs of taking no action are not known for Montenegro, either for mitigation or for adaptation.

In Montenegro, the energy sector has higher potential for mitigation, with the main measures being increasing energy efficiency, reducing energy consumption and increasing the use of renewable energies. These measures will not only result in the benefit of fuel savings but will also have various other beneficial effects: creation of jobs in innovative industries and crafts and improved health conditions through less air pollution. Scenarios about green economy interventions in the energy sector (UNEP/UNDP 2012) show that such measures will reduce energy consumption and create 330 to 370 jobs related to the building and transport sector. Investments in the period 2012–2020 range from €66.2 million to €140 million (depending on the scenario) and will generate avoided costs of €103.7 million to €169 million over the same period. The study further shows that the potential job creation from investments in public transport infrastructure, such as railroads and tram/metro systems, could be considerably higher than interventions targeting passenger cars. If the investments were spent for the expansion of the rail network instead on low carbon vehicles (as in the scenarios), employment creation would even grow up to 6,600 jobs by 2020.

For the SNC, a cost–benefit analysis has been done for all mitigation measures that were prioritized in the TNA report. A total cost of €6.5 billion over a 25-year period for those measures produces overall benefits of €11.3 billion in that period. So the net benefits are €4.8 billion. Highest net benefits show measures increasing the efficiency of the aluminum and iron/steel industries. The results of the cost–benefit analysis are rather unexpected, as measures such as carbon capture and storage – which, in other studies are generally considered as cost intensive – have a rather high cost–benefit ratio, while others (e.g. insulation measures in the building sector) come off badly. It is not clear in the cost–benefit analysis

(at least in its summarized version in the SNC), which assumptions were made, which costs are integrated and how benefits are calculated. Results should therefore be considered carefully. Measures with a low cost–benefit ratio can still be worth implementing, especially if more detailed analyses are available which indicate additional benefits, as is the case with the efficiency measures in illegal settlements. Some measures must be checked for their suitability for implementation, such as the use of carbon capture and storage, where geology must allow for safe storage.

GHG emissions and mitigation scenarios

The energy sector, comprising energy supply and consumption in the transport, residential and service sectors, has the highest share in GHG emissions, accounting for nearly 70 per cent of the total emissions in 2011. This was followed by the industry (20 per cent), agriculture (10 per cent) and waste (2 per cent) sectors.

A few large GHG contributors have a major influence on the overall emissions. About 99 per cent of emissions from the industrial sector originate from the Aluminum Plant Podgorica (KAP). Most of the emissions arise during electrolysis as synthetic gases tetrafluoromethane (CF4) and hexafluoroethane (C2F6) (perfluorocarbons or PFCs), which both have a very high global warming potential. KAP reduced its production after 2007, so emissions from KAP dropped drastically in 2008 and have been at a lower level since.

The second large, single source of emissions is the lignite TPP Pljevlja. It was under reconstruction in 2009, which is evidenced in the much lower emissions from the energy sector in that year.

Emissions have fluctuated since 2007, for several reasons (e.g. the global financial crisis from 2008). The financial crisis also led to a global drop in the price for metals and in decreased production by KAP and other industrial producers. The second largest industrial producer, Steelworks Nikšić, also downsized its production in 2008.

However, emissions from fuel combustion have been growing and peaked in 2008, mainly due to rising fuel consumption in the transport sector. Between 2002 and 2009, consumption of fuels for road transport more than doubled (from 4.7 PJ to 10.4 PJ) and the share of CO_2 emissions from the transport sector increased from 15.3 per cent in 2002 to 28.5 per cent in 2010. The main emission source, accounting for 88 per cent of the emissions of the transport sector, is road transport (individual and freight transport), and this is trending upwards.

Montenegro is a country rich in forests. Their carbon sink capacity has even been growing, from -1,635 Gg of CO_2 eq. in 1990 to -2,167 Gg of CO_2 eq. in 2011. This growth is explained by the fact that the National Forest Inventory showed that there are more forests that estimated.

The annual emissions per capita are rather low as well, with around 2.7 t CO_2 eq./capita in 2011 (or 6,2 t CO_2 eq./capita without sinks) compared with the EU average of 9.2 t CO_2 eq./capita.

The energy sector has the highest mitigation potential. The Montenegrin economy is very energy intensive. In 2008, the Montenegrin economy consumed 1.7 times more energy than Croatia's and three times more than the EU average. In 2010, the energy intensity of Montenegro was 439 toe per million GDP while the EU-27 average was 123 toe per million GDP. These figures indicate that there is space for reducing energy consumption by improving efficiency, and thus for reducing CO_2 emissions.

Because of the uncertain future of KAP (which went bankrupt in 2013 and is currently in the privatisation process) and its high share of overall emissions, the two scenarios differ: with KAP working, first, at full capacity (yearly production of 120,000 t of cast aluminum) and, second, at reduced capacity (70,000 t of cast aluminum). Emissions under the mitigation scenarios will be considerably lower in 2020 compared with the business-as-usual scenario, but still higher than in 2008: 2,954.6 Gg CO_2 eq. (full capacity of KAP) and 2,334.6 Gg CO_2 eq. (reduced capacity of KAP).

Both mitigation scenarios assume that KAP will undergo renovation and BAT will be used with respect to energy efficiency and emission reduction. These comprise increased efficiency and higher temperature of electrolysis, spot metering of alumina and better process control, and the introduction of inert anodes. In the mitigation scenarios, measures leading to a substantial reduction in emissions are gradually introduced.

In the business-as-usual scenario, industrial process emissions will reach 1,649 Gg in 2020 but still be lower than in 1990. With mitigation measures for KAP, the industrial sector's emissions can be reduced to 1,011.7 Gg CO_2 eq. or, in the case of reduced capacity of KAP, even to 391.7 Gg CO_2 eq. in 2020.

In the energy sector, final energy consumption of industry, households and services will rise further and electricity will remain the dominant source of energy. Fuel consumption in the transport subsector will grow by 62 per cent compared with 2008. In the mitigation scenario in the energy sector, the new renewable generating capacity for electricity production (new HPPs) is included, as well as the rehabilitation of existing HPPs. In this scenario, Pljevlja I only needs to run 2,857 hours per year from 2018–2024. In both scenarios, the sink potential is growing, to 2,445.6 Gg CO_2 eq. in 2020 in the business-as-usual scenario, and even to 2,545.6 Gg CO_2 eq. in the mitigation scenario, due to measures improving fire protection, more afforestation and improved sustainable management.

In the waste sector, emissions will drop to 93.8 Gg CO_2 eq. in 2020 compared with levels of 1990, and can be reduced further by introducing more landfill gas collection and reducing the amount of organic waste to 9.4 Gg CO_2 eq.

6.2 Climate change and economic sectors

Agriculture

The agricultural sector is highly vulnerable to climate change due to its dependence on temperature and water conditions, and is also threatened by the increase in extreme weather conditions such as droughts or floods. The drought in 2012, resulting in reduced milk production as fodder for cattle became scarce and because of heat stress on the cattle, showed the kinds of impacts agriculture will have to face more frequently in future.

A large part of the limited agricultural areas in Montenegro are regularly being flooded as they are located in the lowlands. Further negative impacts from climate change on agricultural production are:

- Limited plant growth, and therefore substantial reduction of yields, due to crop production vulnerability to temperature and precipitation changes;
- Increasing dependency on irrigation with reduced water resources at the same time;
- A decrease in the content of organic matter in soils.

The most important branch of agriculture in Montenegro is animal husbandry, which has to face the following impacts:

- Possible decreases in livestock production as a result of new animal diseases due to heat stress as effects from heatwaves;
- Reduced production of animal feed due to droughts;
- Vulnerability of livestock with regard to floods and the difficulty of evacuation.

A vulnerability assessment for droughts has been done for the whole Balkan region. Results show that, in Montenegro, it is mostly areas closer to the coast that are highly vulnerable, but so too is part of the north of the country. Drought monitoring in Montenegro is based on a standardized precipitation index (SPI), but it suffers from the reduction of precipitation stations from 67 to 20 in 2011, which has affected the quality of data and predictions.

Forestry and biodiversity

The predicted increase in high temperatures in combination with drought provides conditions favourable to the spread of fires, with an increasing risk in the course of the century. As in many Mediterranean countries, Montenegro has to face fires regularly (table 6.1). In 2012, 7 per cent of the forested area was affected by fire. Further impacts from climate change include movement of vegetation zones, reduced potential for growth and production, a reduced number of species, the drying out of forests and progressive degradation.

The vulnerability of forests to pests and diseases, and climate change impacts on the future distribution of the main tree species, were assessed. Results show that no major changes in the natural tree composition of forests would take place up to 2030, but from then until the end of the century, distribution of habitats of the main tree species (oak, beech, spruce, fir and white pine) would change geographically and forests would also tend to spread to higher altitudes.

Table 6.1: Damage in forests caused by fires, 2004–2011, ha

	2004	2005	2006	2007	2008	2009	2010	2011
Areas	1,376	103	210	18,311	3,628	88	616	5,091

Source: Statistical yearbooks of Montenegro.

Detailed analyses on climate change impacts on biodiversity are scarce. According to the Initial National Communication to the UNFCCC, predicted impacts on biodiversity are a loss of species and reduced productivity of ecosystems.

Public health

Negative impacts on health from climate change are expected, from heatwaves. Most affected will be ephemeral settlements, where safe drinking water supply cannot be maintained in the event of floods. Disaster risk management plans for such situations would be needed, as well as early warning systems for both floods and heatwaves.

Further risks include indirect effects of higher temperatures, such as an increase in the number of water- and food-borne diseases (e.g. salmonellosis and gastrointestinal infections) to which children are especially vulnerable, and algal contamination of water.

Water resources

Projected impacts from climate change are reduced flow and reduced abundance of water resources, as well as higher frequency and abundance of floods. But climate change is not the only factor that influences water resources. According to UNDP (2013), it is the combination of water shortages due to uncontrolled demand and increasing frequency of drought due to climate change that will bring many regions in Eastern Europe into a situation of severe water stress in the coming decades.

In recent years, research has been conducted on the impacts of climate change, e.g. a hydrologic analysis of Lake Skadar and the effects of climate change on the water regime of the river catchments of Lim and Tara. A detailed assessment of the water sector is looking at the need for data for a water information system, and includes a proposal for a water cadastre and recommendation on institutional changes in the water sector, taking into account the predicted impacts of climate change.

6.3 Raising public awareness on climate-change-related issues

Climate change, and especially adaptation to it, is a relatively new issue in Montenegro. There has been a considerable amount of awareness-raising activity. In 2010, the official website “Climate change in Montenegro” (www.unfccc.me) was launched. It contains all relevant documents and information on aspects of climate change.

At the local level, awareness is growing and has led to some changes, such as increased efficiency of public buildings and lighting. But a lot remains to be done, which local communities recognize, to tackle the challenges related to climate change, for example, taking into account climate change issues in urban planning. For issues of energy efficiency, efforts have been made to raise awareness among the population. A website (www.energetska-efikasnost.me) provides information on energy efficiency and shows how it is possible to save energy. Ongoing public campaigns focus on this topic in the mass media and in preschools and schools. The greatest public concern is related to rising energy prices.

Strong efforts have been made in raising awareness of health risks and making recommendations for behaviour during heatwaves, whose frequency and duration is increasing with climate change. Leaflets targeted at particular groups, such as the elderly and small children, have been produced and distributed widely, complemented by TV broadcasts.

6.4 Legal framework

There is no special law devoted to climate change. The 2008 Law on Environment (OG 48/08, 40/10, 40/11, 27/14) includes mitigation of climate change as a target. It also contains provisions for national climate changes mitigation plans, which consist of a national GHG inventory, analysis and projections of emissions and their reduction as well as mitigation measures, economic analysis and other relevant information, and will be in force for a period of six years. However, so far, such plans have not been adopted.

The Law on Air Protection (OG 25/10, 40/11) includes provisions concerning a national strategy and plans regarding air quality, which also include measures to reduce GHG emissions. Further, the law makes provisions concerning GHG inventories, the Clean Development Mechanism (CDM) and other measures to contribute to climate change mitigation. The 2014 Rulebook on GHG inventory and exchange of information (OG 39/14) regulates GHG inventory. The 2013 Regulation on the national list of environmental indicators (OG 19/13) includes indicators on climate change.

Preparation for the legal and administrative framework to implement the national emission trading system has begun. Four or five enterprises which would come under the emission trading system have been screened.

Other legal acts with relevance to climate change are the Law on Energy (OG 28/10, 6/13), the Law on Energy Efficiency (OG 29/10), and various regulations and rulebooks dedicated to improving energy efficiency and fostering the use of renewable energies, and thus making provisions for the two main mitigation sectors. The Law on Energy Efficiency obliges local self-governments, public administration, grid operators, energy suppliers, suppliers and distributors of energy-using appliances, and big energy users to adopt various measures to improve energy efficiency. It contains provisions relating to energy end-use, energy efficiency, energy performance of buildings, eco-design of products and labelling of household appliances. Municipalities must have energy managers, for whom training has been organized in recent years. Local self-governments are obliged to adopt three-year programmes and one-year plans for energy efficiency improvement and report on them, but this task is not fulfilled sufficiently by all municipalities.

Adaptation is not addressed in relevant sectoral laws such as the Law on Water (OG 27/07, 32/11) or Law on Forests (OG 74/10, 40/11). The Law on Water stipulates the introduction of a water cadastre and water information system. The Initial National Communication to the UNFCCC states the need for those information tools, being the basic information keys, for improving the adaptive capacity and resilience of the water sector towards climate change. A water information system is described in several documents (e.g. the SNC and the 2013 Detailed Water Sector Assessment and Water Cadastre Proposals) but has not yet been introduced.

In recent years, Montenegro has adopted several rulebooks and regulations concerning construction of renewable energy plants, e.g., the 2011 Regulation on the tariff system for the establishment of preferential prices of electricity from renewable energy sources and efficient cogeneration (Feed-in Tariff) (OG 52/11, 28/14).

The Rulebook on minimum energy efficiency requirements of buildings (OG 23/13) introduced efficiency standards for new buildings and major reconstruction. Additionally, in new buildings or on the major rehabilitation of buildings, 30 per cent of the hot water has to be delivered by solar energy, in particular for Podgorica region and coastal municipalities. Energy efficiency certificates for buildings were introduced. Conditions for certification of the energy performance of buildings have not yet been specified.

6.5 Strategic framework on mitigation and adaptation

Montenegro has no national strategy on climate change. The National Strategy on Climate Change by 2030 is under the development. The 2007 National Strategy for Sustainable Development calls for developing a plan to reduce emissions and a programme for mitigating the consequences.

Another general paper relevant for climate change issues is the TNA of 2012. All relevant stakeholders in Montenegro were involved in its preparation. The outcome is a priority list of measures for both adaptation and mitigation. The TNA gives a good summary of the current situation regarding climate change and Montenegro's climate-change-related policies.

The Action Plan for the period 2013–2016 of the 2013 National Strategy for Air Quality Management also contains measures for the reduction of GHG emissions and the obligation to report annually on the implementation of the Plan. General recommendations of the Strategy include:

- Improvement in the energy sector;
- Introduction of economic instruments such as an increase in electricity prices, taxes on energy/coal, and a fuel tax;
- Abolition or reduction of subsidies on fossil fuels;
- Inclusion of climate change in the broader process of planning for sustainable development and sectoral development plans, zoning, planning and designing of buildings and settlements;
- Inclusion of climate change in the curriculum at all levels of education;
- Intensifying public awareness-raising programmes.

Some of the targets for 2014 are already implemented: the national council on climate change is established as well as the national GHG inventory system. The third target is the elaboration of a national policy on climate change, which started in 2014.

Climate change aspects have not yet been integrated into sectoral policies except for the forestry sector and, partly, the energy sector. There have been positive developments in respect of biodiversity, tourism and regional planning, but the integration of climate change concerns into sectoral strategies is not considered to be satisfactory.

Adaptation

Coastal area

In 2013, the Coastal Area Management Programme resulted in the draft concept of integrated coastal zone management. Further results will include a model of institutional structures for an integrated coastal management area with defined responsibilities and institutional development needs. A national strategy for integrated coastal area management is in preparation.

Agriculture

Climate change adaptation has not yet found its way into strategic documents or laws for the agricultural sector; neither has it in the 2006 Strategy on Food Production and Rural Development or the 2008 National Programme for Food Production and Rural Development for the period 2009–2013. A strategy on food production and rural development for the period 2014–2020 is under preparation.

Forestry

The 2008 National Forest Policy recognizes the role of forests in mitigation of, and their vulnerability to, climate change. The document recommends that forest management should shift towards specification of species and forest ecosystems similar to natural stands to improve resilience to climate change. It also indicates the need for research related to forestry and aspects of climate change. Since its production, there have been some efforts made on data collection and research. The sensitivity of forests to the spread of pests and plant diseases due to climate change has been analysed, and the forest inventory has been updated.

The 2014 National Forest Strategy emphasizes the importance of improving resilience against forest fires and reducing the extent of burned areas by 70 per cent. The Strategy mentions development of methods to rehabilitate burnt areas, as well as cultivation of mixed deciduous stands of native species (beech, fir, spruce, noble hardwood) with a higher resilience and transformation of low coppice forests into high forest.

Most measures relate to improving administrative and technical capacity building, such as better organization of firefighting institutions, investment in equipment and installation of an early warning system, as well as inclusion of the population to prevent fires, and regional cooperation. The Strategy includes a time frame for implementation.

The Strategy also emphasizes the need to leave open, non-forested areas. Such open areas around settlements and critical infrastructure would help to limit damage from potential wildfires. A mosaic of forest and non-forest land, including open areas around settlements, would also support and maintain biodiversity and preserve agricultural production. Therefore, these open areas should be preserved and their use encouraged, for example, by a scheme for mowing meadows which could be supported by the IPA in Rural Development. Strengthening the participation of the local population in joint programmes of rural development with the support of the Ministry of Agriculture and Rural Development, and diversification of economic activities in rural areas through the promotion of the role of forests and forestry, would also have social benefits in rural areas.

The Strategy also focuses on future management of forests. Appropriate management is seen as a key instrument to increase the adaptation potential of forests.

Tourism

The 2008 Tourism Development Strategy to 2020 recognizes climate change as being one of the threats for winter tourism because of declining snow reliability, and emphasizes the need to consider such aspects in future planning.

Public health

In the public health sector there have been some achievements, such as the awareness-raising campaigns on heatwaves. Yet there is no adaptation strategy for public health and a general vulnerability assessment is lacking. The information base and capacities are not sufficient, so it is unclear to what extent diseases caused by climate change could present a risk and could be prevented.

At the moment, Montenegro is developing a climate change adaptation strategy for the health sector. The SNC calls for an early warning system concerning heatwaves and cold waves, and for improvements in data collection and research.

Other

The 2010 National Biodiversity Strategy with the Action Plan for the period 2010–2015 lists climate change among the main threats to biodiversity. It recommends giving more attention to analyses of climate change impacts on biodiversity and to preparing a national action plan on climate change

with measures for adaptation and mitigation of climate change impacts on biodiversity.

As a consequence of the flooding in 2010, the Emergency Management Sector within the Ministry of Internal Affairs and Public Administration has supported 12 relevant local communities in preparing flood assessments and preparedness plans.

Mitigation

Montenegro has not yet defined any national targets for GHG mitigation or limitation.

Energy Sector

The 2007 Energy Development Strategy of Montenegro until 2025 mentions growing CO_2 emissions, mainly caused by construction of new TPPs and somewhat counterbalanced by construction of HPPs and mitigation measures such as other renewable sources or efficiency. According to the 2011 Energy Policy of Montenegro until 2030, approaches to mitigation in the energy sector are development of a higher share of renewable energy and improved efficiency.

The 2012 Green Book Energy Development Strategy until 2030 reflects on the growth of GHG emissions as a problem but does not analyse possible solutions. The planned construction of an additional lignite TPP Maoče with 350–500 MW (as referred to in the Green Book), additional to Pljevlja II, is not included in the GHG scenarios in the SNC as it would be realized after 2020. Under these conditions, emissions from fuel combustion would more than double from 2008 to 2030 to 7,524.2 Gg CO_2 and total emissions would be up to 6,000-6,400 Gg CO_2 eq. (including sinks). This planning is not in line with any goals to reduce or limit emissions for Montenegro, as a lignite power plant has a life span of 30–40 years. The necessity of Maoče power plant for Montenegro electricity consumption is not clear, as scenarios mentioned in the Green Book predict considerable electricity exports if all planned TPPs and HPPs are built. Long-term scenarios which include alternatives to additional coal power plants, such as an increased use of renewable energy sources and reduced electricity consumption, are lacking.

Renewable energy

In 2014, Montenegro adopted the National Renewable Energy Action Plan. The country has high potential for renewable energy (hydro, solar, wind and biomass). Only a small part of this potential is used at present (mainly generating electricity from hydropower and using biomass – fuel wood – for heating purposes).

According to the Energy Development Strategy until 2030, the technical potential of hydropower is some 4.1–5.0 TWh and of onshore wind energy, 0.9 TWh. The technical potential of photovoltaic and solar thermal energy is not indicated, but average global solar radiation is very high with 1,450 kWh/m^2y and in the more populated areas, such as Podgorica, even higher (1,600 kWh/m^2y) – so the solar potential is considerable, but a detailed study is lacking.

The technical potential of biomass – the technical potential of fire wood, wood residues, wood chips, wood briquettes, wood pellets and charcoal is estimated in the Energy Development Strategy of Montenegro by 2030 to be around 2 TWh of which around 1.9 TWh were used in 2011 as fuel wood for heating purposes.

Montenegro has the binding national target of a 33 per cent share of renewable energy sources in gross final energy consumption by 2020, which was set by the Energy Community in 2012.

According to the Energy Development Strategy by 2030, plans for new installed capacity of all renewable energy sources are: 120,9 MW of small hydropower (2015-2025), 189.7 MW of wind energy (2017-2030), 10 MW of the incineration of mixed solid waste, 0,4-39,0 MW of other forms of biomass, 1,5-31,5 MW of photovoltaic power plants (2015-2030). For wind energy, two concessions have been granted (Krnovo 72 MW and Možura 46 MW). Currently, photovoltaic energy is mainly seen as being suitable for remote areas without grid access, despite the very high yield due to high sunshine duration: the average is 1,450 h/year, and at the coast even 2,000–2,500 h/year. Since prices for photovoltaic installation did fall drastically in the last few years, solar electricity production at coastal sites can be an option for Montenegro.

In 2010 because of very favourable hydrology, renewable energy sources already contributed to final energy consumption by 36 per cent, but their contribution depends on the development of energy consumption and, with the construction of a second lignite TPP as is planned, the share would decrease again, according to the existing reference scenario. So the construction of additional renewable energy plants is necessary.

According to the concluded concession contracts, based on the first, second, third and fourth tenders, the construction of 34 SHPPs, with fully installed

power of around 68 MW, with planned annual production of around 226 GWh is planned. However, by early 2014, only one small HPP had been completed. In accordance with the Law on Energy and the Rulebook on criteria for issuance of energy licence, content of a request and registry of energy licences (OG 49/10, 38/13), the Ministry of Economy has allowed a special procedure for the construction of energy facilities, which include the construction of power plants with installed capacity of up to 1 MW on the basis of an energy license. Nine decisions on issuing construction permits for SHPPs were adopted, and seven concession contracts for the construction of SHHPs were signed.

The procedures for obtaining all permits could take 10 months. They involved many steps, such as the introduction of hydropower facilities in the local spatial plan. Furthermore, costs for grid connection are high and investors complained about the technical requirements (distribution code) for connection leading to high additional costs. Due to the underdeveloped and weak grid, long connections and additional substations had to be built by the investors. The Energy Regulatory Agency was involved in mediating in such cases.

One of the major accomplishments to overcome the obstacles in the development of renewable energies was the establishment of a one-stop-shop in 2013, which should simplify the administrative procedures. The duration between application for and approval of a new renewable energy plant has been reduced to around 50 days.

Energy efficiency

According to the 2011 Energy Policy of Montenegro until 2030, final energy consumption must be reduced by 9 per cent by 2018 compared with average consumption in the period 2002–2006 – without consideration of the energy consumption of KAP. The Policy further sets a priority on the substitution of electricity or solid fuels for heating purposes by the introduction of district heating systems, liquefied petroleum gas (LPG) bottle systems, modern heating systems and renewable energy sources. Electricity substitution by sources with a lower energy value is desirable for reasons of efficiency, and the substitution of lignite for local heating by other fuel sources is desirable in order to improve air quality and lower GHG emissions. The major obstacle to the introduction of district heating systems is the high installation costs of the district heating pipeline.

The 2005 Energy Efficiency Strategy is implemented through National Energy Efficiency Action Plans (NEEAPs). The current (second) NEEAP for the period 2013–2015 was adopted in November 2013. It describes achievements and gaps from the previous NEEAP for the period 2010–2012. The implementation of promotional earmarked energy projects, mainly in the building sector, and public awareness raising on the importance and effects of energy efficiency measures, are listed as the main achievements.

Some measures of the first NEEAP are still in progress, e.g. the regulatory framework for labelling the energy consumption of household appliances is in preparation, as are criteria for energy efficiency in the public procurement of goods and services and for the purchase and rental of buildings.

Least successful was the implementation of measures in industry and transport: most measures are continued, and sometimes adapted, in the second NEEAP. The main reasons for the lack of implementation are the lack of both financial and human resources, as well as delays in completion of the legal framework.

A measure on promotion of high-efficiency cogeneration was abandoned. The programme for development and use of high-efficiency cogeneration – a provision from the Law on Energy – has not been elaborated to date, and the 2012 Green Book Energy Development Strategy until 2030 is rather critical about the necessity of such a programme, because of the lack of experience in Montenegro, and for other reasons.

At the local level, some activities take place. Two municipalities (Bar and Tivat) have adopted three-year programmes for energy efficiency and other municipalities are working on such documents. Podgorica set up a sustainable energy action plan in 2012, which includes an inventory of energy-related emissions and their development until 2020, with reduction measures in building, transport and public lighting. By these measures, emissions could be reduced by 20 per cent by 2020 (compared with 2008). Partly implemented measures include, for example, a car-free street in the city centre and a funding system of 50 per cent support for thermal insulation of collective residential buildings.

Transmission and distribution losses are estimated at 16.6 per cent in 2010. The 2012 Green Book includes the goal to reduce losses to below 10 per cent by 2030 by developing the distribution network. To date, a modernization plan for the grid of

Montenegrin Electric Enterprise (EPCG), which also considers the integration of a larger share of variable renewable energy, is lacking.

Transport

Climate change aspects have not found their way into the 2008 Transport Development Strategy. Policies and measures to stimulate the deployment of low- or zero-emission transport means and modes are lacking, as is any vision of sustainable development of the transport sector. Strategies for the promotion of electric cars are also lacking. Insufficient development capacities and insufficiently developed awareness are the main obstacles.

Improvement of efficiency in the transport sector was part of both NEEAPs, but implementation of the first NEEAP was weak. The second NEEAP mentions the necessity of a study to establish a more systematic approach. The cooperation of local self-governments is also required for the further implementation of the NEEAP.

Stakeholders from the transport sector did participate in the process of developing the TNA. That document identifies priority measures for mitigation which aim at a sustainable modal split, reducing the share of individual motor car traffic and having additional benefits on improving air quality. The identified measures include improvements in public transport, development of cycling infrastructure and the introduction of intelligent transport systems. Other measures aim at more efficient use of energy and comprise the introduction of LPG and an increase in the number of electric vehicles and plug-in hybrids. Very few measures have been implemented. To improve air quality, bus companies can get some subsidies when using LPG as fuel.

6.6 Institutional framework

The Ministry of Sustainable Development and Tourism is in charge of coordination of climate change mitigation and adaptation. It is also responsible for the development of policies and strategies on climate change as well as for preparing harmonization with the EU *acquis* on climate change. The national focal point for the UNFCCC and the Kyoto Protocol is located in the Ministry. The Ministry is responsible for deciding on monitoring and reporting. The EPA is conducting the GHG inventories. Responsibility for projections is not yet defined. For example, the projections in the SNC have been calculated within a UNDP project.

The HSS monitors and assesses climate, analyses potential impacts of climate change on different sectors and ecosystems, and is modelling climate scenarios according to the provisions in the Law on Hydrometeorological Affairs (OG 26/10, 40/11, 30/12). Results are presented in the Initial National Communication to the UNFCCC and the SNC. The HSS is also the focal point for the IPCC and the Global Climate Observing System. It has carried out intensive research on climate models, and the mapping of water courses and flood risk, and is cooperating with institutions from neighbouring countries. Further research is needed, especially for better risk assessment of droughts, heavy rainfall and flooding. A problem the Service faces is the lack of some academic expertise, as disciplines such as hydrology and meteorology are not offered by Montenegrin universities.

In October 2013, the Government decided to extend the responsibilities of the National Council for Sustainable Development by adding climate change issues (chapter 1), to elevate the importance of climate change and to meet the EU's requirement for a multi-stakeholder body on climate change. The enlarged National Council began meeting as of December 2013.

The Ministry of Transport and the Ministry of Agriculture and Rural Development are also members of the National Council and its working group on climate change. Hopefully, this will give more focus to climate change issues in the transport and agriculture sectors, e.g. in the development and implementation of respective strategies. Capacities in the agricultural sector are low and are concentrated on the transposition of the EU *acquis* on agriculture. Further difficulties are the high number of small farms, farmers' lack of knowledge related to climate change aspects, and the lack of data and good practice examples.

The level of cooperation among different ministries and institutions is generally considered to be insufficient. Cooperation and coordination on the national, regional and international levels in order to successfully tackle the challenges of climate change is poor. Communication between ministries is limited. To date, not all ministries have contact persons responsible for climate change.

The Chamber of Craft also organized training on solar energy, biomass, insulation and geothermal energy, but still sees demand for capacity building and vocational training.

Montenegro participates in the climate-related work of the Environment and Climate Regional Accession Network (ECRAN), which was before 2013 the Regional Environmental Network for Accession. The Network is designed to prepare official candidate countries for accession to the EU by capacity building in the environmental sector, with a strong focus on climate change. Montenegrin institutions participate in the working groups on policies, GHG inventories, an emission trading system and adaptation.

Montenegro is part of the Energy Community, which was established between the EU and third countries to extend the EU internal energy market to Southeast Europe and beyond, with the objective to support energy efficiency and renewable energy. Montenegro initiated the Regional Forum on Climate Change for the Western Balkans. However, it has not been active in the last two years.

The South East European Forum on Climate Change Adaptation originated in an IPA project in 2011–2012. Four national civil society networks have been established in Serbia, Croatia, Montenegro and the former Yugoslav Republic of Macedonia, aimed at strengthening capacities in the civil sector, raising public awareness and enhancing dialogue with decision makers. An important outcome of the civil society network is national climate vulnerability assessments.

6.7 Projects

Numerous projects related to climate change took place in recent years, some of which are mentioned above. They included the elaboration of adaptation and mitigation strategies for subsectors, as well as increasing awareness and preparing adaptation measures.

Climate change adaptation in Western Balkans

Within this project, GIZ (Deutsche Gesellschaft für Internationale Zusammenarbeit) advises the Governments of Montenegro and other West Balkan states on the development and implementation of adaptation strategies, with special regard to reducing the risks of flood and drought. The project strengthens regional transborder cooperation in water resources management at Lake Skadar (which Montenegro shares with Albania). The project timeframe is 2012–2018, with a budget of €3.5 million. It is planned to establish a flood early warning system and to integrate climate change adaptation strategies into urban planning. The project also includes analysis of Podgorica and other Balkan cities with regard to their vulnerability to climate change.

Towards carbon neutral tourism

This project's duration is 2015–2018; it is funded by the GEF (US$3.4 million) and implemented by UNDP. It is dedicated to reducing emissions from tourism in Montenegro. The tourism sector is directly or indirectly responsible for a large share of emissions from the transport sector, accommodation and other sectors. Tourism's role as a leading factor in future emission development is illustrated by the fact that it contributes one third of GDP and is responsible for half the investment in infrastructure.

The project consists of several components. The expected outcome of the first component is to integrate climate change aspects into strategies and policies, e.g., by revising the Law on Spatial Development and Construction (OG 51/08) by including mandatory mitigation measures in new tourism development projects, programmes and plans.

The second component consists of flagship investments in tourism infrastructure in Kotor Bay, to improve energy efficiency and increase the use of renewable energy (with predicted energy savings of 2,000 MWh/year and 2,600 MWh/year being produced by renewables). The third component aims at fostering sustainable transport in Kotor Bay, including the elaboration of a travel-demand model and a sustainable coastal transport strategy and action plan for Kotor Bay, as well as measures to improve public transport. Further components consist of introducing financing models for carbon neutral tourism, e.g., a carbon offset programme for tourist hotels and an accounting system for emission reduction.

Beautiful Cetinje

The scope of this project is the revitalization of the former capital, Cetinje, through reconstruction of its cultural heritage and improving energy efficiency. It has a budget of US$2.2 million and will run from 2011 to 2015. Support to small businesses and encouraging green design ideas and innovations are also included in the project, in order to increase economic development and improve the potential for tourism. So far, retrofitting of several buildings has started and training on energy efficiency retrofitting for unemployed people has been organized.

Box 6.1: UNDP project "Making houses energy efficient and legal – an innovative solution"

A project with high potential in saving electricity and delivering large economic and social benefits, developed and supported by UNDP, is focused on illegal settlements and energy efficiency. It is estimated that up to 100,000 settlements are illegal, which would apply to roughly every second settlement. So this is a major challenge for Montenegro. The settlements are mostly of a very poor standard, and inhabitants face high energy bills and often cannot afford to pay taxes. UNDP searched for a combined solution for both problems. Energy audits of 30 illegal homes in several municipalities undertaken in 2012 indicate that there is potential for significant savings in energy consumption. Further, UNDP carried out energy efficiency measures, such as insulation and new doors and windows at four exemplary houses in Bijelo Polje. The distinct energy savings (on average, 65 per cent) resulting from these measures could significantly cut down electricity consumption and electricity bills in these houses. The rehabilitation costs will pay off within 5.0 to 6.3 years.

UNDP is now working on upscaling the project to an additional 500 houses, and supports the Government to find a national solution for the problem of illegal settlements. According to UNDP, implementation on a larger scale (10,000 buildings renovated per year) would have social benefits for the affected families and lead to a 2.5 per cent increase in tax revenues, 6,000 additional jobs and growth in GDP of 1.5 per cent per year. After four years, Montenegro would no longer need to import energy for electricity and would thus increase its self-reliance and energy security. UNDP calculations show that, from the fuel savings, it would be possible to finance not only the loan but also the fees associated with legalization of illegal settlements over a 20-year period.

Adoption of the draft law on legalization of informal structures is pending. Owners of illegal settlements (whether private or business) will have to pass through the legalization procedure; legalization fees can be paid over a 20-year period.

The next step would now be to set up a financial support scheme, e.g. as a national programme which then qualifies for contribution by an international financing institution. The cooperation of municipalities (which receive the legalization fees) and the Government (which takes out the loan from the international institution) is necessary to establish an efficient cash flow system.

Montesol

Within this project (supported by the Italian Ministry for the Environment, Land and Sea and UNEP), 200 interest-free loans for a maximum of seven years were provided to households for the installation of solar thermal systems. The outcome is an average reduction of 20 per cent in electricity bills and, thus, electricity consumption. The project is still on-going. By mid-2014 some 135 solar systems have been installed. Under the project framework, the authorities responsible for tourism will be involved in order to apply the project in tourism areas.

6.8 Participation in the Clean Development Mechanism and other initiatives

Montenegro has established the institutional and legal framework for assessing and approving Clean Development Mechanism (CDM) projects by establishing in 2008 the Council for Clean Development Mechanism as the Designated National Authority (DNA). The DNA Secretariat is in the Ministry for Sustainable Development and Tourism, while the EPA represents the technical operational body for operative procedures, including technical analysis and review of project documentation.

Montenegro has made several efforts to start CDM projects. Potential CDM projects have been assessed and, for some identified projects, feasibility studies were conducted and project design documents prepared in 2008. The chosen projects involved the capture and use of methane originating from landfills and agriculture, and the use of wood biomass for energy production. Two projects have been registered: the HPP at Otilovici (2.96 MW) in Pljevlja and the windmill park Mozura (46 MW) near Bar. Apparently, both projects are delayed because of problems with financing. Since the EU decided that projects registered after 2012 are only accountable when they take place in least-developed countries, the CDM no longer has significance for Montenegro.

Regional cooperation on climate change started with the so-called Belgrade South Eastern Europe Climate Change Initiative in 2007, adopted as a result of the South-East European Ministerial consultation process by the ECE Sixth Ministerial Conference "Environment for Europe" in 2007 in Belgrade. The Initiative aims at better cooperation regarding climate change issues. It initiated the establishment of the South East European Virtual Climate Change Centre and recommended the elaboration of an action plan. The Centre is active in climate change modelling and forecasting for the region, and also works on capacity building. The South East European Climate Change Framework Action Plan was then edited in 2008 by five countries in the region. It addresses the key areas of climate change monitoring and forecasting, climate modelling and reduction of risks, and socioeconomic information on climate change impacts, as well as adaptation and mitigation strategies and research in key sectors. But the Action

Plan is non-binding and its further implementation is limited.

6.9 Conclusions and recommendations

Montenegro is already affected by climate change by having a higher average temperature. The country might face less availability of water, more frequent and intense heatwaves and more frequent extreme weather conditions leading to droughts or flooding. Montenegro is working on a national strategy on climate change, tackling both mitigation and adaptation.

Some progress has been made to integrate climate change adaptation into policies, mainly in the forestry sector. Other sectors are less advanced, especially agriculture, public health and coastal zone management. National GHG emissions per capita are rather low, but projections to 2020 indicate an increase, but also considerable potential to reduce emissions. Montenegro does not yet have mitigation targets or a long-term mitigation strategy.

Recommendation 6.1:
The Government, through the National Council on Sustainable Development and Climate Change, should:

- *(a) Ensure that priority areas for further actions, measures and instruments to reach climate change mitigation and adaptation targets, as well as implementation plans, are integrated into the strategy on climate change and secure funding for its implementation;*
- *(b) Ensure the integration of climate change adaptation issues into sectoral policies and strategies, especially for agriculture, health and transport.*

The energy sector is the dominant source of GHG emissions. Available projections indicate an increase in GHG emissions from the energy sector, mainly due to the construction of the new lignite TPPs Maoče and Pljevlja II. Whether mitigation of GHGs will be successful depends strongly on whether the combustion of fossil fuels for generating electricity, heating purposes and transport can be reduced, and whether high electricity consumption can be reduced. Long-term scenarios looking for alternatives for additional power plants, which take into account higher renewable targets and reduced electricity consumption, are lacking.

Montenegro has high potential for renewable energy. At present, only hydropower is used for electricity production in considerable quantity, as is biomass for heating purposes, though mostly in an ineffective way. Montenegro has undertaken several steps to increase renewable energy sources, but there are still obstacles to overcome. There is evidence that technical requirements for grid connection are unfavourable and cost intensive for investors. The transmission and, especially, distribution grids are outdated and have to be modernized to reduce the technical electricity losses. Investments could be used to bring the grid in line with higher use of renewable energy. A modernization plan taking into account a higher share of variable renewables is lacking.

Montenegro has potential for energy efficiency and energy savings and has undertaken steps to raise this potential in the construction sector, mainly for new buildings. Pilot projects show great potential for energy reduction in existing buildings with quite short amortisation periods. The process of legalization of illegal settlements can be used as a trigger for improving efficiency standards of existing buildings.

Recommendation 6.2:
The Ministry of Economy should:

- *(a) Increase investments to reduce losses in the electricity transmission and distribution grid and ensure that grid improvements are in line with the targets and needs of a higher share of variable renewable energy, and urge the Montenegrin Electric Enterprise (EPCG) to elaborate and implement a grid modernization plan;*
- *(b) Further improve the conditions for investors in renewable electricity production by verifying and, if necessary, adapting requirements on grid connection to avoid exceeding connection costs;*
- *(c) Develop, in cooperation with the Ministry of Sustainable Development and Tourism, a national low interest loan programme to rehabilitate buildings to improve their energy performance and to waive legal fees for the regularization of illegal housing where the occupants have introduced energy-saving equipment;*
- *(d) Develop alternatives to lignite-fired power plants, by developing scenarios with high efficiency step-up technology and enhanced use of renewable energy, taking into account environmental impacts.*

PART III: ENVIRONMENTAL MAINSTREAMING IN PRIORITY SECTORS AND PROMOTION OF SUSTAINABLE DEVELOPMENT

Chapter 7

WATER MANAGEMENT

Groundwater protection remains one of the challenges for water resources management and protection, and in particular for water supply, since most water for human consumption relies upon groundwater from karstic aquifers. Another challenge is coastal zone management, where the introduction of integrated management is required, along with protection of aquatic ecosystems and bathing waters. Water allocation also represents a challenge as the requirements of nature conservation and biodiversity protection may collide with opportunities for economic development. Good planning and management is important to ensure sustainable water resources management, including fulfilling the needs of ecosystems and social expectations.

7.1 Water use and prevention of pollution

Industry

The main industrial water consumers in Montenegro are the manufacturing, mining and thermo-energy sectors, namely the aluminium smelter factory in Podgorica, the steel factory in Nikšić and the TPP Pljevlja, as well as many small industries. The water statistics point to a considerable consumption decrease in industrial sectors over recent years (table 7.1).

The decrease in water consumption mainly follows the decline in aluminium production in the KAP plant in Podgorica. Pollution prevention is a significant issue in Montenegro, yet far from being addressed as intended. For example, Veţišnica River had the worst water quality results from 2009 to 2012 because of its proximity to the TPPs and the wastewater discharge in Pljevlja. Groundwater pollution is also a concern because karstic aquifers are very vulnerable and the transfer of conservative contaminants along transboundary aquifers may occur, namely along the Dinaric Karst Aquifer System.

Agriculture

The total volume of water used for food production has increased steadily over recent years. In 2012, 1,971 thousand m^3 of water was used in agriculture, 97 per cent being abstracted from groundwater sources. Water quality in agriculture is a major problem at two locations: in the cultivated land at Štoj near Ulcinj, where crops are irrigated using salinized groundwater, and in Zetska ravnica area (Zeta River Plains) where irrigation water is contaminated by organic pollutants.

The irrigated area represents less than 3 per cent of total agricultural land and of this only about 12 per cent has modern irrigation methods with drip irrigation systems, namely in Ćemovsko. The irrigation systems encompass the areas of Ulcinjsko Polje (100 ha), Mrčevo Polje (220 ha), Sutorina (120 ha) and Bjelopavlićka ravnica (840 ha), and open channel drainage networks operate in Crmničko Polje, Tivatsko Polje, Lješko poljski lug and parts of Bjelopavlička ravnica. In 2013, water losses in the irrigation system were 19 per cent, a value that contrasts with those recorded in most agro-systems of European countries (25–50 per cent).

Three artificial reservoirs on the Piva, Ćehotina, Zeta and Grahovska Rivers were created by dam constructions. The largest artificial reservoir is Lake Piva with a total accumulation capacity of 880 million m^3.

Energy

Montenegro has two large HPPs located on the Zeta and Piva rivers (Perucica with an average annual energy production of 900 GWh and Piva with 750 GWh). In addition, there are small HPPs on the Zeta, Obodsko and Orahovštica Rivers. It is said that Montenegro is exploiting less than 20 per cent of its total hydropower potential, which is estimated at about 10 TWh. Besides, only a fraction of such potential would be really available if technical and environmental restrictions, as well as seismic risks, are considered. Water allocation conflicts regarding energy and nature conservancy are well known in Montenegro. Therefore, any intended construction of HPPs is likely to raise conflicts, because locations with high energy potential also have an excellent ecological quality, connectivity and hydromorphological conditions.

Feasibility studies for some large HPPs, namely Kostanica, Buk Bijela and Ljutica in the Tara River, Krusevo in the Piva River and Boka in the Trebisnjica River, were carried out in the last decade.

Photo 7.1: Tara River

Table 7.1: Industrial and agricultural water consumption, 2008-2012, thousand m^3

	2008	2009	2010	2011	2012
Volume	55,046	4,069	18,650	26,276	22,129

Source: Statistical Yearbook of Montenegro, 2012.
Note: Running water excluded (e.g. for hydropower).

The options to be located in the Tara River were declined due to environmental concerns and previously mentioned restrictions (e.g. seismic stresses). Although hydropower is considered an appropriate policy instrument to tackle insecure water–energy–food supply scenarios, Montenegro seems to have rather limited opportunities in practice. The most favourable scenario points to large hydropower schemes on the Moraca and Komanica Rivers and the construction of smaller cascades, for instance on the Konjska River.

Tourism

The tourism and leisure sector is very challenging in terms of water quantity, but also quality. Health issues are a significant concern regarding the water supply and bathing water quality. In addition, touristic activity has a cyclic pattern and in summer the water needs in the coastal zone have substantial peak demands, with concomitant wastewater discharges.

Hydrogeological analyses show that local water sources in the coastal zone almost reached the limits of their capacities and cannot provide additional water quantity during the summer season, and water transfers from other regions are necessary. The question is strategic because coastal region development and tourism expansion are completely dependent on water availability (only the northern coastal city of Herceg Novi receives water from abroad, i.e. Croatia). Another upcoming pressure on water resources is expected from developing golf activities and associated irrigation requirements.

Transport

Maritime transport is one of the sectors in Montenegro in which substantial growth could occur in the future, and further development of port facilities is expected. The discharge of liquid or solid substances into sea and coastal waters is forbidden. Ballast waters require appropriate treatment. The municipalities of Bar, Bijeloj and Tivat received

about 2,000 m^3 of bilge waters and sludge from nearly 100 small vessels during 2012. This figure is much higher than wastewater quantities reported in 2011.

Households

Water abstraction for human drinking and other consumptive uses in Montenegro reached 109 million m^3 in 2011. Of this, 81 per cent (88 million m^3) was provided from groundwater sources, 17 per cent (18 million m^3) from reservoirs and other waterworks and 2 per cent (2 million m^3) from natural surface waters. In the urban areas of Montenegro, more than 97 per cent of the population has access to a public water supply network, which means 60 per cent of the country's population. Groundwater is the main water source for drinking water and urban (and industrial) development represents a threat in the water supply context. Indeed, aquifers are at risk near major settlements, such as Nikšić, Danilovgrad, Podgorica and Cetinje, as well as in the Zeta plain, revealing pollution impacts in all monitoring locations.

Per capita water consumption in Montenegro is reported to attain 229 l/day, with higher consumption occurring on the coast (about 260 l/day) than in inland municipalities (225 l/day). These average values are exceptionally high when compared with standard values, revealing serious water loss problems. Indeed, average water losses in Montenegro are estimated at 60 per cent, an extreme value considering European typical patterns. This problem could be a consequence of deterioration of supply networks and illegal connections. On the contrary, the water consumption asymmetry between the coast and inland areas is usual in many countries. In the present case, this would be caused by the touristic activity in the Adriatic zone and the high water demands during peak periods.

In 2012, 13 per cent of tested chlorinated water samples did not meet the microbiological quality standards, in general because the analysis of total bacteria and faecal indicators provide unsatisfactory results. During the summer period, another quality problem may occur due to saline intrusions driven by over-exploitation of groundwater sources. Despite these problems, in the same year, about 85 per cent of all analysed samples (for both chlorinated and non-chlorinated waters) reached positive quality standards. Therefore, although the majority of Montenegrin municipalities have drinking water in accordance with health-related water standards, attention must be given to persistent and inadequate analytical results. Higher percentages of unsatisfactory samples were registered in Andrijevica, Bar, Pljevlja, Tivat and Ulcinj municipalities. In 2013, health incidents in Berane were also reported in relation to water contamination. In addition to inefficiencies in the disinfection processes, water sources contamination, with inadequate functioning of protection zones on water abstraction points and water network failures, may all contribute to health risks associated with the drinking water supply.

7.2 Water management

According to the 2007 Law on Water, the basic units of water management are two river basin districts. River basin management plans are still to be developed.

Regarding river basin quality management, the current situation shows that 40 per cent of rivers had a designation of very good water quality in 2009, whereas about 45 per cent of rivers had good water quality, 30 per cent were very good and 25 per cent were bad in 2012. Using biological indicators based on the saprobity index, rivers followed the trend of low pollution in their upper course, and in their middle and lower course they were moderately, critically or strongly polluted. Results show that the most polluted rivers include the Veţišnica, Ćehotina in Pljevlja, Morača in the area of Podgorica, Ibar near Bać and Lim near Bijelo Polje. In terms of lentic waters, in 2012 and according to a trophic index, mesotrophic-eutrophic conditions were found in lakes Skadar and Plavsko. Lake Crno was oligotrophic and Lakes Zminje and Biogradsko were oligotrophic to eutrophic. The low value of the saprobity index in Lake Crno indicates an oligosaprobic level. In the Piva reservoir, two different levels of saprobity were detected, oligosaprobic and α-mesosaprobic. Lakes Biogradsko, Plavsko and Zminje, as well as Krupac and Otilovići reservoirs, were mesosaprobic.

In Montenegro, floods occur primarily due to the hydrological regimen of torrential type, triggered by the fact that about 94 per cent of the territory has a slope above 5 per cent. Therefore, floods potentially threaten 250 km^2 of farmland and urban zones and this is particularly pronounced in some areas surrounding Lake Skadar and Bojana River, Zeta and Bjelopavlici plains, Plav ravine and the Lim, Tara, Cehotina, Morača and Ibar river valleys. The need for flood protection measures is particularly evident in the large flat karst plain areas (e.g. Barsko, Cetinjsko and the groves of the Matica valley). Most of the constructed drainage systems are not in operation, in general due to insufficient maintenance. An adaptation strategy based on the delimitation of *non-*

aedificandi areas, for instance with the 100-year flood rule of thumb – a flood that has a 1 per cent chance of occurring in any given year – is not extensively applied. Flood protection and mitigation measures have involved the linearization of rivers and the construction of artificial channels; natural engineering tools for river restoration and adaptation measures are not reported.

7.3 Wastewater management

Municipal

The current generation of urban wastewater is about 30,501 thousand m^3 per year. The discharge of untreated urban wastewater on surface water and soils is a significant environmental pressure in Montenegro. Indeed, only 44 per cent of the urban population is connected to a sanitary network according to 2012 data, a value that represents 28 per cent of the total (urban plus rural) population. The sanitary network has a total length of 834 km, of which 42 per cent is connected to treatment plants, indicating that additional effort is required to close sewerage systems.

Coastal waters in the Mediterranean are very sensitive to water quality problems because of the weak sea current dynamics and their high exposure to wastewater discharges or river flows from inland sources. Signs of water quality deterioration for bathing waters and episodes of pollution when there is a significant increase of wastewater discharges due to population peaks were reported in the period 2012–2014.

The WWTP in Podgorica is designed for primary (mechanical) treatment for 100,000 inhabitants equivalent. Biological treatment of waters in that WWTP (Podgorica) is designed for 55,000 inhabitants equivalent. Sludge treatment with valorization is not carried out either. Other WWTPs are in operation in Mojkovac for 5,250 inhabitants and Virpazar for 1,000 inhabitants, but the latter comprises primary treatment only. Rijeka Crnojevića WWTP is in the start-up phase. Since May 2014, a new WWTP is now in function in Budva with capacity of 110,000 inhabitants equivalent.

There are several WWTPs being built, in the coastal area (e.g. Tivat, Herceg Novi, Kotor, Budva, Bar and Cetinje) and in the central and northern regions (Nikšić and Žabljak). In addition, some WWTPs are expected to be under construction soon (e.g. Ulcinj, Danilovgrad, Pljevlja, Podgorica, Kolašin and Plužine) and others are in the public tender process (e.g. Cetinje, Berane, Plav, Rozaje and Bijelo Polje). Nevertheless, wastewater drainage networks are required to be in place, which is also a demanding task (e.g. Pljevlja).

Industrial

In Montenegro, around 30 pollution source points were identified as requiring a standard WWTP (e.g. dairy farms, beverage and food production sites) and more than 20 necessitate advanced chemical treatment, such as steel factories, mines, coal power stations and aluminium production plants. The localities that suffer the most significant adverse impacts are Srpska (KAP), Rubeža (Nikšić steelworks) and Komini (TPP Pljevlja). The effects of KAP's operation concerning soil pollution were most visible in the samples from the site at Srpska village, where an increased concentration of polycyclic aromatic compounds was registered. No reliable information was identified regarding industrial wastewater treatment performance or WWTPs in solid wastes facilities, which are required to prevent groundwater contamination.

7.4 Legal, policy and institutional framework

Legal framework

The Law on Water (OG 27/07, 32/11) prescribes the main goals for sustainable water protection and management, as well as the terms and conditions for implementation of water management activities. The Law declares as main principles of water management the prevention of deterioration of aquatic ecosystems; ensuring the good status of waters; progressive reduction of pollution of groundwater; sufficient supply of good quality surface water and groundwater as needed for sustainable, balanced and equitable water use; public participation in decision-making related to waters; and mitigation of the effects of floods and droughts. Among other issues, the Law on Water points to an integrated management based on river basin approach and regulates ownership on water, water management planning, water regulation and use, water infrastructure, water monitoring, protection against floods and erosion. However, implementation is still in progress despite the step forward given by the Law. A draft law on amendments to the Law on Water is now under discussion.

The Law on Hydrometeorological Affairs (OG 26/10, 40/11, 30/12) provides the framework for the activities of the HSS, including its water-related activities. The Law on Hydrographic Activity (OG 26/10, 40/11, 30/12) regulates activities aimed at ensuring safety of navigation at sea and on inland

waters, and provision of information and data for the management of marine resources and environmental protection. The Rulebook on the content of a unique database of weather, climate and water (OG 2/14) was adopted in early 2014, providing detailed requirements regarding the composition of such a database as well as verification and accessibility of its data.

The Law on Coastal Zone (OG 14/92, 59/92, 27/94, 51/08, 21/09, 73/10, 40/11) refers to management, use and protection of coastal areas. A new law on coastal zone that is in the Parliament procedure of adoption, proposes the establishment of a coastal zone management agency with wide jurisdiction for the protection and management of the Montenegrin coastal zone.

The financing of water resources in Montenegro is carried out in accordance with the 2008 Law on Water Management Financing (OG 65/08) which regulates, among other matters, various water fees.

The EU Water Framework Directive 2000/60/EC has been the main driver for the evolution of the legal framework in Montenegro regarding water resources management and water services, providing the foundations for the Law on Water and associated draft amendments.

Categories of surface water and groundwater are defined by the Regulation on the classification and categorization of surface and groundwater (OG 2/07). Work is ongoing on quality objectives for surface waters and groundwater. The country did not designate sensitive areas in relation to urban wastewater treatment; neither did it designate the vulnerable zones for nitrate pollution from agricultural sources. The 2007 Law on Water and the above-mentioned Regulation transposed several parts of the EU Bathing Water Directive 2007/6/EC.

Policy framework

The 2001 Water Master Plan for the period 2001–2011 expired but is still applied. According to the Law on Water, the Government should develop and adopt a water master plan for the whole country and water management plans for each river basin district, or for parts of a river basin district, by 2016. Subsequently, the Government has to adopt a programme of measures for each river basin district. However, in the process of negotiations with EU it was agreed to prolong deadline for this activity and insure financial resources through IPA 2014-2020 programme.

As far as wastewater treatment is concerned, all regions of Montenegro are covered by two sectoral documents, both dating from 2005: the Master Plan for Removal and Treatment of Wastewater of Montenegrin Coast and Municipality of Cetinje, and the Strategic Master Plan for Sewage and Wastewater in Central and Northern Region of Montenegro.

They aim to ensure proper wastewater treatment in connection with development of the tourist industry, which has a considerable economic impact in Montenegro, the upgrading of the wastewater treatment for Podgorica and the protection of Lake Skadar basin.

In 2004–2007, a draft national strategy for integrated coastal area management was prepared. The draft was never approved by the Government beginning of 2008. Since Montenegro ratified the Protocol on Integrated Coastal Zone Management (ICZM Protocol) in the Mediterranean to the Barcelona Convention in 2011 and the Protocol requires the adoption of national strategies for ICZM, a new draft of the national strategy for integrated coastal zone management has been prepared as the main outcome of CAMP Montenegro in line with the requirements of ICZM Protocol and relevant legislation in EU. The Government has approved it and launch the procedure of public hearing. Its adoption is expected mid-2015.

Institutional framework

The institutional set-up in the water sector is presented in figure 7.1. The Ministry of Agriculture and Rural Development is the main body responsible for development of water policy. It has a functional unit named the Water Administration that is responsible for implementation of water legislation, including management of water infrastructure, protection from the harmful effects of water, protection of water from pollution, establishment and maintenance of a water information system, delimitation of water resources and water permitting (both water use and effluent discharge).

The Ministry of Sustainable Development and Tourism is responsible for environmental policy, and encompasses the Directorate of Waste Management and Communal Development that is responsible for proposing, tracking and directing policies in the area of communal services, implementation of strategies, plans and programmes related to urban water supply and wastewater treatment, and monitoring the implementation of the adopted long-term development plans and action plans.

The Public Health Institute under the Ministry of Health is responsible for the quality control of drinking water in terms of human health and safety, including the quality of surface water and bathing waters. The Ministry of Economy is responsible for water tariffs and participates in the procedures for concession of some water rights.

The Ministry of Transport and Maritime Affairs performs administrative tasks related to maritime traffic and safety, for instance the protection of merchant ships and ports, the prevention of and emergency in the event of sea pollution, and the control of dangerous goods transportation in maritime and inland navigation. The Ministry of the Interior is responsible for risk management and emergency situations response, including in the event of floods.

Until 2012, water inspection was performed by the Ministry of Agriculture and Rural Development, while sanitary inspection was with the Ministry of Health. In 2012, all inspections were brought under a single administrative body: the Administration for Inspection Affairs (chapter 2). As of February 2014, the water inspection had two inspectors compared with six positions previously dedicated to this work under the Ministry of Agriculture and Rural Development.

The HSS is responsible for the existing monitoring network encompassing hydrology, meteorology, hydrography, oceanography and seismology. Its monitoring competencies are related to surface water and groundwater and include water quantity (chapter 4). The EPA has competences in water quality monitoring and is responsible for the public dissemination of water information.

The CETI provides monitoring support in several areas and is the accredited entity for testing the quality of wastewaters. The Public Enterprise "Coastal Zone Management Agency" (Morsko Dobro) is responsible for the protection and development of coastal and marine resources, including construction and maintenance of infrastructure facilities for the coastal zone and conclusion of the contracts for use of the coastal zone.

Local level

At the local level, water services are provided by public companies founded by the municipalities. As a rule, water supply and wastewater management services are performed by companies specialized only in this type of activity, in the majority of municipalities. The exception is seen mostly in small municipalities, where mixed utility companies are also in operation. An interesting example is the "Regionalni Vodovod Crnogorsko Primorje", a state-owned enterprise established for the purpose of providing bulk water to the local water companies serving the coastal municipalities in Montenegro. The private companies that work in cooperation with public entities also play a role in the water and sanitation domain in Montenegro, namely in wastewater treatment management in the coastal zone.

Horizontal coordination

There are no effective mechanisms for horizontal coordination in the water sector. The Water Council (chapter 1), established in conformity with the Law on Water as an advisory and professional committee to coordinate various interests in the water sector, is not considered influential, and the draft amendments to the Law on Water envisage the discontinuation of this body. River basin councils are non-existent. Stakeholder participation through a forum for water stakeholders from the public sector (central government, municipal authorities), private companies (e.g. representatives of hydropower enterprises, aquaculture, farmers), and NGOs, on strategic, planning or financing issues at both national and local levels is poor.

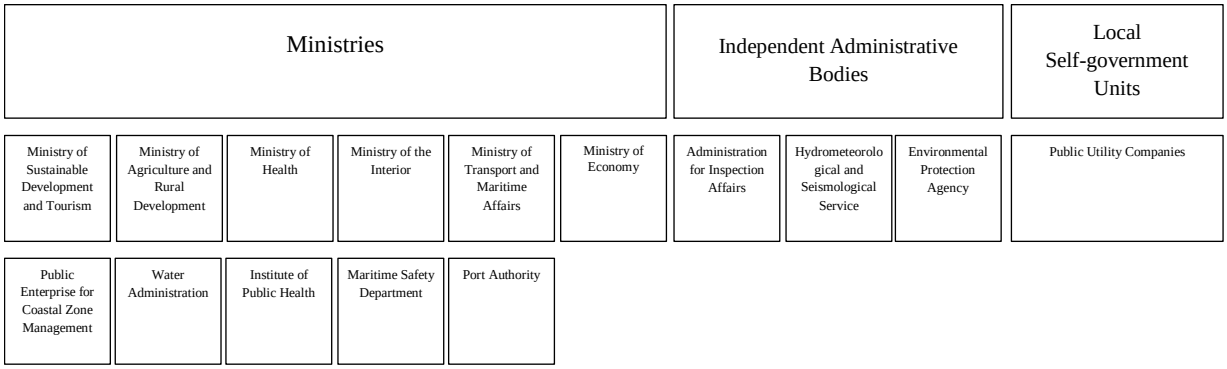
The 2007 Agreement between the Government of Croatia and the Government of Montenegro on Mutual Relations in the Field of Water Management establishes a permanent Croatian–Montenegrin Commission for Water Management.

The 2008 Agreement between the Ministry of Tourism and Environment of Montenegro and Ministry of Environment, Forestry and Water Administration of Albania for the Protection and Sustainable Development of the Skadar/Shkoder Lake establishes the Skadar/Shkoder Lake Commission. In 2008, Montenegro became a party to the Convention on Cooperation for the Protection and Sustainable Use of the Danube River and a member of the International Commission for the Protection of the Danube River.

International cooperation framework

Montenegro acceded to the Convention on the Law of the Non-Navigational Uses of International Watercourses in 2013 and to the Convention on the Protection and Use of Transboundary Watercourses and International Lakes (Water Convention) in 2014.

Figure 7.1: Governmental entities with competencies in water



The country is not a party to the Protocol on Water and Health (chapter 5). Montenegro is a party to the Barcelona Convention on the Protection of the Mediterranean Sea against Pollution (chapter 5).

7.5 Conclusions and recommendations

The 2001 Water Master Plan has expired, although it is still being used. Water management plans for the Adriatic and Black Sea river basin districts, to be adopted by 2016, have not yet been developed, since in the process of negotiations with EU it was agreed to prolong deadline for this activity and insure financial resources through IPA 2014-2020 programme. Water resources management is not integrated in spatial planning. The national water information system is not yet in place.

Recommendation 7.1:
The Ministry of Agriculture and Rural Development, in collaboration with the Ministry of Sustainable Development and Tourism and related bodies, should develop:

- *(a) A water master plan;*
- *(b) River basin management plans for the Adriatic and Black Sea River Basin districts;*
- *(c) A national information system for water planning and use.*

Although policy and legislative improvement has occurred in recent years, there is still a noticeable gap regarding implementation. In several municipalities wastewater treatment and water resources protection against pollution is not fully addressed by all concerned industries. A comprehensive sludge valorization line is absent.

In addition, water losses in the water supply systems are very high: this inefficiency increases operational costs and constrains the drinking water supply in outbreaks of scarcity. In urban settlements, including in the coastal zone, flash floods are an additional concern and construction should not be allowed in flooding zones. Natural engineering measures should be used for erosion protection in natural watersheds, whenever possible.

Recommendation 7.2:
The Ministry of Agriculture and Rural Development, in collaboration with the Ministry of Sustainable Development and Tourism, should implement:

- *(a) Sustainable solutions for municipal and industrial wastewater treatment and sludge valorization;*
- *(b) Design codes for water infrastructure in urban areas so that it is sensitive to flood risks, as well as measures for erosion mitigation.*

Chapter 8

WASTE MANAGEMENT

Waste management in Montenegro has undergone significant changes in recent years. Infrastructure for municipal solid waste (MSW) improved with two controlled sanitary landfills and waste separation plants going into operation. The structure of industry is refocusing from mining and metal production towards tourism and services, which has an impact on the types of waste generated. A facility for storage of radioactive waste has received a permit for operation, which allows safe storage of this waste according to international standards.

However, these positive developments are endangered by dependence on foreign donors in terms of infrastructure investment and the low level of cooperation among municipalities. Involvement of the public in waste separation can also be improved.

8.1 Trends in waste management

Municipal waste

Although Montenegro is a small country, it has three specific regions, which differ in patterns of MSW generation. The central region represents a typical urban/rural mix of MSW generation. The coastal region is strongly influenced by a seasonal increase in population due to summer tourism. The mountain region has a typical rural MSW generation pattern. The structure of MSW generation, based on collected MSW, was estimated in the draft waste management plan for the period 2014–2020 (table 8.1).

The composition of generated MSW in Montenegro was estimated in 2013. Results are shown in table 8.2.

Collection of MSW covers urban areas in full, and partially covers rural areas. While MSW collection was estimated to cover 50 per cent of the population in 2004, this had increased to 76 per cent in 2013. The Statistical Office (Monstat) states that 79 per cent of households were served in 2011. Municipalities report data on MSW management to Monstat but, due to the lack of waste management infrastructure (weighbridges), reported data on collected MSW, especially older data, may be of lower quality. However, data are improving as can be seen from more realistic data on waste per capita in recent years. An overview of MSW management data is shown in table 8.3.

Table 8.1: Generation of municipal solid waste, 2013, tons

	Tons
Household waste	191,382
Commercial, industrial and institutional	63,794
Tourism	18,458
Green waste from public areas	14,707
Total	**288,341**

Source: Draft waste management plan for the period 2014–2020, 2014.

Table 8.2: Composition of municipal solid waste, 2013, per cent

	per cent
Organic	33.8
Plastics and PET	18.4
Paper and cardboard	13.7
Glass	9.0
Textile	3.0
Metals	2.9
Wood	2.7
Hazardous	0.7
Other	15.8

Source: Draft waste management plan for the period 2014–2020, 2014.

Companies providing collection of MSW in Montenegro are municipally owned and typically provide the whole range of services needed by a municipality. These may include street cleaning; road, park and cemetery maintenance; paid parking service; and quarry operation. The responsibilities of waste collection companies are defined in their annual working plan, which is approved by the municipality.

Municipalities are beginning to feel the need for specialization of municipal companies. Podgorica created the company Čistoća, which is providing collection of non-hazardous municipal waste, cleaning of public areas, collection and transport of recyclables, operation of an animal shelter and maintenance of public toilets. Similar companies operate in Herceg Novi, Kotor and Ulcinj.

Photo 8.1: Old barn at Tara canyon

Table 8.3: Municipal solid waste, 2009–2013

	2009	2010	2011	2012	2013
Population	618,294	619,428	620,556	622,008	622,777
Collected waste (tons)	464,617	329,610	297,428	279,667	286,378
Waste generation per capita (kg)	751	532	479	450	460
Number of 1,1 m^3 containers	8,599	7,977	9,028	9,946	9,973
Number of collection vehicles	101	95	94	131	131

Source: Statistical Office of Montenegro, 2014.

Municipal waste collection is well developed in the coastal region, where tourism is concentrated. Municipalities in this region had to develop specific collection schemes for historical towns, which are practically inaccessible for standard collection vehicles. For example, Kotor is using small trailers pulled by street-sweeping vehicles. Furthermore, to ensure reliable collection in the tourism season, collection companies are increasing staff numbers and the frequency of collection in summer.

Overall, Montenegro has sufficient capacity in containers and collection vehicles (table 8.3) for the whole territory – but the coastal region has more containers and vehicles, in order to cope with tourism in summer. Mountain region municipalities are forced to increase collection frequency due to the insufficient number of containers and vehicles. Regionalization would allow the sharing of equipment in an appropriate manner to balance requirements across municipalities.

Separation and sorting

In 2008, the Ministry of Sustainable Development and Tourism, in cooperation with Čistoća Podgorica, started a pilot project, “Separate waste collection”. Within this project, 45 containers for separate waste collection were distributed (18 for paper, 17 for PET packaging and 10 for cans) in 15 locations, and 6,000 information booklets were disseminated to the population. The project continued in 2009, when containers were placed in an additional 28 locations. Currently, in Podgorica and the urban municipalities of Tuzi and Golubovci, 262 containers for separate waste collection are spread over 104 locations. Collected waste is transported to the regional recycling centre at landfill Livade, where it is treated. As a recent initiative, the programme for separate collection, “Every can counts”, started in 2013 in Kotor and Tivat.

There is potential for increased interest in the separation of municipal waste by both municipalities and the population. The currently processed amounts do not reach the designed capacity and output of recyclables, and are also lower than in developed countries. The reason for this could be a weak domestic market for recyclables, which means that most separated secondary raw materials need to be exported, and this is decreasing profits from their sale.

The recycling centre at landfill Livade operates a material recovery facility for mixed MSW with designed capacity of 90,000 t/year, but current input is 16,000 t/year. The output of separated recyclables reached 1,427 t/year in 2012. The centre also operates a line for recycling end-of-life vehicles with design capacity of 15 cars per day, but only three to four cars are received daily for recycling. Herceg Novi has developed a material recovery facility in Meljine with designed capacity of 50 t/day, which is sorting waste collected in containers for separate collection. Its throughput in 2012 was 1032 t/year.

Kotor operates a material recovery facility for mixed MSW at the Lovanje site, which is also receiving waste for separation from Tivat. The designed capacity is 40 t/day. The average annual input is 18,350 t, but during the summer season it peaks at 100 t/day. Residual waste is then transported via transfer station to landfill Možura.

Landfilling

Waste is disposed to controlled landfills in the southern part of the central region, and in the coastal region. Traditional disposal in regional dumpsites is used in the mountain region and the northern part of the central region.

Podgorica is disposing of MSW in the landfill Livade, located about five km south-east of the centre. Development of the landfill was initiated by Podgorica, as a response to increasing problems resulting from the dumping of MSW. The landfill was put into operation in 2006 and is managed by the company Deponija Ltd, Podgorica, which is municipally owned. Along with landfill development, the area of the old dump (57 ha) was rehabilitated and about 310,000 m³ of dumped waste was transferred to the first cell. The second cell started to receive MSW from Podgorica. A third cell has now been developed and the landfill is receiving MSW from Cetinje, Danilovgrad and Podgorica. Input is 65,000 t/year, on average.

The coastal region is using a new site in Možura, near Bar. The site was put into operation in 2012 and serves Bar, Budva, Kotor, Tivat and Ulcinj. These municipalities are experiencing significant seasonal variations in municipal waste generation, due to tourism. While in summer the landfill Možura receives up to 10,000 t/month, in winter input is on the level of 3,000 t/month. The amount of disposed waste to this landfill is 60,000 t/year. This includes waste from the Port of Bar, where the management of waste generated from port operations and ship waste has been licensed to the company Hemosan.

Although these two sites receive nearly half of all municipal waste generated in Montenegro, there are a large number of uncontrolled sites in operation. Table 8.4 shows statistics on uncontrolled disposal sites in Montenegro.

Table 8.4: Uncontrolled disposal sites, 2011

Capacity range (m^3)	Number
< 100	155
100 – 1,000	68
> 1,000	50
Total	**273**

Source: State of Environment Report, 2012.

Industrial waste

Montenegro is reorienting its economy towards tourism and services and away from traditional heavy industries. Industry accounts for about 12 per cent of GDP, and is concentrated on the basic processing of heavy metals. By contrast, in 2011, the highest contribution to GDP was from services, which accounted for more than 80 per cent of GDP. This composition of GDP is also reflected in the structure of manufacturing waste.

Montenegro implemented the EU waste classification system, and industries report their generated industrial waste to Monstat. Analysing the Monstat data (table 8.5), the key industrial waste generator is energy generation. Finding an acceptable solution for waste from this sector is a challenge for the future. Additionally, industrial waste is reported from the mining and processing industries. However, these industries are in decline, and currently attention is given to waste generated in the past.

Waste from energy generation

Waste from the energy sector is generated by the 210 MW lignite-fired TPP in Pljevlja, which is consuming annually about 1.4 million tons of coal. It

is state owned and operated, through the power company Elektroprivreda Crne Gore. Coal ash is disposed into Maljevac disposal facility, which covers an area of 53.5 ha. The risk of dam failure represents an environmental threat.

Mining waste

The mining sector in Montenegro is focused on lignite supplying the power plant in Pljevlja, the zinc and lead mine in Mojkovac and the bauxite mine in Nikšić. Activities in the open lignite mine resulted in accumulation of an estimated 70 million tonnes of marl waste in Jagnjilo spoil tip. The disposal facility in Gradac contains tailings (inert residues) from former zinc-lead ore flotation processing; it covers 12.5 ha. About 3.9 million tons of toxic flotation tailings from zinc and lead production have been deposited on the bank of Ćehotina River. The main environmental concern is exposure to heavy contaminated dust particles and the risk of surface water and groundwater pollution. Table 8.7 shows waste reported from the mining sector.

Manufacturing waste

Manufacturing in Montenegro was traditionally based on production of metals, but, with the decline of smelting plants, the importance of food processing and wood and paper processing is growing (table 8.8).

Aluminium production at KAP was one of the pillars of industrial production in Montenegro in the past. KAP is currently in the privatisation process. Therefore, waste generated from past production is becoming an urgent concern.

Red mud – waste typical of aluminium production – is stored in two basins, covering an area of 420,000 m² and with an estimated thickness of 13–15 m. KAP was operating a disposal site near the factory, which contains about 260,000 m³ of waste.

The Nikšić steelworks used to be the biggest producer of special steel products in the former Socialist Federal Republic of Yugoslavia. After the dissolution of that country and changes on the steel market, the company was forced to redirect its production portfolio, mainly to the production of reinforcement steel. Waste from production was disposed of in a company dumpsite which has been in use since 1956. It is estimated that it contains around two million tons of waste. The waste has been disposed of without pre-separation or any kind of pre-treatment.

Medical waste

Medical waste generated in the health-care facilities of Montenegro is, in most cases, treated by sterilization and then disposed of with MSW. Data on generation are not collected in the country. Published estimations based on international practice indicate that the health sector of Montenegro generates about 2,300 t/year of medical waste, of which about 600 t is hazardous. The Clinical Centre is considered to be the largest medical waste generator and produces 722 t/year of medical waste, of which 182 t is hazardous.

The situation in medical waste management has improved since 2011, when the Ministry of Health signed a concession contract with the Montenegrin–Italian consortium OMP-Eco of Turin and Eco-medika of Podgorica to build seven facilities for the treatment of medical waste within the following 15 years. The first medical waste treatment plant was put into operation in Berane in 2013, and another is currently in preparation in Podgorica.

Persistent organic pollutants waste

The use of POP pesticides has been banned in Montenegro for more than 20 years, except for lindane (which has not been used for the last six or seven years) and endosulfan. Current use of pesticides is limited and no contaminated sites or stockpiles of POP pesticides have been identified. Montenegro has sufficient monitoring and laboratory capacities to identify pollution caused by POP pesticides.

Waste generation in the energy sector is not only related to electricity production but also to energy transmission and distribution. Older transformers and capacitors are using PCBs (polychlorinated biphenyls) as a dielectric fluid. Since 1985, the use and marketing of PCBs in Europe have been very heavily restricted. Old, decommissioned transformers and capacitors are considered hazardous waste and their disposal must be strictly controlled.

No national PCB monitoring programme is currently available. Nonetheless, the main and potential sources of this waste are already identified. The places where PCB waste is currently temporarily stored are: KAP (aluminium plant); Hemosan LLC, Bar (port waste management company); Željeznička infrastruktura Crne Gore a.d. (railway infrastructure Montenegro); Elektroprivreda Crne Gore Pljevlja (lignite power plant); the complex of the former plant "Radoje Dakić", Željezara Nikšić (steel company); "Obod" a.d. Cetinje (electro-industry); and the Port of Bar and Adriatic shipyard "Bijela".

Table 8.5: Generated industrial waste by sector, 2011–2012, tons

	Non-hazardous waste		Hazardous waste	
	2011	2012	2011	2012
Mining	1,227.4	699.7	563.0	223.9
Manufacturing	54,446.6	101,790.3	5,825.2	3,505.9
Electricity, gas and steam supply	495,385.2	351,301.5	188.4	89.4
Total	**551,059.2**	**453,791.5**	**6,576.6**	**3,819.2**

Source: Statistical Office of Montenegro, 2014.

Table 8.6: Waste from energy generation, 2011–2012, tons

	Non-hazardous waste		Hazardous waste	
	2011	2012	2011	2012
Wastes from thermal processes	475,440.0	350,050.0	0.0	0.0
Oil wastes and wastes of liquid fuels	0.0	0.0	187.1	29.6
Other waste	19,945.0	1,252.0	0.8	60.0
Total	**495,385.2**	**351,301.5**	**188.4**	**90.0**

Source: Statistical Office of Montenegro, 2014.

Table 8.7: Mining waste generation, 2011–2012, tons

	Non-hazardous waste		Hazardous waste	
	2011	2012	2011	2012
Wastes mining and processing of minerals	731.2	0.0	0.0	0.0
Oil wastes and wastes of liquid fuels	0.0	0.0	559.0	210.9
Construction and demolition wastes	400.0	0.0	0.0	0.0
Other waste	81.0	699.7	4.0	13.0
Total	**1,212.2**	**699.7**	**563.0**	**223.9**

Source: Statistical Office of Montenegro, 2014.

Table 8.8: Manufacturing waste, 2011–2012, tons

	Non-hazardous waste		Hazardous waste	
	2011	2012	2011	2012
Wastes from food preparation and processing	14,817.3	1,827.8	0.0	0.0
Wastes from wood processing and paper production	12,088.7	2,539.7	8.3	0.0
Wastes from thermal processes	16,783.8	17,873.4	2,049.2	2,265.5
Wastes from physical and mechanical processing of metals and plastics	2,649.9	64,668.6	3.4	7.1
Oil wastes and wastes of liquid fuels	0.0	0.0	3,260.7	1,115.4
Other	8,106.9	14,880.9	503.8	118.0
Total	**54,446.6**	**101,790.3**	**5,825.2**	**3,505.9**

Source: Statistical Office of Montenegro, 2014.

The total amount of PCBs in Montenegro is not known, but a survey conducted in 2007 indicated about 2,000 tons of PCBs in transformers and capacitors. The best known situation is that of KAP, where detailed information was collected in the course of bankruptcy and sale procedures.

Holders of equipment and waste containing PCBs are obliged to prepare a management plan for that equipment and waste and submit it to the EPA. However, no such plans were identified during the review mission in February 2014. Montenegro stated that it envisages full implementation of this obligation around 2020.

Radioactive waste

Radioactive sources are used in Montenegro mainly in the health-care sector, in roentgenology, radiotherapy, brachytherapy and for diagnostic purposes. Industrial use of radioactive sources includes detecting, measuring and analytic techniques. Montenegro does not have nuclear facilities, which produce larger quantities of

radioactive waste. Building of nuclear facilities is forbidden by the law. Waste is generated in small amounts in medical, industrial, educational and research facilities.

A full inventory of radioactive sources on the territory of Montenegro was compiled in the past when the country was part of the former Socialist Federal Republic of Yugoslavia. The EPA established a register of radioactive sources for the first time in 2009, which is entered into a RAIS software, donated by International Atomic Energy Agency (IAEA). The database is regularly checked by IAEA. The EPA also installed the version 3.2 of RAIS software, donated by IAEA.

The majority of radioactive waste at present in Montenegro is in the form of radioactive lightning rods and fire detectors. Radioactive lightning rods were installed in the second half of the 1970s. All radioactive lightning rods have now been removed and are currently stored in the radioactive waste storage facility of the CETI.

This important activity including legislative strengthening was carried through the IPA 2009 Nuclear Safety and Radiation Protection Programme the regional project "Management of sealed radioactive sources including radioactive lightning rods and strengthening the effectiveness of regulatory infrastructure in the area of radiation protection". The aim of the project was reducing radiological risk stemming from unsecure and unsafe management of sealed radiation sources and radioactive lightning rods. The project implementation started in 2011, and the project was finalized in 2014.

The further activity on management of the disused sealed radioactive sources was continued in June 2014 when all radioactive lightning rods and other disused sealed radioactive sources were conditioned. This activity was supported by IAEA through the interregional project INT9176 "Strengthening Cradle-to-Grave Control of Radioactive Sources in the Mediterranean Region", financed by IAEA, European Commission, USA and Spain.

Before 2006, all radioactive waste from Montenegro was shipped to the only radioactive waste facility in the former Socialist Federal Republic of Yugoslavia, located in the Institute of Nuclear Research "Vinča" in Serbia. In 2004, Serbia banned the import and storage of radioactive waste from any foreign country. Subsequently, Montenegro has committed funds and, in 2006–2008, built a temporary facility for storage of radioactive waste, which is managed by the CETI.

A storage facility for radioactive waste in the CETI was built with the support of the International Atomic Energy Agency (IAEA) through the project "Strengthening the management of radioactive waste". Within this project, equipment and training to CETI staff were provided.

Transboundary movement of waste

Since 2006, Montenegro has been a party to the Basel Convention on the Control of Transboundary Movements of Hazardous Wastes and their Disposal. Import of hazardous waste is prohibited in Montenegro. In Montenegro, there is no infrastructure for hazardous waste treatment. Based on licences issued by the EPA, hazardous waste is exported from Montenegro.

In 2011, the total amount of hazardous waste exported was 8,030 Mg, of waste with hazard codes Y 31, 36, 21 and 26. In 2012, the EPA issued five licences for the export of hazardous waste. Exported waste were 1,000 tons of slag from primary aluminium production, 1,000 tons of waste mineral oil and 3,800 tons of waste lead-acid batteries.

8.2 Legal, policy and institutional framework

Legal framework

Montenegro has established a solid legal framework for a national waste management system by adopting the Law on Waste Management (OG 64/11) in 2011 and a set of bylaws (27 bylaws adopted by 2013 and 4 more remaining in accordance with the law). This Law (chapter 1) replaced the previous Law on Waste Management (OG 80/05, 73/08), which was planned to apply from November 2008, though due to delays in fulfilling conditions for its implementation, application of a number of provisions was further postponed until 2010. Standards defined by the waste legislation are higher than the current practice. It will require additional investments and attitude change to achieve full compliance with the Law.

The 2011 Law defines principles of waste management and terms used. It sets as a priority protection of the environment and human health. Further, it requires the characterization of waste according to the waste classification and stipulates conditions when waste ceases to be considered waste. It lists the responsibilities of waste producers and obligations of waste holders, and supports recovery of waste by requiring separate collection, forbidding the mixing of hazardous waste with non-hazardous waste. It aims to achieve, by 2020, 50 per cent recovery of MSW and 70 per cent of construction

and demolition waste. These principles are in line with modern trends in waste management.

This Law also defines the requirement to prepare national and local waste management plans. These shall be supplemented by specialized programmes for biodegradable waste, waste prevention, medical and veterinary waste and sewage sludge. Every legal person who generates more than 200 kg of hazardous waste or 20 tons of non-hazardous waste shall prepare a waste management plan. These plans are subject to approval by the EPA.

National and regional waste management plans were prepared under projects financed by international donors. At the municipal level, 13 of 23 municipalities have prepared their waste management plans. The EPA approved 82 waste management plans of individual waste producers.

The Law defines details on permits for treatment and disposal of waste and stipulates the requirement to register companies providing waste management services in the Register for the Collection and Transportation of Waste, Register of Traders and Brokers, and Register of Exporters of Non-Hazardous Waste. These registers are maintained by the EPA and are published on its web page.

Attention is also given to recording and reporting waste quantities and types. The Law defines special waste streams and the regime for their management. Montenegro is developing systems and infrastructure for management of special waste streams; however, information on their performance is not yet available.

The Law also defines conditions for waste incineration and co-incineration, disposal and storage. Further, it sets requirements on export of waste, while prohibiting import of hazardous waste. Transboundary movement of waste is important for Montenegro, as it lacks the necessary infrastructure for the treatment of hazardous waste and processing of secondary raw materials separated from waste. The EPA issued 7 permits for export of hazardous waste and 627 permits for import or transit of non-hazardous waste in the period 2012–2013.

Financing of waste management is based on the polluter pays principle, requiring waste generators to bear the full cost of safe management of their waste. According to the extended producer responsibility principle, a special waste management fee shall be paid by manufacturers and importers of: batteries and accumulators; all oils, except for oils used in food and for cosmetic purposes; rubber; packaging; electrical and electronic products and vehicles (chapter 3). These fees are income of the state budget. The bottling companies Trebjesa, Coca-Cola and Knjaz Miloš – Montenegro participated in the national producer responsibility programme Recomont in 2013.

According to the Law on Waste Management, inspection services on waste management are the responsibility of both the Administration for Inspection Affairs and the communal inspections. The environmental inspection within the Administration for Inspection Affairs is in charge of inspection supervision over the implementation of laws and other legal acts on environment, including waste management. Communal inspection is authorized to control matters related to communal and construction waste.

Under transitional provisions, this Law allows a 24-month grace period for waste generators to achieve compliance with the Law, allows the use of equipment containing PCBs until the end of 2020, and temporary storage of municipal waste by local self-governments that have no landfill until the end of 2016.

Strategies, policies, programmes and main projects

The 2004 National Policy on Waste Management addresses three core issues:

- Minimization of solid and liquid waste, to ensure sustainable development by efficient use of resources;
- Minimization of the environmental impact of waste management, to ensure that waste is minimized, handled, recovered or disposed of without endangering human health and without using processes or methods which could harm the environment;
- Remediation of former dump sites and other contaminated sites, to ensure that sites are registered, evaluated and prioritized, and remedial measures to avoid further contamination are defined and implemented.

This policy introduced basic terms and principles used in modern waste management, including definition of waste, waste hierarchy, the polluter pays principle, producer responsibility, the principle of cooperation and full cost pricing requirement. The 2004 National Waste Management Policy was followed by the 2005 National Waste Management Strategy.

The 2005 Strategic Master Plan for Solid Waste Management for the period 2005–2012 defined the following strategic goals:

- Determine the main orientation of waste management for medium-term national development;
- Implement EU strategic plans through adoption of EU waste-related directives;
- Determine priorities among waste management options.

It contains strategies for all key waste streams generated in Montenegro. The MSW strategy called for a significant shift in public attitudes to waste and sustained high levels of public participation in local schemes as a condition of achieving the objective of establishing a network of compliant inter-municipal landfills associated within defined catchment areas. This has not yet happened at full scale in Montenegro.

The hazardous and industrial waste management plan is based on the idea of producer responsibility, cleaner production and integrated pollution prevention and control (IPPC). Until all hazardous waste is fully identified and the structure of industry in Montenegro is stabilized, export of hazardous waste is the preferred option. After that, the appropriate infrastructure for management of hazardous waste should be built.

The health-care waste management plan was aimed at preventing infectious pollution inside and outside health-care establishments, to protect human health inside and outside such establishments and to protect the environment by promoting environmentally sound management. The plan emphasized the strong need for campaigns to develop and raise awareness of the necessity of waste avoidance and waste recycling. The health-care waste management system started to modernize after the signing of the concession with OMP-Eco and Eco-medika, which will develop medical waste treatment centres. Training on proper management of health-care waste has been provided to hospital staff.

The plan for landfill siting proposed development of eight landfills (Bar, Berane, Budva, Herceg Novi, Mojkovac, Nikšić, Pljevlja and Podgorica). Of these, landfills in Podgorica and Bar were developed.

The proposed strategy for end-of-life vehicles included a deregistration system for cars, a disposal contribution to finance collection and recycling of end-of-life vehicles, and co-operative compliance schemes whereby the industry (importers) assumes responsibility for collection and recycling of end-of-life vehicles. Implementation of this strategy resulted in development of plants for recycling of end-of-life vehicles, but mechanisms supporting collection of end-of-life vehicles are not effective.

The 2008 Waste Management Plan for the period 2008–2012 (OG 16/08) includes implementation of the main strategic activities in the area of waste management in the territory of Montenegro, as follows:

- Establishment of an integrated waste management system based on increased quantities of collected waste, minimization of quantities of disposed waste and introduction of recycling;
- Remediation and closure of the existing dumpsites;
- Remediation of “black points”, i.e. locations with large quantities of disposed waste;
- Development and establishment of inter-municipal (regional) sanitary landfills, including treatment of waste before its final disposal.

The Plan envisaged legislative, institutional, technical, operational and financial measures and investments. Implementation progress was officially monitored and controlled by the Ministry of Sustainable Development and Tourism.

Implementation

In 2010, the Ministry of Sustainable Development and Tourism carried out an evaluation of implementation of the 2005 National Waste Management Strategy. According to this evaluation, the legislative framework was completed by adopting the Law on Waste Management in 2011, including relevant bylaws. However, implementation and enforcement of the Law must improve. Some aspects of the legal framework are not well known by all stakeholders at the local level, and this creates problems of implementation.

Regionalization of waste management has not progressed as planned. Although three inter-municipal companies for management of regional sanitary landfills were established, other municipalities did not find agreement on a joint approach to waste management. The advantages of regional waste management based on economy of scale are not yet fully understood at the municipal level.

Of the planned landfills, only sites in Podgorica and Bar were put into operation. For other planned landfills, documentation was prepared or is under preparation. Nevertheless, implementation of these documents faces some obstacles: development of the landfill in Bijelo Polje was suspended due to the estimation of international financing institutions that the selected site is inadequate; construction of the regional landfill in Berane is on hold due to the strong opposition from part of the local community and lack of financial support; the regional landfill in Kotor is on hold due to the opposition from part of the local community and respective negative decision of the local assembly; and investment in the disposal site in Pljevlja was not proved feasible.

Activities related to the closure and rehabilitation of dumpsites in Bar and Cetinje are ongoing. There are on-going efforts to secure funds for closure and rehabilitation of other dumpsites from the Operational Programme for Regional Development (chapter 1).

Key barriers to implementation of the Waste Management Plan for the period 2008–2012 were related to lack of political will, the low level of coordination, limited cooperation among key stakeholders in waste management and, in some cases, non-enforcement of legislation. In evaluations prepared by the Ministry, the main problem identified is the lack of active engagement by stakeholders (including municipalities) in taking up their tasks and responsibilities, but no suggestions or proposals are made in order to solve the problem.

The Waste Management Plan for the period 2014–2020 is under preparation and the first draft has been published. This document continues the work on achieving targets defined in the National Waste Management Plan for the period 2008–2012 but is more detailed and realistic. It is targeting waste generated by the municipal sector only.

The draft national strategy on waste management for the period 2014–2020, after approval, will replace the 2004 National Waste Management Policy. The draft puts an emphasis on waste reduction in material recovery facilities, while residual waste will be transported to regional landfills using transfer stations. Waste reduction should be achieved also by backyard composting. The draft envisages that special waste streams shall be managed mainly under the framework of extended producer liability and the concessionary act, and collection, treatment, processing, export and disposal shall be outsourced and supported by the central authority at the state level.

In addition, remediation of authorized temporary storage sites (dumpsites) shall have last priority in the entire implementation chain, when all necessary collection, waste minimization and safe disposal facilities are in operation. The draft Waste Management Plan for the period 2014–2020 also discusses financing requirements and options, as well as public awareness raising.

Strategy for Healthcare Waste

Waste from the health sector is addressed by the 2008 Strategy for Healthcare Waste. The 2005 Strategic Master Plan for Solid Waste Management formulated in brief a strategy for health-care waste in 2008. Then the Strategy was updated and extended, and published as the separate Strategy for Healthcare Waste in 2008. The aim of this Strategy is to implement an efficient, integrated system of health-care waste management, provide training for hospital personnel and achieve compliance with the Law on Waste Management. This will result in reduced risk of infectious diseases and better protection of human health and the environment. The Strategy defines health-care waste classification, points out potential sources and presents various methods of health-care waste treatment. The action plan for implementation of this Strategy set tasks for health-care facilities to select suitable technology for the treatment of health-care waste and develop waste management plans, with the deadline of October 2008. Training and monitoring should be performed continuously. The evaluation of the Strategy's implementation was foreseen in November 2009, but was not carried out.

Selection of technology for the treatment of health-care waste was completed in the Concession Study of Medical Waste Management in Montenegro, prepared in February 2010. Priority was given to sterilization by hot steam and shredding; treated waste is considered suitable for disposal with municipal waste. This study also proposed sites for the installation of health-care waste treatment plants, their capacities and cost estimations.

Strategy on Protection from Ionizing Radiation, Radiation Safety and Radioactive Waste Management with Action Plan

The 2011 Strategy states the need to improve the legislative framework for radioactive waste management, creating a department for permitting and inspection, to establish an inventory of radioactive waste, to established a management of radioactive waste storage facility and to obtain a permit for the operation of storage, achieve international standards for transport of radioactive

waste, and raise public awareness on radioactive waste management. At the time of review preparation, the majority of planned activities were implemented (chapter 1).

Institutional framework

Ministry of Sustainable Development and Tourism

The current institutional framework for waste management in Montenegro assigns the main responsibilities on waste management at the central level to the Ministry of Sustainable Development and Tourism. Its role is to develop legislation and policies on environmental protection and sustainable development.

The Directorate of Waste Management and Communal Development is responsible for all management and planning aspects of waste, including preparation and implementation of policies, strategies and legislation in waste management, as well as development of the National Waste Management Plan and other programmes and plans.

It is also responsible for setting standards for waste treatment, procedures for issuing permits, technical standards for waste treatment facilities, and management and coordination of waste projects financed from national and international sources. Main responsibilities on radioactive waste management concerning policy, strategy and legislative framework are assigned also to the Ministry.

Ministry of Health

The Ministry of Health is responsible for medical waste management and defining sanitary standards. The Ministry also performs sanitary control and inspection through its Institute of Public Health.

Environmental Protection Agency

The EPA is responsible for issuing licences, environmental monitoring, reporting, and communication and cooperation with relevant stakeholders in the environmental sector in Montenegro and abroad and with the public (chapter 1). On waste management, the Department for Permitting of the EPA issues permits for waste management activities, and maintains registers of companies performing collection, transport, processing and disposal of waste. It also keeps separate registers for companies exporting, importing or transiting non-hazardous and hazardous waste.

The EPA also has responsibilities for radioactive waste. The Section for Protection against Ionizing Radiation and Radiation Safety issues permits for the use of sources of ionizing radiation, and permits for transport (including export and import) of radioactive materials and sources of ionizing radiation. This Section also issued the permit for operation of storage of radioactive waste.

Statistical Office

The Statistical Office of Montenegro (Monstat) is responsible for collecting data on waste. Monstat is collecting data on municipal waste and industrial waste on an annual basis. Prior to publication, collected data is verified by the EPA.

Local self-government units

According to the Law on Local Self-Government (OG 42/03, 28/04, 75/05, 13/06, 88/09, 3/10, 38/12, 10/14, 57/14), local self-governments are responsible for the organization of activities relating to the management of municipal waste and other types of non-hazardous waste on their territory. A municipality shall prepare a local waste management plan, subject to consent by the Ministry, and create conditions for its implementation. A municipality must issue permits for waste management activities at the local level, and is included in permitting at the national level through issuing its opinion on application for waste management activities on its territory. A municipality can also issue local regulations on waste management.

The Law provides the option that two or more local self-governments may jointly provide waste management services or develop necessary infrastructure. This is an important precondition for enforcing a regional approach to waste management, as defined in the 2005 Waste Management Strategy.

Inspection

Inspection on waste management is the responsibility of both the Administration for Inspection Affairs and the communal inspectors. Within the Administration for Inspection Affairs, the Department of Environment and Spatial Planning, which includes environmental inspection, is in charge of inspection supervision on waste management.

Communal inspectors are authorized to determine whether utilities comply with waste-related laws and regulations, control public utility facilities, and implement other related to communal and construction waste.

PROCON

PROCON is a government-established company in charge of managing projects on communal services and environmental protection, primarily providing related logistical support to municipalities (chapter 1). In cooperation with the Ministry of Sustainable Development and Tourism, PROCON has predominantly implemented the activities related to the management of waste and wastewater by supervising realization of the infrastructure projects.

Waste management operators

Waste management services are typically provided by municipal companies, which collect waste from households and companies within their administrative area. With development of regional landfills, regional waste management companies are created. Možura Ltd was created in the process of preparation for construction of the landfill at Bar, Deponija Ltd has developed into a regional company by expanding the collection area of Podgorica landfill, and existing cooperation between Budva, Kotor and Tivat is a solid base for another regional company.

Private companies are also present in the Montenegro waste market. The company Hemosan is a leading player in hazardous waste management. It provides waste management services to the Port of Bar, but is also involved in the transport of hazardous waste, clean-up projects and accident response. The Montenegrin–Italian consortium OMP-Eco of Turin and Eco-medika are establishing themselves as operators of modern health-care waste facilities.

Trends in waste collection

The Law on Waste Management (OG 64/11) defines that all costs of waste management shall be covered by the waste generator. This is reflected in fees for waste management services paid by the population and companies. Fees are based on area (square metres) of living space or used space. The fee collection rate is still very low. The average fee collection rate for households is 56.5 per cent; the lowest is 29 per cent, in Bar, and the highest is 80 per cent, in Herceg Novi. The average fee collection rate for companies is 68 per cent; the lowest is 40.3 per cent, in Bar, and the highest is 95 per cent, in Podgorica.

This level of waste fee collection has an impact on the financial performance of municipal companies collecting waste. Of 19 analysed, only 8 had a positive balance at the end of 2011 and 2012. Of 21 municipal waste collection companies, only eight keep separate records on revenues and costs for the solid waste management unit. Three more were able to provide data about revenues of their solid waste management unit.

Projects

Several recently finished or ongoing projects and measures are directly aimed at improving the situation in waste management in Montenegro. The activities of international donors have had significant impact on development of the waste sector.

Regional landfill for Bar and Ulcinj

Construction of Phase I in the amount of €8.2 million was financed from a loan by the World Bank. Construction work of the first phase was completed and the landfill was officially put into operation in July 2012.

IPA 2009 Procurement of Equipment and Vehicles for Public Utility Companies

Through the IPA 2009 national programme, a grant was approved in the amount of €4.8 million for the purchase of equipment for the construction of a regional centre for waste management in Bijelo Polje. Due to the withdrawal of the EIB from financing the construction of a regional centre for waste management in Bijelo Polje, the delegation of the EU decided to transfer vehicles and equipment necessary for waste management to the municipalities in the north of Montenegro, as well as to support the preparation of national and local waste management plans for the period after 2012.

The funds were allocated in the following manner: €4,000,000 for the purchase of 10 vehicles (volume 6 m^3), 16 vehicles (12 m^3), 5 vehicles (18 m^3), 1,410 waste containers (1.1 m^3) and waste bins – 240l for public utility companies in 16 municipalities (Andrijevica, Berane, Bijelo Polje, Cetinje, Kolasin, Kotor, Nikšić, Mojkovac, Pljevlja, Plav, Pluzine, Podgorica, Rozaje, Savnik, Ulcinj and Zabljak); and €800,000 for developing the national and local waste management plans for the period 2013–2018, as well as support to strengthen the capacity to implement them. Trucks and containers were delivered to the municipalities in 2012.

Preparation and implementation of the national and local waste management plans

This project was funded by the EU. The project started in December 2012 and was completed in

April 2014. The project focused on updating plans from the 2005 Strategic Master Plan for Solid Waste Management and coordinating municipalities in progressing towards a regional approach to municipal waste management.

Infrastructure projects facility, technical assistance window Western Balkans

Several projects were implemented under this programme, and the local and regional municipal waste management situation was analysed. The scope of these projects includes tariff analysis, tender dossiers for the construction of regional landfills and rehabilitation of old dumpsites.

Montenegro Industrial Waste Management and Clean-up Project

In October 2014 the Government signed the loan agreement with the World Bank for realisation of the project: "Industrial Waste Management and Clean-up". The objective of the project is to reduce the contamination of Montenegro's natural resources and public health risks of exposure to contamination from selected industrial waste disposal sites. The project will develop and implement a remediation investment programme for selected legacy industrial waste disposal sites, and support institutions and related industries in bringing the management of industrial waste into compliance with Montenegrin legislation.

The overall budget of this project, financed by the World Bank, is US$80 million. The feasibility study has focused on site investigations, and comprehensive and site-specific environmental and social impact assessment (ESIA). Basic designs were completed for all four sites: the mine tailings disposal facility Gradac, Maljevac coal ash disposal facility in Pljevlja, ship-blasting waste and site contamination at Bijela shipyard, and the red mud basins and solid waste disposal site at KAP. This project started in November 2011 and the final report of Site Investigations and Preparation Study for the Remediation of Industrial Waste Disposal Sites in Montenegro, which is Component 1 of the project, was published in March 2013.

8.3 Conclusions and recommendations

Montenegro is transforming its waste management system towards a modern system of material recovery facilities and sanitary landfills. New landfills in Podgorica and Bar are a significant improvement for the central and coastal regions but the mountain region is lacking a safe disposal site.

Development of a new sanitary landfill in the mountain region will complete the basic network of landfills in Montenegro and allow decommissioning of old disposal sites. This will reduce environmental pollution from uncontrolled disposal.

Recommendation 8.1:
The Ministry of Sustainable Development and Tourism, in cooperation with the municipalities of the mountain region, should develop a new sanitary landfill in that region.

Although Montenegro is starting activities aimed at recovery of secondary raw materials from waste, these are hindered by the lack of a market for recyclables. Instruments supporting the sale of recyclables (e.g. compensating part of the costs of exporting recyclables) are lacking. If there is a guaranteed income for waste collection companies from the sale of recyclables, it will be an incentive to introduce and extend the separate collection of waste.

Recommendation 8.2:
The Ministry of Sustainable Development and Tourism, in cooperation with the Ministry of Finance, should elaborate schemes for stimulating market-based mechanisms for the recycling and reusing of waste.

Organizing waste services on a regional level is key to achieving sustainable and effective waste management. However, although there have already been many discussions with municipalities to strengthen cooperation in waste management, progress in forming regional waste management companies is behind expectations. Preparation of the Waste Management Plan for the period 2014–2020 is focusing on this problem, but additional action from the Government could facilitate the required change in attitude.

Recommendation 8.3:
The Ministry of Sustainable Development and Tourism, together with the local self-governments, should:

(a) Negotiate the creation of regional waste management companies;
(b) Support inter-municipal cooperation in waste management.

Data on industrial and municipal solid waste do not seem to realistically reflect waste generation because it is based on estimations.

Moreover, there is no data verification. Practically all strategic documents call for improvement of waste

inventories. An inventory of equipment containing PCBs would contribute to planning future action in hazardous waste management.

Recommendation 8.4:
The Statistical Office and the EnvironmentaL Protection Agency should improve the collection and verification of waste data.

Recommendation 8.5:
The Ministry of Sustainable Development and Tourism and the Administration for Inspection Affairs should perform a detailed, countrywide inventory of equipment containing PCBs .

ANNEXES

Annex I: Implementation of the recommendations in the second Environmental Performance Review

Annex II: Participation of Montenegro in multilateral environmental agreements

Annex III: Key data and indicators available for the review

Annex IV: List of major environment-related legislation

Annex I

IMPLEMENTATION OF THE RECOMMENDATIONS IN THE SECOND ENVIRONMENTAL PERFORMANCE REVIEW[7]

PART I: POLICYMAKING, PLANNING AND IMPLEMENTATION

Chapter 1: The decision-making framework and its implementation

Recommendation 1.1:
The Government should urgently establish the Environmental Protection Agency (EPA), as defined in the model proposed by the cross-sectoral Advisory Committee, with the following main responsibilities: data collection, data analysis and data reporting, environmental permitting, and inspection and enforcement. Environmental permitting and inspection functions should be performed by separate units.

The recommendation is implemented. The EPA was established in 2008 and became operational in 2009. It is in charge of environmental permitting and data collection, analysis and reporting. Environmental inspection has been taken out of the EPA, following the creation in 2012 of the Administration for Inspection Affairs as an autonomous governmental institution, but supervized by the Ministry of Economy. The Administration for Inspection Affairs also integrated all other inspections. An exception is the nautical safety inspection that remained at the Ministry of Transport and Maritime Affairs.

Recommendation 1.2:
The Government, and in particular local self-governments (municipalities), should strengthen the number and capacities of staff of environmental authorities at the national and local levels. Training programmes and awareness-raising activities for both the regulated entities and the general public should be promoted to ensure that environmental legislation is implemented properly.

The recommendation is partially implemented. The EPA is relatively well staffed. The environment-related departments of the Ministry of Sustainable Development and Tourism are not adequately staffed, though the staffing situation is still at an acceptable level. Environmental authorities at the local level are understaffed. Training programmes and awareness-raising activities for the general public are organized, but more effort is needed to achieve sustained results. Awareness-raising activities for regulated entities (e.g. facilities that need to receive an IPPC permit) have been organized.

Recommendation 1.3:
The Government should harmonize sectoral strategies and action plans with the priorities and goals of the National Strategy for Sustainable Development. The Government and the ministries concerned should reconcile the content of the strategic documents, and coordinate their implementation.

The recommendation is partially implemented. The 2007 National Strategy for Sustainable Development is referred to in sectoral strategic documents. However, strategic documents are often not coherent and implementation coordination is lacking. For example, the document *Development Directions of Montenegro for the period 2013–201*6 envisages the elaboration of a strategy on financing of measures on the environment. However, no such strategy is planned under the Programme of Montenegro's accession to the European Union 2014–2018 which includes a comprehensive list of legislation and strategic planning documents to be elaborated.

[7] The second EPR of Montenegro was carried out in 2007. During the third review, progress in the implementation of the recommendations in the second review was assessed by the EPR Team based on information provided by the country.

Recommendation 1.4:
The Ministry of Tourism and Environment should start implementing on a pilot basis the recently adopted legislation on strategic environmental impact assessment (SEA), environmental impact assessment (EIA), integrated pollution prevention and control (IPPC) and waste management.

The recommendation is implemented. In 2006–2007, a pilot project on SEA was conducted in relation to the National Spatial Plan. In 2009, capacity-building training for effective implementation of the laws on SEA, EIA and IPPC were organized and awareness-raising materials were disseminated. In 2012–2013, the EPA implemented the project "SEA and EIA – Improving comprehensive implementation in Montenegro". By 2014, SEA and EIA procedures had become a regular practice in the country. IPPC permits are still to be issued for a number of facilities, but the process is ongoing. Local self-government units lack capacity with regard to implementation of SEA, EIA and IPPC laws.

Recommendation 1.5:
To ensure that the protection of the environment is taken into account in privatization agreements, the Government should:

- *(a) Require enterprises and industries put up for privatization to carry out environmental audits;*
- *(b) Develop and introduce clauses on past environmental liabilities into the privatization agreements; and*
- *(c) Include compliance plans, negotiated with the new owner, in these agreements. The plans should specify the measures that enterprises and industries have to implement to comply with environmental standards and regulations.*

The recommendation is partially implemented. In particular for the industrial sector and some other activities that might have an impact on the environment, environmental audits are required. However, even though this is common practice in Montenegro, it is not stipulated as an obligation by a separate act on privatization. All privatization agreements include at least a clause in respect of environmental legislation and standards. Regarding past pollution from state-owned companies, the Government is fully liable.

Recommendation 1.6:
The Government should define:

- *(a) The horizontal responsibilities in environmental matters and the coordination of environmental management, in particular regarding the protection of natural resources; and*
- *(b) The vertical division and coordination of competences between national and municipality levels to improve the implementation of the sectoral environmental legislation.*

The recommendation is partially implemented. As for horizontal responsibilities in environment-related matters, there seem to be no major drawbacks except for a multiplicity of governmental institutions involved in the water sector. The vertical division and coordination of competences between the national and municipal levels are relatively well defined in the Law on Environment (OG 48/08, 40/10, 40/11), Law on Nature Protection (OG 51/08, 21/09, 40/11, 62/13, 6/14), Law on Environmental Impact Assessment (OG 80/05, 40/10, 73/10, 40/11, 27/13), Law on Strategic Environmental Assessment (OG 80/05, 73/10, 40/11, 59/11), Law on Integrated Prevention and Control of Environmental Pollution (OG 80/05, 54/09, 40/11), Law on Waste Management (OG 64/11), Law on Air Protection (OG 25/10, 40/11), Law on the Protection against Environmental Noise (OG 28/11, 28/12, 1/14) and Law on Energy Efficiency (OG 29/10). However, local authorities lack capacity to ensure the efficient implementation of tasks assigned to the local level. Coordination and exchange of information between national and local levels are sporadic.

Recommendation 1.7:
The Government should strengthen significantly the capacity of the bodies responsible for enforcement to ensure effective enforcement of legal requirements, in particular by:

- *(a) Increasing the number of inspectors;*
- *(b) Promoting capacity-building programmes for inspection bodies in environmental law enforcement, particularly for new legislation, including permitting procedures and public participation;*
- *(c) Establishing a polluter register, as requested by the legislation, and using it to streamline the environmental inspection activities;*

(d) Increasing the cooperation of environmental law enforcement authorities with the police;
(e) Initiating training programmes for judges, state prosecutors and police, to strengthen their capacities in the field of environmental law enforcement; and
(f) Collecting and publishing data on concluded administrative, civil and criminal lawsuits concerning the environment.

(a) The recommendation was partly implemented. Following establishment of the EPA, the number of environmental inspectors was gradually increased from four positions (only two occupied) in 2006 to 12 inspectors in 2011. However, after the transfer of the environmental inspectors under the Administration for Inspection Affairs in 2012, their number decreased to seven. One more position was recently made available to cover new responsibilities on chemicals management.

Two water inspectors at the Administration for Inspection Affairs monitor the implementation of the water-related legislation, as compared with six positions previously dedicated to this work under the Ministry of Agriculture and Rural Development. The inspection for forestry, hunting and plant protection employs 11 forestry and wildlife inspectors. The inspection for marine fisheries has four inspectors and this number did not change in recent years.

(b) In general terms, this recommendation was implemented. Various training has been conducted, mostly in the context of international initiatives such as the Regional Environmental Network for Accession (RENA). Management training for EPA staff was delivered through twinning and IPA capacity-building projects. Most of the capacity building, however, depends heavily upon external assistance and this (along with the high turnover of staff) poses a problem in terms of sustainability of results.

The capacity for environmental management at local level, including EIA and IPPC permitting, remains worryingly low. Training activities were concentrated in the Ministry of Sustainable Development and Tourism's Directorate of Environment and Climate Change and did not involve inspectors as intensively as the Ministry staff. The move of environmental inspectors to the Administration for Inspection Affairs may also affect the delivery of training for them, since assistance for capacity building has to date been delivered via the Ministry.

(c) The recommendation was not implemented. Based on the requirements of the 2008 Law on Environment, a Rulebook on the detailed content and method of keeping the register of environment polluters (OG 43/10) was adopted in 2010, presuming that the register will be linked in the future to the E-PRTR system. The system includes the duty to establish registers at the municipal level. Information from pollution sources is to be submitted to the local administrations and, further, to the EPA, which should maintain the integrated register of environment polluters. The system is not working because of the uneven capacities of municipalities and the difficulty in collecting information at the central level from the municipalities. To date, relevant information (if collected at all) has been kept at the local level or sent to the EPA on simple electronic sheets. Sanctions for the non-provision of information on pollution sources are not enforced. Collected data are not yet available online.

The EPA reports that it does not have adequate software for keeping the integrated register of environment polluters, providing data entry, processing and display of data. The development of the environmental information system would make the register of polluters operational. In short, the legal framework for the register of environment polluters exists but technical and institutional problems remain, preventing the register from becoming operational.

(d) The recommendation is implemented. According to the 2009 Law on Inspection Control, police authorities should ensure the undisturbed performance of inspection, upon an inspector's call. The Police Directorate often acts in support of the Administration for Inspection Affairs, particularly on forestry, marine fisheries and spatial planning. Recently, a memorandum of cooperation was signed between the Ministry of the Interior and the Administration for Inspection Affairs.

(e) The recommendation is implemented. Some joint training seminars and other forms of capacity building for inspection authorities, prosecutors and judges have been organized, most of them with external assistance. For example, in December 2012, the Judicial Training Centre, in cooperation with the REC and the

Ministry of Sustainable Development and Tourism, organized the seminar "Implementation of the Third Pillar of Aarhus Convention in Montenegro (Access to Justice)", under the project "Training Graduate Lawyers in the Fields of National and International Environmental Regulations and Support to the Public in Access to Justice in Environmental Matters" funded by Finland through the Environment and Security initiative. The seminar was attended by 20 participants, comprising 6 representatives of the public prosecutorial service, 7 representatives of the judiciary, a judge from the Misdemeanour Council, and representatives of the Ministry of Justice, EPA, Aarhus centres, etc.

(f) The recommendation was not implemented. Most often, inspectors are not informed about the results of court proceedings, despite the legal obligation of judicial authorities to do so.

Chapter 2: Information, public participation and education

Recommendation 2.1:
The Ministry of Tourism and Environment, in cooperation with relevant stakeholders, should complete the reform of the environmental integrated monitoring and information system. The Ministry should take the leading role in its implementation as well as responsibility for mobilizing the internal and external resources needed. The Ministry of Tourism and Environment should, in particular:

- *(a) Harmonize the environmental monitoring programme and reporting system with European Environment Agency standards;*
- *(b) Clarify the responsibilities of the respective monitoring institutions for the implementation of the different parts of the integrated monitoring programme;*
- *(c) Clarify the procedures and standards for providing, processing and disseminating information; and*
- *(d) Revise current reporting policies and procedures in order to disclose to the public, on a regular basis, environmental information produced by monitoring actors and competent government organizations, including through the Internet.*

(a) This recommendation is implemented. The monitoring programmes for all media, except for water, have been refocused to collect data in line with the standards of the European Environment Agency.
(b) This recommendation is partially implemented. There is the need for further clarification of responsibilities with regard to air monitoring between the EPA and the HSS, and water monitoring between the EPA and the Ministry of Agriculture and Rural Development (as the monitoring programme is prepared by this ministry), including the HSS.
(c) This recommendation is nearly implemented. The Law on Environment obliges the EPA to operate an environmental protection information system, and other environmental data holders to share their data with the Agency. All the data collected, except those on quality of soil, are shared with the Agency.
(d) This recommendation is implemented. The reporting policies and procedures are in place.

Recommendation 2.2:
To strengthen the environmental non-governmental organization (NGO) sector further and to improve public participation in environmental decision-making, the Government, in cooperation with NGOs, should:

- *(a) Review the NGO legislation on tax exemptions;*
- *(b) Complete preparatory procedures to accede to the Convention on Access to Information, Public Participation in Decision-making, and Access to Justice in Environmental Matters (Aarhus Convention);*
- *(c) Further improve regulations on public access to environmental information and participation in environmental decision-making, in particular in EIA and permitting procedures, and the development of environmental policies, plans and programmes; and*
- *(d) Initiate the revision and approval of policies and clarify procedures of cooperation between government agencies and NGOs.*

(a) This recommendation is implemented. The Law on Non-Governmental Organizations (OG 39/11) stipulates that NGOs should be tax exempt.
(b) This recommendation is implemented. Montenegro acceded to the Aarhus Convention in 2009.

(c) This recommendation is implemented. SEA and EIA procedures have become a regular practice in Montenegro over recent years. By law, the public has the opportunity to participate in the EIA, SEA and permitting processes, and is encouraged through the Aarhus centres to do so.
(d) This recommendation is implemented. The legal basis for cooperation between government agencies and NGOs is in place. Furthermore, a memorandum of cooperation was signed in 2010 and an action plan was elaborated based on the memorandum. In addition, a special group was established, whose members – signatories of the memorandum – exchange relevant information, documents and opinions on matters of interest.

Recommendation 2.3:
To complete educational reform and implement the Strategy of Education for Sustainable Development, the Ministry of Education and Science, in cooperation with the Ministry of Tourism and Environment and other relevant stakeholders responsible for specific areas of professional education, competent institutions and NGOs, should:

- *(a) Increase the number of training programmes in teacher training colleges and for all actors involved in the implementation of educational reform at the primary and secondary school levels, with a special focus on the environment and sustainable development;*
- *(b) Facilitate the incorporation of environmental issues and sustainable development principles in programmes of graduate education, professional training and adult education; and*
- *(c) Facilitate the involvement of environmental NGOs in informal environmental education and education for sustainable development, through educational projects and campaigns.*

(a) This recommendation is partially implemented. The teacher training is an ongoing activity and new training programmes have been developed. At the same time, there is a need for additional programmes and training, for which the budget is quite limited.
(b) This recommendation is implemented. Through the new curricula, the incorporation of environmental issues and sustainable development concepts has been facilitated. At the same time, there is a need for developing new teaching programmes for adults in various subjects.
(c) This recommendation is implemented. The Government encourages the involvement of NGOs in raising public awareness on nature protection and sustainable development. A number of campaigns have been organized over the last year in this regard, with the support of the NGOs.

Chapter 3: Implementation of international agreements and commitments

Recommendation 3.1:
The Government should strengthen the institutional capacity of the Ministry of Tourism and Environment for international environmental cooperation, to meet the requirements linked to the further development of multilateral environmental agreements and their implementation, as well as the European Union (EU) accession process (including the establishment of a project implementation unit).

The recommendation is implemented. Until 2009, environmental policy was vested in the Ministry of Tourism and Environment, and from 2009 to 2011 in the competency of the Ministry of Spatial Planning and Environment; since 2011 it has been vested in the competency of the Ministry of Sustainable Development and Tourism. The number of staff who work on environmental and sustainable development issues increased from 15 in 2006 to 21 in 2014.

A project implementation unit has not been established. Regarding the EU accession process, the Directorate of Environment and Climate Change includes the Division of Harmonization with EU and Horizontal Legislation. However, the limited liability company “Project – Consulting” (PROCON) was founded by the Government in 2008 to provide expert support in the implementation of projects on environmental protection and communal services adopted by the Government and/or local self-government authorities and supported by international financial institutions.

Recommendation 3.2:
The Ministry of Tourism and Environment should:

(a) 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; and

(b) In cooperation with relevant national authorities (e.g. the Ministry of Finance and the Secretariat of European Integration), develop a system that will allow for 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 government agencies and local authorities.

The recommendation is not implemented. No policy documents clearly define priorities for international cooperation on environmental protection and sustainable development. Similarly, a system that would allow for full accounting of international assistance on environmental protection and promote better coordination of the donor activities in this area, both with the donors and among the government agencies and local authorities, is not in place.

Recommendation 3.3:
Concerning multilateral environmental agreements (MEAs):

(a) The Government should:

i. Proceed with the ratification of MEAs for which all the necessary preparatory work has been done; and

ii. Designate relevant government bodies as focal points and competent authorities for the MEAs, and create adequate conditions to ensure their implementation. These government bodies should continue attracting international assistance for this purpose, with the ultimate objective being to build sufficient national capacity for their implementation.

(b) The Ministry of Tourism and Environment should, in cooperation with relevant international organizations and financing institutions, develop national implementation plans (or similar documents) for MEAs that are signed and ratified according to their provisions.

(a) The recommendation was implemented.

(i) Since 2007, Montenegro has become a party to the Convention on Wetlands of International Importance, Convention Concerning the Protection of the World Cultural and Natural Heritage, Convention on the Conservation of European Wildlife and Natural Habitats, Convention on the Conservation of Migratory Species of Wild Animals, Convention on Persistent Organic Pollutants, Convention on the Prior Informed Consent Procedure for Certain Hazardous Chemicals and Pesticides in International Trade, the United Nations Convention to Combat Desertification, and the United Nations Framework Convention on Climate Change and its Kyoto Protocol. Montenegro has also completed accession to all ECE environmental conventions.

(ii) Focal points and competent authorities have been designated to ensure the implementation of the MEAs to which Montenegro is a party. These government bodies continue attracting international assistance for this purpose, the ultimate objective being to build sufficient national capacity for their implementation.

(b) The recommendation was implemented. National implementation plans (or similar documents) for ratified MEAs according to their provisions have been developed, for example, the 2010 National Biodiversity Strategy with the Action Plan for the period 2010–2015; Action Plan for the implementation of the three protocols to the LRTAP Convention (2011–2014) and Action Plan for the Implementation of Stockholm Convention (2014–2021).

PART II: MOBILIZING FINANCIAL RESOURCES FOR ENVIRONMENTAL PROTECTION

Chapter 4: Economic instruments

Recommendation 4.1:
The Government needs to ensure a more stringent application of environmental policy instruments in line with the polluter- and user-pays principles in order to create adequate incentives for changing behaviour towards

the environment. In this context, it should base the determination of specific policy measures on an intensive dialogue with major stakeholders, with the aims of:

- *(a) Reviewing the effectiveness of existing economic instruments for environmental protection in achieving well-defined and realistic environmental objectives;*
- *(b) Determining policies that achieve major environmental benefits in a cost-effective way;*
- *(c) Achieving the gradual elimination of environmentally harmful subsidies, taking into account the need to ensure social affordability and provide for support in the event of compelling competitiveness concerns in well-defined and limited cases; and*
- *(d) Abolishing taxes currently earmarked for environmental financing, but which have no obvious environmental impact, such as the investment tax on business projects requiring an environmental impact assessment, which should be replaced by an appropriate administrative fee.*

The recommendation was partially implemented. Limited progress has been made. Pollution taxes have been collected as from 2008. However, their impact on the behaviour of polluters towards the environment has not been examined. Effective taxation of water pollution remains a major challenge. The investment tax on investments that require an EIA was abolished (as recommended). Investment project developers must finance the costs of conducting the EIA study, in case the latter is required (article 23 of the 2005 Law on EIA). Cross-subsidies in favour of households continue to prevail in the area of water supply and sewerage services and municipal waste management. In contrast, according to the Energy Regulatory Agency, cross-subsidization of household tariffs for electricity consumption was eliminated in 2011.

Recommendation 4.2:

The Government should, as soon as possible:

- *(a) Set a target date for the phasing out of leaded fuel for motor vehicles and for the reduction of sulphur in transportation fuels to current EU maximum levels of 50 parts per million (ppm);*
- *(b) Provide fiscal incentives that promote the use of unleaded fuel and fuels with a lower sulphur content;*
- *(c) Promote the introduction of cleaner vehicles using fiscal incentives;*
- *(d) Prepare the legal basis for the introduction of Euro 3 emission standards, and thereafter ensure their implementation as soon as possible; and*
- *(e) Tighten technical inspection standards for motor vehicles and ensure their effective implementation.*

The recommendation was implemented. The use of leaded fuels for motor vehicles was phased out in 2011. Fuel quality standards have been improved significantly. Since August 2007, the legislation requires vehicles to meet Euro 3 emission standards. Current legislation prohibits the import of vehicles older than three years. Vehicle inspection standards have been tightened.

Recommendation 4.3:

Regarding municipal solid waste management, municipalities should:

- *(a) Establish a system where waste charges are, to the greatest possible extent, proportional to the amount of waste collected, in order to create proper incentives for waste minimization. Municipalities should strive to establish agreements with all major groups of waste producers and with citizens to reduce, sort and deliver waste; and*
- *(b) Increase efforts to promote the recycling of waste and offer the appropriate infrastructure to do this properly.*

The recommendation is not implemented. Waste charges continue to be proportional to the surface area of residential and commercial premises. A legal framework for special waste charges has been adopted. Recycling is typically not done, and there are only few recycling facilities. The scope for recycling has been limited by the small size of the domestic market.

Recommendation 4.4:

For water supply and sewerage services, municipalities should raise user charges in stages to achieve more sustainable water consumption and improve cost recovery. Affordability problems for low-income households should be addressed by appropriate targeted subsidies.

The recommendation was partially implemented. More cost-reflective tariffs were introduced, but households continue to benefit from substantial cross-subsidies from tariffs for legal entities. There exist schemes for providing financial support to low-income households and other vulnerable persons.

Recommendation 4.5:
The Government should enforce more stringent environmental standards within the framework of well-defined emission targets for major pollutants. The associated incentives for firms to increase investments in pollution abatement and control equipment should be supported by adequate fiscal policy measures to stimulate investment in best available techniques (see Recommendation 4.1).

The recommendation is not implemented. New air quality standards were introduced in 2012, which apply, however, only to newly established facilities. Also, these new air quality standards are not in line with the objective of the Gothenburg Protocol, i.e. to reduce emissions of the key pollutants.

Chapter 5: Environmental expenditures and their financing

Recommendation 5.1:
The Government and the municipalities should significantly increase budget resources for the financing of environmental protection measures. The Government and municipalities should integrate medium-term environmental investment plans with the annual and multi-annual budget processes on the basis of prioritized, results-oriented programmes. Funds should be allocated according to clear and transparent criteria, and if possible, should involve a cost-benefit analysis of proposed major projects.

The recommendation was partially implemented. Central and local self-government budget resources for environmental protection were influenced by the overall development of fiscal revenues and, in recent years, the need for fiscal consolidation. The introduction of a medium-term expenditure framework (MTEF) designed to support budgetary targets, improve expenditure prioritization and foster improved government performance is envisaged within the framework of the Strategy of Public Administration Reform in Montenegro for the period 2011–2016. (However, the MTEF has not yet been introduced, at the time of writing this report.)

Recommendation 5.2:
The Government should ensure that the Environmental Fund has an adequate endowment of human and financial resources, and should consider allocating an appropriate share of privatization revenues to financing the activities of the Fund. The Fund should conduct its operations within the framework of a medium- and long-term strategy reflecting environmental priorities and the resources available to achieve them. The Fund should operate in line with recognized international principles and practices. The Fund should support the development of environmental infrastructure at the municipal level by providing loans at favourable conditions to public utility companies. The Fund should engage in regular consultations with foreign donors, with a view to aligning foreign assistance with domestic priorities.

The recommendation is not implemented. The Environmental Fund has not been established.

Recommendation 5.3:
The Government should establish a coherent and comprehensive information and reporting system for environmental protection expenditures and revenues covering the public sector, business sector and private households. As a general framework for this, it should use the European System for the Collection of Economic Information on the Environment (SERIEE) developed by the Organisation of Economic Co-operation and Development/Eurostat and the associated Classification of Environmental Protection Activities and Expenditures (CEPA).

The recommendation is not implemented. The area of statistical reporting on environmental protection expenditures and revenues remains a major challenge.

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

Chapter 6: Tourism and environment

Recommendation 6.1:
To incorporate the priorities contained in the National Strategy for Sustainable Development regarding sustainable tourism, the Ministry for Economic Development should update the Spatial Plan and the Coastal Area Spatial Plan. The Ministry of Tourism and Environment should incorporate the priorities regarding sustainable tourism contained in the National Strategy for Sustainable Development into the Tourism Master Plan.

The recommendation was implemented. The Spatial Plan was updated in 2008. Concepts of spatial organization and development of the Spatial Plan until 2020 are in accordance with sustainable development principles. The Spatial Plan is a general strategic framework for sustainable spatial development and represents the basis for harmonizing different sector and non-sector policies, which also have spatial consequences. The 2005 Coastal Area Spatial Plan (CASP) is expected to be updated by 2015.

In 2001, the Tourism Master Plan, and in 2003, two regional tourism master plans were prepared. After several years of implementation and analysis of progress, it was decided to amend and update the 2001 Tourism Master Plan. This resulted in the 2008 Tourism Development Strategy to 2020. The Strategy's goal is the creation of a sustainable, high quality, all-year-round and diverse tourism product to enable the growth of revenues and arrivals, at the same time generating new jobs and increasing the standard of living. It places emphasis on sustainability. In particular, it recognizes the importance of products being based on exclusive natural and cultural attractions which reflect the natural surroundings and diverse historical and cultural heritage of Montenegro.

The Ministry of Sustainable Development and Tourism monitors its implementation annually and issues an annual action plan. In 2013, the Agenda of Reforms of Tourism was prepared. Among other matters, it emphasizes the importance of further development of the quality of accommodation facilities (among other measures, implementing the standards of Wild Beauty Resorts), strengthening cooperation between agriculture and tourism, and diversifying tourism products. In the framework of the project "Hiking & Biking", pedestrian trails and hiking trails have become part of the national network of mountain trails, which cover a distance of 6,000 km. Intensive work has also been done in arranging these routes and preparing guides and other promotional materials which present the natural beauty that the trails pass through. In addition, some interesting initiatives have been launched, such as educating visitors on the protection of environmental and cultural values through ecological and cultural thematic pathways on historic trade routes, such as the projects "Panoramic routes" and "Ethno-gastronomic routes". In addition, in 2013 the project "Peaks of the Balkans" began, promoting the variety of cultural sites as well as the natural attractions for visitors.

Recommendation 6.2:
The Government should enforce the Law on Environmental Impact Assessment and the Law on Strategic Environmental Assessment (OG RM No. 80/2005) as soon as possible, in order to control the environmentally-sound development and rehabilitation of infrastructure, particularly in tourist areas. (See Recommendation 1.4)

The recommendation was implemented. All buildings and facilities in larger projects have to be assessed for their environmental impact, as does their use. Concerning tourism, EIA is mandatory for related projects while SEA procedures are mandatory for all plans and programmes. In addition, in 2011, Montenegro ratified the Protocol on Integrated Coastal Zone Management (ICZM) in the Mediterranean, in order to ensure consistent application of the ICZM mechanisms, in particular the introduction of the building ban along the coast 100 m from the high-water line for all new constructions for which the development of planning documents starts after 2011. The Administration for Inspection Affairs has the task of detecting illegal buildings, especially along the coastal zone.

Recommendation 6.3:
To develop new sustainable tourism products, the Ministry of Tourism and Environment should, through the initiation of appropriate programmes and involvement of relevant stakeholders (e.g. agriculture, cultural heritage and nature protection), strengthen cooperation between providers of tourism services in the coastal, central and northern regions. The Ministry for Economic Development, in cooperation with relevant stakeholders, should elaborate and implement broader economic development plans for rural areas.

The implementation of the recommendation is ongoing. In 2008, all stakeholders (i.e. governmental institutions, the Chamber of Commerce, NGOs, farmers' associations) were involved in the preparation of the Tourism Development Strategy to 2020. One of the aims of the Strategy was to connect the coastal area and the hinterland, i.e., to develop the whole of Montenegro as a unique selling point, emphasizing the faster development of the northern (rural) part of Montenegro.

Five years after adoption of the Tourism Development Strategy to 2020, the Agenda of Reforms of Tourism was adopted with the aim of reporting on the progress that had been made since 2008 and to announce which activities and measures have to be implemented to achieve the strategic development goal. Through these activities, among others, the country is more intensively promoting various activities, such as cultural tourism, agrotourism, ecotourism and panoramic routes.

Monitoring of these activities is the responsibility of the Council for Tourism, and its Coordination Team is charged with the preparation for and flow of the tourism season. The Council was established in October 2013. The members of the Council are: the Prime Minister, two vice-premiers, six ministers dealing with tourism, internal affairs, health, culture, traffic and maritime, and finance, the representative of the Ministry of Sustainable Development and Tourism, the Director of Administration for Inspection Affairs, the Secretary general of Union of Municipalities, the President of Montenegrin tourism association, the Secretary of Secretariat for development projects, the Director of the National Tourism Organisation, the Director of Statistical Office, the representative of Montenegro Airlines, the Director of Airports, the Director of the Public Enterprise For Coastal Zone Management, the President of Department for Tourism and Catering of Chamber of Commerce, the Director of PENP, the representative of Montenegrin University for tourism, the representative of Secondary Vocal school, the representative of the Union of employees, two representatives of tourism agencies, the President of Department for tourism agriculture, ecology and urban planning of Parliament, and three independent experts. The Council meets, when needed, and at least once per year.

The Regional Development Strategy of Montenegro for the period 2010–2014 identifies the importance of the achievement of more balanced regional development and the increased competitiveness of less developed local self-governments and regions. Based on implementation reports, a new regional development strategy until 2020 is currently in preparation.

Recommendation 6.4:
The Ministry of Tourism and Environment with relevant stakeholders should further implement management plans for all protected areas.

The recommendation was partially implemented. According to the 2008 Law on Nature Protection (OG 51/08, 21/09, 40/11, 62/13, 6/14), each protected natural asset should have a five-year management plan adopted and an annual management programme. In practice, only the national parks have adopted management plans and annual management programmes.

Recommendation 6.5:
The Ministry for Economic Development, in cooperation with all relevant stakeholders at the national and municipal levels should take effective measures to urgently stop uncontrolled and illegal constructions to preserve the tourism potential and nature values.

The implementation of the recommendation is ongoing. Montenegro recognizes widespread illegal constructions and inadequate use of land as a threat to tourism development, and ultimately as obstacles to sustainable development. The spatial protection inspection within the Administration for Inspection Affairs is carrying out checks regarding this issue; for example, it made 3,656 visits in 2013. The spatial protection inspection also mentions the lack of capacity at the local level. Often, municipalities do not apply spatial

planning related legislation. Amending the legislation and strengthening the inspection would contribute to the improvement of the situation. A draft law on legalizing illegal settlements is in preparation.

Recommendation 6.6:
For the development of sustainable tourism, the Government should readjust and put into practice especially the following recommendations that were addressed to Montenegro in the first Environmental Performance Review in 2002 (see Annex 1):

13.9. on integrated transport planning;
14.1(c) on eco-standards for tourist premises;
14.1(d) on sustainable tourism indicators;
14.1(e) on inventory of all sites of tourist interest;
14.2 on fiscal incentives for tourist premises that implement eco-standards;
14.3(a) on campaigns to raise awareness of sustainable tourism;
14.3(b) on sustainable tourism development in the curricula of the higher schools; and
14.5 on survey of local products.

The implementation of the recommendation is ongoing.
13.9 There are some activities related to integrated transport, mostly along the TRACEA corridor, and the airports of Tivat and Podgorica.
14.1(c) Eco-standards for tourist premises are defined in the coastal zones (blue flag), but not yet developed in the rural areas.
14.1(d) Sustainable tourism indicators were defined and used in the 2008 Tourism Development Strategy to 2020 as well as in its annual action plans.
14.1(e) National and local tourism organisations carried out and maintain national and local inventories of all sites of tourist interest.
14.2 Fiscal incentives for tourist premises that implement eco-standards are not yet developed.
14.3(a) Campaigns to raise awareness of sustainable tourism are carried out by the Ministry of Sustainable Development and Tourism and the National Tourism Organisation when funding is available. Some international NGOs also promote sustainable tourism.
14.3(b) This recommendation is not yet implemented, but incorporating sustainable tourism in the curricula of the higher schools is under development.
14.5 Some surveys of local products were carried out.

Chapter 7: Energy and environment

Recommendation 7.1:
The Government should strive to improve energy efficiency, in particular through:

(a) Phasing out subsidization of electricity prices to private households and large enterprises;
(b) Increasing investments required to reduce losses in the electricity transmission and distribution systems;
(c) Improving the collection of electricity bills and introducing special support measures for those who cannot afford to pay full price; and
(d) Designing and implementing appropriate incentives for reducing electricity consumption in residential buildings.

(a) The recommendation was implemented. Cross-subsidies were eliminated in 2011. According to the Energy Regulatory Agency, tariffs are cost reflective, based on the tariff methodology for allowed revenues, notably, justified and efficient operating costs.
(b) The recommendation was not implemented. Losses in electricity transmission and distribution systems have declined to a small extent, but are still very high, especially in the distribution system. Efforts are necessary to modernize the grid.
(c) The recommendation was partially implemented. Data on bill collection rates are scarce and appear not to be accurate. The Government has introduced a system of subsidies to ensure affordability of electricity bills for vulnerable groups of persons, including low-income households.
(d) The recommendation was partially implemented. There is funding (low interest loans) for installing solar heating systems for warm water generation and for installing modern biomass heating systems in buildings. However, the majority of existing buildings have low energy performance and there is a lot of

potential to reduce energy/electricity consumption. The Government introduced mandatory efficiency standards for new buildings and also for major rehabilitations.

Recommendation 7.2:

(a) The Ministry for Economic Development and the Ministry of Tourism and Environment should ensure the development of renewable energy sources (hydropower, solar and wind power, and biomass) in accordance with the goals of the National Strategy for Sustainable Development (NSDS). Various scenarios should be developed and discussed in forums with a high level of public participation. Targets for renewable energy sources should be adopted by the Government within the framework of the general energy policy, NSDS and relevant spatial plans.

(b) The Government should encourage the Electric Power Company of Montenegro (EPCG) and private domestic and foreign investors, and seek foreign assistance, to support the implementation of renewable energy projects.

(a) The recommendation is partly implemented. Progress in installing renewable energy plants has been small and realization is far behind the plans in the Energy Development Strategy of Montenegro until 2025. In recent years, Montenegro has introduced a feed-in tariff and other secondary regulations and simplified procedures; success has yet to be achieved. There are different scenarios for future energy development in the energy development strategy until 2030, but they do not vary much in renewable energy contribution. According to the 2012 decision of the 10th Ministerial Council of the Energy Community on the implementation of EU Directive 2009/28/EC on the promotion of renewable energy, Montenegro's target for renewable energy sources as a proportion of gross final consumption of energy is 33 per cent by 2020.

(b) The recommendation is not implemented. The relations between EPCG and private investors are reported as rather difficult when it comes to connection consent. In general, the situation for investors is described as rather difficult and some neighbouring countries offer better conditions. It has yet to be demonstrated that the simplification of permission procedures shows results.

Recommendation 7.3:

The Ministry for Economic Development, in cooperation with the Ministry of Tourism and Environment, should:

(a) Ensure that the existing first block of the Pljevlja coal-fired power plant complies with Best Available Techniques (BAT) within ten years at most;

(b) Ensure that, if built, the next block meets BAT standards; and

(c) Consider alternatives to the Pljevlja coal-fired power plant, by developing a plan for a combined heating and power plant which complies with BAT.

(See also Recommendation 1.4 on IPPC permits.)

(a) The recommendation is partly implemented. TPP Pljelvja went through a general overhaul in 2009, during which an electrostatic precipitator and low NOx burner were installed. TPP Pljevlja does not comply with BAT due to sulphur emissions.

(b) The implementation cannot be assessed yet. The tender for the second block has been finished. The operators reckon that the new block will meet all required standards to get IPPC permit.

(c) The recommendation is not implemented. Alternatives for the Pljevlja coal-fired power plant have not been considered.

Annex II

PARTICIPATION OF MONTENEGRO IN MULTILATERAL ENVIRONMENTAL AGREEMENTS

Worldwide agreements		Montenegro	
Year		**Year**	**Status**
1958	(GENEVA) Convention on the Continental Shelf	2006	Su
1958	(GENEVA) Convention on Fishing and Conservation of the Living Resources of the High Seas	2006	Su
1958	(GENEVA) Convention on the Territorial Sea and the Contiguous Zone	2006	Su
1958	(GENEVA) Convention on the High Seas	2006	Su
1961	(PARIS) International Convention for the Protection of New Varieties of Plants		
1963	(VIENNA) Convention on Civil Liability for Nuclear Damage	2006	Su
	1997 (VIENNA) Protocol to Amend the 1963 Vienna Convention on Civil Liability for Nuclear Damage	2011	Ac
1963	(MOSCOW) Treaty Banning Nuclear Weapon Tests in the Atmosphere, in Outer Space and under Water	2006	Su
1968	(LONDON, MOSCOW, WASHINGTON) Treaty on the Non-Proliferation of Nuclear Weapons (NPT)	2006	Su
1969	(BRUSSELS) Convention relating to Intervention on the High Seas in Cases of Oil Pollution Casualties	2006	Su
1970	(NEW YORK) Treaty on the Non-Proliferation of Nuclear Weapons	2006	Su
	Agreement between Montenegro and the International Atomic Energy Agency on the implementation of safeguard measures	2010	Ra
	Protocol Additional to the Agreement(s) Between Montenegro and the International Atomic Energy Agency for the Application of Safeguards	2010	Ra
	Small Quantity Protocol	2010	Ra
1971	(RAMSAR) Convention on Wetlands of International Importance Especially as Waterfowl Habitat	2006	Su
	1982 (PARIS) Amendment	2006	Su
	1987 (REGINA) Amendments		
1971	(GENEVA) Convention on Protection against Hazards from Benzene (ILO 136)	2006	Su
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	2006	Su
1972	(PARIS) Convention concerning the Protection of the World Cultural and Natural Heritage	2006	Su
1972	(LONDON) Convention on the Prevention of Marine Pollution by Dumping of Wastes and Other Matter	2006	Su
	1996 (LONDON) Protocol		
1972	(LONDON, MOSCOW, WASHINGTON) Convention on the Prohibition of the Development, Production and Stockpiling of Bacteriological (Biological) and Toxin Weapons, and on their Destruction	2006	Su
1972	(LONDON) International Convention on the International Regulations for Preventing Collisions at Sea	2006	Su
1972	(GENEVA) International Convention for Safe Containers	2006	Su
1973	(WASHINGTON) Convention on International Trade in Endangered Species of Wild Fauna and Flora	2006	Su
	1979 (BONN) Amendment	2006	At
	1983 (GABORONE) Amendment	2006	At

Worldwide agreements		Montenegro	
Year		Year	Status
1973	(LONDON) Convention for the Prevention of Pollution from Ships (MARPOL)		
	1978 (LONDON) Protocol relating to the International Convention for the Prevention of Pollution from Ships	2006	Su
	Annex I on Prevention of Pollution by Oil	2006	Su
	Annex II on Control of Pollution by Noxious Liquid Substances in Bulk	2006	Su
	Annex III on Prevention of Pollution by Harmful Substances Carried by Sea in Packaged	2006	Su
	Annex IV on Prevention of Pollution by Sewage from Ships	2006	Su
	Annex V on Prevention of Pollution by Garbage from Ships	2006	Su
	1997 (LONDON) Protocol to Amend the International Convention for the Prevention of Pollution from Ships, 1973, as modified by the Protocol of 1978 relating thereto - Annex VI		
1977	(GENEVA) Convention on Protection of Workers against Occupational Hazards from Air Pollution, Noise and Vibration (ILO 148)	2006	Su
1979	(BONN) Convention on the Conservation of Migratory Species of Wild Animals	2009	Ra
	1991 (LONDON) Agreement Conservation of Bats in Europe	2011	Ra
	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)	2011	Ra
	1996 (MONACO) Agreement on the Conservation of Cetaceans of the Black Sea, Mediterranean Sea and Contiguous Atlantic Area (ACCOBAMS)	2009	Ra
1980	(NEW YORK, VIENNA) Convention on the Physical Protection of Nuclear Material	2007	Su
1981	(GENEVA) Convention Concerning Occupational Safety and Health and the Working Environment (ILO 155)	2006	Su
1982	(MONTEGO BAY) Convention on the Law of the Sea	2006	Su
	1994 (NEW YORK) Agreement related to the Implementation of Part XI of the Convention	2006	Su
	1995 (NEW YORK) Agreement for the Implementation of the Provisions of the United Nations Convention on the Law of the Sea of 10 December1982 relating to the Conservation and Management of Straddling Fish Stocks and Highly Migratory Fish Stocks		
1985	(GENEVA) Convention Concerning Occupational Health Services (ILO 161)	2006	Su
1985	(VIENNA) Convention for the Protection of the Ozone Layer	2006	Su
	1987 (MONTREAL) Protocol on Substances that Deplete the Ozone Layer	2006	Su
	1990 (LONDON) Amendment to Protocol	2006	Su
	1992 (COPENHAGEN) Amendment to Protocol	2006	Su
	1997 (MONTREAL) Amendment to Protocol	2006	Su
	1999 (BEIJING) Amendment to Protocol	2006	Su
1986	(GENEVA) Convention Concerning Safety in the Use of Asbestos (ILO 162)	2006	Su
1986	(VIENNA) Convention on Early Notification of a Nuclear Accident	2007	Su
1986	(VIENNA) Convention on Assistance in the Case of a Nuclear Accident or Radiological Emergency	2007	Su
1989	(BASEL) Convention on the Control of Transboundary Movements of Hazardous Wastes and their Disposal	2006	Su
	1995 Ban Amendment	2006	Su
	1999 (BASEL) Protocol on Liability and Compensation		
1990	(LONDON) Convention on Oil Pollution Preparedness, Response and Cooperation		
1992	(RIO DE JANEIRO) Convention on Biological Diversity	2006	Su
	2000 (MONTREAL) Cartagena Protocol on Biosafety	2006	Su
	2010 (NAGOYA) Protocol on Access to Genetic Resources and the Fair and Equitable Sharing of Benefits Arising from their Utilization		
	2010 (NAGOYA - KUALA LUMPUR) Supplementary Protocol on Liability and Redress to the Cartagena Protocol on Biosafety	2011	Si
1992	(NEW YORK) Unnited Nations Framework Convention on Climate Change	2006	Su
	1997 (KYOTO) Protocol	2007	Ac
1993	(ROME) Agreement to Promote Compliance with International Conservation and Managament Measures by Fishing Vessels on the High Seas		
1993	(PARIS) Convention on the Prohibition of the Development, Production, Stockpiling and Use of Chemical Weapons and on Their Destruction	2006	Su
1994	(VIENNA) Convention on Nuclear Safety		
1994	(PARIS) United Nations Convention to Combat Desertification	2007	Ac
1996	(NEW YORK) Comprehensive Nuclear Test Ban Treaty	2006	Su
1997	(VIENNA) Joint Convention on the Safety of Spent Fuel Management and on the Safety of Radioactive Waste Management	2010	Ac

Worldwide agreements		Montenegro	
Year		**Year**	**Status**
1997	(NEW YORK) Convention on the Law of Non-navigational Uses of International Watercourses	2013	Ac
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	2011	Ac
2001	(STOCKHOLM) Convention on Persistent Organic Pollutants	2011	Ra
2001	(LONDON) Convention on Civil Liability for Bunker Oil Pollution Damage	2011	Ac
2004	(LONDON) Convention for the Control and Management of Ships' Ballast Water and Sediments	2011	Ac
2005	(NEW YORK) International Convention for the Suppression of Acts of Nuclear Terrorism	2006	Su
2013	(KUMAMOTO) Minamata Convention on Mercury	2014	Si

Ac = Accession; Ad = Adherence; Ap = Approval; At = Acceptance; De = Denounced; Si = Signature; Su = Succession; Ra = Ratification.

Regional and subregional agreements		Montenegro	
Year		**Year**	**Status**
1957	(GENEVA) European Agreement concerning the International Carriage of Dangerous Goods by Road (ADR)	2006	Su
1958	(GENEVA) Agreement - Adoption of Uniform Conditions of Approval and Reciprocal Recognition of Approval for Motor Vehicle Equipment and Parts	2006	Su
1968	(PARIS) European Convention - Protection of Animals during International Transport (revised in 2003) 1979 (STRASBOURG) Additional Protocol		
1969	(LONDON) European Convention on the Protection of the Archaeological Heritage (revised in 1992)		
1976	(BARCELONA) Convention for the Protection of the Mediterranean Sea against Pollution	2007	Ra
	1976 (BARCELONA) Protocol for the Prevention of Pollution in the Mediterranean Sea by Dumping from Ships and Aircraft (as amended in 1995)		
	2002 (MALTA) Protocol Concerning Cooperation in Preventing Pollution from Ships and, in Cases of Emergency, Combating Pollution of the Mediterranean Sea (replacing the 1976 Emergency Protocol)	2007	Ra
	1996 (SYRACUSE) Protocol for the Protection of the Mediterranean Sea against Pollution from Land-Based Sources and Activities (replacing the 1980 Land-based Sources Protocol)	2007	Ra
	1994 (MADRID) Protocol for the Protection of the Mediterranean Sea against Pollution Resulting from Exploration and Exploitation of the Continental Shelf and the Seabed and its Subsoil		
	1995 (BARCELONA) Protocol Concerning Specially Protected Areas and Biological Diversity in the Mediterranean (replacing the 1982 Specially Protected Areas Protocol)	2007	Ra
	1996 (IZMIR) Protocol on the Prevention of Pollution of the Mediterranean Sea by Transboundary Movements of Hazardous Wastes and their Disposal	2007	Ra
	2008 (MADRID) Protocol on Integrated Coastal Zone Management in the Mediterranean	2012	Ra
1976	(STRASBOURG) European Convention for the Protection of Animals Kept for Farming Purposes	2001	Ac
1979	(BERN) Convention on the Conservation of European Wildlife and Natural Habitats	2009	Ra
1979	(GENEVA) Convention on Long-range Trans-boundary Air Pollution	2006	Su
	1984 (GENEVA) Protocol - Financing of Co-operative Programme (EMEP)	2006	Su
	1985 (HELSINKI) Protocol - Reduction of Sulphur Emissions by 30%		
	1988 (SOFIA) Protocol - Control of Emissions of Nitrogen Oxides		
	1991 (GENEVA) Protocol - Volatile Organic Compounds		
	1994 (OSLO) Protocol - Further Reduction of Sulphur Emissions		
	1998 (AARHUS) Protocol on Heavy Metals	2011	Ac
	1998 (AARHUS) Protocol on Persistent Organic Pollutants	2012	Ac
	1999 (GOTHENBURG) Protocol to Abate Acidification, Eutrophication and Ground-level Ozone		
1991	(ESPOO) Convention on Environmental Impact Assessment in a Transboundary Context	2009	Ac
	2001 (SOFIA) First Amendment	2009	Ra
	2003 (KIEV) Protocol on Strategic Environmental Assessment	2009	Ra
	2004 (CAVTAT) Second Amendment	2009	Ra

Regional and subregional agreements		Montenegro	
Year		**Year**	**Status**
1992	(HELSINKI) Convention on the Protection and Use of Transboundary Watercourses and International Lakes	2014	Ac
	1999 (LONDON) Protocol on Water and Health		
	2003 (MADRID) Amendments to Articles 25 and 26	2014	Ac
1992	(HELSINKI) Convention on the Transboundary Effects of Industrial Accidents	2009	Ac
	2003 (KIEV) Protocol on Civil Liability and Compensation for Damage Caused by the Transboundary Effects of Industrial Accidents on Transboundary Waters		
1993	(OSLO and LUGANO) Convention - Civil Liability for Damage from Activities Dangerous for the Environment		
1994	(SOFIA) The Convention on Co-operation for the Protection and Sustainable Use of the River Danube	2008	Ra
1994	(LISBON) Energy Charter Treaty	2012	Si
	1994 (LISBON) Protocol on Energy Efficiency and Related Environmental Aspects		
	1998 Amendment to the Trade-Related Provisions of the Energy Charter Treaty		
1998	(AARHUS) Convention on Access to Information, Public Participation in Decision-making and Access to Justice in Environmental Matters	2009	Ac
	2003 (KIEV) Protocol on Pollutant Release and Transfer Register	2006	Si
	2005 (ALMATY) Amendment on GMOs		
1998	(STRASBOURG) Convention on the Protection of Environment through Criminal Law		
2000	(FLORENCE) Convention on European Landscape	2009	Ra

Ac = Accession; Ad = Adherence; Ap = Approval; At = Acceptance; De = Denounced; Si = Signature; Su = Succession; Ra = Ratification.

Annex III

KEY DATA AND INDICATORS AVAILABLE FOR THE REVIEW

Air pollution	**2007**	**2008**	**2009**	**2010**	**2011**	**2012**	**2013**
Emissions of SO_2							
- Total (1,000 t)	11.8	15.4	8.1	27.8	39.7	..	..
- by sector (1,000 t)	..	..	..	..	..	..	..
Energy	11.0	14.6	7.7	26.9	39.1	..	..
Industry	0.8	0.7	0.4	0.9	0.6	..	..
Transport	..	..	..	..	..	..	..
Other	..	..	..	..	..	..	..
- per capita (kg/capita)	18.8	24.4	12.8	44.1	64.0	..	..
- per unit of GDP (kg/1,000 US$ (2005) PPP)	..	..	..	..	..	..	..
Emissions of NO_X (converted to NO_2)							
- Total (1,000 t)	8.0	9.5	7.5	9.3	10.2	..	..
- by sector (1,000 t)	..	..	..	..	..	..	..
Energy	7.7	9.2	7.4	8.9	10.0	..	..
Industry	0.1	0.1	0.1	0.1	0.1	..	..
Transport	..	..	..	..	..	..	..
Other	..	..	..	..	..	..	..
- per capita (kg/capita)	12.8	15.1	11.9	14.8	16.4	..	..
- per unit of GDP (kg/1,000 US$ (2005) PPP)	..	..	..	..	..	..	..
Emissions of ammonia (NH_3)							
- Total (1,000 t)	3.4	3.3	2.8	2.7	2.9	..	..
- by sector (1,000 t)	..	..	..	..	..	..	..
Energy	0.1	0.1	0.1	0.1	0.1	..	..
Industry						..	..
Transport	..					..	..
Other	3.3	3.2	2.7	2.6	2.8	..	..
- per capita (kg/capita)	5.4	5.2	4.4	4.3	4.7	..	..
- per unit of GDP (kg/1,000 US$ (2005) PPP)	..	..	..	..	..	..	..

Air pollution	2007	2008	2009	2010	2011	2012	2013
Emissions of total suspended particles (TSP)							
- Total (1,000 t)	..	..	..	..	..	..	..
- by sector (1,000 t)	..	..	..	..	..	..	..
Energy	..	..	..	..	..	..	..
Industry	..	..	..	..	..	..	..
Transport	..	..	..	..	..	..	..
Other	..	..	..	..	..	..	..
- per capita (kg/capita)	..	..	..	..	..	..	..
- per unit of GDP (kg/1,000 US$ (2005) PPP)	..	..	..	..	..	..	..
Emissions of non-methane volatile organic compounds (NMVOC)							
- Total (1,000 t)	24.2	26.7	28.5	27.4	28.1	..	..
- by sector (1,000 t)	..	..	..	..	..	..	..
Energy	4.6	4.7	4.7	4.5	4.6	..	..
Industry	0.7	0.4	0.8	0.7	0.6	..	..
Transport	..	..	..	..	..	..	..
Other [1)]	14.7	16.4	19.0	19.3	20.0	..	..
- per capita (kg/capita)	38.5	42.4	45.2	43.5	45.3	..	..
- per unit of GDP (kg/1,000 US$ (2005) PPP)	..	..	..	..	..	..	..
Emissions of persistent organic pollutants (PCBs, dioxin/furan and PAH)	..	..	..	..	..	..	..
- Total (1,000 t)	0.0	0.0	0.0	0.0	0.0	..	..
- by sector (1,000 t)	..	..	..	..	..	..	..
Energy	0.0	0.0	0.0	0.0	0.0	..	..
Industry	0.0	0.0	0.0	0.0	0.0	..	..
Transport	..	..	..	..	..	..	..
Other	..	..	..	..	..	..	..
- per capita (kg/capita)	0.0	0.0	0.0	0.0	0.0	..	..
- per unit of GDP (kg/1,000 US$ (2005) PPP)	..	..	..	..	..	..	..
Emissions of heavy metals	..	..	..	..	..	..	..
- Total cadmium (t)	0.07	0.09	0.05	0.06	0.07	..	..
- Total lead (t)	52.20	46.80	45.40	45.70	25.30	..	..
- Total mercury (t)	0.07	0.09	0.05	0.09	0.09	..	..
Emissions of CO	..	..	..	..	..	..	..
- Total (1,000 t) [2)]	134.0	54.0	29.6	33.5	315.2	..	..

1) include NMVOC emissions from other natural sources

2) include CO emissions from forest fires

Climate Change	**2007**	**2008**	**2009**	**2010**	**2011**	**2012**	**2013**
Greenhouse gas emissions (total of CO_2, CH_4, N_2O, CFC, etc.) expressed in CO_2 eq.							
- Total aggregated emissions (1,000 t) without LULUCF	4,655.7	4,366.5	3,084.5	4,081.8	3865.71 [3)]	..	..
- Total aggregated emissions (1,000 t) with LULUCF	2,291.4	2,096.8	679.2	1,818.9	1,698.8	..	..
- by sector (1,000 t)	..	..	..	..	..	..	..
Energy	2,373.5	2,941.8	2,043.2	2,818.4	2656.1 [4)]	..	..
Energy industries	..	..	..	..	..	..	..
Manuafacturing industries and construction	..	..	..	..	..	..	..
Transport	..	..	..	..	..	..	..
Other sectors	..	..	..	..	..	..	..
Other	..	..	..	..	..	..	..
Fugitive emissions	..	..	..	..	..	..	..
Industry	1,747.2	918.2	541.7	741.4	744.8	..	..
Solvent and other product use	..	..	..	..	..	..	..
Agriculture	429.9	421.3	355.3	437.7	380.7	..	..
Land use, land use change and forestry (LULUCF)	..	..	..	..	..	..	..
Waste	105.0	84.0	84.0	84.0	84.0		
Other	..	..	..	..	..	..	..
- per capita (t CO_2 eq/capita) [5)]	3.6	3.3	1.1	2.9	2.7	..	..
- per unit of GDP (t CO_2 eq/1,000 US$ (2005) PPP)	..	..	..	..	..	..	..
Total emissions (1,000 t) of	..	..	..	..	..	..	..
Carbon dioxide (CO_2)	2,483.5	3,019.9	2,057.5	2,836.9	2,685.7	..	..
Nitrous Oxide (N_2O)	0.7	0.7	0.7	0.8	0.7	..	..
Methane (CH_4)	19.5	18.8	16.0	18.6	17.5	..	..
Perfluorocarbons (PFCs) CF4+C2F6	0.2	0.1	0.1	0.1	0.1	..	..
Hydrofluorocarbons (HFCs)	..	..	..	..	0.0	..	..
Sulfur hexafluoride (SF_6)	..	..	..	..	0.1	..	..

3) only 2011 has estimation for SF6 emissions
4) only 2011 has estimation for SF6 emissions
5) with LULUCF

Ozone layer	**2007**	**2008**	**2009**	**2010**	**2011**	**2012**	**2013**
Consumption of ozone-depleting substances (ODS) (t of ODP)	4.28	0.48	0.94	0.58	0.72	0.94	..

Water	2007	2008	2009	2010	2011	2012	2013
Renewable freshwater resources (thousand m3/year)	..	..	..	..	..	..	..
Gross freshwater abstracted (thousand m3/year)	..	106,579.0	..	..	109,449.0	..	..
- Share of water losses in total water abstraction (%)	..	53.2	..	..	54.6	..	..
Water exploitation index (water abstraction/renewable freshwater resources x 100)	..	..	..	..	..	..	..
Total water use by sectors (thousand m3)	..	..	..	..	..	..	..
- Agriculture (ISIC 01-33)	6,642.0	1,676.0	1,722.0	1,703.0	1,721.0	1,971.0	..
- Households	..	34,614.0	..	..	34,993.0	..	..
- Industry (ISIC 10-33)	39,684.0	37,101.0	27,895.0	16,311.0	26,741.0	22,651.0	..
of which water used for cooling	..	..	..	..	..	..	..
- Services (ISIC 45-96)	..	..	..	..	..	..	..
Household water use per capita (l/capita/day)	..	..	..	..	..	..	..

Ecosystems and biodiversity	2007	2008	2009	2010	2011	2012	2013
Protected areas							
- Total area (km^2)	1,087.8	1,089.3	1,249.7	1,249.7	1,249.7	1,249.7	1,249.7
- Protected areas by IUCN categories (% of national territory) [6]	7.88	7.89	9.05	9.05	9.05	9.05	9.05
Ia Strict Nature Reserve	0.04	0.05	0.05	0.05	0.05	0.05	0.05
Ib Wilderness Area (zakasniks)	..	..	..	..	..	..	..
II National Park	6.61	6.61	7.36	7.36	7.36	7.36	7.36
III Natural Monument	2,098	2,098	2,098	2,098	2,098	2,098	2,098
IV Habitat / Species Management Area	..	..	..	..	..	..	..
V Protected Landscape / Seascape	..	..	..	..	..	..	..
VI Managed Resource Protected Area	..	..	..	..	..	..	..
Forests and other wooded land							
- Total area (km^2)	7,180.0	7,180.0	7,180.0	9,640.0	9,640.0	9,640.0	9,640.0
- Total area (% of total land area)	52.0	52.0	52.0	69.8	69.8	69.8	69.8
- Undisturbed by humans (1,000 ha)	n/a	n/a	n/a	1,101.0	1,101.0	1,101.0	1,101.0
- Semi-natural (1,000 ha)	n/a	n/a	n/a	n/a	n/a	n/a	n/a
- Plantation (1,000 ha)	n/a	n/a	n/a	5.5	5.5	5.5	5.5
- Area of regeneration (1,000 ha)	n/a	n/a	n/a	722.0	722.0	722.0	722.0
Share of threateaned species (IUCN categories) in total number of species:	..	..	..	..	..	..	..
- mammals (%)	..	..	..	..	..	..	..
- birds (%)	..	..	..	..	..	..	..
- fish (%)	..	..	..	..	..	..	..
- reptiles (%)	..	..	..	..	..	..	..
- vascular plants (%)	..	..	..	..	..	..	..

6) According to the Law on Nature Protection (OG 51/08, 21/09, 40/11) categories of protected areas are not structured in the same way as IUCN categories. So percentage values in the table represent percentage by national categories for which it is estimated that they are equivalent with IUCN categories based on description of categories in the Law and IUCN Guidelines. Nature reserves (4 of them) are within the area of national parks. Only Tivat Salina is outside of borders of national parks (1.5 ha). This means that surface and percentage of nature reserves are also included in overall surface and percentage for national parks. At the end, data are based on register of protected areas and these are in some cases estimations of surface, for example for protected caves there are no data on surface so they are not included in surface of total protected areas. Also, revision of borders of the National Park Durmitor is ongoing.

Land resources and soil	2007	2008	2009	2010	2011	2012	2013
Land area (km^2)	13,810.0	13,810.0	13,810.0	13,810.0	13,810.0	13,810.0	13,810.0
Built-up and other related area (% of total land area)	..	..	..	..	..	..	..
Soil erosion	..	..	..	..	..	..	..
- % of total land	..	..	..	..	..	..	..
- % of agricultural land	..	..	..	..	..	..	..
Total consumption of mineral fertilizers per unit of agricultural land (kg/ha)	277.9	327.1	337.4	537.3	205.2	..	..
Total consumption of organic fertilizers per unit of agricultural land (kg/ha)	..	..	..	..	..	..	..
Total consumption of pesticides per unit of agricultural land (kg/ha)	9.0	34.5	17.0	25.8	23.5	..	..

Energy	2007	2008	2009	2010	2011	2012	2013
Total final energy consumption (TFC) (Mtoe)	0.85	0.85	0.71	0.71	0.66	..	..
- by fuel	..	..	..	..	..	..	..
Coal	0.02	0.01	0.01	0.01	0.01	..	..
Petroleum	0.45	0.46	0.39	0.37	0.30	..	..
Gas	..	..	..	..	..	..	..
Nuclear	..	..	..	..	..	..	..
Renewables	0.05	0.05	0.05	0.05	0.05	..	..
- by sector						..	..
Industry	0.37	0.35	0.17	0.17	0.19	..	..
Transport	0.23	0.24	0.28	0.28	0.20	..	..
Agriculture	0.01	0.01	0.01	0.01	0.01	..	..
Services	0.09	0.09	0.09	0.09	0.10	..	..
Households	0.16	0.16	0.16	0.17	0.16	..	..
Electricity consumption (million kWh)	3,909.3	3,815.7	2,989.3	3,319.8	3,534.4	..	..
Energy intensity TPES/GDP (PPP) (ktoe/million US$ (2000))	0.46	0.41	0.32	0.35	0.32	..	..

Transportation	2007	2008	2009	2010	2011	2012	2013
Passenger transport demand (million passenger km)	251.2	248.4	201.1	171.5	145.3	173.6	..
by mode:							
private cars	..	..	..	..	..	..	..
road public transport	141.2	123.4	101.9	80.8	80.2	111.2	..
train	110.0	125.0	99.2	90.7	65.1	62.4	..
water transport	..	..	..	..	..	..	..
air transport	..	..	..	..	..	..	..
Freight transport demand (million ton km)	276.7	320.9	279.8	317.3	238.0	149.8	..
by mode:							
road	91.8	137.1	179.3	166.6	102.5	76.5	..
rail	185.0	183.9	100.5	150.7	135.5	73.3	..
pipelines	..	..	..	..	..	..	..
inland waterways	..	..	..	..	..	..	..
Number of passenger cars	178,692.0	187,374.0	178,879.0	164,620.0	166,802.0	170,430.0	..
Average age of passenger cars	14.3	12.9	12.9	14.2	14.4	14.6	..

Waste	2007	2008	2009	2010	2011	2012	2013
Total waste generation (t)	..	..	..	..	855,063.0	737,278.0	..
of which:	..	..	..	..	..	..	..
- Hazardous industrial waste (t)	..	..	..	..	6,576.0	3,819.0	..
- Non-hazardous industrial waste (t)	..	..	..	..	551,059.0	453,792.0	..
- Municipal waste collected (t)	518,169.0	382,029.0	464,620.0	329,610.0	297,428.0	279,667.0	286,378.0
of which from households (1,000 m^3)	..	..	..	..	..	..	..

Demography and Health	2007	2008	2009	2010	2011	2012	2013
Total population (million inhabitants)	0.6	0.6	0.6	0.6	0.6	0.6	..
Birth rate (per 1,000)	12.7	13.4	14.0	12.0	11.6	12.0	..
Total fertility rate	1.7	1.8	1.9	1.7	1.7	1.7	..
Mortality rate (per 1,000)	9.7	9.3	9.5	9.1	9.4	9.5	..
Infant mortality rate (deaths/1,000 live births)	7.4	7.5	5.7	6.7	4.4	4.4	..
Female life expectancy at birth (years)	77.2	78.1	77.6	78.4	..	..	..
Male life expectancy at birth (years)	72.1	72.8	72.9	73.5	..	..	..
Population aged 0-14 years (%)	19.8	19.5	19.4	19.6	19.3	18.9	..
Population ages 15-64 (% of total)	67.4	67.6	67.7	67.6	68.1	68.1	..
Population ages 65 and above (% of total)	12.8	12.9	13.0	12.8	12.7	13.0	..
Proportion of population using an improved drinking water source, total (%)	98.0	98.0	98.0	98.0	98.0	..	..
- Urban (%)	99.6	99.6	99.6	99.6	99.6	..	..
- Rural (%)	95.3	95.3	95.3	95.3	95.3	..	..
Population with access to improved sanitation, total (%)	90.0	90.0	90.0	90.0	90.0	..	..
- Urban (%)	91.9	91.9	91.9	91.9	91.9	..	..
- Rural (%)	86.8	86.8	86.8	86.8	86.8	..	..

Macroeconomic context	2007	2008	2009	2010	2011	2012	2013
GDP							
- in current prices (million National currency)	2,680.0	3,086.0	2,981.0	3,104.0	3,234.0	3,149.0	3,327.0
- in current prices (million US$)	7,682.0	8,588.0	8,150.0	8,264.0	8,770.0	8,402.0	8,874.0
- in prices and PPPs of 2005 (million US$)	6,203.0	6,632.0	6,257.0	6,411.0	6,619.0	6,450.0	6,665.0
- in prices and PPPs of 2005 growth rate (%)	10.7	6.9	-5.7	2.5	3.2	-2.5	3.3
- change (2005=100)	122.9	132.3	135.5	137.7	139.0	138.9	142.0
- per capita in current prices (US$)	12,435.0	13,882.0	13,158.0	13,327.0	14,130.0	13,528.0	14,281.0
- per capita in prices and PPPs of 2005 (US$)	10,041.0	10,721.0	10,102.0	10,340.0	10,664.0	10,386.0	10,727.0
Industrial output (annual 2005=100)	101.1	99.1	67.2	78.9	70.8	65.8	72.8
Industrial output (% change over previous year)	0.1	-2.0	-32.2	17.5	-10.3	-7.1	10.6
Labour productivity in industry (% change over previous year)	..	..	..	..	..	..	..
Agricultural output (% change over previous year)	..	..	..	..	..	..	..
Share of agriculture in GDP (%)	..	..	..	..	..	..	..
Employment in agriculture (%)	8.7	7.6	6.5	6.2	5.6	..	..

Macroeconomic context	2007	2008	2009	2010	2011	2012	2013
Consumer price index (CPI, 2005=100)	107.4	116.8	120.8	121.6	125.5	130.0	132.7
Consumer price index (CPI) (% change over the preceding year, annual average)	4.4	8.8	3.5	0.6	3.2	3.6	2.1
Producer price index (PPI) (% change over the preceding year, annual average)	8.7	16.0	-5.4	-0.5	3.7	2.0	1.8
Registered unemployment (% of labour force, end of period)	19.4	16.8	19.1	19.7	19.7	19.7	19.5
Labour force participation rate (% of 15-64 year-old)	..	..	..	..	..	..	..
Current account balance							
- Total (million US$)	-1,464.4	-2,257.5	-1,150.3	-952.4	-791.2	-769.2	-649.0
- (as % of GDP)	-39.9	-49.9	-27.8	-23.2	-17.6	-19.0	..
Exports of goods and services (million US$, at prices and PPPs of 2005)	3,410.0	3,401.0	2,618.0	2,868.0	3,749.0	3,707.0	3,708.0
Imports of goods and services (million US$, at prices and PPPs of 2005)	6,660.0	8,073.0	5,332.0	5,215.0	5,694.0	5,780.0	5,509.0
Balance of trade in goods and services (million US$, at prices and PPPs of 2005)	-3,250.0	-4,672.0	-2,714.0	-2,347.0	-1,944.0	-2,073.0	-1,801.0
Net foreign direct investment (FDI) (million US$)	-778.2	-864.9	-1,503.5	-731.3	-538.3	-590.5	-428.8
Net foreign direct investment (FDI) (as % of GDP)	25.5	21.5	37.3	18.4	12.4	15.3	10.1
Cumulative FDI (million US$)	..	..	..	..	..	..	..
Foreign exchange reserves							
- Total reserves (million US$)	..	..	..	..	..	..	..
- Total reserves as months of imports	..	..	..	..	..	..	..
Net external debt (million US$)	..	..	..	..	..	..	..
Ratio of net debt to exports (%)	..	..	..	..	..	..	..
Ratio of net debt to GDP (%)	..	..	..	..	..	..	..
Exchange rate, annual averages (National currency unit/US$)	0.73	0.68	0.72	0.75	0.72	0.78	0.75

Income distribution and poverty	2007	2008	2009	2010	2011	2012	2013
GDP per capita in prices and PPPs of 2005 (US$/capita)	..	..	..	..	..	..	..
Consumer price index (CPI)	104.2	109.2	103.4	100.5	103.5	104.1	..
Population below national poverty line							
- Total (%)	8.0	4.9	6.8	6.6	9.3	..	..
- Urban (%)	5.5	2.4	2.6	4.0	4.4	..	..
- Rural (%)	12.0	8.9	14.8	11.3	18.4	..	..

Telecommunications	2007	2008	2009	2010	2011	2012	2013
Telephone lines per 100 population	27.0	26.0	26.0	27.0	28.0	27.0	..
Cellular subscribers per 100 population	110.0	161.0	250.0	226.0	187.0	159.0	..
Personal computer in use per 100 population	..	..	..	..	..	..	..
Internet users per 100 population	..	..	..	..	..	..	..

Education	2007	2008	2009	2010	2011	2012	2013
Literacy rate (%)	..	..	..	..	98.5	..	..
Literacy rates of 15-24 years old, both sexes, percentage	..	..	..	..	99.2	..	..

Gender Inequality	2007	2008	2009	2010	2011	2012	2013
Share of women employment in the non-agricultural sector (%)	43.0	43.1	43.3	43.7	44.7	44.5	..

Gender Inequality		2007/2008	2008/2009	2009/2010	2010/2011	2011/2012	2012/2013
Gender Parity Index in							
- Primary education enrolment (ratio)	..	93.3	92.4	92.0	92.6	92.7	91.8
- Secondary education enrolment (ratio)	..	98.6	96.4	97.5	94.6	95.9	95.6
- Tertiary education enrolment (ratio)	..	119.6	123.4	118.8	117.0	120.8	116.4

Source: Environmental Protection Agency of Montenegro (Air pollution, Climate Change, Ozone layer, Protected areas)

Statistical Office of Montenegro (Water, Land resources and soil - Consumption of mineral fertilizers and pesticides, Transport - Passenger and Freight transport demand, Waste, Demography and Health, Macroeconomic context, Income distribution and poverty, Telecommunications, Education, Gender Inequality)

Ministry of Agriculture and Rural Development (Forests and other wooded land) - National forest inventory 2010 - NFI 2010

Ministry of Internal Affairs (Transport - Number of passenger cars and Average age of passenger cars)

Ministry of Economy (Energy)

Annex IV

LIST OF MAJOR ENVIRONMENT-RELATED LEGISLATION

Constitution of Montenegro (OG 01/07)

Laws

1992
Law on Coastal Zone (OG 14/92, 59/92, 27/94, 51/08, 21/09, 73/10, 40/11)
Law on Agricultural Land (OG 15/92, 59/92, 27/94)

2001
Law on Excise Duties (OG 65/01, 12/02, 76/05, 76/08, 50/09, 78/10, 40/11, 61/11)

2002
Law on Elementary Education and Upbringing (OG 64/02, 49/07, 45/10, 39/13)
Law on Preschool Upbringing and Education (OG 64/02, 49/07, 80/10)
Law on Business Entities (OG 6/02, 17/07, 80/08, 40/10)

2003
Law on Public Administration (OG 38/03, 22/08, 42/11)
Law on Inspection Control (OG 39/03, 76/09)
Law on Local Self-Government (OG 42/03, 28/04, 75/05, 13/06, 88/09, 3/10, 38/12, 10/14, 57/14)
Law on Local Self-Government Financing (OG 42/03, 5/08, 74/10)
Law on General Administrative Procedure (OG 60/03, 32/11)
Criminal Code (OG 70/03, 13/04, 47/06, 40/08, 25/10, 32/11, 40/13)

2004
Law on Health Care (OG 39/04)
Law on Roads (OG 42/04, 54/09, 36/11)
Law on Tax on Use of Passenger Motor Vehicles, Vessels, Airplanes and Aircraft (OG 28/04, 37/04; 86/09)

2005
Law on Environmental Impact Assessment (OG 80/05, 40/10, 73/10, 40/11, 27/13)
Law on Integrated Prevention and Control of Environmental Pollution (OG 80/05, 54/09, 40/11)
Law on Strategic Environmental Assessment (OG 80/05, 73/10, 40/11, 59/11)

2007
Law on Regional Water Supply of Montenegrin Coastal Region (OG 3/07)
Law on Protection and Rescue (OG 13/07, 05/08, 86/09)
Law on the Sea (OG 17/07, 06/08, 40/11)
Law on Water (OG 27/07, 32/11)
Law on State Administration (OG 38/03, 22/08, 42/11)
Law on Gender Equality (OG 46/07)

2008
Law on Data Confidentiality (OG 14/08, 76/09, 41/10, 40/11, 38/12, 44/12)
Law on the Protection of Animal Welfare (OG 14/08, 40/11)
Law on Genetically Modified Organisms (OG 22/08, 40/11)
Law on Environment (OG 48/08, 40/10, 40/11, 27/14)
Labour Law (OG 49/08, 26/09, 59/11, 66/12)

Law on Game and Hunting (OG 51/08, 40/11)
Law on Plant Protection Products (OG 51/08, 40/11, 18/14)
Law on Nature Protection (OG 51/08, 21/09, 40/11, 62/13, 6/14)
Law on Spatial Development and Construction (OG 51/08)
Law on Water Management Financing (OG 65/08)

2009
Law on Ionizing Radiation Protection and Radiation Safety (OG 56/09, 58/09, 40/11)
Law on National Parks (OG 56/09, 40/11)

2010
Law on the National Assembly (OG 9/10)
Law on Air Protection (OG 25/10, 40/11)
Law on Hydrographic Activity (OG 26/10, 40/11, 30/12)
Law on Hydrometeorological Affairs (OG 26/10, 40/11, 30/12)
Law on Energy (OG 28/10, 6/13)
Law on Energy Efficiency (OG 29/10)
Law on Improvement of Business Environment (OG 40/10)
Law on Exploration and Production of Hydrocarbons (OG 41/10)
Law on Secondary School (OG 45/10, 73/10, 39/13)
Law on Vocational Education (OG 45/10, 39/13)
Law on Forests (OG 74/10, 40/11)

2011
Law on Misdemeanours (OG 1/11, 39/11)
Law on the Prevention of Sea Pollution from Vessels (OG 20/11, 26/11)
Law on Regional Development (OG 20/11)
Law on the Protection against Environmental Noise (OG 28/11, 28/12, 1/14)
Law on Non-Governmental Organizations (OG 39/11)
Law on Government Employees and Civil Servants (OG 39/11, 50/11, 66/12)
Law on Public Procurement (OG 42/11)
Law on Territorial Organization of Montenegro (OG 54/11, 27/13)
Law on Marine Fisheries and Mariculture (OG 56/09, 40/11)
Law on Waste Management (OG 64/11)

2012
Law on Chemicals (OG 18/12)
Law on Official Statistics and the System of Official Statistics (OG 18/12)
Law on Free Access to Information (OG 44/12)

2014
Law on Environmental Liability (OG 27/14)
Law on National Parks (OG 28/14)
Law on Protection from Non-Ionizing Radiation (OG 35/13)
General Law on Education and Upbringing (OG 39/13, 44/13)
Law on Organic Production (OG 56/13)

Governmental Regulations (Uredba)

1997
Regulation on the amount, method of calculation and payment of charges for environmental pollution (OG 26/97, 9/00, 52/00, 33/08, 05/09, 64/09, 40/11, 49/11)

2002
Regulation on method of establishing maximum retail prices of oil derivatives (OG 52/02, 55/02, 23/03, 32/05, 73/08)

2007
Regulation on the classification and categorization of surface and groundwater (OG 2/07)
Regulation on projects requiring environmental impact assessment (OG 20/07, 47/13)

2008
Regulation on the criteria for determining the best available techniques for the application of quality standards, as well as for determining the emission limit values in the integrated permit (OG 07/08)
Regulation on the types of activities and facilities that require integrated permits (OG 07/08)
Regulation on the content and management of water information system (OG 33/08)
Regulation on determining the types of pollutants, threshold limit values and other air quality standards (OG 45/08, 25/12)

2009
Regulation on the organization and manner of work of public administration (OG 7/09)
Regulation on criteria, amount and manner of payment of a special fee for waste management (OG 11/09, 46/09, 15/11)

2010
Regulation on the limit values for pollutants in liquid fuels of petroleum origin (OG 39/10, 43/10)
Regulation on the content and manner of keeping the documentation basis and spatial information system (OG 44/10)
Regulation on the establishment of a network of measurement points for monitoring air quality (OG 44/10, 13/11)
Regulation on the detailed content of documents to be submitted with the request for licences for the import, export and transit of waste, as well as the classification of waste (OG 71/10)

2011
Regulation on the list of dangerous substances, allowable quantities and criteria for the classification of dangerous substances (OG 5/11)
Regulation on substances that deplete the ozone layer and alternative substances (OG 5/11)
Regulation on emission limit values for air pollutants from stationary sources (OG 10/11)
Regulation on the tariff system for the establishment of preferential prices of electricity from renewable energy sources and efficient cogeneration (Feed-in Tariff) (OG 52/11, 28/14)
Regulation of entrusting the implementation of certain activities of the Environmental Protection Agency of Montenegro to the Centre for Ecotoxicological Research (OG 62/11)

2012
Regulation on maximum national emissions of certain pollutants (OG 3/12)
Regulation on the organization and operation of public administration (OG 5/12, 25/12, 61/12, 20/13)
Regulation on the procedure and manner of developing cooperation between public administration bodies and non-governmental organizations (OG 07/12)
Regulation on the procedure and manner of conducting public debate in preparing laws (OG 12/12)
Regulation on the procedure for the establishment of the system of taking, collection and treatment of waste from electrical and electronic products and operation of the system (OG 24/12)
Regulation on the types of pollutants, limit values and other air quality standards (OG 25/12)
Regulation on the method and procedure for the establishment of the system of taking, collection and treatment of waste vehicles and operation of the system (OG 28/12)
Regulation on detailed criteria, amount and manner of payment of special fees for waste management (OG 39/12)
Regulation on the method and procedure for the establishment of the system of taking, collection and treatment of waste batteries and accumulators and operation of the system (OG 39/12)
Regulation on the method and procedure for the establishment of the system of taking, collection and treatment of waste tires and operation of the system (OG 39/12)
Regulation on the method and procedure for the establishment of the system of taking, collection and treatment of packaging waste and operation of the system (OG 42/12)
Regulation on the activities that affect or may affect air quality (OG 61/12)

2013
Regulation on the national list of environmental indicators (OG 19/13)
Regulation on the methods and conditions of the storage of waste (OG 33/13)

Governmental Decisions (Odluka)

1996
Decision on establishment of LLC Centre for Toxicological Research (OG 40/96)

1997
Decision on systematic examination of contents of radionuclides in the environment (OG 45/97)

2005
Decision on determination of special fee for road motor vehicles and their trailers (OG 60/05)
Decision on fee for foreign road vehicles in favour of roads (OG 36/05)

2007
Decision on the establishment of the Water Council (OG 9/07)

2008
Decision on the establishment of PROCON (OG 7/08, 86/09)
Decision on the establishment of Environmental Education Centre (OG 28/08)
Decision on amount of fee – toll for usage of Sozina tunnel and access roads (OG 48/08)

2009
Decision on the amount and method of calculating water charges and the criteria and method of determining the degree of water pollution (OG 29/09)
Rules of the Government (OG 48/09)

2010
Legal and Technical Rules for the Development of Legislation (OG 2/10)
Decision on the establishment of the Council for Cooperation of the Government of Montenegro with non-governmental organizations (OG 28/10)
Decision on the establishment of the Council for the preparation of Regional Development Strategy (OG 28/10)
Decision on adoption of the spatial plan for the National Park "Lovcen" (OG 53/10)
Decision on the establishment of hunting grounds and the hunting area of special purpose (OG 62/10)

2011
Decision on establishing the indicative target of improving energy efficiency (OG 48/11)

2012
Decision on the criteria for determining the compensation for the members of boards or other forms of work (OG 26/12, 27/13)
Decision on the establishment of the National Council for Employment and Human Resources Development (OG 26/12)

2013
Decision on development of special purpose spatial plan for National Park "Prokletije" (OG 43/13)
Decision on the establishment of the National Council for Sustainable Development and Climate Change (OG 49/13)

Ministerial Rulebooks (Pravilnik), Instructions (Uputstvo), Orders (Naredba) and other acts

1992
Rulebook on the quantities of pesticides, metals and metalloids and other toxic substances, chemo-therapeutics, anabolics and other substances that may be found in foods (OG 5/92, 11/92, 32/02)

Rulebook on intervention levels and measures for protection of the population, livestock and agriculture in the event of emergency (OG 18/92)

1997
Rulebook on permissible concentrations of harmful and hazardous substances in soil and methods for their testing (OG 18/97)

1998
Rulebook on application of the ionising radiation sources in medicine (OG 32/98, 33/98)
Rulebook on the ionising radiation exposure limits (OG 32/98)
Rulebook on requirements to be met by legal entities for carrying out systematic testing of the radionuclide content in the environment (OG 32/98, OG 67/02, 70/02)
Rulebook on the requirements for trading and use of radioactive materials, x-ray devices and other devices that generate ionising radiation (OG 32/98)

1999
Rulebook on limits of radioactive contamination of the environment and the methods of decontamination (OG 9/99)
Rulebook on requirements to be met by legal entities for carrying out decontamination (OG 9/99)
Rulebook on the methods for testing of pesticides (OG 11/99)
Rulebook on the conditions for production line, marketing, import and sampling of pesticides and fertilizers (OG 12/99)
Rulebook on the types of packaging and fertilizers and on destroying pesticides and fertilisers (OG 35/99)

2006
Rulebook on monitoring the number and status of the population of wild birds (OG 76/06)
Decision on placing some plant and animal species under protection (OG 76/06)

2008
Rulebook on the qualitative, sanitary and technical conditions for wastewater discharge into the recipient and the public sewerage system, method and procedure for testing the quality of wastewater, the minimum number of tests and the contents of the report on the established quality of wastewater (OG 45/08, 9/10, 26/12, 52/12, 59/13)
Rulebook on the types and criteria for determining habitat types, the method of preparing maps of habitats, methods of monitoring the status and threat of habitats, the content of annual reports, measures of protection and preservation of habitat types (OG 80/08)

2009
Rulebook on the contents of the list of active matters allowed to be used in plant protection products (OG 67/09)

2010
Rulebook on the conditions of measuring the amount of wastewater discharged into the receiver (OG 24/10)
Rulebook on the procedure for measuring the amount of water at the water intake (OG 24/10)
Rulebook on the detailed content of the annual programme for monitoring the state of nature conservation and the conditions that must be met by the legal entity that monitors (OG 35/10)
Rulebook on the detailed content and method of keeping the register of environmental polluters (OG 43/10)
Rulebook on criteria for issuance of energy licence, content of a request and registry of energy licences (OG 49/10, 38/13)
Rulebook on detailed conditions and manner of collection, use and transport of unprotected wild animals, plants and fungi that are used for commercial purposes (OG 62/10)
Rulebook on monitoring the number and status of the population of wild birds (OG 62/10)
Rulebook on conditions for transport and handling of protected wild species during transport (OG 67/10)
Rulebook on the conditions to be met by a natural or legal person to establish a gene bank (OG 77/10)
Rulebook on safety measures and maintenance of crossings for wildlife (OG 80/10)

2011

Instructions for determining the methodology for calculation of indicative targets for improvement of energy efficiency (OG 18/11)
Rulebook on the conditions of air quality monitoring (OG 21/11)
Rulebook on the conditions to be met by a legal entity to measure and explore the potential of renewable energy (OG 28/11)
Rulebook on the type and classification of plants for the production of energy from renewable sources and high-efficiency cogeneration (OG 28/11)
Rulebook on detailed conditions for obtaining a licence for operating radioactive waste storage facility (OG 56/11)
Rulebook on methods of collecting, keeping, treatment and storage of radioactive waste (OG 58/11)
Rulebook on the limitation of noise in the environment, the methods of determining the noise indicators and acoustic zones and methods of assessment of adverse effects of noise (OG 60/11)
Rulebook on the content of the report on implementation of the energy efficiency improvement plan by local self-government units (OG 61/11)

2012

Rulebook on information system on energy consumption and manner for delivery of data on annual energy consumption (OG 6/12)
Rulebook on the limit values of energy consumption for determining large producers, the content of the energy efficiency improvement plan and the report on implementation of the plan (OG 10/12)
List of active matters allowed to be used as plant protection products for 2012 (OG 14/12)
Order on fishing bans, restrictions and measures for the protection of fish (OG 21/12)
Rulebook on detailed requirements for drinking water safety (OG 24/12)
Rulebook on the content and the method of preparing the annual report on air quality (OG 27/12)
Rulebook on the treatment of equipment and waste containing PCB (OG 48/12)
Rulebook on the treatment of waste oils (OG 48/12)
Rulebook on the conditions, manner and procedure for processing medical waste (OG 49/12)
Rulebook on the manner of keeping the records of waste, including the form for the transport of waste (OG 50/12)
Rulebook on the treatment of construction waste, manner and procedure for processing the construction and demolition waste, and requirements for disposal of asbestos-cement construction waste (OG 50/12)
Instruction on energy efficiency measures and guidelines for their implementation (OG 51/12)
Rulebook on the conditions to be fulfilled by the company for the exploitation of river sediments (OG 51/12)
Rulebook on the conditions to be met by companies or entrepreneurs for processing and/or disposal of waste (OG 53/12)
Rulebook on the criteria and method of classification, packaging and labeling of chemicals and products in a particular hazard class (OG 53/12)
Rulebook on detailed content and manner of submission of annual reports on the implementation of waste management plans (OG 53/12)
List of classified substances (OG 58/12)
Rulebook on environmental measures for hydrocarbons operations (OG 60/12)
Rulebook on criteria and indicators for the management of forests and forest lands in a sustainable manner and purpose (OG 63/12)
Rulebook on the conditions to be met by legal entities that carry out water quality testing (OG 66/12)

2013

Rulebook on detailed content and manner of preparation of the waste management plan by waste producers (OG 5/13)
Rulebook on packaging and removal of asbestos-containing waste (OG 11/13)
Rulebook on the content of Safety Data Sheet for chemicals (OG 13/13)
Rulebook on criteria for identifying substances as persistent, bioaccumulative and toxic or very persistent and very bioaccumulative (OG 13/13)
Rulebook on the list of substances of high concern (OG 13/13)
Rulebook on prior notification and consent procedure on the basis of prior notification of exports of chemicals (OG 13/13)

Rulebook on the conditions to be met by a company or entrepreneur for collection and transport of waste (OG 16/13)
Rulebook on detailed contents of files and register of chemicals (OG 19/13)
Rulebook on certification of energy performance of buildings (OG 23/13)
Regulation on the methodology of the energy audits of buildings (OG 23/13)
Rulebook on minimum energy efficiency requirements of buildings (OG 23/13)
Rulebook on technical and other requirements for devices and equipment for motor vehicles using liquefied petroleum or natural gas (OG 23/13)
Rulebook on regular energy audits of air conditioning and heating (OG 24/13)
Rulebook on the conditions of storage, measures for safe storage or use of hazardous chemicals (OG 28/13)
Rulebook on the manner of keeping records of chemicals and issued permits for the activities involving dangerous chemicals (OG 28/13)
Rulebook on the method of preparation and content of reports on the safety of chemicals (OG 28/13)
Rulebook on detailed characteristics of the location, construction conditions, sanitary and technical conditions, operation and closure of landfills (OG 31/13)
Rulebook on incineration and/or co-incineration of waste (OG 33/13)
Rulebook on determining the list of surfactants that can be used in detergents (OG 36/13)
Rulebook on the procedure for the measurement of emissions from stationary sources (OG 39/13)
Rulebook on detailed content and method of development of forest management program (OG 40/13)
Rulebook on the content of the study of energy efficiency in buildings (OG 47/13)
Rulebook on detailed content requirements and certificates of good laboratory practice (OG 48/13)
Rulebook on volatile organic compounds (VOC) emissions from paints and varnishes (OG 49/13)
Rulebook on the prohibition and restriction of the use, marketing and manufacturing of chemicals that pose an unacceptable risk to human health and the environment (OG 49/13)
Rulebook on the method of preparation and the detailed contents of the strategic noise maps (OG 54/13)
Rulebook on the content and manner of delivery of reports of systematic examination of the level of non-ionizing radiation (OG 56/13)
Rulebook on the manner of keeping records of the sources of non-ionizing radiation (OG 56/13)
Rulebook on the classification of waste and on waste catalogue (OG 59/13)

2014
Rulebook on the content of a unique database of weather, climate and water (OG 2/14)
Rulebook on GHG inventory and exchange of information (OG 39/14)

Strategies, plans and programmes

2000
Programme of systematic testing of water quality in river catchments (sanitary protection) and public beaches (OG 13/00)

2001
Water Master Plan 2001–2011

2004
National Policy on Waste Management

2005
Energy Efficiency Strategy
Energy Policy
Master Plan of Water Supply for Montenegrin Coastal Region
Master Plan for Removal and Treatment of Wastewater of Montenegrin Coast and Municipality of Cetinje
Strategic Master Plan for Sewage and Wastewater in Central and Northern Region of Montenegro
Strategic Master Plan for Solid Waste Management for the period 2005–2012
National Waste Management Strategy
Coastal Area Spatial Plan

2006
Strategy on Food Production and Rural Development
Fisheries Development Strategy 2006–2016

2007
National Strategy for Sustainable Development, with the Action Plan for the period 2007–2012
Plan for Reform of Water Supply and Wastewater Management Sector
Energy Development Strategy of Montenegro until 2025

2008
National Programme for Integration for the period 2008–2012
Spatial Plan until 2020
Tourism Development Strategy to 2020
National Waste Management Plan for the period 2008–2012 (OG 16/08)
National Programme for Food Production and Rural Development for the period 2009–2013
Transport Development Strategy
Strategy for Healthcare Waste

2010
National Energy Efficiency Action Plan for the period 2010–2012
General plan of protection from harmful effects of water, for waters important for Montenegro, for the period 2010–2016 (OG 67/10)
National Biodiversity Strategy with the Action Plan for the period 2010–2015
National Communication Strategy for Sustainable Development
Regional Development Strategy of Montenegro for the period 2010–2014
Local Environmental Action Plan of the Capital City of Podgorica for the period 2010–2014

2011
Children's Environment and Health Action Plan 2012–2016
Energy Policy of Montenegro until 2030
Strategy on the Protection from Ionizing Radiation, Radiation Safety and Radioactive Waste Management with Action Plan for the period 2012–2016
Strategy of Public Administration Reform in Montenegro for the period 2011–2016
Management Plan for National Park Skadarsko jezero 2011–2015
Management Plan for National Park Durmitor 2011–2015
Management Plan for National Park Biogradska gora 2011–2015
Management Plan for National Park Lovcen 2011–2015
Action Plan for Approval and Implementation of the Protocol on Heavy Metals, Protocol on Persistent Organic Pollutants and the Protocol to Abate Acidification, Eutrophication and Ground-level Ozone to the LRTAP Convention (2011–2014)

2012
Ecological State of Montenegro +20
Operational Programme for Regional Development for the period 2012–2013
Programme on the adjustment of certain industries with the Law on Integrated Prevention and Control of Environmental Pollution (OG 19/12, 3/14)
Programme on monitoring of the quality of liquid fuels of petroleum origin for year 2012 (OG 23/12)

2013
National Energy Efficiency Action Plan for the period 2013–2015
Action Plan for the Implementation of the Stockholm Convention (2014–2021)
Air Quality Plan for the Municipality of Pljevlja
Development Directions of Montenegro for the period 2013–2016
Management Programme for National Park Skadarsko jezero
Management Programme for National Park Durmitor
Management Programme for National Park Biogradska gora
Management Programme for National Park Lovcen

Management Programme for National Park Prokletije
National Strategy for Air Quality Management for the period 2013–2016
Operational plan for energy efficiency in public administration institutions for 2013
Priority Activities in Municipal Services: The Reform Agenda
Programme of environmental monitoring for 2014
Programme of Montenegro's accession to the European Union 2014–2018
Strategy for NGO Development with Action Plan 2014–2016
Operational plan of protection from harmful effects of water, for waters important for Montenegro, for 2013 (OG 6/13)
Programme of systematic examination of the quantity and quality of surface and groundwater for 2013 (OG 20/13)
Programme on monitoring of the quality of liquid fuels of petroleum origin for year 2013 (OG 21/13)
Monitoring Programme of nitrate in foods of plant origin – leafy vegetables for 2013 (OG 28/13)
Monitoring Programme of pesticide residues in and on food of plant and animal origin for 2013 (OG 22/13)
Strategic Development Plan of the Municipality of Pljevlja 2013–2018

2014
National Forest Strategy
National Strategy for the Management of Chemicals
National Renewable Energy Action Plan
Local energy plan of Andrijevica municipality for the period 2013-2023 (OG Opštinski propisi 1/14)

Parliamentary Decisions (Odluka)

2006
Rules of the Parliament (OG 51/06, 66/06, 88/09, 80/10, 39/11, 25/12, 49/13)

2011
Decision on the organization of the Public Enterprise for National Parks (OG 20/11)

Sources

Individual authors:

1. Adžić, I. (2014). Institute of Hydrometeorology and Seismology of Montenegro presentation, In: 13th ICSEED, Banja Luka, Republic of Srpska, 28 – 29. April 2014. HSS. Podgorica.
2. Bajković, I. (2010). Water management as a support for agribusiness and rural development in Montenegro. Water Directorate of Montenegro. Podgorica.
3. Buskovic, V. and Kapa M. (Eds) (2010). 4th National Report of Montenegro to the Convention on Biological Diversity. Ministry of Spatial Planning and Environment. Podgorica.
4. Dukić, D. (2014). National development plans and priority objectives in water sector in Montenegro. In: Workshop Water-food-energy-ecosystems nexus assessment in the Sava river basin, Zagreb, 4-6 March 2014. Ministry of Agriculture and Rural Development Montenegro
5. Faulkner, B. (2013). Republic of Montenegro – Detailed Water Sector Assessment and Water Cadastre Proposals. UNDP - United Nations Development Programme. Podgorica, February 2013.
6. Janjusevic, J. (October 27, 2011). Can energy efficiency incentives help tackle the scourge of illegal building? Available from: http://europeandcis.undp.org/blog/2011/10/27/can-energy-efficiency-incentives-help-tackle-the-scourge-of-illegal-building/
7. Jowit, J. and Wintour P. (26 June 2008). Cost of tackling global climate change has doubled, warns Stern. The Guardian, London.
8. Knezevic, M. and Spalevic V. (2013). Water footprint application for water resources management in agriculture. Presentation of the University of Montenegro Biotechnical Faculty at INEA in Rome, 16 April 2013.
9. Kostić-Mandić, M. (2011). Harmonisation of the Montenegrin Environmental Legislation with the European Union Law, Natura Montenegrina, Podgorica, 2011, 10(3):323-333.
10. Kostić-Mandić, M. (2012). Montenegrin chapter in the Yearbook of International Environmental Law 2012.
11. Kraan, Dirk-Jan, et al. (2012). "Budgeting in Montenegro", OECD Journal on Budgeting, Vol.12/1. Available from: http://dx.doi.org/10.1787/budget-12-5-k9czxjzbw6g
12. Markovic, M. (2008). Coastal Area Management Programme Montenegro - Feasibility Study. Podgorica.
13. Radunović, M. Lj. (2008). Water Right in Montenegro. Podgorica: Foundation for Democratic Alternatives in Society, 145 p. ISBN: 9789940909413.
14. Sanchez Hjortberg, A. (2007). Montenegro Environment Policy Brief, Draft. Department of Economics, Goteborg University. September 2007.
15. Stec, S. (2011). Review of Montenegro's Implementation and Enforcement Procedures in the Environmental Sector. Final Report. September 2011.
16. Stern, N. (2006). Stern Review on The Economics of Climate Change (pre-publication edition). Executive Summary. HM Treasury, London. Available from: http://www.webcitation.org/5nCeyEYJr
17. Stritih, J. et al. (2013). Time to phase out dirty coal in South Eastern Europe: the hidden cost we can avoid.
18. Sundić, D. and Radujković B. (2013). Study on freshwater oligochaeta of Montenegro and their use as indicators in water quality assessment. Natura Montenegrina, Podgorica, 2012. 11(2): 117–383.
19. Vener, E. J. (2013). Power Sector Policy Reform to Promote Small Hydropower Development in the

Republic of Montenegro. Summary of Achievements and Lessons Learned Report. UNDP/GEF Project.

Material from Montenegro:

20. Environmental Protection Agency (2010). 2009 State of the Environment Report. Podgorica.
21. Environmental Protection Agency (2011). 2010 State of the Environment Report. Podgorica.
22. Environmental Protection Agency (2012). 2011 State of the Environment Report. Podgorica.
23. Environmental Protection Agency Montenegro (2013). Indicator-Base State of the Environment Report of Montenegro. Environmental Protection Agency of Montenegro. Podgorica.
24. Environmental Protection Agency. Annual reports from 2009 to 2012.
25. Government of Montenegro (2012). Ecological State Montenegro +20. June 2012.
26. Government of Montenegro. Operational Programme for Regional Development 2012-2013. Final version. Instrument for Pre-Accession Assistance. September 2012.
27. Administration for Inspection Affairs (2013). Report on the activities undertaken in 2012. Podgorica, March 2013.
28. Ministry for Spatial Planning and Environment (2010). The Initial National Communication on Climate Change of Montenegro to the United Nations Framework Convention on Climate Change. Podgorica.
29. Ministry of Sustainable Development and Tourism (2004). Republic-Level Waste Strategic Master Plan, Montenegro.
30. Ministry of Sustainable Development and Tourism (2008). Waste Management Plan 2008 – 2012 for Montenegro.
31. Ministry of Sustainable Development and Tourism (2013). Waste Management Plan 2014-2020 of Montenegro. Draft.
32. Ministry of Sustainable Development and Tourism. Report on the Implementation of the National Plan for Waste Management in 2010.
33. Ministry of Sustainable Development and Tourism. Strategy on Ionizing Radiation Protection and Radioactive Waste Management with Action Plan, 2011.
34. Ministry of Agriculture, Forestry and Water Management of Montenegro (2006). Montenegro's Fisheries Development Strategy and Capacity Building for Implementation of EU Common Fisheries Policy. Podgorica, 2006.
35. Ministry of Economic Development (2007). Energy Development Strategy of Montenegro by 2025. Podgorica, December 2007.
36. Ministry of Economic Development (2008). Spatial Plan of Montenegro until 2020.
37. Ministry of Economy (2012). Technology Needs Assessment for Climate Change Mitigation and Adaptation for Montenegro. National Strategy and Action Plan.
38. Ministry of Economy (2012). Energy Development Strategy of Montenegro by 2030. Final Draft. Podgorica, June 2012.
39. Ministry of Economy (2012). Green Book. Upgrade of the document Energy Development Strategy of Montenegro by 2030. Green Book and draft White Book.
40. Ministry of Economy (2011). Energy Policy of Montenegro until 2030.
41. Ministry of Finance (2007). Guidebook through tax law of Montenegro. Podgorica, January 2007.
42. Ministry of Finance (2009). Questionnaire – Information requested by the European Commission to the Government of Montenegro for the preparation of the Opinion on the application of Montenegro for

membership of the European Union. 16 Taxation. Podgorica, December 2009.

43. Ministry of Health (2008). National Strategy on Health care waste management.
44. Ministry of Justice (2013). Information on results of the implementation of law on misdemeanors, analysis of human resources and analysis of premises and technical facilities of misdemeanor bodies between 01.09.2012 and 01.09.2013 with a proposal for reorganization of the network of misdemeanor bodies. December 2013.
45. Ministry of Spatial Planning and Environment (2010). Introductory Report on Nature Conservation in Montenegro. October 2010.
46. Ministry of Spatial Planning and Environment (2010). National Biodiversity Strategy with the Action Plan for the period 2010 – 2015. Draft. July 2010.
47. Ministry of Sustainable Development and Tourism (2010). Fourth national report of Montenegro to the Convention on Biological Diversity. Podgorica, September 2010.
48. Ministry of Sustainable Development and Tourism (2010). Report of Montenegro on the implementation of the Convention on Environmental Impact Assessment in a Transboundary Context in the period 2006-2009.
49. Ministry of Sustainable Development and Tourism (2011). Aarhus Convention Implementation Report. July 2011.
50. Ministry of Sustainable Development and Tourism (2011). First National Report on the Implementation of Commitments Stemming from the Joint Convention on the Safety of Spent Fuel Management and on the Safety of Radioactive Waste Management. September 2011.
51. Ministry of Sustainable Development and Tourism (2011). The first annual report on the implementation of the Millennium Development Goals in Montenegro. Podgorica, December 2011.
52. Ministry of Sustainable Development and Tourism (2013). IV Coordinating Conference: Support for the implementation of projects in the area of municipal infrastructure and environment. June 2013.
53. Ministry of Sustainable Development and Tourism (2013). National Plan for Implementation of the Stockholm Convention for the period 2014-2021. Draft. October 2013.
54. Ministry of Sustainable Development and Tourism (2013). Prioritetne aktivnosti u komunalnim djelatnostima – Agenda Reformi. September 2013.
55. Ministry of Sustainable Development and Tourism (2013). Report on the implementation of the Convention on Environmental Impact Assessment in a Transboundary Context in the period 2010–2012. April 2013.
56. Ministry of Sustainable Development and Tourism (2013). Report on Millennium Development Goals in Montenegro 2010-2013. Podgorica, 2013.
57. Ministry of Sustainable Development and Tourism (2013). Report on the implementation of the Strategy of protection from ionizing radiation, radiation safety and radioactive waste management. Podgorica, December 2013.
58. Ministry of Sustainable Development and Tourism (2013). Social Corporate Responsibility: a handbook for small and medium sized enterprises. Podgorica, January 2013 (in Montenegrin).
59. Ministry of Sustainable Development and Tourism (2013). Summary of the air quality plan for the municipality of Pljevlja. Podgorica, March 2013.
60. Ministry of Sustainable Development and Tourism (2013). The Second Annual Report on the Implementation of the Millennium Development Goals in Montenegro. March 2013.
61. Ministry of Sustainable Development and Tourism (2014). Phases of adoption of a law.
62. Ministry of Sustainable Development and Tourism (no date). Report on Millennium Development Goals in Montenegro 2010-2013. Available from: http://www.un.org.me/uploads/Documents/2013/20130919_MDGs%20Progress%20Report%20-%20ENG%20web.pdf

63. Ministry of Sustainable Development and Tourism. Aarhus Convention national implementation report 2011.

64. Ministry of Tourism and Environment (2007). National Strategy for Sustainable Development of Montenegro.

65. Ministry of Tourism and Environment (no date). The Eco-Tax: Responsible Towards Environment. Available from: http://www.gov.me/files/1213366818.pdf

66. Ministry of Sustainable Development and Tourism (2011). Montenegro report: Preparations for Rio+20, October 2011. Available from: http://www.uncsd2012.org/content/documents/364MNE%20national%20report_Rio20%20preparations_FINAL%20OSD.pdf

67. Monitoring programmes, 2014, 2013, 2011, 2010.

68. Monitoring transposition and implementation of the EU environmental acquis. Progress Report 7. Montenegro, May 2011 - March 2012.

69. Statistical Office of Montenegro (2012). Amount of waste generated from industry 2011.

70. Statistical Office of Montenegro (2013). Municipal waste in Montenegro 2012. Release No. 182, Podgorica, 25 July 2013.

71. Statistical Office of Montenegro. Household Budget Survey in 2012.

72. Statistical Office of Montenegro. Municipal waste in Montenegro 2010, 2011, 2012, 2013.

73. Prioritetne aktivnosti u komunalnoj djelanosti – Agendi reformi (2013); table 31, p. 91

74. Report on implementation of the National Strategy for Air Quality Management in 2013. Podgorica, December 2013.

75. Report to the fifth joint subcommittee of EU and Montenegro for the area of transport, energy, environment and regional policy (Podgorica, 24-25 April 2012).

76. Report to the sixth joint subcommittee of EU and Montenegro for the area of transport, energy, environment and regional policy (Podgorica, 18-19 June 2013).

77. Statistical Office of Montenegro (2012). 2012 Statistical Yearbook. Podgorica.

78. Statistical Office of Montenegro (2012). Analysis of number and structure of business entities in Montenegro for the first quarter of 2012. Podgorica, May 2012.

79. Statistical Office of Montenegro (2012). Analysis of number and structure of business entities in Montenegro by municipalities for the second quarter of 2012. Podgorica, September 2012.

80. Statistical Office of Montenegro (2013). 2013 Statistical Yearbook of Montenegro.

81. Strategy for Sustainable Economic Growth in Montenegro through the Introduction of Business Clusters 2012-2016. June, 2012.

82. Third report on implementation of the National Biodiversity Strategy with Action Plan. Podgorica, November 2013.

83. Union of Municipalities (2013). List of jurisdiction and competences of local self-government. May 2013.

84. Union of Municipalities (2013). Commission for Local Government Funding – Analysis of local government financing. No. 03-362/13. Podgorica, 05/27/2013.

Regional and international institutions:

85. Basel Convention Country Fact Sheet.

86. COWI (2013). Infrastructure Project Facility – Technical Assistance Window (IOF TA) Western Balkans. Sub-project: WB4_MNE-ENV-12B: Management Models and Options for Cost Recovery for the Future Construction and Operation of Regional Landfills in Montenegro. Tariff Models Report

(Activity 4). EuropeAid/128073/C/SER/Multi. February 2013.

87. Deutsche Gesellschaft für Internationale Zusammenarbeit (GIZ) GmbH (2013). Climate Change Adaptation in Western Balkan. Available from:

    http://agriwaterpedia.info/images/2/22/Factsheet_Climate_Change_Adaptation_in_the_Western_Balkan_2012.pdf

88. EBRD (2010). Commercial Laws of Montenegro - An assessment by the EBRD. October 2010.

89. EBRD (2013). Strategy for Montenegro. As adopted by the Board of Directors at its meeting on 1 October 2013.

90. EC Questionaire Chapter 27 Environment.

91. EEA (2012). Report N°12/2012. Climate change, impacts and vulnerability in Europe 2012.

92. Environmental Project Preparation Facility for Western Balkans: Review of Solid Waste Management Plans. 2008.

93. European Commission (2011). A Roadmap for moving to a competitive low carbon economy in 2050. COM(2011) 112 final

94. European Commission (2012). Montenegro 2012 Progress Report, Commission Staff Working Document. Brussels 1o.10. 2012, SWD (2012) 331 final.

95. European Commission (2013). An EU Strategy on adaptation to climate change. COM (2013) 216 final

96. European Commission (2013). Excise Duty Tables Part II - Energy Products and Electricity. July 2013. Available from: http://ec.europa.eu/taxation_customs/index_en.html

97. European Commission (2013). Montenegro 2013 Progress Report, accompanying the document "Communication from the Commission to the European Parliament and the Council, Enlargement Strategy and Main Challenges 2013-2014, COM (2013) 700

98. European Commission (2013). Montenegro 2013 Progress Report, Commission Staff Working Document. Brussels 16.10. 2013. SWD (2013) 411 final.

99. European Commission (2013). Screening report Montenegro, Chapter 16 – Taxation. 23 September 2013.

100. European Commission (2013). Screening Report Montenegro: Chapter 27 – Environment and Climate Change. November 2013.

101. European Environment Agency. Eionet, European Topic Centre on Sustainable Consumption and Production, Factsheet for Montenegro. Available from: www.scp.eionet.europa.eu/facts/factsheets_waste/2011_edition/factsheet?country=ME.

102. Forestry Development in Montenegro Project – Phase II. Project Extension Document. January 2011.

103. IMF (2012). Montenegro 2012 Article IV Consultation. IMF Country Report No. 12/122, May 2012.

104. International Commission for the Protection of the Danube River ICPDR (2010). Montenegro facts and figures.

105. International Commission for the Protection of the Danube River ICPDR (2013). Annual Report 2012. Vienna.

106. International Sava River Basin Commission ISRBC (2013). Sava River Basin Management Plan. Background paper No.2 Groundwater bodies in the Sava River Basin.

107. KfW (2012). Ex-post Evaluation Brief. Montenegro: Water Supply and Wastewater Disposal – Adriatic Coast, Phase II.

108. LIMNOS (2013). Ecoremediation Strategy for Montenegro 2013.

109. OECD (2012). Montenegro: Strategic Environmental Assessment on the National Spatial Plan, in

Strategic Environmental Assessment in Development Practice: Review of Recent Experience.

110. OECD/IEA (2014). The Power of Transformation: Wind, Sun and the Economics of Flexible Power Systems. Executive Summary.
111. Position of Montenegro for the Fourth Meeting of the EU–Montenegro Stabilisation and Association Council, Brussels, June 2013.
112. PROCON (2013). IV Coordinating Conference – Support for Implementation of Projects in the Area of Municipal Infrastructure and Environment.
113. RENA (Regional Environmental Network for Accession). Country External Assessment Report – Montenegro. September 2011.
114. UNDP (2010). The Economic Impacts of Climate Change in Montenegro: A First Look. Montenegro.
115. UNDP (2011). Report on Assessment of capacities for budgeting at the local level in Montenegro. Prepared by Tomislav Novovic. Podgorica, April 2011.
116. UNDP (2011). The Economic Value of Protected Areas in Montenegro September 2011.
117. UNDP (2011). The economic value of protected areas in Montenegro. GEF/UNDP PIMS 4279: Catalyzing Financial Sustainability of Protected Areas in Montenegro. September 2011.
118. UNDP (2013). Detailed Water Sector Assessment and Water Cadastre Proposals. February 2013.
119. UNDP (no date). Project Document "3457 strengthening the sustainability of the protected area system of Montenegro". Project ID 00070848.
120. UNDP (no date). Protection and Sustainable Use of the Dinaric Karst Transboundary Aquifer System (DIKTAS). Project Document. Governments of Albania, Bosnia & Herzegovina, Croatia, and Montenegro. United Nations Development Programme. UNESCO IHP.
121. UNDP and the Ministry of Sustainable Development and Tourism (no date). Towards Carbon Neutral Tourism in Montenegro. Project fact sheet.
122. UNDP. Second National Communication on Climate Change, Project overview, http://www.me.undp.org/content/montenegro/en/home/operations/projects/economyandenvironment/SNC/, 16.1.2014
123. UNECE (2007). Environmental Performance Reviews, Republic of Montenegro, Second Review. United Nations, New York and Geneva 2007. Available from: http://www.unece.org/index.php?id=14835
124. UNEP (2012). Assessing the impact of green economy investments in Montenegro: a sectoral study focused on energy (transport and buildings) and tourism. Summary report, May 24 2012, UNEP, Green economy advisory services: Montenegro.
125. UNFCCC (2010). The initial national communication on climate change of Montenegro to the United Nations Framework Convention on Climate Change. Ministry for Spatial Planning and Environment. Podgorica.
126. Western Balkans Investment Framework (2013). Monitoring Report. December 2013.
127. World Bank (2013). Environmental and Social Impact Assessment of Remediation of Five Contaminated Sites.
128. World Bank (2013). Implementation completion and results report (IDA-38230, IBRD-80020) on a credit to Montenegro for the Montenegro Environmentally Sensitive Tourist Areas Project. January 31, 2013. Report No. ICR0670.
129. World Bank (2013). Montenegro Public Expenditure and Financial Accountability Assessment. Public Financial Management Performance Report. July 30, 2013.
130. World Bank (2013). Site Investigations and Preparation Study for the Remediation of Industrial Waste Disposal Sites in Montenegro. Final Report 2013.

131. World Bank (no date). Danube Water Program. Country: Montenegro – Sector policies, institutions and governance. Available from: http://www.danube-water-program.com/cms/media/event/bucharest/presentations/policy_workshop/

132. WTO (2011). Working Party on the Accession of Montenegro, Report of the Working Party on the Accession of Montenegro to the World Trade Organization. WT/ACC/CGR/38, WT/MIN(11)/7, 5 December 2011.

Websites:

133. Ministry of Sustainable Development and Tourism
http://www.mrt.gov.me/

134. EPA - Environment Protection Agency of Montenegro
http://epa.org.me/

135. European Environment Agency. Montenegro
http://www.eea.europa.eu/soer/countries/me

136. Official Gazette of Montenegro
http://www.sluzbenilist.me/

137. Podgorica Glavni Grad
http://www.podgorica.me/glavna-knjiga-procjena

138. Present and future climate risks in Montenegro.
http://awsassets.panda.org/downloads/sanja_pavicevic_present_and_future_climate_risks_in_montenegro.pdf

139. UNDP in Montenegro
http://www.me.undp.org/content/montenegro/en/home/ourwork/economyandenvironment/successstories/Legalization/

140. Union of Municipalities of Montenegro
http://www.uom.co.me

141. World Bank Data February 2014: Electric power transmission and distribution losses (% of output), http://data.worldbank.org/indicator/EG.ELC.LOSS.ZS/