

Serbia Environmental Performance Reviews

Third Review - Highlights



Environmental conditions and pressures

There has been no change in sulphur dioxide emissions since 2007. In 2012, emissions were at 287,300 tons, or 39.9 kg per capita, considerably higher than the EU's 2010 average of 11.9 kg. Nitrogen oxides emissions grew over the comparison period by 6.48 per cent, to 208,700 tons in 2012, while ammonia emissions diminished by 12.6 per cent, from 101,800 tons in 2007 to 89,000 tons in 2012.

Heavy metal emissions demonstrated a positive trend between 2007 and 2011. Lead emissions diminished by 54.98 per cent and mercury emissions by 13.32 per cent between 2007 and 2011, whereas cadmium emissions were reduced by only 3.58 per cent.

Between 2007 and 2010, total GHG emissions measured in CO₂ decreased by 12.04 per cent, from 52,251 kt to 45,962 kt. The consumption of ozone-depleting substances dropped 87.37 per cent, from 63.80 tons of ozone-depletion potential in 2007 to 8.06 tons in 2013.

In 2007, only about 225 million m³ (or 8.1 per cent) of 3,158 million m³ of wastewater was treated. In 2013, this had dropped to 183 million m³ (or 4.53 per cent) of 3,795 million m³. The situation had deteriorated in both absolute and relative terms.

The connection rate to public sewers went up from 48.64 per cent of the population (or 3.59 million people) connected in 2007 to 57.8 per cent of the population or 4.14 million people connected in 2013. This increase hides the fact that most of the new connections were simply to the sewers, without subsequent treatment. The level of the population connected to sewers but whose wastewater was not treated rose from 2.9 million in 2007 to 3.4 million in 2013.

The country's ecosystem is rich and comprises a vast number of diverse species. Serbia is home to 39 per cent of European vascular flora species, 51 per cent of European fish fauna, 49 per cent of European reptile and amphibian fauna, 74 per cent of European bird fauna and 67 per cent of European mammal fauna.

Currently, 1,760 wild species of plants, animals and fungi are strictly protected and 853 are protected by law. A special form of protection relates to the species that can be endangered due to exaggerated and uncontrolled collection from nature. Currently, controlled use is allowed for 97 species.

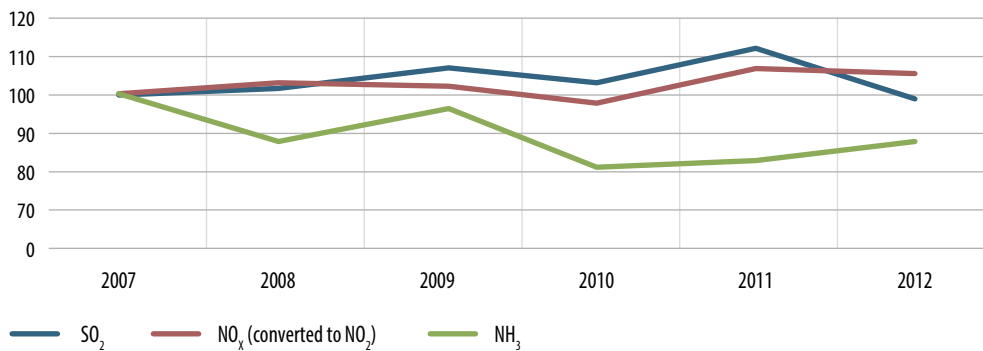
Forest fellings increased by 26.1 per cent from 2,247,000 m³ in 2007 to 2,833,000 m³ in 2011. During the same period, forest damage increased by 66.7 per cent, from 40,576 m³ to 67,635 m³.

The 1999 Red List contains 171 plant taxa (species and sub-species), making up about 5 per cent of the total flora in Serbia. Of that number, 4 taxa have been irreversibly lost because they were endemic only in Serbia; 46 taxa have been exterminated in Serbia, but can still be found in neighbouring countries or in ex situ conditions (botanic gardens); and 121 species are highly endangered, with high probability of disappearing from the region in the near future.



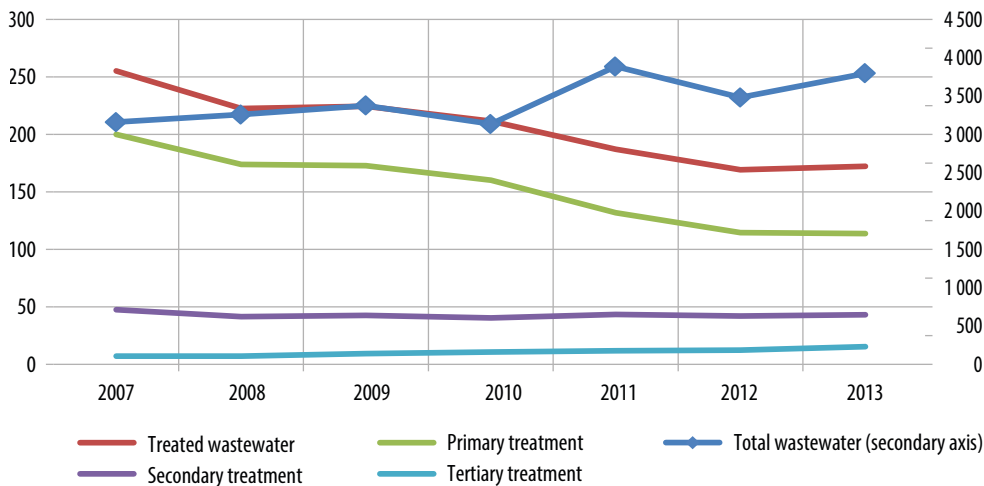
There are 474 protected areas with a total area of 531,279 ha. An additional 117 areas are within the protection procedure. The ecological network consists of 101 areas of ecological importance and ecological corridors of national and international importance, including Emerald Network and Natura 2000 sites. Serbia has selected 61 candidate areas for the Emerald Network.

Figure 1: Air emissions, 2007=100



Source: Source: Statistical Office, 2014.

Figure 2: Waste water discharge and treatment, 2007-2011



Source: Source: Statistical Office, 2014.

Table 1: Threatened species according IUCN and SRBIUCN status

	Number	IUCN	Serbian IUCN
Mammals	100	11	8
Aves	360	11	117
Reptilians	25	3	13
Amphibians	23	0	14
Pisces	110	12	12
Insects		8	79

Source: Republic of Serbia. The fourth national report to the United Nations convention on biological



Legal and policymaking framework and its practical implementation

Since 2007, Serbia has worked further to enhance its legal and policy framework on environment and sustainable development. An important package of environmental laws was adopted in May 2009. On the basis of these laws, more than 300 subsidiary regulations have been adopted.

The 2009 Law on Genetically Modified Organisms (GMOs) introduces the obligation of informing the public and organizing public consultations in connection with applications received. The Law does not prescribe GMO labelling.

The provisions of the 2008 National Strategy for Sustainable Development are integrated into other programmes and strategies, including sectoral ones. A number of its measures have already been implemented, although with some delays. No assessment of the Strategy's implementation has taken place since the 2010 second progress report on its implementation.

The 10-year 2010 National Environmental Protection Programme is not accompanied by a five-year action plan. Furthermore, its implementation reports had to be submitted every two years; however, no reporting took place.

Contrary to many other strategic documents, the 2010 National Waste Management Strategy for the period 2010–2019 includes a list of indicators and an action plan for the period 2010–2014. However, despite the requirement of the Law on Waste Management to prepare annual reports on implementation of the Strategy, no such reports were prepared.

The draft national environment and health action plan (NEHAP) was developed in 2003 but never adopted. The Children's Environment and Health Action Plan (CEHAP) for the period 2010–2019 (OG 83/09) was adopted by the Government in 2009. No financial resources were allocated for implementation of CEHAP and no review of implementation has been undertaken. Some measures were eventually implemented but no targeted effort on implementation took place. Many problematic areas targeted by CEHAP (e.g. regulating indoor air quality in public buildings) remain highly relevant.

The 2013 Report on Implementation of the 2005 Energy Sector Development Strategy until 2015, recognizes that the 2005 Energy Sector Development Strategy was based on many assumptions that did not materialize. There has been only very modest progress achieved in the second priority area of the Strategy – increase of energy efficiency in the production, distribution and use of energy.

Serbia has had two strategic documents on energy efficiency: the 2010 First Energy Efficiency Action Plan for the period 2010–2012 and the 2013 Second Energy Efficiency Action Plan for the period 2013–2015. A report on implementation of the First Action Plan in 2010–2011 was prepared in 2012. An overall assessment of implementation of the First Action Plan is part of the Second Action Plan. It shows that very few measures were fully implemented because of an insufficient legal framework, the lack of satisfactory financial instruments and the general state of the economy.

Since 2007, constant transformations shaking the environmental sector in Serbia have undoubtedly impacted on the smoothness and continuity of efforts to improve environmental policy and legislation and ensure effective implementation. The Ministry of Environment was constituted in May 2007. In July 2008 it was transformed into the Ministry of Environment, Mining and Spatial Planning. In July 2012, the competences on environmental policy were brought under the same roof as the competences on energy policy when a Ministry of Energy, Development and Environmental Protection was formed. At the end of April 2014, another governmental restructuring took place. The Ministry of Agriculture and Environmental Protection was formed, and assumed the competences of the former Ministry of Agriculture, Forestry and Water Management, all environmental protection competences of the former Ministry of Energy, Development and Environmental Protection, as well as the competences in the field of sustainable development of natural resources and system to protect natural resources of the former Ministry of Natural Resources, Mining and Spatial Planning.

While the Law on Local Self-Government provides for a number of mechanisms with the aim to enable vertical coordination, practical implementation of such coordination is far from adequate. In practice, vertical coordination functions mostly through personal contacts between governmental officials rather than through well-established mechanisms.

As of March 2014, there were over 2,000 environmental NGOs registered in Serbia, of which 466 were registered in 2013. About 100 environmental NGOs are active on a regular basis. In 2010, the then Ministry of Environment, Mining and Spatial Planning signed memoranda of understanding (MoUs) with over 100 NGOs. Four Aarhus centres (Kragujevac, Niš, Novi Sad and Subotica) function in the country.

Recommended measures:

- **Improve the implementation of environmental legislation;**
- **Improve the quality of strategic environment-related planning;**
- **Adopt the Action Plan for the National Environmental Protection Programme;**
- **Integrate green economy considerations into strategic documents;**
- **Conduct an independent analysis of the institutional framework in the environmental sector.**

Note: The sections entitled "Recommended measures" represent an abridged version of selected recommendations from the EPR report and are provided for information purposes only. Please consult the text of the report for the full text of recommendations as adopted by the UNECE Committee on Environmental Policy.



Compliance and enforcement mechanisms

The legal basis for environmental impact assessment (EIA) has seen further development. The 2004 Law on EIA was updated in 2009. Implementing legislation was further developed in 2008. The Regulation establishing the list of projects for which an environmental impact assessment is mandatory and the list of projects for which EIA can be requested clarified the EIA scope and aligned it with EU requirements.

Serbia is reorienting its traditional approach to water quality regulation, predominantly based on environmental quality standards (EQS), to a more preventive one aimed at mitigating pollution closer to its source, by introducing emission limit values and providing for stricter measures if EQS in the receiving water bodies are not met (the so-called “combined approach”).

Placing leaded gasoline on the market was banned, and the use of petrol containing a maximum 13 mg/l of lead was allowed up to 31 July 2013. Amendments in 2013 further toughened the requirement, allowing the placing on the market of only petrol that corresponds to the European Standard EN 228 (maximum 5 mg/l of lead).

The National Pollution Sources Register, maintained by the Serbian Environmental Protection Agency (SEPA) has been fully operational since 2012, with more than 1,200 operators already providing data regularly. In May 2014, this public register contained 1,659 permits.

The first Integrated Pollution Prevention and Control (IPPC) applications were received in early 2010. Of the current 185 IPPC units, 162 operators (87 per cent) submitted permit applications and only nine permits have been issued so far.

The register of waste management permits issued by all competent authorities is publicly available on SEPA's website. As of April 2014, the list of waste management permit holders included 1,759 legal entities.

The Chemicals Registry is established for the purpose of creating a comprehensive database of chemicals placed on the market. As of September 2014, 2,511 companies reported data on chemicals produced or imported, and data on 46,708 chemicals (substances and mixtures) are reported to the Registry. Its data are used for the preparation of inspection campaigns.

Since 2007, progress in compliance promotion and voluntary schemes has been mixed. There are no enterprises certified according to the EU Environmental Management and Audit Scheme. Government action on promoting compliance has apparently focused on providing financial support to the regulated community. Financial support to companies that aim to improve their environmental results is higher in Serbia than the EU average.

Voluntary initiatives, such as adoption of certified environmental management systems, continued to develop steadily but remained at a comparatively modest level.



The National Cleaner Production Centre was established in 2007. It offers advice on resource efficiency measures, as well as support services related to administrative procedures.

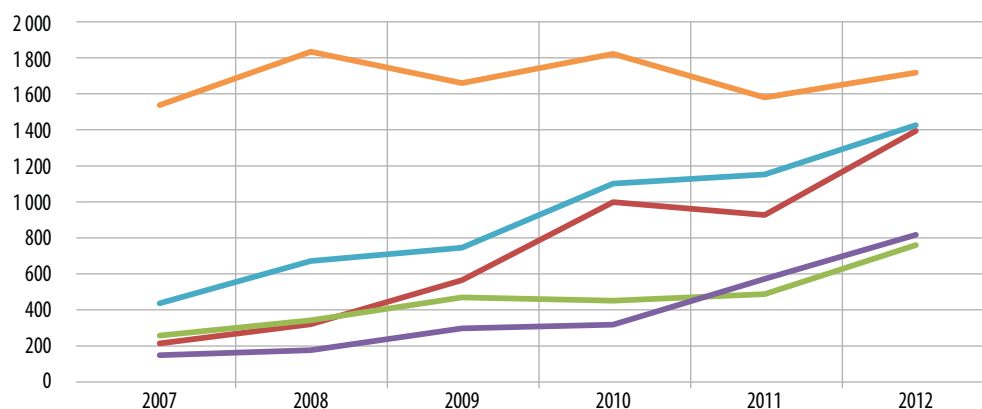
In its overall design, the system of inspection largely follows Recommendation 2001/331/EC providing for minimum criteria for environmental inspections in the EU Member States. In 2007, a unified planning method, reporting and record-keeping on inspections were introduced at all levels. Guidelines and instructions for inspections are available.

Table 2: Number of EIA Studies considered in the review phase by different competent authorities, 2007-2013

	2006	2007	2008	2009	2010	2011	2012	2013
Republic level	45	41	27	38	28	44	58	55
Vojvodina		60	25	28	14	20	16	17
Belgrade	29	29	21	24	7	11	9	1

Source: MEDEP; Vojvodina Secretariat for Urban Planning, Construction and Environmental Protection; Secretariat for Environmental Protection of the City of Belgrade.

Figure 3: Number of ISO 14000 certified companies



Recommended measures:

- **Concentrate responsibilities for regulating large installations at the national level;**
- **Simplify the regulatory regime for small and medium-sized enterprises;**
- **Strengthen public involvement in the integrated permitting of IPPC installations;**
- **Further improve and streamline environmental impact assessment and permit issuing procedures;**
- **Establish a system of regular reporting on compliance.**



Economic instruments for greening the economy

Charges for air pollution from stationary sources have been collected for sulphur dioxides, nitrogen oxides and particulate matter (PM). They have been adjusted by the annual percentage changes in the consumer price index. The earmarking of revenues from pollution charges was abolished in 2012. In this context, the operation of the Environmental Protection Fund was also terminated.

The system of pollution charges was enlarged in 2010 by the introduction of charges on products that, after use, become special waste streams. They comprise motor vehicle tyres, products containing asbestos, batteries and accumulators, mineral and synthetic oils and lubricants, electric and electronic products, and motor vehicles. A charge for the import or domestic production of plastic (polyethylene) bags was introduced in autumn 2010 and applied as from 2011.

The current system of water pollution charges does not explicitly take into account the effective discharge of water pollutants. The rates for wastewater discharge are very low, creating no incentives for investments in wastewater treatment. And these rates are also far below those that would be required to ensure the financial viability of modern wastewater treatment plants.

The financial implications for the environmental sector were broached in the 2011 National Environmental Approximation Strategy. The costs of upgrading and extending the environmental capital infrastructure could amount to approximately €10.5 billion. Total costs correspond to some €1,400 per capita, which is some 20 per cent higher than estimated for other countries in the region that have joined the EU in recent years. The reason for these higher expenditures is the low level of existing infrastructure and standards of services.

Overall, general government expenditures on environmental protection have been on a rising trend in recent years. They corresponded to some €135 million or 0.45 per cent of GDP in 2012, up from a recent low of 0.29 per cent in 2009.

Serbia has benefited from development assistance provided by multilateral institutions. Annual disbursements corresponded to some 0.05 per cent of GDP. Some 95 per cent of funds were provided in the form of grants; the remainder (some €6 million) was concessional loans.

Recommended measures:

- **Introduce individual metering of water consumption by households in multi-family buildings;**
- **Phase out the strong cross-subsidization of household tariffs by enterprises;**
- **Gradually raise tariffs to cost-reflective levels;**
- **Provide targeted social assistance for vulnerable groups;**
- **Ensure that foreign financial assistance is aligned with national and local environmental priorities.**



Table 3: Government expenditures on environmental protection, 2007-2012, Million Dinar

	2007	2008	2009	2010	2011	2012
Central government	1 660.5	1 848.2	1 792.4	4 147.5	4 920.8	6 546.4
Local government	6 731.8	8 058.6	6 208.1	8 091.6	8 547.9	9 451.7
Intragovernmental transfers	0.0	0.0	0.0	885.5	1 102.5	668.1
Total general government	8 392.3	9 906.8	8 000.5	11 353.6	12 366.2	15 330.0
Total in million euros	105.0	121.6	85.2	110.2	121.3	135.5
Total as per cent of GDP	0.37	0.37	0.29	0.39	0.39	0.45
Total as per cent of total government expenditures	0.79	0.80	0.62	0.80	0.81	0.91

Source: IMF Government Finance Statistics (electronic database); accessed on May 2 2014.

Note: Expenditures by functions of government (COFOG); cash basis.

General government expenditures excluding Intragovernmental transfers.

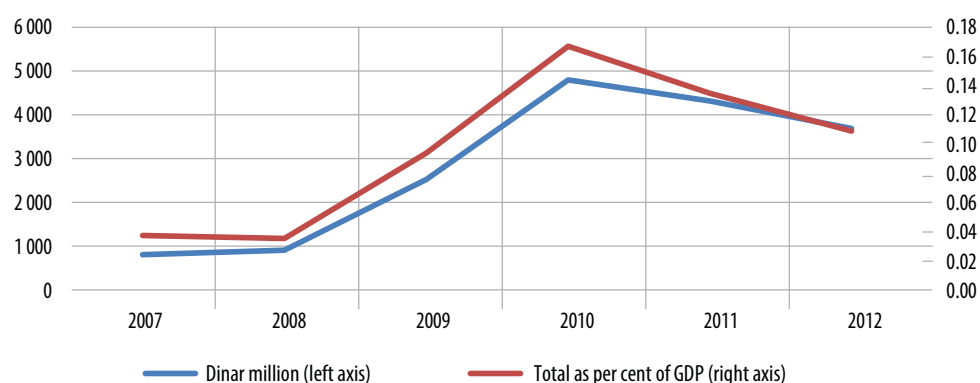
Figures in euro were calculated using the corresponding average annual exchange rates.

Table 4: Foreign financial assistance for environmental protection (Disbursements), 2007-2013, € million

	2007	2008	2009	2010	2011	2012	2013
Environmental protection	14.80	5.25	14.72	15.51	20.07	18.95	16.64
Water supply and sanitation	8.56	9.12	13.81	11.48	27.20	24.51	34.72
Total	23.36	14.37	28.53	26.99	47.27	43.46	51.36
Total as per cent of GDP	0.08	0.04	0.10	0.10	0.15	0.15	0.16
Environmental protection	0.05	0.02	0.05	0.06	0.06	0.06	0.05
Water supply and sanitation	0.03	0.03	0.05	0.04	0.09	0.08	0.10

Source: ISDACON database (www.evropa.gov.rs)

Note: Grants and concessional loans.

Figure 4: Budget of Environmental Fund of Serbia, 2007-2012

Source: Ministry competent for environment protection

Note: Total revenues from earmarked fees. Budget in euros was calculated using the average annual exchange rates of the corresponding year.



Environmental monitoring, information and education

All the 40 stations are equipped with analysers to measure SO₂, CO and NO/NO_x/NO₂ concentrations. At 10 stations, PM₁₀ concentration is measured, as well as benzene toluene xylene and volatile organic compounds. Data from the stations on the measured substances are available in real time on the website of SEPA.

Serbia has a network consisting of 13 stations to sample allergenic pollen. One station (Kamenicki Vis) is equipped to measure the transboundary air pollution in accordance with the requirements of the Convention on Long-range Transboundary Air Pollution and its European Monitoring and Evaluation Programme (EMEP).

Surveillance water quality monitoring is performed at 51 measuring stations; operational monitoring is the monitoring performed at 84 measuring stations. Due to budgetary insufficiencies, not all the defined parameters are monitored at the required frequency of one year at all the surveillance monitoring locations. In respect of groundwater, quality monitoring is carried out at 64 points where piezometers are available.

There is no regular soil monitoring. However, certain collection of data takes place on an ad hoc basis at regional or local levels and through pilot projects with the involvement of donors.

Noise measurement is based on attended periodical measurements, conducted according to local methodology. The monitoring is done at a community level and depends on the budget available.

A routine monitoring programme is in place to measure ambient gamma dose rate equivalent in the air, radionuclides content in the air, solid and liquid precipitation, surface and drinking waters, and food, as well as to examine the level of exposure to naturally occurring ionizing radiation in residential and work environments. Also, radionuclides content is measured at locations affected by depleted uranium.

There has been no programme for biodiversity monitoring developed so far. Monitoring is therefore mainly done on species and habitats prioritized for monitoring as per annual budget available.

Serbia established a national laboratory for air, water, sediments and soil sample analysis, with the latter to be started in the future. The laboratory is fully integrated into the structure of SEPA. Serbia also established a laboratory for calibration of the analysers installed at the stationary stations for monitoring air quality. Institutes of public health operate laboratories accredited on some 25 standards for analysing drinking water quality. There are also several laboratories accredited for radioactivity analysis.

Data reporting, including self-monitoring activities to collect data in the first place, is imposed on enterprises. Data are stored in the National Register of Pollution Sources, which is managed by SEPA.



In 2010, Serbia adopted a list of 81 environmental indicators in 12 thematic areas. Notwithstanding, the indicators were already in use. The necessary data for the calculation of the indicators are available in various institutions at national and local levels, and shared with SEPA, which is in charge of managing the indicators.

Serbia produces its state of the environment report annually. This frequency can be questioned, in particular because in such a short period of time it is impossible to observe visible changes in trends and impacts for the majority of thematic areas assessed in the report. Furthermore, this period of time may be insufficient to implement some of the actions recommended in the previous report.

Environmental information of public importance, except for information defined by law as restricted, is freely available at no cost to the public. Furthermore, access to information that concerns a threat to or protection of public health and the environment cannot be restricted by the authorities.

Table 5: Data collected from the enterprises constituting National Register of Pollution Sources

Type of data	Reporting enterprises
General facility form	PRTR enterprises
Emissions of pollutants into:	
- the air	
- water	
- soil	Non-PRTR enterprises emitting above the set limit value
Waste management	
Emissions of pollutants into the air	Non-PRTR enterprises licensed for the type of activities
Waste generation	
Waste landfilling	All enterprises licensed for the particular type of activities
Waste treatment	
Waste export	
Waste import	
Products that after use become special waste flows	
Packaging and packaging waste	

Source: Serbian Environmental Protection Agency, 2014.



Recommended measures:

- **Ensure necessary funding for monitoring activities;**
- **Clarify the responsibility of small-scale water supply systems for drinking water monitoring;**
- **Carry out noise monitoring at the local level;**
- **Integrate all environment-related databases into one environmental system;**
- **Establish a monitoring programme for biodiversity.**

Implementation of international environmental agreements

Since 2007 Serbia joined a number of global multilateral environmental agreements, including the Stockholm Convention on Persistent Organic Pollutants (POPs) in 2009, the Rotterdam Convention on the Prior Informed Consent Procedure for Certain Hazardous Chemicals and Pesticides in International Trade in 2009.

Since 2007, Serbia has joined the remaining four UNECE regional multilateral environmental agreements. The country ratified the Espoo Convention on Environmental Impact Assessment in a Transboundary Context in 2007, the Convention on the Transboundary Effects of Industrial Accidents and the Aarhus Convention on Access to Information, Public Participation in Decision-making and Access to Justice in Environmental Matters in 2009, and the Convention on the Protection and Use of Transboundary Watercourses and International Lakes in 2010.

Since 2007, Serbia has designated four more Ramsar sites. As of April 2014, Serbia has 10 sites designated as wetlands of international importance, with a total area of 63,919 ha.

Table 6: Ramsar sites designated since 2007

Site name	Ramsar site number	Designation date	Total site area (ha)
Gornje Podunavlje	1 737	20/11/2007	22 480
Vlasina	1 738	20/11/2007	3 209
Zasavica	1 783	13/03/2008	1 913
Koviljsko-Petrovaradinski Rit	2 028	03/08/2012	8 292

Source: http://www.ramsar.org/cda/en/ramsar-pubs-notes-annotated-ramsar-16189/main/ramsar/1-30-168%5E16189_4000_0_, accessed on 16 July 2014

Since 2007, Serbia has inscribed one more property on the World Heritage List and submitted six properties on the Tentative List. As of April 2014, Serbia has four properties inscribed on the World Heritage List and 11 properties submitted on the Tentative List.

Recommended measures:

- Reduce the country's dependence on international aid in fulfilling international obligations;
- Ensure adequate funding to reach Serbia's commitments on MDG7.



Table 7: Current progress on MDG7 implementation

Target	Specific Target	Preliminary information on implementation
Integrate sustainable development principles in national documents, halt the loss of natural resources and encourage their revitalization	Adopt and implement national programmes, strategies and laws governing the area of sustainable development and environmental protection in the Republic of Serbia by 2015	
	Increase land area covered by forest to 32% of the total territory of the Republic of Serbia by 2015	Percentage of forested areas in relation to the total area of Serbia grew from 25.6% in 2000 to 32% in 2012
	Increase the land area protected to maintain biodiversity to 10% of the total territory of the Republic of Serbia by 2015	
	Reduce the number of households that use solid fuels to 25% of the total number of households in the Republic of Serbia by 2015	Percentage of households using solid fuel in relation to total number of households decreased from 60% in 2000 to 31.6% in 2012
	Increase energy efficiency and usage of renewable energy sources	Carbon dioxide emissions per capita (tons of CO ₂ per capita) increased from 4.43 in 2000 to 7.18 in 2006 and then decreased to 6.3 in 2012
	Reduce air pollution	
Reduce the proportion of the population without adequate supply of drinking water, access to the sewage infrastructure and organized community waste collection	Increase the proportion of households with access to the public water supply network to 98% in urban areas and 65% in rural areas by 2015	Percentage of households with access to public waterworks increased from 69% in 2002 to 79% in 2010
	Increase the proportion of households covered by the public sewage systems to 65% by 2014 and increase the proportion of households covered by the public sewage systems in big towns (population over 100,000) to 100% by 2015	Percentage of households with access to public sewage system increased from 33% in 2002 to 54% in 2010
	Increase the proportion of population covered by the community waste collection system to 80% by 2015	
Improve housing conditions for poor inhabitants of unsanitary settlements	Increase the number of constructed social flats for poor and vulnerable social groups.	

Source: Government of Serbia. Millennium Development Goals in the Republic of Serbia: Monitoring Framework, 2006; Millennium Development Goals Barometer – Serbia 2013 (<http://www.scribd.com/doc/173359867/Millennium-Development-Goals-Barometer-Serbia-2013>, accessed 2 May 2014).



Climate change mitigation and adaptation

Analyses of the period 1950–2004 show an increase in mean annual temperatures in most parts of Serbia. Temperature rise was higher in northern Serbia than in the south. Mean annual precipitation did not follow a clear trend: it increased in the west and north of Serbia, but decreased in other parts of Serbia. However, the number of days with intensive precipitation did increase.

The main impacts from these changing temperature and precipitation patterns are increasing risks of droughts, reduced water resources (mainly during vegetation seasons), extreme temperatures (both heat and cold waves) and floods. The risk of fire is also increasing as a consequence of hot and dry summers.

The energy sector, including transport, is responsible for around 75–78 per cent of GHG emissions and therefore is a key sector for mitigation. In 2010, the emissions from fuel combustion arose mostly from electricity and heat production (66 per cent), followed by the transport (14 per cent), manufacturing industries and construction (12 per cent) and residential (7 per cent) sectors.

The Serbian economy is very energy intensive, with an energy intensity of 0.22 toe per unit of GDP in 2010, while that of OECD-Europe was 0.13 and the world average was 0.19 toe. These figures indicate that there is potential for reducing energy consumption by improving efficiency and thus reducing CO₂ emissions.

Serbia has no national strategy on climate change. However, climate change is listed as one environmental risk factor in the 2008 National Strategy for Sustainable Development. The 2011 National Strategy for Protection and Rescue in Emergency Situations also lists climate change as one important factor with influence on emergency situations.

The 2005 Agriculture Development Strategy did not mention climate change. The 2010 National Environmental Protection Programme states that the agricultural sector may suffer huge damage and be one of the sectors most affected by climate change. The Strategy for Agriculture and Rural Development for the period 2014–2024 recognizes the importance of climate change impacts on agricultural production or the sector's vulnerability to changed climate conditions.

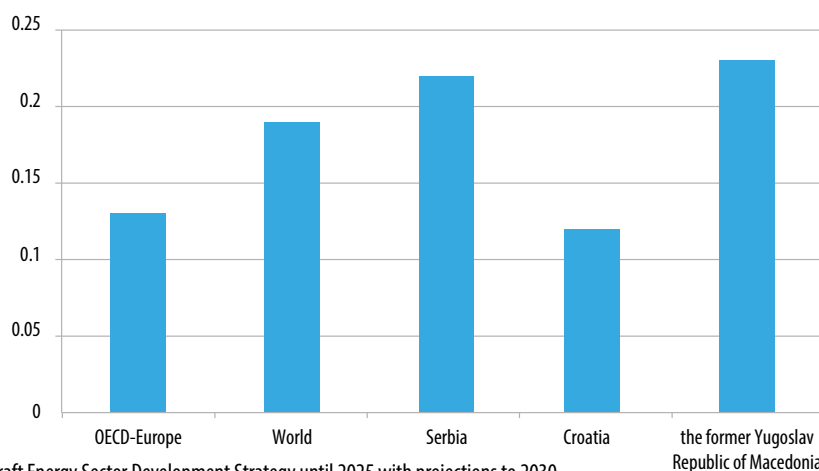
Serbia adopted the target of saving 9 per cent in final energy consumption by 2018 in comparison with 2008. However, the measures planned in the First Energy Efficiency Action Plan for the period 2010–2012 were either not implemented at all or only partly implemented because of delays in the adoption of the Law on Efficient Use of Energy and the accompanying by-laws, as well as lack of funding.

Numerous projects related to climate change took place in recent years at national or regional level. They included the elaboration of adaptation and mitigation strategies for subsectors, as well as increasing efficiency or awareness and preparing adaptation measures.



Serbia was successful in using the Clean Development Mechanism (CDM) by swiftly installing the Designated National Authority and necessary procedures after ratification of the Kyoto Protocol. In 2010, the National Strategy for Incorporation of the Republic of Serbia into the Clean Development Mechanism was elaborated. Serbia successfully registered seven CDM projects before 2012, which related to renewable energy (several wind farms), energy efficiency and the waste sector.

Figure 5: Primary energy consumption in 2010 per unit of GDP, toe/1,000\$2005



Source: Draft Energy Sector Development Strategy until 2025 with projections to 2030.

Note: Primary energy consumption/GDP (reduced to purchasing power parity).

Table 8: Greenhouse gas emission scenarios by sectors, million t CO2 eq

	Baseline Scenario				Mitigation Scenario	
	1990	1998	2012	2015	2012	2015
Energy	59.8	47.8	65.5	69.4	64.3	63.7
Fugitive emissions	3.0	2.8	3.9	4.3	3.9	3.9
Industry	4.3	3.6	5.5	6.5	5.5	6.5
Agriculture	11.8	9.5	11.8	12.9	11.7	12.7
Waste	1.9	2.7	3.9	4.2	3.9	3.4
Total	80.8	66.3	90.7	97.3	89.3	90.2
Forestry (sink)	-6.7	-8.7	-11.2	-11.2	-11.2	-11.6
Total with sink	74.1	57.7	79.5	86.1	78.1	78.6

Source: Initial National Communication (2010)

Recommended measures:

- **Adopt a national strategy on climate change and secure funding for its implementation;**
- **Integrate climate change adaptation into sectoral policies;**
- **Apply energy performance standards for residential and public buildings;**
- **Study the potential of renewable energy sources**



Water management

In 2013, the raw water for drinking purposes comes from groundwater (67 per cent) and surface waters (33 per cent). Around 70 per cent of the population is connected to public water supply systems, around 12 per cent is connected to rural water supply systems and around 10 per cent is connected to individual systems, while the remaining population is supplied from wells and pumps.

Of the 2.5 million households in Serbia, 1.44 million are connected to public sewerage systems. In terms of national coverage, in 2013, 58 per cent of the population was connected to public sewerage systems, but only 10.54 per cent of the population was connected to public sewerage systems served by an urban wastewater treatment plant.

Of the 300 million m³ of wastewater discharged in 2013, 71.4 per cent was from households, 14.6 per cent from industry and 14 per cent from other sectors. Only 16.8 per cent (50.4 million m³) was treated, including 2.4 per cent with primary treatment, 11.8 per cent with secondary treatment and 2.5 per cent with tertiary treatment.

Table 9: Public water supply systems Evolution, 2007-2013

Year	Population connected %	Number of households connected to public water supply systems	Increase of connected households, per cent over 2007
2007 ⁽¹⁾	78.25	1 957 993	
2008 ⁽¹⁾	82.57	1 996 367	1.96
2009 ⁽¹⁾	84.71	2 067 260	5.58
2010	77.80	1 929 439	-1.46
2011	78.34	1 954 881	-0.16
2012	80.17	2 004 019	2.35
2013	82.01	2 039 942	4.19

Note: ⁽¹⁾ Under revision - Source: Statistical Office, 2014. Note a new year (2013) added JH

Table 10: Public Sewage Systems evolution, 2007-2013

Year	Population connected to public sewerage systems, %	Population connected to public sewerage systems, with UWWTP, %	Number of households connected to public sewerage systems	% of increase based on 2007
2007 ⁽¹⁾	48.64	8.54	1 217 070	
2008 ⁽¹⁾	51.76	8.67	1 251 473	2.83
2009 ⁽¹⁾	54.07	10.00	1 319 097	8.38
2010	51.61	9.46	1 279 983	5.17
2011	53.07	9.79	1 324 376	8.82
2012	55.51	10.03	1 387 542	14.01
2013	57.79	10.54	1 437 515	18.11

Source: Statistical Office, 2014. - Note: ⁽¹⁾ Under revision. UWWTP = urban wastewater treatment plant



River water quality is relatively good in Serbia, particularly that of the Danube, Sava and Tisza Rivers and a number of small rivers. However, the situation with regard to national rivers is often worse, above all that of the Velika Morava River, and especially of small rivers whose riverbanks are occupied by large urban centres.

At national level, monitoring of drinking water quality is conducted by the network of 24 institutes of public health under the Ministry of Health. In the period 2007–2012, in urban areas, approximately 60,000 drinking water samples were analysed each year. Average microbiological and chemical non-compliance of drinking water were 4.9 per cent and 15.4 per cent of samples, respectively.

In the period 2007–2012, monitoring of drinking water quality was conducted on about 2,198 water supply systems in rural areas. Approximately 18,800 drinking water samples were analysed each year. Average microbiological and chemical non-compliance of drinking water from water supply systems in rural areas were 22.9 per cent and 50.5 per cent of samples, respectively.

In the period 2007–2012, drinking water from an average 4,600 individual water supply facilities (public standpipes, schools, health centres, facilities for food production and restaurants with their own water sources) were analysed. Approximately 7,900 drinking water samples were analysed each year. Average microbiological and chemical non-compliance of drinking water from individual water supply facilities were 24.1 per cent and 35.5 per cent of samples, respectively.

Serbia has a General Plan for Flood Protection for the period 2012–2018 and adopts annual operational plans for flood protection. The present state of flood protection infrastructures can be assessed as satisfactory.

Serbia lacks an appropriate framework on the water sector to achieve a sustainable approach to water and wastewater management policies. No programme for “efficient use of water” has been implemented and neither is there an innovative solution on a national scale.

The prices of water are not economic prices but social prices. From 2006 until 2012, the Government controlled them and approved any changes, limiting their increase to the projected inflation rate for a given year, but this control was abolished with the adoption of the Law on Communal Utility Activities and the Law on Public Enterprises.

Recommended measures:

- **Adopt, ensure funding for and implement the water management strategy until 2030;**
- **Establish a national water council;**
- **Ensure adequate protection from floods.**



Waste management

Organized collection of municipal solid waste (MSW) was estimated to cover about 80 per cent of generated waste in 2013. Collection is organized mainly in urban areas, while rural areas are less well covered.

Table 11: Municipal Solid Waste in Serbia, 2006-2013, million tons

	2006	2007	2008	2009	2010	2011	2012	2013
Generated waste, million tons	1.73	2.07	2.55	2.63	2.65	2.71	2.62	2.41
Waste collected and disposed by municipal companies, million tons	1.04	1.24	1.52	1.58	1.89	2.09	1.83	1.92
Average coverage by waste collection (est.), (%)	0.60	0.60	0.60	0.60	0.72	0.77	0.70	0.80
Average daily quantity of MSW per kapita (kg)	0.62	0.77	0.95	0.98	0.99	1.01	0.99	0.92
MSW/person/year (kg)	230	280	350	360	360	370	360	340

Source: Reports on State of Environment in Serbia

Serbia currently recycles about 14 per cent of collected MSW: glass, wood, paper, plastic and metal. The private sector is involved in municipal separation schemes, but its main role is the purchase and processing of materials gained from separation. While in 2009 only 200 companies were registered for collection and recycling of waste, currently their number exceeds 2,200.

MSW is disposed to landfills and dumps. Considering the development of modern landfills, it is estimated that 25 per cent of MSW is disposed to sanitary landfills, 45 per cent is delivered to registered municipal dumpsites and 30 per cent ends up in uncontrolled dumpsites. About 70 per cent of all active dumpsites do not meet basic operational standards and are not stipulated through spatial planning documents, and no EIA of them has been developed; nor do they have the necessary permits.

The total amount of industrial waste is strongly affected by the mining sector, which represents 88 per cent of reported waste, and by energy generation, which adds 10.5 per cent. The share of manufacturing waste is only 1.5 per cent.

The existing health-care waste management system is focused on the treatment of infectious waste. It consists of a network of 31 central treatment points and 24 local treatment points where infectious health-care waste is treated by steam sterilization in autoclaves.

Recommended measures:

- Carry out a nationwide inventory of radioactive waste;
- Access to the Convention on Nuclear Safety and the Joint Convention on the Safety of Spent Fuel Management and on the Safety of Radioactive Waste Management;
- Improve collection and verification of data on municipal waste.



Table 12: Mining and quarrying waste, 2008-2012, ton/year

	2008	2009	2010	2011	2012
Chemical and medical waste	142	148	71	135	169
Recyclable waste	1 942	1 943	2 890	4 175	14 986
Used equipment	305	204	1 172	92	522
Animal and vegetable waste	29	6	150
Mixed waste	2 228	2 806	517	474	1 619
Sludges				1	
Mineral and solidified waste	15 005 323	21 104 211	26 453 402	41 513 056	47 878 876
Total	15 009 969	21 109 318	26 458 201	41 517 933	47 896 172

Source: Statistical Office, 2014.

Table 13: Manufacturing waste, 2008-2012, ton/year

	2008	2009	2010	2011	2012
Chemical and medical waste	117 348	74 661	79 604	59 222	55 542
Recyclable waste	158 811	144 681	129 826	133 329	159 523
Used equipment	5 915	3 592	1 144	3 277	1 921
Animal and vegetable waste	182 708	227 227	213 331	201 557	153 692
Mixed waste	63 627	58 435	42 857	49 299	45 716
Sludges	863	301	981	680	553
Mineral and solidified waste	1 153 597	823 567	667 609	679 245	373 735
Total	1 682 868	1 332 464	1 135 352	1 126 610	790 681

Source: Statistical Office, 2014.



Serbia

Environmental Performance Reviews

Third Review - Highlights

The United Nations Economic Commission for Europe (ECE) Environmental Performance Review Programme assesses progress made by individual countries in reconciling their economic and social development with environmental protection, as well as in meeting international commitments on environment and sustainable development.

The third Environmental Performance Review of Serbia was carried out in 2014, and recommendations to the country on how it can improve its environmental governance were adopted by the ECE Committee on Environmental Policy in October 2014. The third Environmental Performance Review of Serbia examines the progress made by Serbia in the management of its environment since the second review in 2007. It covers policymaking, implementation and the financing of environmental policies and projects. It discusses waste management and the protection of water resources, as well as impacts of and measures to address climate change.

The Highlights of the third Environmental Performance Review of Serbia draw attention to the key findings of the review to inform and guide policymakers and representatives of civil society, as well as the international community, in their efforts to improve environmental management and to further promote sustainable development in Serbia.

Printed Environmental Performance Reviews may be obtained from the United Nations Publications department at: <https://unp.un.org/>

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