

## **WORKING GROUP ON ENVIRONMENTAL MONITORING AND ASSESSMENT**

**Tenth Session  
Geneva, 3-4 September 2009**

### **Item 6(b) of the provisional agenda**

#### *Round Table on Latest Developments in Environmental Monitoring and Assessment at the National, Subnational and Company Levels*

Submitted by Macedonian Environmental Information Center (MEIC)

### **A. MODERNIZATION AND UPGRADING OF MONITORING NETWORKS**

#### **Emissions to Air**

The air emission monitoring in the country is regulated by the Law on Environment and the Law on Ambient Air Quality.

The air emissions are monitored with regard to stationary sources and mobile sources. Stationary sources include major companies, production and manufacturing facilities, and electricity and heat generation, as well as diffuse sources. Mobile sources of air emissions include the traffic in urban areas, on national and regional roads and other transport machines.

The legal basis for air emission monitoring has been established, but its implementation has not reached satisfactory level. Namely, continuous monitoring is carried out in (electric, heat) energy generating companies, companies like oil refinery, cement production, etc. However, continuous monitoring lacks in many companies, although they are subject to the system of integrated pollution prevention and control and thus A and B integrated permits for operation. This poses difficulty in determining the real amounts of pollutants emission and therefore in the planning of emission reduction.

Data on companies identified as air polluters is entered into the national electronic database - the Cadastre of air pollutants and polluters.

Due to the insufficient monitoring of air pollution, data on the amounts of pollutants released into the air can not be regarded real. Therefore, apart from emission measurements, estimation methods and calculations are used as well.

Calculations of pollutants emission are carried out on the basis of multilateral agreements in the area of air, namely Convention on Long-Range Transboundary Air Pollution (CLRTAP) through the programme for inventory of pollution CORINAIR (CoR Inventory for Air Emission). This programme through the SNAP (Selected Nomenclature of Air Pollution) methodology is applied for air emission inventory of the main air pollutants: sulfur dioxide, nitrogen oxides, carbon monoxide and total suspended particles. The application of this methodology has the status of adopted

national methodology for air emission inventory and it is also used for reporting towards the European Environmental Agency and CLRTAP.

In addition to inventory by SNAP methodology under the CLRTAP, inventory of substances belonging to the group of greenhouse gases (GHGs) is also performed in the country, in accordance with the United Nations Framework Convention on Climate Change (UNFCCC).

In relation to UNFCCC, using the methodology of the Intergovernmental Panel of Climate Change (IPCC), the Second National Communication on Climate Change has been produced, including GHGs inventory by 2002.

The system of Pollutant Release and Transfer Register (PRTR) has not been established in the country yet.

For more details, please use the following links:

[www.moep.gov.mk](http://www.moep.gov.mk)

[www.unfccc.org.mk](http://www.unfccc.org.mk)

[http://unfccc.int/ghg\\_data/ghg\\_data\\_non\\_unfccc/items/3170.php](http://unfccc.int/ghg_data/ghg_data_non_unfccc/items/3170.php)

[http://cdr.eionet.europa.eu/mk/un/UNECE\\_CLRTAP\\_MK](http://cdr.eionet.europa.eu/mk/un/UNECE_CLRTAP_MK)

<http://cdr.eionet.europa.eu/mk/un/unfccc/envre5zaw>

### **Air quality monitoring**

Air quality monitoring is performed by 3 institutions: the Republic Institute for Health Protection, the Hydrometeorological Administration and the Ministry of Environment and Physical Planning.

The Hydrometeorological Administration<sup>1</sup> started the installation of the air quality monitoring network in 1972. At this moment, the total number of stations is 19, 18 of which are in urban areas and one in a rural area. Nine measuring points are located in Skopje. At one measurement point the measurements are done in Berovo, Bitola, Tetovo, Gevgelija, Kumanovo, Ohrid, Prilep, Stip and Veles. The measuring station in Lazaropole is background station and also part of the EMEP (European Monitoring Environment Program) network. Practically, all monitoring stations are at the same places as the meteorological stations. All stations are manual with 24 hours measurement periods, providing mean daily values. SO<sub>2</sub> and black smoke are measured on all these stations. From 1994 on 2 monitoring stations (at one station in Skopje and in Lazaropole) NO<sub>2</sub> and O<sub>3</sub> have been measured.

The Ministry of Environment and Physical Planning<sup>2</sup> is managing with the State automatic ambient air quality monitoring system which consists of 15 monitoring stations. The designing of the network started with the establishment of four automatic air quality monitoring stations in 1998 in Skopje. In 2002, three additional monitoring stations were installed in Kocani, Kumanovo and Kicevo. In 2004 the following stations were established: one additional monitoring station in Skopje (measuring air pollution caused by traffic); two monitoring stations in Veles and Bitola respectively; one in Tetovo; one in the rural environment – village of Lazaropole located at the peak of a

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<sup>1</sup> [www.meteo.gov.mk](http://www.meteo.gov.mk)

<sup>2</sup> [www.moep.gov.mk](http://www.moep.gov.mk)

mountain to monitor transboundary air pollution. We have mobile monitoring station covering urban areas for which no fixed air monitoring station has been envisaged. For the beginning the mobile station is located in Kavadarci. Almost all monitoring stations measure ecological and meteorological parameters. From among the ecological parameters SO<sub>2</sub>, NO, NO<sub>2</sub>, NO<sub>x</sub>, CO, PM<sub>10</sub>, O<sub>3</sub> are measured. The following meteorological parameters are measured: temperature, humidity, pressure, wind direction, wind speed, and global radiation. In the frame of the State automatic ambient air quality monitoring system, six low volume samplers and four high volume samplers are placed, used for measuring PM<sub>10</sub> and heavy metals in the air.

The Institutes for Health Protection<sup>3</sup> have their own air quality monitoring network. Actually, Public Health Institute in Skopje has established monitoring network for measuring the concentrations of SO<sub>2</sub> and black smoke at seven measuring points and aerosediment at 30 measuring points. CO and Lead are measured two times per year with the duration of one week at four measuring points. Public Health Institute - Veles measures SO<sub>2</sub>, black smoke and aerosediment at three measuring points in the City. Cadmium, Lead and Zink are measured continuously at one measuring point. Public Health Institutes in Kumanovo, Kocani, Tetovo, Bitola, Ohrid, Prilep and Stip monitor just aerosediment. All these stations are manual with 24 hours measurement periods, providing mean daily values.

Preliminary assessment report<sup>4</sup> has been prepared, on the bases of air quality processed data for the period 2005-2007, emission data from the Cadastre of air polluters and pollutants in the Republic of Macedonia and the CORINAIR inventory for 2004 emission data.

This preliminary assessment refers to the measured pollutants. The air quality has been assessed in the context of limit values, upper and lower assessment thresholds and long term objectives.

Depending on the air quality in relation to the assessment threshold levels and the long term objectives specified in the Daughter directives, data on population and density, two zones and one agglomeration have been defined.

The monitoring requirements in the daughter directives have been compared with the current station configuration and numbers of different types of stations. It was concluded that minimum requirements given in the daughter directives for the number of monitoring stations for protection of human health and ecosystem of the basic pollutants are fulfilled in each zone (Western and Eastern) and Skopje agglomeration. However, two new stations in suburban area will have to be set up for ozone, and two new stations should be set up for particulate matter and nitrogen dioxide respectively in urban background areas. These stations need to be located in areas with lower population density, e.g. with natural ecosystems, forests, far removed from urban and industrial areas and away from local emissions in order to have more accurate description of air quality.

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<sup>3</sup> [www.iph.mk](http://www.iph.mk)

<sup>4</sup> The preliminary assessment report can be found on the following web site  
[http://www.moep.gov.mk/WBStorage/Files/Preliminary%20assessment%20report\\_english%20-%20Twinning.pdf](http://www.moep.gov.mk/WBStorage/Files/Preliminary%20assessment%20report_english%20-%20Twinning.pdf)

Each year until 1 October, air quality data from the previous year (from all institutions performing air quality monitoring), are submitted to the European Topic Centre on Air and Climate Change in the DEM (Data Exchange Module) format proposed by EEA (European Environmental Agency), by NRCs for air quality or its substitute.

The data on ozone monthly and summer exceedances are processed separately in accordance with Directive 2002/3/EEC on ozone air pollution, and submitted to the European Topic Centre on Air and Climate Change by NRCs for air quality. Monthly data (information on the exceedance of alert thresholds) is reported before the end of the following month. Summer data (summer reference period is 01/04 - 30/09) is reported no later than 31 October.

The delivery of air quality data started in 1999 with the EoI and ozone data. In the beginning the data was sent through e-mail, via FTP, and now the data is delivered using CDR.<sup>5</sup>

### **Water monitoring**

The general river monitoring strategy in the country is based on international experience and modern concepts. The River Monitoring System Project (RIMSYS), a cooperation project with Switzerland, is designed to revitalize the 40 year old national river monitoring system in Macedonia. The project objectives are to establish good operating practices in the areas of water discharge measurement, water sampling, chemical analysis, and the processing and publishing of the monitoring data. RIMSYS is a prerequisite for the implementation of future water management strategies and measures for water protection.

An essential element of RIMSYS is the reconstruction and revitalisation of part of the existing national measurement and monitoring network. The river monitoring procedure involves two distinct chains of action: water discharge measurement (with sensors installed at the stations) and water quality measurements (with sensors at the stations and/or water sampling with subsequent analysis in the laboratory). The outputs from these two chains are combined into load calculation and joint data processing and management.

An essential part of a modern monitoring system is a reliable and flexible data management system. To cover the needs of the Hydrometeorological Service within Rimsys the hydrological data management system HydroPro was implemented.

[www.moep.gov.mk](http://www.moep.gov.mk)

[www.meteo.gov.mk](http://www.meteo.gov.mk)

### **Monitoring of Surface Water Resources**

#### **Hydrology**

Initial sporadic meteorological measurements and observation in the country commenced in Skopje in 1981. Organized systematic hydro-meteorological measurements and monitoring started in 1920's, when network of meteorological and

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<sup>5</sup> <http://cdr.eionet.europa.eu/mk/eu>

hydrological stations was established. Presently, surface water resources are monitored at 110 gauging stations and 115 measuring points are used to monitor the groundwater. Hydrometeorological Administration (HMA) is performing the monitoring of the surface and groundwater quantities.

At 54 gauging stations on rivers, discharge and water level are monitored (45 stations in River Vardar Basin, 9 in River Crn Drim basin, 3 stations in River Strumica basin). On each of the three natural lakes: Ohrid, Prespa and Dojran there is one gauging station for monitoring the water level.

[www.moep.gov.mk](http://www.moep.gov.mk)

[www.meteo.gov.mk](http://www.meteo.gov.mk)

### **Water Quality Monitoring**

Surface water quality monitoring is performed by Hydrometeorologica Administration (HMA). Monitoring covers a network of 20 measuring points located on rivers, lakes and reservoirs. Analyses are performed 12 (8) times per year (on monthly base). Quality control comprises analysis of physical-chemical, toxic-chemical, and saprobiological parameters. This is the full list of analyzed parameters: Ph value, visible waste substances, considerable smell, colour, dissolved oxygen, saturation with oxygen, BOD, permanganate index, rate of biological productivity, total soluble substances, total suspended substances, ammonium ion, nitrates, nitrates of iron, lead, zinc, cadmium, chrome Cr+6, specific indicators, indicators of oxygenic regime, indicators of mineralization, toxicity of chemical compounds, most probable number of coliform bacteria, radioactivity, quality of water proscribed by law and total quality assessment obtained from the water analyses.

Water quality monitoring of lakes Ohrid, Prespa and Dojran regarding physical-chemical parameters and bacteriological is performed by the Republic Health Institute, while detailed monitoring of physicochemical and microbiological parameters of the lakes Ohrid and Prespa are performed by Hydrobiological Institute from Ohrid.

Hydrobiological Institute from Ohrid is responsible institution for monitoring of Ohrid and Prespa Lakes, but also for their tributaries. In the framework of the Ohrid Lake Conservation Project, Monitoring programme was established with ten primary sampling stations on Lakes Ohrid and Prespa. Additional sampling locations were established at the mouths of the rivers into the lakes, along the shoreline, and in the littoral zone to investigate the pollution entering the lake.

[www.moep.gov.mk](http://www.moep.gov.mk)

[www.meteo.gov.mk](http://www.meteo.gov.mk)

[www.rzzz.gov.mk](http://www.rzzz.gov.mk)

[www.hio.edu.mk](http://www.hio.edu.mk)

### **Monitoring of Groundwater – quantity and quality**

Monitoring of the ground water started in 1949 in Skopje and its surrounding, while in 1979 groundwater quality monitoring started on 20-30 sample points in the same region. In that period, with the same applied methodology, groundwater in Pelagonija, Polog and Strumica was monitored at 10 sampling points in each region. Due to budget reduction, this monitoring process was terminated. Out of 115 piezometric pipes installed, only 30 are still functioning.

Unfortunately, there is no systematic quantity and quality monitoring of the groundwater. This area is the weakest point in the national monitoring system. Groundwater is very important due to links between surface and ground, especially in karst areas and alluvium area along the riverbeds.

[www.moepp.gov.mk](http://www.moepp.gov.mk)

[www.meteo.gov.mk](http://www.meteo.gov.mk)

### **Emission to water**

The country does not have an established network able to quantify emission to water in precise areas. Data on point sources (domestic waste water, industries, farms, hospitals etc.) are collected in national cadastre database. Unfortunately, this data is not updated regularly. Data on diffuse sources (agriculture, atmospheric deposition, etc.) is still not calculated. There is no standard emission monitoring programme so far. Nevertheless, the national pollutant release and transfer register (PRTR) will be implemented to the end of 2010, and we expected the situation to improve.

[www.moepp.gov.mk](http://www.moepp.gov.mk)

### **Soil**

Permanent monitoring, which means systematized measurement, monitoring and control of the state, quality and changes in the soil as environmental media in the does not exist.<sup>6</sup>

The monitoring of the state of the soil concerning certain heavy metals, was carried out in the Municipality of Veles in the course of 2004 and 2005, as one of the most endangered and most contaminated areas in the country, due to the long operation of the Lead and Zinc Smelter. Such monitoring was conducted by the Institute for Health Protection in Veles.<sup>7</sup>

In the area of monitoring of soil degradation and protection, we should mention the Project National Waste Management Plan and Feasibility Study, financed by the European Union and implemented through European Agency for Reconstruction. In the framework of this project, a Case Study was developed on Industrial Contaminated Hot-spots, where based on certain parameters, examinations and application of algorithm, hot-spots have been ranked by the risk they pose to environment and human health.<sup>8</sup>

The second project carried out with the donation provided by the Japan Agency for International Cooperation (JICA) is the Study on capacity building in the management of pollution related to mining. This Project provides detailed analyses of soil with regard to the presence of heavy metals as pollutants produced by mining activities in the eastern part of the country in the area of 201.5 km<sup>2</sup>, as well as capacity building in mining related pollution management.<sup>9</sup>

Macedonian Environmental Information Centre within the Ministry of Environment and Physical Planning is responsible for collection of data and information related to any

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<sup>6</sup> National Environmental Action Plan 2 of Republic of Macedonia, 2006. Ministry of Environment and Physical Planning.

<sup>7</sup> Annual report for the state and quality of environment in Republic of Macedonia, 2005. Ministry of Environment and Physical Planning.

<sup>8</sup> Special study E, Industrial Contaminated Sites (hotspots), 2005. National waste management plan and feasibility studies, European Agency for Reconstruction.

<sup>9</sup> JICA-Mitsubishi materials natural resources development corporation, December 2007, The Study on capacity development for soil contamination management related to mining in the Republic of Macedonia, Final report-Summary.

way of soil degradation and contamination, land use change, erosion, salination, organic matter decline, etc. Such data is processed and annual reports are published, different indicators are developed and public is informed on the state of the soil as environmental medium. Data and information of the Macedonian Environmental Information Centre originate from certain published papers, mainly as scientific works and books of individual authors or group of authors, measurements from some institutions in agriculture, forestry and water economy, as well as established environmental statistics.

There has been an increasingly recognized need to adopt appropriate law to regulate soil from several points of view, as environmental medium. It is necessary to establish the maximum permissible concentrations in soils for different purposes, with regard to heavy metals, certain substances as pesticides, polycyclic aromatic hydrocarbons, halogen hydrocarbons, etc.<sup>12</sup>

According to the current legislation, as well as to the forthcoming new legislation, there is an evident need for establishment of permanent monitoring of the soil, with an accent on areas with highest contamination of the soil.<sup>12</sup>

[www.moepp.gov.mk/default-en.asp?ItemID=5975722FD8B5534FBBA2DF27961DA8FA](http://www.moepp.gov.mk/default-en.asp?ItemID=5975722FD8B5534FBBA2DF27961DA8FA)  
[www.moepp.gov.mk/WBStorage/Files/Годишен%20извештај%20за%202005%20година-почва.pdf](http://www.moepp.gov.mk/WBStorage/Files/Годишен%20извештај%20за%202005%20година-почва.pdf)  
[www.moepp.gov.mk/default-mk.asp?ItemID=8055DB3E25CA794088C9C58E64F65D9F](http://www.moepp.gov.mk/default-mk.asp?ItemID=8055DB3E25CA794088C9C58E64F65D9F)

## **Waste**

The implementation and maintenance of a data collection/monitoring system shall cover data on the sources, nature, quantities and fate of waste, the main information on facilities for recovery, recycling and energy utilization of constituents of individual waste streams and Information on final disposal facilities.

According to legislation the municipalities and Ministry of Environment and Physical Planning have to receive yearly reports from legal and natural persons holder of waste about accepted waste and produced waste (origin, type, quantity, treatment), transferred waste (type, quantity, to whom). Also Ministry of Environment and Physical Planning has to receive yearly reports from mayors of municipalities about transported municipal and non-hazardous waste, disposed municipal, non-hazardous, and disposed inert waste. The municipalities and Ministry of Environment and Physical Planning have to receive yearly reports from landfills about accepted municipal, non-hazardous, and inert waste, general data for the landfills and accepted steps in the activity of landfills.

The Ministry of Environment and Physical Planning is also responsible for organization of an effective solid waste management system for hazardous waste, monitoring, data collection/handling, inspection.<sup>10</sup>

The main objective referred on waste statistics at State Statistical Office is to meet Waste Statistics Regulation 2150/2002 and national requirements on: generated, treated, received and delivered waste.

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<sup>10</sup> Cvetkovska M., Panovska V., Situation in the Republic of Macedonia regarding waste data and implementation of waste data collection systems, West Balkan workshop on waste, EEA, Copenhagen, 2008.

### **Corine land Cover**

The comprehensive and detailed data about the state of and the changes in land cover and land use are essential for any regional planning, environmental protection, agriculture and forestry, science and research.

For such purposes, the CORINE Land Cover project, as a part of bigger CORINE programme, provides consistent localized geographical information on the land cover of the European countries through creating of the CORINE Land Cover (CLC) databases.

This data is provided by photo-interpretation of satellite images according to the common nomenclature on the European level.

The CLC2006 project is implemented in the frames of the CARDS programme.

The country disposes only one CLC inventory which was completed in 2000 year, based on the images of 1995-1996 year. However, this data set was accepted as CLC2000 for the purpose of CLC2006 project.

The CLC2006 project's objective is to provide information about land cover changes during the period 2000 – 2006 years, as well as land cover maps for the reference year 2006 (CLC2006).

The CLC2006 project implementation in the country started in September 2007 and was completed in November 2008.

In accordance with the “EEA Project Implementation Plan, GMES Land FTS 2006-2008 reference document”, the CLC2006 project in the country delivered the following products:

- Corine land cover changes 2000-2006 (including metadata) and
- Corine land cover map 2006 (including metadata).

### **Noise**

The Law on Protection against Environmental Noise adopted in 2007 has established the legal basis for environmental noise management. The Law has transposed Directive 2002/49/EC of the European Parliament and of the Council of 25 June 2002 on environmental noise assessment and management, fulfilling the main recommendations and requirements of the European Union in the area of environmental noise. It also provides the legal basis for adoption of the bylaws by way of which the remained EU *acquis* in the area of noise will be transposed.

In the course of 2008, on the basis of the said Law, several bylaws were adopted; full implementation of the provisions of the Law requires adoption of the remained bylaws.

MEPP is the responsible body for the area of noise, especially for the Law on Protection against Environmental Noise implementation and enforcement, including bylaws adopted on the basis of the Law. Certain responsibilities in noise management also belong to the State Sanitary and Health Inspectorate within the Ministry of Health, concerning noise control from health protection point of view, Ministry of Economy concerning control of the noise generated by products and LSGUs concerning the noise generated by catering, artisan and tourist activities.

With regard to noise monitoring, MEPP collects and processes data from the measurement of environmental noise performed by the Republic Institute for Health Protection and the 10 regional institutes for health protection, as well as measurements conducted by the Central Laboratory within the MEPP related to different types of noise generated by different categories of noise generators (industry, airports, catering and tourist facilities and other activities).

For the purpose of providing integrated system of noise monitoring, activities will be initiated towards analyses of all noise monitoring stations existing in the country in order to establish the State noise monitoring network and adopt the Programme for its operation. Based on data from existing noise monitoring stations, activities will be initiated to determine the agglomerations and areas for which strategic noise maps need to be developed.

### **Nature and biodiversity monitoring**

Continuous monitoring of natural heritage and biodiversity has not been established yet. Under the Law on Nature Protection, the Ministry of Environment and Physical Planning is obliged to monitor and organize the monitoring of the status of nature. The monitoring of nature protection includes: measurement, monitoring, assessment and control of the state of species, their habitats, habitat types and environmentally important areas. Methodology for monitoring performance and National monitoring programme need to be adopted.

At national level, state and scientific institutions perform activities by which partial investigations of the state of individual components of biodiversity and geodiversity are carried out.

In terms of biodiversity, monitoring is performed with regard to Balkan lynx (*Lynx lynx martinoi*) within National Parks Mavrovo, Pelister and Galicica, determination of biocorridors for the brown bear (*Ursus arctos*), monitoring of common birds and birds of prey in several ornithological sites in Macedonia, as well as monitoring of Prespa trout (*Salmo peristericus*) in Prespa region and parts of the National Park Pelister.

Within the activities of the Ministry of Environment and Physical Planning, Macedonian Environmental Information Centre (MEIC), in 2008, issued the publication National Environmental Indicators, including three indicators of nature and biological diversity protection, namely: Indicators of protected areas, species diversity and endangered and protected species. The material is of applicative nature in terms of monitoring of protected areas and biodiversity.

<http://www.moep.gov.mk/default-MK.asp?ItemID=541BCF18DD207C43ACFD982BC5DFA099>

## **B. IMPROVEMENT OF DATA MANAGEMENT AND USE OF DATA IN DECISION-MAKING**

Macedonian Environmental Information Center (MEIC) as a part of the Ministry of Environment and Physical Planning (MEPP) has a basic function of environmental data management. In this context, it regards the development of the NEIS is continuous process.

A number of important **shortcomings** have been identified as:

- The institutions manage with a large amount of small, mutually unconnected and unsynchronized databases, inadequate for fulfilling wider needs and requests.
- No predefined and established criteria and standards for the design of the information systems and unreliability of the data management methods used by different institutions or in the frame of the same institutions that results with creation of mutually independent and incompatible information system.
- Coordination and cooperation between the relevant institutions is not on the satisfying level
- Development of monitoring networks (ground water, soil, noise, waste) is necessary
- There is no agreed format/transport standard for submitting environmental data to the MEIC from the data collectors (different formats, paper)
- “Locked in” database
- There is no real-time access of data via the internet.

**Future steps** to be considered as significant priorities include:

- Establishment of environmental data and metadata standards and repositories;
- Legal and technical standards, to regulate methodologies and procedures in the creation, access, protection and uniformity of environmental information in the related institutions and the Country as a whole;
- Preparation of appropriate secondary legislation on different environmental areas related to the data acquisition and sharing between the MEPP and other stakeholders;
- Further development of the web interface that will allow data access via internet in real time that includes import of spatial data that enables GIS integration.
- Development of web applicative solutions that will integrate the central database with digital vector GIS data
- Establishment of the National Environmental Database in the MEPP, with appropriate application modules, that will enable:
  - Automated and standardized data gathering;
  - Automated data validation.

As a general conclusion, it should be noted that the country has made significant advances in the cooperation with the European Environmental Agency, as well as in the

development of its environmental information system on national level. However, there is vast room for further improvements and upgrades aimed at reaching the EU standards and performance levels in the domain of information and reporting, as well as serving the citizens better in the same domain.

### **C. PUBLICATION OF ENVIRONMENTAL INDICATORS AND INDICATOR-BASED ASSESSMENTS**

#### **Indicator reports**

Preparation of the SOER, Indicators report and Annual Report is legal obligation stipulated in Article 45 of the Law on Environment, adopted in 2005. Based on this Law, the Rulebook on the content of the State of Environment Report was adopted in 2006.

According to the Law and Rulebook mentioned earlier, Macedonian Environmental Information Centre, Department of the Ministry of Environment and Physical Planning, is responsible for the development of the state of environment reports and reports on environmental trends. The dynamics of environmental reports preparation is as follows:

- **Annual Report on all environmental media - yearly**

MEIC prepares annual reports on the basis of processed data on all environmental media. Hard copy reports are submitted to RIHP, HMA and LSGUs. Official reports are available in the Department for Public Relations for various stakeholders and on the Ministry Web Portal.

<http://www.moepp.gov.mk/default-mk.asp?ItemID=84F1C8FBC7AC644E9546F523C7B81FBC>

- **Monthly and Daily Report**

Monthly reports are prepared only of air quality data generated by the State automatic ambient air quality monitoring system.

<http://www.moepp.gov.mk/default-mk.asp?ItemID=37E19F21B530D44B82C0FEA04DDCC733>

MEIC delivers general information on the air pollution obtained from the State automatic ambient air quality monitoring system to the City Information and Warning Centre and Department of Environment of the City of Skopje on daily basis.

- **Indicators report - every second year**

The need to initiate the process of identification of national set of indicators, taking into account the recommended core set of indicators of the European Environmental Agency, as well as indicators specific to the country, has been recognized in the country.

The establishment and the development of environmental indicators were based on the need to identify, in the first phase, the indicators of relevance for environmental state monitoring and policy making. These indicators should respond to the key issues necessary for the development of environmental policy on national level.

The first phase included development of Environmental Indicators in Western Balkans countries in line with the Core Set of Indicators. Under the CARDS Regional Program 2002, with the support by the EEA, the country identified 11 indicators and prepared fact sheets on them. During the second phase, the Draft Set of national environmental indicators was developed.

Each indicator is presented by a fact sheet on the indicator, prepared in accordance with the template adopted by the EEA. In this phase, total of 26 indicators was identified.

During the third phase, the Draft Environmental Indicators were verified and updated by the established working groups. The forty indicators were completed during this phase and the Government adopted them in July 2008.

For the development of the Environmental indicators, responsible body is MEPP and for the report adoption and approval is the Government.

<http://www.moep.gov.mk/default-MK.asp?ItemID=541BCF18DD207C43ACFD982BC5DFA099>

- **Environmental statistic - every second year**

In 2007, MEIC, together with the State Statistical Office, in the frames of the project for environmental statistics development in Western Balkan countries, produced publication titled Environmental Statistics available in hard and electronic version.

The publication will be issued regularly every second year. The next issue should be published by the end of 2009.

[http://www.moep.gov.mk/WBStorage/Files/Zivotna%20sredina\\_Environmental%20statistics.pdf](http://www.moep.gov.mk/WBStorage/Files/Zivotna%20sredina_Environmental%20statistics.pdf)

## **SOER**

According to the Law on Environment State of Environment Report should be produced every fourth year. The Rulebook on the content of the State of Environment Report was prepared in accordance with the Guidelines for the preparation of National SOE Reports prepared by UNECE. At present, this Rulebook is amended and supplemented by the form, methodology and manner of SOER development.

So far, MEIC has produced two SoERs, available only in electronic form: SOER, 1998 and SOER 2000.

According to the Work Programme, the next SOER should be published in 2011.

<http://www.moep.gov.mk/default-MK.asp?ItemID=541BCF18DD207C43ACFD982BC5DFA099>

<http://www.moep.gov.mk/default-mk.asp?ItemID=C46BA6F1C0C4804491B46A339AB69932>