

**Ministry of Ecology and Natural Resources**



**National Institute of Ecology**



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**REPUBLIC OF MOLDOVA  
STATE OF  
THE ENVIRONMENT REPORT 2004**

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**Chişinău, 2005**

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**CZU 502.2/504.5(478)(047)=111**  
**S 79**

**REPUBLIC OF MOLDOVA STATE OF THE ENVIRONMENT REPORT 2004**

The report is a scientific and practical paper presenting a holistic view on the status of the main ecosystem types as well as the situation of specific environmental media (water, soil, air and biota), taking 'into account the anthropic impact and their tolerance level. The report was developed in conformity with the Law on Environment Protection No. 1515- XII, Art.8 and Art. 16e by the Ministry of Ecology and Natural Resources which has designated the National Institute of Ecology for compiling the report.

The report is addressed to a large spectre of users studying or working in the field of environmental disciplines and environment protection.

The report was edited by Dr. V. Mosanu. The work was coordinated by Dr. Adam Begu, Director of the National Institute of Ecology.

This report was issued due to the financial support from the National Ecological Fund of the Republic of Moldova

Descrierea CIP a Camerei Naționale a Cărții

Republic of Moldova: State of the Environment Report 2004:  
[pentru uzul specialiștilor în domeniu] /Nat. Inst. of Ecology. -  
Ch.: Inst. Naț. de Ecologie, 2005. - 72 p.

Biobliogr. p. 125

ISBN 9975-9642-3-0

300 ex.

502.2/504.5(478)(047)=111

**ISBN 9975-9642-3-0**



## **FOREWORD**

The continuity of life on the Earth always depended on the natural resources. Nature is the cradle of mankind and was always considered an inexhaustible source of material and spiritual values. For thousands of years the humans seemed too insignificant to affect the natural order of things on the Earth. At the end of the 2<sup>nd</sup> millennium AD the human civilization faced a situation it never was in before. The global resources proved to be finite and the global balance, vulnerable to anthropic impacts.

The concept of sustainable development was the idea responding to the new (and dramatic) global challenges. Like many countries, the Republic of Moldova made of sustainable development one of the main principles its environmental policy relies on. In March 2005, the Government approved the first National Report “Millennium Development Goals for the Republic of Moldova”. One of the goals is to ensure the sustainability of the natural environment.

The Republic of Moldova faces a sheer number of environmental problems, of both local and transboundary origin. Finding solutions supposes first of all to define the problems and to identify their root causes. Complete and reliable information on the state of environment is a fundamental precondition of this.

This Report is continuing the range of State of the Environment Reports regularly prepared by the National Institute of Ecology. The Report has been developed by professionals in the field of environmental protection and related domains. Comprehensive information on different issues was collected and processed in order to present a relevant picture of environmental status of the country. This information provides a platform for decisions to be taken by the authorities in ensuring the sustainable use of resources, the perpetuation of the natural environment and a better quality of life for the citizens of the Republic of Moldova.

I would like to use this opportunity to acknowledge all the people who contributed to this Report, representatives of different government agencies, research institutions, universities, NGOs, etc. I am confident that this is a document to rely on in environmental decision-making and to serve for reference to those interested in environmental matters.

Constantin Mihailescu, Dr. hab.,  
Minister of Ecology and Natural  
Resources

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**ACRONYMS**


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BOD	Biochemical Oxygen Demand
CFC	Chlorofluorocarbon
CITES	Convention on International Trade in Endangered Species of Wild Fauna and Flora
DDT	Dichloro-diphenyl-trichloroethan
EHS	Electrical and Heat generation Stations
EMEP	European Monitoring and Evaluation Program
EU	European Union
GDP	Gross Domestic Product
GEF	Global Environment Facility
Gg	Gigajoule
GIS	Geographic Information System
GMO	Genetically Modified Organisms
HCFC	Hydrochlorofluorocarbon
HCH	Hexachlorocyclohexane
HMS	Hydrometeorological Service
ICPDR	International Commission for the Protection of the Danube River
INECO	National Institute of Ecology
ISO	International Standards Organization
IUCN	International Union of Nature Conservation
kWh	Kilowatt-hour
MW	Megawatt
MAC	Maximum Allowable Concentration
MAFI	Ministry of Agriculture and Food Industry
MDL	Moldovan Leu (pl. lei) (national currency)
MENR	Ministry of Ecology and Natural Resources
NATO	North Atlantic Treaty Organization
NEF	National Environmental Fund
NGO	Non-Governmental Organization
NIS	Newly Independent States
NSPAF	Natural State Protected Areas Fund
ODP	Ozone Depleting Potential
ODS	Ozone Depleting Substances
PCB	Polychlorinated Biphenyl
POP	Persistent Organic Pollutant
ppm	Part per million
REC	Regional Environmental Center
SEI	State Ecological Inspectorate
Tacis	Technical Assistance for the Commonwealth of Independent States (EU Programme)
UN	United Nations
UNDP	United Nations Development Program
UNEP	United Nations Environmental Program
USA	United States of America
USD	United States Dollar
WHO	World Health Organization
WMO	World Meteorological Organization
WPI	Water Pollution Index
WWTP	Waste Water Treatment Plant

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## Introduction

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In 2004, the Republic of Moldova made sustained efforts towards mitigating environmental impacts and assuring the country's ecological security. Those efforts were manifested in the continuity of the national environmental policy and acting in line with the requirements of the international environmental agreements Moldova adhered to. The country continued to move on towards the gradual harmonisation of the national (primary and secondary) legislation with EU environmental law, requirements and approaches, taking account of the economic realities and country's possibilities. A number of environmental policy concepts, strategies, law amendments and by-laws were adopted, as well as public awareness campaigns were undertaken, aiming at improving the environmental conditions in the Republic of Moldova. Country representatives actively participated in most global and regional environmental events. Moldova hosted a series of international meetings and conferences that have helped the country to raise its profile and attract international resources and assistance to help solve national environmental problems.

The environment management system has acquired new strengths through the introduction of a number of new programmes and plans. Among them, the Poverty Reduction and Economic Growth Strategy and the joint EU-Moldova Action Plan have to be mentioned first and foremost. Both documents contain environmental and sustainable development objectives. The continuous development of bilateral cooperation programmes with neighbouring countries (Romania and Ukraine) also plays an important role in protecting the environment, particularly in the transboundary context. Enacting the Research and Innovation Code was another milestone of year 2004 which is expected to have long-term positive effects on economic development and to bring also environmental benefits.

The continuous increase of human consumption and implicitly the demand for natural resources, particularly in developing countries, raises the pressures on the environment, through overexploitation of natural resources and growing pollution. The Republic of Moldova makes no exception to this trend: the economic activities, notably in food processing, light industry, mining, transports, agriculture are at the origins of serious air and water pollution problems. The range of environmental problems also include degrading biodiversity, following the poor state of natural protected areas, shrinking areas of vulnerable and rare species and raise of invasive alien species, insufficient forest coverage. The forest areas are not only small, their spatial distribution is un-even and there are no connection corridors between many of them.

The waste problem is a continuously growing concern. The adequate waste management supposes combining coercive measures with economic instruments and public awareness raising. In industry, this implies the correct management of material fluxes, including implementation of cleaner technologies. The domestic waste problem can be tackled through managing the consumption patterns, organising the separate collection of waste, the correct siting of landfills/waste dumps, etc. Implementing cleaner technologies in Moldovan industry is slow, primarily due to low investments.

One of the top problems is increasing pressure on soils and landscapes: soil erosion is on raise, soil fertility is decreasing. Environmental policies in Moldova traditionally focused on fighting non-compliance and combating water and air pollution; soil degradation was always less priority. It is important to apply a more holistic approach in environmental management undertaking measures for the protection and restoration of natural ecosystems as the basic elements of the landscape. This has to be done through developing a closer cooperation between land holders, physical planning and development institutions and land planning and management authorities.

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# 1. THE NATURAL ENVIRONMENT AND SOCIAL ASPECTS

## 1.1. THE PHYSICAL CONTEXT

The Republic of Moldova is a small, landlocked and densely populated country situated between the western border of Ukraine and the eastern border of Romania. It spreads on 350 km from North to South and on 120 km from West to East, on the latitude of the capital city Chisinau. The country's territory is 33483.4 km<sup>2</sup>. Moldova is part of the Black Sea watershed.

The country is relatively low-lying and hilly, with semi-arid steppe plains in the south. The hills at the central part of the country are densely forested, while cultivated crops have replaced the natural grass cover of the plains and steppes in the north and the south. The average elevation is 147 m above sea level. Absolute elevations hardly exceed 400 m, in the central part of the country (absolute maximum, 429 m).

Moldova has a temperate continental climate, with relatively mild winters with average daily temperature between -5°C and -3°C and little snow, as well as warm summers with limited rainfall. The average annual precipitation varies between 617 mm in the North and 546 mm in the South. The rainfall is erratic and droughts are frequent.

Moldova has a river system consisting of more than 3000 rivers and streams. The two largest rivers, carrying most part of Moldova's available water resources, are the Dniester (Nistru), with a total length of 1,352 km and 657 km within the country, and the Prut with a total length of 976 km and 695 km within the country. Both rivers originate from the Carpathian Mountains in Ukraine. In the middle and lower stretches, they form a natural border between Moldova and Romania in the West and between Moldova and Ukraine in the East.

The main feeding source for the small inland water courses is precipitation; the role of groundwater is limited. Such a feeding regime causes water level highs in rivers in spring, following the snow melt, and in summer, after torrent rains. Several times in the past, this originated in catastrophic floods.

Moldova has only a few natural lakes, most of them in the Prut and Dniester rivers floodplains. In the same time, over 3500 water reservoirs were created for various purposes (irrigation, fish-farming, leisure, industrial and domestic needs, flood attenuation). Two large reservoirs mainly serving for hydropower production were created on river Prut and on the Dniester.

The groundwater resources are limited. The shallow groundwater is a major drinking water source for the majority of the rural population. The deep groundwater often shows high salt contents and high concentrations of ammonia, methane and fluoride, predominantly caused by natural factors.

Three-quarters of the country is covered with fertile chernozem soils which are

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