



ENVIRONMENTAL INDICATORS  
2003



REPUBLIC OF SLOVENIA • MINISTRY OF THE ENVIRONMENT AND SPATIAL PLANNING  
ENVIRONMENTAL AGENCY OF THE REPUBLIC OF SLOVENIA

## ENVIRONMENTAL INDICATORS 2003

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# Foreword

The modern concept of working out environmental protection policies is based upon the notion of sustainable development. The latter has been gaining increasing importance both in the international community and the Member States of the European Union as a form of development bringing prosperity to future generations. It fosters the prevention and mitigation of pollution at source and emphasises sound use of natural resources as well as preservation of biodiversity. In the environmental sphere, sustainable development is understood as an interdependent relationship between the economy, infrastructure, settlement and the way of living, taking into consideration the bearing capacity of the environment and natural resources.

The basic guideline for the formation of environmental policies in Slovenia is the amended Environment Protection Act, adopted in 2004. In connection with the environmental legislation EU membership poses a great challenge for Slovenia, as it provides the right to co-determination and co-formulation of European environmental policies. As a member of the European integration process, Slovenia aspires to achieve a high level of environmental protection with regard to the principles of environment protection and preservation. Slovenia's priority tasks in this sphere also include the development of new legislation and consistent implementation of the current legislation, the encouragement of sustainable use of natural resources, the integration of environmental contents into sectoral policies, the development of new environmental technologies, the promotion of sustainable production and consumption, the proliferation of "green funds", the heightening of the awareness and strengthening of the dialogue with all stakeholders, as well as cooperation with the public sphere in the decision-making processes.

For Slovenia monitoring of the state of the environment and reporting to both domestic and international public as well as respective institutions represents a crucial novelty arising from the package of the European environmental legislation. The reporting obligation is an international exchange of environmental data and information supporting the data collection and guaranteeing access which results in the strengthening of political as well as social culture in relation to the environment. The system for reporting environmental data, monitoring the state of the environment and informing the public about environmental issues is being established at the Environmental Agency of the Republic of Slovenia (EARS), an authority within the Ministry of the Environment and Spatial Planning (MESP).

The "Environmental Indicators" report at hand has been prepared by EARS and enables the communication between the profession and public utilising modern tools – environmental indicators. Its approach is based on the assessment of the state that begins with an estimate of pressures and reasons therefor, and concludes with an illustration of the pollution effects and the efficiency of the environmental legislation, as well as an appropriate solution to the problem. Experts from the MESP and other ministries, research institutions, the Chamber of Commerce and Industry of Slovenia, and many others were involved in the preparation of the report. A couple of months ago we published the Environmental indicators 2003 in Slovenian language. With its translation we would like to present it to wider international audience. We hope to contribute to the understanding of the state and trends of the environment in Slovenia and our achievements on its improvement.

Janez Podobnik  
MINISTER FOR THE ENVIRONMENT AND SPATIAL PLANNING



The most important entry point to the information of the Environmental Agency of the Republic of Slovenia is its web site - <http://www.arso.gov.si/>. There you can find general information on the Agency and overview of its activities, showing a range of the Agency's field of work. The Catalogue of Data Sources on the Environment, accessible at <http://nfp-si.eionet.eu.int/kpv>, can be used for a quick overview of data sources available at the Agency. The Agency's 97 different data sources are presented. For some of them direct on-line connection for public access is established, other data and information can be obtained through contact persons.

Experience gained with reporting to the European Environment Agency has quantitatively and qualitatively encouraged environmental data flow between Slovenia and international institutions. The experience has enabled comparison and improvement of environmental databases as well as the reorganisation of the reporting processes at the national level and establishing a new legislation. An exchange of information between experts in Slovenia improved, as well as public access to information and data on the environment. This was recognized in Europe as an example of good practise.

Future reporting on the European level will be arranged through the new EU Reporting Framework Directive. Its main goal is to simplify reporting and harmonize reporting periods. It focuses on collecting data on EU legislation implementation,

state and trends of the environment and evaluation of EU environmental policies. Better data quality, suitability, comparability and geographical coverage is to be achieved. Reporting should be simple, user-friendly (for reporters and for the public), timely, electronic, as much as possible visual, not only textual (pictures, maps, figures, tables) and GIS supported. A transition to such a system should be gradual and should consider European Union enlargement.

The importance of the publication of data, collected primarily for regular monitoring of the state of the environment and implementation of administrative procedures in the aggregate form is presented in the publication in front of you. We are planning regular presentations of the selected environmental indicators from the Agency's databases and from other data sources available. We will continue its presentation using printed and electronic media. Messages gained through data integration and analysis, supplemented with expert opinion, are necessary support for decision makers and an integral part of public right to be informed on the state of the environment and effectiveness of environmental policies.

Silvo Žlebir, PhD

DIRECTOR GENERAL

Environmental Agency of the Republic of Slovenia



# Introduction

The “Environmental Indicators” report has been prepared in accordance with Article 106 of the Environment Protection Act (OJ RS No 41/2004). It comprises 51 environmental indicators, selected from a wider set of indicators proposed by the European Environment Agency. For the purposes of a more transparent overview, the indicators are grouped in nine thematic clusters – sections. The latter treat environmental media (e.g. water, air, etc.), environmental issues (e.g. depletion of the ozone layer and climatic changes, protection of nature and loss of biodiversity, waste generation and management) and integrated indicators under a system for the formation of sectoral policies (e.g. indicators relating to agriculture, tourism, energy and instruments of environmental policies).

## WHY ENVIRONMENTAL INDICATORS?

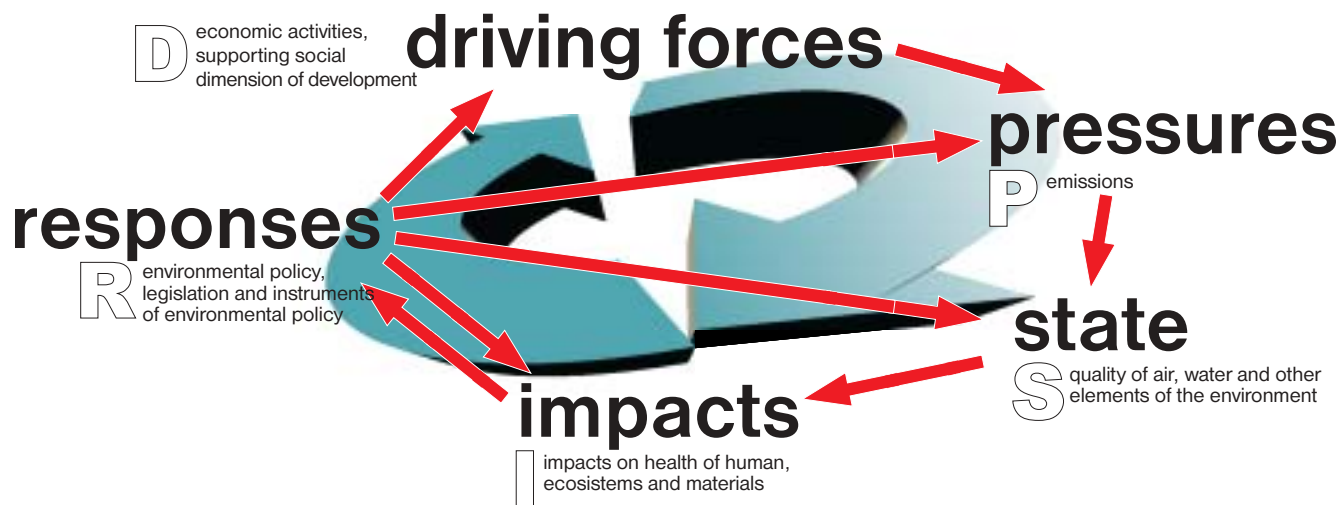
Environmental indicators are among the most applicable tools used for the purposes of environmental reporting. Based upon numerical data demonstrating the status, specific characteri-

stic or development of a certain phenomenon, they can warn of specific issues. They help us measure and determine the quantity of diverse data constituting a complete data collection. The indicators are, in fact, data that have been collected and presented in an agreed manner, with the purpose of establishing the connection between the existent data and the targets of the environmental policy. Appropriately selected indicators that are based upon an adequately extended time series of data can provide a demonstration of key trends.

## THE STRATEGY OF SELECTING ENVIRONMENTAL INDICATORS

The basis for the composition of the indicator series is the assessment framework which helps to define the functions of respective indicators. A tripartite assessment framework (Driving forces – State – Responses) relating to indicators of sustainable development was first used by the UN Commission on Sustainable Development. The European Environment Agency

Figure 1: Assessment framework as used by the European Environment Agency (European Environment Agency, 2002)



further divided it into a five-partite, so-called DPSIR Assessment Framework including the following set of concepts: Driving forces – Pressures – State – Impact – Responses, where each individual set conveys its own meaning (see Figure 1):

- **Driving forces** are a social and economic factors and activities that cause either the increase or mitigation of pressures on the environment. They may, for example, include the scope of economic, transport or tourist operations.
- **Pressures** are represented by direct anthropogenic pressures and impacts on the environment, such as pollutant emissions or the consumption of natural resources.
- **State** relates to the current state and trends of the environment that determine the level of air, water body and soil

pollution, the biodiversity of species within individual geographical regions, the availability of natural resources, such as timber and fresh water.

- **Impacts** are the effects that the environmental changes have on human and non-human health status.
- **Responses** are society's reactions to environmental issues. They may include specific State measures, such as taxes on the consumption of natural resources. Decisions made by companies and individuals, such as corporate investments into pollution control or purchase of recycled goods by households are also important.

The role of indicators within the context of the DPSIR Assessment Framework as developed by the European Environment

**Table 1: Number of indicators with respect to their roles under DPSIR and in relation to individual fields**

The role of indicator in DPSIR framework	Driving forces (D)	Pressures (P)	State (S)	Impacts (I)	Responses (R)	Total
number of indicators	6	17	13	7	8	51

Agency helps us understand the cause-and-effect and especially interdependence relationships in the environment. Their types (with respect to DPSIR) are made evident in Table 1, which contains the number of indicators showing the state of the environment in this field. Combinations of individual types of indicators enable a comprehensive understanding of individual environmental issues.

## PRESENTATION OF INDICATORS

Each indicator is determined by a **definition** providing basic information on the methodology of conducted measurements and the manner of demonstrating the indicator in question. The indicators rely on internationally verified methodologies and are thus, as a rule, internationally comparable. In their preparation we have mostly used methodological sheets for indicators

as drafted by the European Environmental Agency. Where so required by a certain phenomenon and the method of its monitoring, the accessibility of the data or any other technical factor, the EEA methodology has been adapted to conditions specific to Slovenia.

In evaluating the development of a certain phenomenon it is of crucial importance to be aware of an envisaged trend and intensity of the development. Therefore each indicator is accompanied by a **target**. As a rule, the required trends are taken from the fundamental programming document in the field of environmental protection, i.e. the National Environmental Protection Programme – NEPP (OJ RS No 83/99 and [http://www.npvo.si/osnutek/celoten\\_dokument.pdf](http://www.npvo.si/osnutek/celoten_dokument.pdf)), as well as other sectoral documents and programmes. Also taken into account are the strategic targets set by the EU and indicated in





## Symbols denoting the assessments of trends



Positive development indicating the achievement of a qualitatively or quantitatively defined target



Undefined course of development, insufficient for achieving qualitative or quantitative targets; it may also be a changeable trend within a given indicator



Unfavourable course of development

the relevant Directives, the EU's 6<sup>th</sup> Environmental Action Plan and the objectives that Slovenia has committed to by signing international treaties.

The quantitative values of a given indicator are expressed mainly in annual values for 1992-2002 and shown with **figures** and **maps**. The latter are accompanied by explanations interpreting the development and likely reasons thereof, as well as implemented and envisaged measures for enhancing or preserving the current state of the environment. Each explanation is further accompanied by a symbol providing an assessment of individual indicators. Each assessment is prepared by an author for each individual indicator and represents a "summary" of expert **assessment** of a trend with respect to presented data and set targets.

Contributing to the transparency of the applied methods of monitoring the selected indicators is the Section entitled **Data** and **sources** accompanying each indicator. In addition to the tables containing the data, this section also offers a more detailed description of the data sources used and provides further methodological notes.

Figure 2: The demonstration of selected indicators and its structure



For the purposes of preparing the "Environmental Indicators" publication numerous data were collected that was taken from the databases of both the EARS as well as sources maintained at other relevant institutions (e.g. the Statistical Office of the Republic of Slovenia, the Agency of the Republic of Slovenia for Agricultural Markets and Rural Development, the Chamber of Commerce and Industry of the Republic of Slovenia, etc.). The reports obtained through the data analysis and integration, and accompanied by expert opinions may serve as a support for decision-makers in their political deliberations. Furthermore, they may also present an integral part of the public's right to be informed on the state of the environment and the efficiency of environmental policies.

## THE FUTURE DEVELOPMENT OF INDICATORS

The development of indicators is a dynamic process that is constantly subject to updating and improvement. With regard to the experiences to date of other countries and international institutions we may claim that the indicators are sufficiently cost-effective and a useful tool for the monitoring of and repor-



ting on the state and development of environmental policies. In the future, EARS will invest great effort into enhancing the quality of input data and information, as well as into achieving comparability of the selected set of indicators with its international counterparts. Slovenia will strive towards bringing its indicators in line with the national objective of environmental protection and also towards selecting those indicators which will reflect sustainability in environmental dimensions of Slovenia's development.

It is our hope and wish that the "Environmental Indicators" report will successfully contribute to a heightened awareness on the state of the environment in Slovenia, as well as to a more pro-active integration of the public into the decision-making processes concerning environmental issues. It is only in this way that we will be able to join our efforts and make an efficient contribution to an enhanced management of natural and non-renewable sources of environmental protection.

## ABBREVIATIONS AND SIGNS

N – number (e.g. number of responses)

n/a – no data available

/ - nonexistent phenomenon

EARS – Environmental Agency of the Republic of Slovenia (Agencija Republike Slovenije za okolje)

EEA – European Environment Agency

EU – European Union

EU15 – EU Member States before 1 May 2004: Austria, Belgium, Denmark, Finland, France, Germany, Great Britain, Greece, Ireland, Italy, Luxembourg, the Netherlands, Portugal, Spain, Sweden.

FAO – Food and Agriculture Organization of the United Nations

GDP – Gross Domestic Product

IUCN – World Conservation Union

IPH – Institute of Public Health (Inštitut za varovanje zdravja)

MOP – Ministry of the Environment and Spatial Planning (Ministrstvo za okolje in prostor)

NEAP – National Environmental Action Programme

NIB – National Institute for Biology (Nacionalni inštitut za biologijo)

SAEP – Slovenian Agri-Environmental Programme

SORS – Statistical Office of the Republic of Slovenia (Statistični urad Republike Slovenije)

SRC SASA – Scientific Research Centre of the Slovenian Academy of Sciences and Arts

