

Macedonia – Country Report



The Ministry of Environment and Physical Planning and the Macedonian Environmental Information Centre are the government authorities primarily responsible for the collection, storage and dissemination of environmental information. The Centre is divided into two units: the Environmental Information System and the Public Relations Office. Its legal basis is the Law of 2000 on Environment and Nature Protection and Promotion, which mandates the existence and modus operandi of an environmental information system, ensuring the monitoring of the environment, and the public's right to the resulting information.

1. Key Findings

- Air and water quality monitoring is well developed but no systematic approach exists for data management, with much manual retyping taking place centrally;
- A Public Relations Office ensures broad distribution of information via different mechanisms, although decisionmakers' use is limited by data gaps;
- In 2001, 75 percent of NGOs felt authorities were not responding to requests satisfactorily. In 2003, 95 percent positively rated the ministry's provision of information, but requested better access to official documents via the Web.
- Among the future priorities, expanding the monitoring networks, building a relational database management system, and institutionalising procedures for information exchange and reporting are highlighted.

2. Current Status of Environmental Information Systems

Data Collection and Management

The national monitoring network covers air and water. Air quality monitoring is performed chiefly by the environment ministry, the Hydro-Meteorological Administration, Republic and City Health Protection Institutes. The "Automatic Air Pollution Monitoring System" of the environment ministry transmits average data every hour for CO, SO₂, NO, NO₂, NO_x, SPM, PM₁₀ and O₃ via modem from seven monitoring stations (four in Skopje and one each in Kumanovo, Kochani and Kichevo) to the environmental information centre. The Hydro-Meteorological Administration manages 19 air quality monitoring stations (18 of which are in urban areas), providing mean daily values of SO₂ and black smoke. It is integrated into the European Monitoring Environment Program network. The Republic and City Health Protection Institutes monitor the concentration of SO₂ and smoke in 7 Skopje locations every 24 hours; and carbon monoxide twice every seven days during spring

and autumn. Concentrations of trace metals (Fe, Mn, Cu, Zn, Pb, Cd, Co, Ni, Cr, Sr) are monitored around the Skopje smelting plant, besides dust and lead. In Veles and Tetovo, concentrations of SO₂ and smoke are extensively measured also.

With respect to surface water quality assessment, the Hydro-Meteorological Administration manages 110 manual monitoring stations throughout the country, though less than 50 percent are operational due to financial constraints. Its "River Monitoring System" includes two automatic stations (in Taor and Demir Kapija) and 18 manual stations. Monitoring networks for groundwater, soil quality, noise levels, and biodiversity exist, but their geographic coverage is limited. Biodiversity data is supplied to the CORINE (Coordinated Information on the Environment) Biotopes programme in Dbase format; land cover data (also for CORINE) is available in MapInfo format. Furthermore, a polluters' register is being developed by the Institute for Civil Engineering, and will be published following verification.

There is no systematic approach to data management for either air or water quality data. All data is received on paper or in annual reports, and manually retyped into different databases or Excel files by the environmental information centre. The EUROWATERNET model is used for water quality data collection and processing, after which it is forwarded to the European Environment Agency (using CIRCA software), and imported in a number of databases known collectively as WATERBASE. Besides CORINE, there is limited state of the environment reporting according to EU indicators and standards, and limited use of the available data by decisionmakers in the context of policy planning.

Interagency Cooperation

Nevertheless, the exchange of this data between government agencies with responsibility toward the environment is called for by the abovementioned law and as environment becomes a cross-sectoral issue, a variety of other ministries are beginning to utilise the environmental information centre's data and products in their work. The Ministry of Agriculture, Forestry and Water Economy; the Ministry of Transport and Communications; and the Ministry of Education and Science for instance, in the development and application of curricula.

Generally, however, tangible cooperation between all institutes with an interest in environment remains limited and uncoordinated. The most systematic attempt to ensure a common understanding and informational basis for policymaking is the Statistical Bureau of the Republic of Macedonia, which regularly collects environment and other related information (e.g. traffic data, CO₂ data based on fuel consumption etc.) and shares it among relevant ministries. It does this through weekly, monthly and annual reports, and via special reports as events dictate.

Public Accessibility

The Public Relations Office is responsible for providing accurate, timely and transparent information to the public on the state of the environment and for promoting cooperation between the environment ministry and its constituents. Annual reports based on air, water and noise quality monitoring data are published by the environment ministry along with monthly reports in softcopy and hardcopy regarding air quality for the cities of Skopje, Kichevo, Kumanovo and Kochani. These are

shared by the office with all interested parties, and typically made available via e-mail and in hardcopy format. The same reports are also made available via the environment ministry website, which the information centre maintains at:

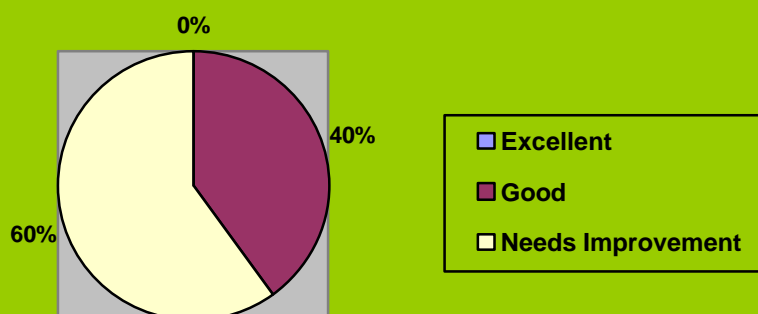
<<http://www.moe.gov.mk>>. Because access to the Internet is low in Macedonia, the Public Relations Office offers free access from its premises.

Individuals (including the business sector) may submit requests for specific information including opinions, permits etc. With few exceptions, the centre (and any other government institution) must provide environmental information in a timely fashion, generally within one month, free of charge. Other channels through which the office disseminates information include own brochures and posters, videos for students, manuals and work books for use by teachers, and press releases. Public hearings and consultations with the public are important during decisionmaking processes to receive feedback on environmental issues from the constituents.

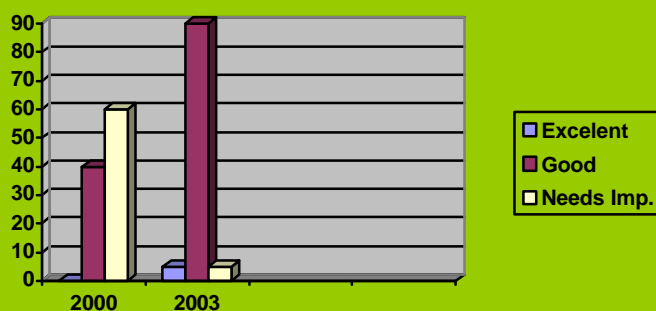
Other agencies responsible for environmental monitoring also publish their own data: the Hydro-Meteorological Institute issues monthly and annual reports containing water and air quality monitoring data. The Republic Health Protection Institute publishes a national annual report on air and ionizing radiation levels as well as water. City health protection institutes publish monthly data on air quality and water. The Hydrobiological Institute of Ohrid issues monthly and annual reports on the monitoring results for Ohrid and Prespa Lakes.

What NGOs had to say about the usefulness, accessibility, and reliability of official environmental information

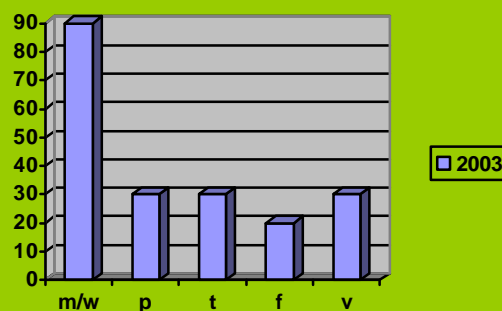
NGOs depend on government bodies for current and reliable environmental information. There are approximately 150 environmental NGOs in Macedonia, out of which 70 are active and frequently request information. Of the NGOs interviewed for this survey, all request information from the environment ministry or other relevant agencies, and do so on average nine times per year. In 2001, 75 percent of NGOs felt, however, that the authorities were not fulfilling these requests satisfactorily (see pie chart below). Twenty five percent stated that responses never arrive, while 15 percent indicated they have been denied information, sometimes without reason, but typically because of either a lack of available data, because the wrong ministry had been contacted, or because the information was classified. On a positive note, 25 percent of the NGOs surveyed said that responses were generally provided in time, and one NGO noted the importance of personal contact in acquiring information.



When invited to comment in 2003 regarding the quantity, currency, and presentation of environmental information and its dissemination by the environmental information centre, NGOs were far more positive, as shown in the chart below. Ninety five percent indicated they were satisfied with the range of topics and documentation, but also requested better opportunity to access legislation, regulations, contact information, annual and environment impact assessment reports, especially via the Web. A number of NGOs noted, however, that not all information is made publicly available (e.g. concerning pollutant emissions), even when required by law. NGOs also stressed the importance of regularly updated information, not only for NGOs benefit but also for ensuring synergy between government initiatives.



Concerning the methods used to request environmental information, the following chart shows NGOs requested environmental information from ministries in a variety of ways, most commonly by email/web (90 percent). All other means were also used by 20-30 percent of respondents. For the future, NGOs indicated their wish to be able to access and receive information via email, web and fax.



3. Obstacles and Challenges for the Future

The environment ministry, having been established at the end of nineteen nineties, experiences problems typical to any young organisation.

Although most institutions and companies are equipped with hardware resources and have Internet access, most of the data exchange and reporting is done on paper.

First, the distribution of responsibilities between various ministries and institutions has not been fully clarified (despite the Law on Environment and Nature Protection and Promotion). This results in overlap in responsibilities and the continuation of traditionally practices e.g. paper-based data collection and analysis which is time-consuming and inefficient. In past years, priorities have rested elsewhere and insufficient coordination among the relevant ministries and institutions has resulted in limited progress.

Second, the limited budget from which the ministry operates prevents it from hiring a sufficient number of employees, well-trained in developing and maintaining environmental information systems and dealing with modern information technology. Limited resources also prevent the acquisition of much needed equipment for publishing and necessary software for data management. These constraints result in high staff turnover, which constantly hinders progress and the implementation of any new initiatives.

Third, there are gaps in the environmental monitoring network, both geographically and in terms of the elements assessed (groundwaters, soils, biodiversity). At the same time, industry also lacks (and will for the foreseeable future) the necessary equipment and expertise for self-monitoring and data reporting. Therefore a truly clear picture of the environmental situation is not available for either decisionmakers or other consumers of information.

4. Needs and Priorities

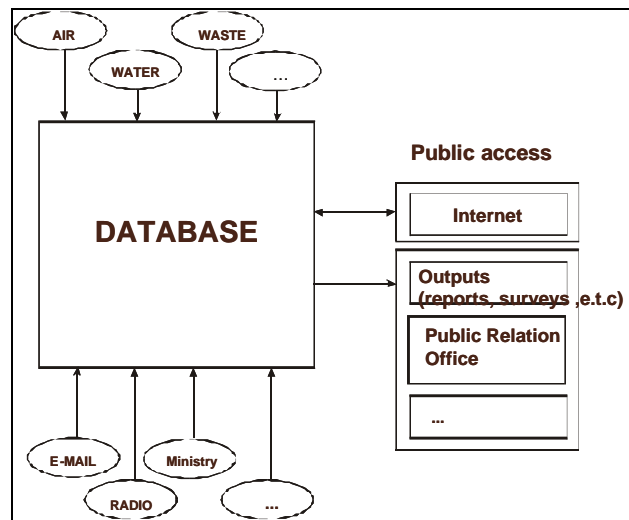
The **technical infrastructure** must be developed to ensure monitoring regimes provide adequate coverage of all key media. Of particular importance are the following:

- Vehicle emission monitoring stations as a tool for improving public traffic control;
- Groundwater and biological monitoring stations for aquatic flora and fauna;
- Soil quality and fertility monitoring networks, and stubble-burning assessment mechanisms; and
- Tools for frequent noise monitoring in larger cities.

Hardware and software development is required, including acquisition of computer workstations and printers to maintain, manipulate and publish data sets. A centralised database management system and programme is also required to store and manage the diverse structured and non-structured forms of environmental information received.

Channels for the flow of geo-coded information into a single **Relational Database**

Management System (see diagram below) should be defined. Such a system should be enhanced through an Internet/Intranet-based interface application for both information deposit and retrieval via the Web. This would enable the environmental information centre to realise its legal obligation to maintain a centralised database of relevant, properly processed (systematized and standardized), comprehensive, accurate, transparent and publicly accessible collection of information on the state of the environment (encompassing water, air, soil, noise, ionizing and non-ionizing radiation and the state of Macedonia's natural heritage).



Concept for a fully integrated
Relational Environmental Database Management System

Institutional strengthening is necessary and can be achieved through the establishment of an inter-sectoral group of experts to **coordinate and plan** the future development of the environmental information system and to avoid institutional overlaps. A formal inventory of all data collected on environmental pollution will assist in mapping the proper intra and inter-sectoral data collection and management processes, and defining **methodologies** for environmental data collection to be applied by the relevant agencies (e.g. the type, manner, format and time-line of data submission and reporting). Practices must be standardised and should reflect those set in international legislation (the Aarhus Convention¹) and EU legislation on Access to Environmental Information; on reporting (91/692/EC), and those standards applied by the European Environmental Agency. For this, the law on Environment and Nature Protection and Promotion should be supplemented, or a separate “book of” **regulations** developed.

The quality and range of **environmental reports and information products** produced by the centre should be improved. At the same time, the means used to distribute them should ensure they become more accessible to the general public. A central environmental database will enable the provision of constantly updated data via the environment ministry's website (see diagram above). This will enable increased public awareness, and a positive behavioural change (of both private citizens

¹ UNECE Convention on Access to Information, Public Participation in Decision-making and Access to Justice in Environmental Matters

and industry), realised within the framework of a long-term plan for education, and effective, coordinated public relations campaigns.

Macedonia's **international cooperation** with organisations and other governments occurs on a variety of projects. There is, however, room to further strengthen regional cooperation, which in turn can help boost expertise, while retain staff. Cooperation with donor countries is still very important for leveraging foreign assistance, which can help subsidise key services.

Further details on priorities and actions as foreseen within the National Action Plan are detailed overleaf.

Macedonia – Action Plan for National Environmental Information System Development

(prepared by Svetlana Gjorgjeva, Environmental Information Centre, Metodija Sazdov, NGO representative, Zlatko Samardziev, REC Country Office)

| PRIORITY NEEDS | CURRENT STATUS | FORESEEN ACTIONS | EXPECTED BENEFITS | INDICATORS OF SUCCESS | REQUIRED RESOURCES | MATCHING RESOURCES | TIMELINE |
|----------------------------------------------------------------------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|----------------------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|--------------------------------------------------------------------------------------------------------------------------------|------------------------------------------|-------------------------------------------------------------------------------------------------|
| Institutional establishment of the environmental information system | Sound legal basis, but fragmented monitoring networks, varied data sets, and disparate environmental reporting, a result of limited coordination | <p>Establish intersectoral working group to inventory current practice, define new standards, methodologies</p> <p>Launch an operational system for data processing</p> <p>Eliminate hard copy state of environment reporting</p> | <p>Better cooperation on data flow</p> <p>Quicker provision of information to all stakeholders</p> | <p>Completed inventory</p> <p>New standards, methodologies defined</p> <p>Operational system for data processing, leading to more timely provision of useful information</p> | <p>Well trained personnel</p> <p>Computer equipment and software for collection/ storage/ publishing of environmental data</p> | REReP 1.8 | 2002 |
| Legal framework | Legal basis exists, but specific regulations on collection, reporting, responsibilities have not been drafted | <p>Harmonize a. with necessary EU directives & b. EEA reporting standards</p> <p>Adopt secondary regulations regarding collection and management processes</p> <p>Implement the Aarhus Convention</p> | More effective environmental reporting | <p>Adoption of new legislation</p> <p>Compliance with national, international reporting obligations</p> | Technical assistance during drafting | Other donors | <p>a. within 6 months (2002)</p> <p>b. 2002</p> |
| Data collection and management | <p>Incomplete national monitoring network in all media</p> <p>No vehicle emission, aquatic flora and fauna, or noise monitoring systems</p> <p>Disparate format of</p> | <p>Establish new monitoring and measurement stations to enhance geographic and thematic coverage</p> <p>Harmonise data collection formats, and processing standards</p> <p>Purchase new relational database management system for storing</p> | More complete and integrated data sets and comprehensive picture regarding environmental situation | <p>New monitoring stations established</p> <p>Common procedures for data processing</p> <p>Availability of accurate and timely data in an easy to manipulate format</p> <p>Comprehensive database</p> | Financial resources | REReP 1.6 and other international donors | <p>2002-2005 for improvements to existing monitoring systems</p> <p>2002-2008 for new media</p> |

| | | | | | | | |
|---------------------------------------------------------|--------------------------------------------------------------------------------------------------------------------------------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------|--------------------------------------------------------------------------------------------------------------------------------|------------------------------------------------------------------|---------|
| | reported data, some in hardcopy | all data | | of relevant data | | | |
| Information dissemination | All available information is published in hardcopy and online but significant gaps exist Information disseminated upon user request | Produce targeted reports of relevance and usefulness to end-users Provide access to environmental data in hard copy via a library Improve quality of responses to requests Improve access via the Web Purchase printing/publishing equipment | Wider availability of useful information according to user's interests Increased public awareness and involvement in decisionmaking Implementation of Aarhus Convention | Satisfied end-users Comprehensive resource library established Popularity of available sources Compliance with the Aarhus Convention | Maintenance of the national internet portal | RERePs 1.15 and 2.2(1) | Ongoing |
| Use of information in policy and decision-making | Very little currently owing to reporting gaps | Adopt policy indexed indicator-based reporting practices Increase environmental awareness of authorities through useful reporting Host public hearings to ensure participatory assessment | Greater consideration of environmental issues and policy progress Environmentally sound policies and decisions Local implementation of the Aarhus Convention | Regular indicator-based report (annual) Regular (annual) public hearings Compliance with the Aarhus Convention | Round-tables/public meetings on environmental topics of interest Experts on public hearings Publishing expertise | REReP 2.2.(1), Dept. for EU Integration of the Govt of Macedonia | Ongoing |

REReP 1.6: Continuation of Environmental Monitoring and Assessment in Bosnia and Herzegovina and FYR Macedonia and Extension to Croatia

REReP 1.7: Strengthening National Environmental Protection Agencies and their Inspectorates in the South Eastern European Region

REReP 1.8: Developing National Environmental Information Systems in the SEE Countries

REReP 1.15: Regional Environmental Information Portal for South Eastern Europe

REReP 2.2: Support Developing Strategies for Implementation of the Aarhus Convention in South Eastern Europe

REReP 2.3: Promoting Networking and Cooperation of Environmental NGOs: Establishment of Electronic Computer Networks on a National and Regional Level

Case Study on Donor Funding

Objectives

Through the generous support of the Netherlands Ministry of Foreign Affairs, seed funding was made available to significantly further develop Macedonia's environmental information system in three areas.

First, for the purchase of a **Relational Database Management System** and for the development of software to store all structured and non-structured environmental data collected and handled by the Macedonian Environmental Information Centre. Initially, the system will provide a means to manage air quality data (obtained through an expanded network of stations financed through another project and data received from other institutions and private companies), but over time will be extended to water, noise, soil, biodiversity, waste etc. World wide web interfacing will ensure multi-stakeholder access, and in time will include GIS connectivity.

Second, **hardware** was purchased including a colour plotter so as to be able to easily print brochures, posters, flyers etc. without engaging external print-houses.

Third, experts were recruited to provide **training** to environment ministry staff to improve their efficiency in the use of modern technology (LAN, Internet, Lotus Notes), and to develop their electronic communication skills (using the CIRCA extranet tool which enables geographically dispersed communities to exchange information via a private workspace on the Internet). This latter item realised a handbook in Macedonian.

Expenditures

| ITEM | SUM (Eur) |
|----------------------------------------------------|---------------|
| Computer equipment | 5,000 |
| Data management system design/Software Development | 17,860 |
| Trainings | 4,420 |
| TOTAL | 27,280 |

Benefits

Trained staff will be able to use CIRCA to share information and participate in international workgroups. In addition, the software and hardware tools enables the ministry staff to create environmental reports and brochures of high quality, rapidly upon request. In addition, the overall system will experience improvement in terms of efficient data flow. In the longer term, this is expected to improve communication between the Ministry and its constituents (including other ministries), improve data accessibility, and improve the quality of environmental decisionmaking.

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