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**DEVELOPMENTS IN IMPROVING ENVIRONMENTAL OBSERVATIONS, DATA
COLLECTION AND REPORTING**

**IMPLEMENTATION OF RECOMMENDATIONS ON MONITORING AND
INFORMATION MANAGEMENT FROM COUNTRY ENVIRONMENTAL
PERFORMANCE REVIEWS**

Serbia

Note by the secretariat¹

Summary

The paper is submitted pursuant to a decision taken by the Committee on Environmental Policy at its fifteenth session (ECE/CEP/148, para.22). It presents the recommendations on environmental monitoring and information management that the Committee on Environmental Policy approved on 29 May 2007 at its fourteenth session, and describes the situation in Serbia with environmental monitoring and information management at that time.

The Working Group on Environmental Monitoring and Assessment is expected to consider the progress made by Serbia in the implementation of these recommendations and to provide the country delegation with possible guidance on how to improve performance to this end.

¹ Prepared on the basis of materials of the second Environmental Performance Review of Serbia (ECE/CEP/143).

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RECOMMENDATIONS TO SERBIA OF THE SECOND ENVIRONMENTAL PERFORMANCE REVIEW

Recommendation 1:

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

Recommendation 2:

(a) The Government should:

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

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

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

Recommendation 3:

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

- (a) Clearly specifying the coverage of the state-of-the-environment reports, in particular by including a section on driving forces and pressures for environmental change, and reconsidering the periodicity of the state-of-the-environment reports;
- (b) Improving ways of reporting on the state of environment that will more timely follow the political agenda, for instance publishing topic-oriented reports and short briefings on emerging issues;
- (c) Making the information widely available in a timely manner.

I. LEGAL FRAMEWORK

A. Monitoring and data collection

1. The basis for an integrated environmental monitoring system is laid out in the 2004 Law on Environmental Protection (LEP), which defines the monitoring of natural factors, namely changes in the status and characteristics of the environment, including the transboundary monitoring of air, water, land, forests, biodiversity, flora and fauna, elements of climate, the ozone layer, ionizing and non-ionizing radiation, noise, waste and the early warning of accidents with monitoring and assessment of the development of environmental pollution, as well as

obligations stemming from international agreements. This system is to be more specifically determined by sectoral laws which are still to be harmonized with relevant European Union (EU) directives. The LEP provides for the establishment of an information system for environmental protection and of a register of polluters, but to date neither has been done. Only a by-law on the register of polluters has been drafted; other by-laws are still missing.

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

3. A basis for water monitoring is provided by the LEP and the amended Law on Water (OG RS No. 54/1996), which overlap considerably on this issue. Standards for water quality monitoring exist (except for the biological quality of waters) and are based on the Decree on Classification of Waters (OG SRS No. 5/1968) and the Regulation on Dangerous Substances in Waters (OG SRS No. 31/1982). The monitoring of wastewater discharges is based on a regulation from 1983 which covers only a limited number of parameters. Also, since water quality monitoring has no link with water quantity monitoring, it is impossible to estimate the quantity of components carried along by water streams. There is no regulation for industrial wastewater monitoring at the national level; only local regulations exist. The methodology for compiling and classifying water statistics is based on questionnaires dating from the Federal Republic of Yugoslavia, and is therefore outdated.

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

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

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

B. Reporting on the state of the environment

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

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

II. INSTITUTIONS RESPONSIBLE FOR THE COLLECTION, PROCESSING AND REPORTING OF DATA

9. Key strategic responsibility for monitoring and environmental information, which were under the Directorate for Environmental Protection¹ within the MSEP until May 2007, are now under the (MEP).

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

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

11. The EPA employs 22 experts. Its structure does not include a unit to deal with information systems, and no special tasks are allocated to coordination of state-of-the-environment reporting. The EPA cooperates actively with EEA. Serbia has been given an EEA/EIONET server, which is located in the EPA. The server is not adequately exploited and could contribute more to the agency's core tasks (e.g. providing better access to national and

¹ <http://www.ekoserb.sr.gov.yu>

international information, serving as a depository for the reports and documentation of working groups, and facilitating networking). EEA provides software, updates and 24-hour help-desk services.

12. Another key institution is the Hydrometeorological Institute (HMI), which is responsible for air and water monitoring and provides related observations, analysis and forecast. Of its 688 employees, 48 are environmental protection experts. After the split of the State Union, the number of employees was reduced by 10 per cent, but the scope of the work stayed unchanged. The structure and staff qualifications have not been adjusted accordingly. In 2005, HMI obtained accreditation for the analysis of 150 air and water parameters.

13. Further activities are planned to maintain the accreditation of the HMI Laboratory for Environment in accordance with standard JUS² ISO/IEC³ 17025, adopted in 2005. The Laboratory performs approximately 350,000 water and air quality analyses a year. Existing equipment has been improved with support from the Government of Japan (about €100,000), and new monitoring stations are expected to be built in 2007, also with foreign support. The Laboratory is responsible for international cooperation under the International Sava River Basin Commission, the Convention on Cooperation for the Protection and Sustainable Use of the Danube River and the Convention on Long-range Transboundary Air Pollution's Protocol on Long-term Financing of the Cooperative Programme for Monitoring and Evaluation of the Long-range Transmission of Air Pollutants in Europe (EMEP). The HMI delivers daily, weekly and yearly reports on the state and quality of air and waters, as well as special reports on cases of accidental pollution. Reports are published electronically (daily, weekly and yearly) and in print (weekly, yearly and for special purposes), but they are not indicator-based and therefore are not comparable with each other or in an international context. Collected data are also available on the HMI website⁴.

14. The HMI operates as a national reference centre for air in the framework of the EEA/EIONET country network. Since 2004, it has supplied EEA with data for EIONET Priority Data Flows. Longer time series, which are required by EEA, will be provided after the creation of a database and an analysis of historical data series. In accordance with the EMEP Protocol, HMI reports on yearly emissions of sulphur dioxide (SO₂) and nitrogen oxides (NO_x) for the whole country, and delivers these reports once or twice a year to the EMEP bureau and the World Meteorological Organization.

15. The Statistical Office⁵ is a key complementary institution for data collection. After the split of the State Union, the Office inherited responsibility for environmental statistics. Environmental statistical research is a new domain. It currently has a very limited scope (water, some aspects of waste, and statistics on sectors) and is not harmonized with international requirements. There is little cooperation with Eurostat (the European institution responsible for statistics) on this issue. The Statistical Office has established project-based cooperation on waste with EPA.

² JUS: Yugoslav standards.

³ IEC/ISO: International Electrotechnical Commission/ International Organization for Standardization.

⁴ <http://www.hidmet.sr.gov.yu>

⁵ <http://webrzs.statserb.sr.gov.yu>

16. The National Public Health Institute⁶ includes the environment among its areas of responsibility. The Institute, which has 294 employees, coordinates and implements government-sponsored health protection programmes and coordinates a network of 23 local public health institutes and health protection services in Serbia, which perform local monitoring. The Institute's Centre for Environmental Protection is responsible for air, noise, soil, solid and liquid waste materials, chemical accidents, non-ionizing and ionizing radiation, microclimate elements, illumination and microbiological indicators, tracking the state of citizens' health in relation to risk factors caused by the environment (health risk assessment), and implementing measures for improving environmental protection. The public health institutes are competent and relatively well developed, but cooperation between them is not good. Data are thus difficult to obtain and are not harmonized. The Institute has been accredited and will be reorganized to better meet the new requirements at the national and international levels.

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

18. Biodiversity monitoring is among the responsibilities of the Nature Protection Institute⁷ and is focused on protected areas and species. It delivers data on biodiversity and geodiversity and the state of natural resources to the MEP, the EPA and other relevant institutions. The monitoring is financed from the State budget. However, financing is tight in this field and it is difficult to coordinate data originating from different research sources and non-governmental organizations (NGOs). The Institute has two departments in Novi Sad and Niš. It produces a number of publications and a quarterly bulletin. In cooperation with EEA, it operates as a national reference centre and has been the main implementation institution for the Emerald Network project for including Serbia in the Natura 2000 programme.

19. The Recycling Agency⁸ is the national institution responsible for waste management, especially recycling and recovery of waste. It is responsible for monitoring the use of secondary waste materials and for issuing waste category certificates, as well as for market research and public education. It develops programmes, studies and appraisals relating to waste recycling and management facilities and the introduction of new recycling technologies, and is in charge of national and international cooperation on waste.

20. In 2002, some environmental competences were transferred to Vojvodina under the Law on Establishing Certain Competences for the Autonomous Province of Vojvodina (OG RS No. 06/2002). The Secretariat for Environmental Protection and Sustainable Development of the Autonomous Region of Vojvodina⁹ is part of the environmental protection system and is responsible for the monitoring and information subsystem. It operates an environmental

⁶ <http://www.batut.org.yu>

⁷ <http://www.natureprotection.org.yu>

⁸ <http://www.reciklaza.sr.gov.yu>

⁹ <http://www.eko.vojvodina.sr.gov.yu>

laboratory and assumes monitoring and reporting responsibilities for key parameters relevant to air, nature, soil, waste and water.

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

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

III. QUALITY OF ENVIRONMENTAL INFORMATION, DATA MANAGEMENT AND REPORTING

A. Laboratories

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

B. Monitoring and data collection

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

C. Self-monitoring and the register of polluters

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

responsible for overseeing and ensuring self-monitoring by industries and other polluters. At the moment, the unclear division of responsibilities is creating serious difficulties, especially with regard to water. This has resulted in a delay in the adoption of the by-laws and in a substantial lack of data on emissions.

D. Water monitoring

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

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

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

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

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

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

32. The monitoring of transboundary waters (in Serbia, 92% of waters are transitional) is part of the following international programmes: the International Commission for the Protection of the Danube River (Danube River Enterprise Pollution Reduction programme) and the International Sava River Basin Commission (CARDS¹⁰ programme for pollution protection of the Sava River).

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

E. Air monitoring

34. The HMI performs air quality monitoring in 24 stations measuring SO₂, NO_x and soot on the basis of 24-hour sampling in 13 stations not affected by pollution, 10 stations affected by a

¹⁰ Community Assistance for Reconstruction, Development and Stabilization.

range of polluters and one background station for the EMEP programme (Kamenicki Vis). The quality and availability of data from the EMEP station are not reliable.

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

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

37. Local public health institutes monitor urban air quality in 23 to 30 settlements for SO₂ (94 monitoring points), soot (100 monitoring points), particulate matter (168 monitoring points) and specific pollutants (nitrogen dioxide, heavy metals, suspended materials).

F. Waste

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

39. The Recycling Agency keeps a database on secondary raw materials and an inventory of hazardous substances. It also keeps an inventory of companies using secondary raw materials as a production input.

G. Biodiversity

40. The Institute for Nature Protection has completed a GIS¹¹ survey of protected nature areas. It has also participated in the Emerald Network programme (the second phase has been completed) and is participating in programmes for nature protection in the Sava River basin and the Carpathian region.

H. Indicators and integrated assessments

41. Before 2002, assessment and indicators processing were a very weak part of the information provision process. Some progress has been made since then, mostly due to the establishment of the EPA. In cooperation with EEA a set of indicators was produced for the preparation of the EEA report for the Sixth Ministerial Conference “Environment for Europe” (Belgrade, 10–12 October 2007). Of the set of 37 EEA core indicators (of which three relate to the sea and thus do not apply to Serbia), Serbia was able to complete 20 indicators with different

¹¹ Geographic information system.

degrees of quality and compliance with the proposed methodologies. For air, only one indicator (exceedance of air quality) has been calculated, but the calculation has low reliability. No indicators are available for emissions, including greenhouse gases. For water, the situation is better, although data are not comparable within the country or in the international context, because a methodology different from that proposed by EEA was used. Information was produced on all biodiversity indicators, and although the coverage of the data was not complete, the information was sufficient to give an overview of the present situation of biodiversity in Serbia.

42. State-of-the-environment reports for 2003 and 2004–2005 have been prepared and adopted by the Government and are now awaiting Parliament's approval before being published. The time series cover 22 years. The EPA has also started to prepare five thematic reports for the Belgrade Ministerial Conference – on air quality in urban areas and its influence on health, the quality and quantity of water resources, soil problems, and biodiversity and CORINE¹² land-cover results.

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

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

IV. INFORMATION SYSTEM AND OBJECTIVES REGARDING DATA MANAGEMENT AND REPORTING

45. An information system for environmental protection has not yet been established. It has been delayed not only due to the lack of a legislative basis, but also by unclearly defined responsibilities, a lack of reporting procedures, and unsatisfactory cooperation between institutions. The data collected by EPA cover: air quality; climate change (partially); water quantity and quality; quality of soil; analysis of land use; protected areas; protected and endangered species; species diversity; point and diffuse pollution sources (in progress); industrial, municipal, packaging, hazardous and other kinds of waste (in progress); energy consumption and intensity; renewable energy; and transport.

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

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

¹² Coordination on Information of the Environment.

implementation). In addition, the draft text does not cover allocation of responsibilities or task sharing.

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