



**Convention on Protection and Use of Transboundary Watercourses and
International Lakes**

**SEMINAR ON THE ROLE OF ECOSYSTEMS
AS WATER SUPPLIERS
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REPUBLIC OF MOLDOVA NATIONAL REPORT

NATIONAL REPORT
ON THE ROLE OF ECOSYSTEMS AS WATER SUPPLIERS
IN THE REPUBLIC OF MOLDOVA

Ministry of Ecology and Natural Resources
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1. Existing water-related ecosystems

The Republic of Moldova ratified the Convention on the Protection and Use of Transboundary Watercourses and International Lakes on June 23, 1993 through Decision No. 1546-XII issued by the Moldovan Parliament, thus recognizing the essential role of ecosystems that naturally capture, filter, store and release water, such as rivers, forests, wetlands and soils. Also, in 2001 the Biodiversity Conservation Strategy and Action Plan were prepared and approved by the Parliament of Moldova and serve as official papers in implementing activities of biodiversity conservation and provisions of the above-mentioned Convention. Another major document, which reflects the current condition of ecosystems, their protection and management, as well as identifies the potential projects and perspectives, is the National Report “State of Environment in the Republic of Moldova for 2002”.

The Biodiversity Conservation Strategy and Action Plan took an ecosystem approach identifying the most significant ecosystems of the country, their current status and trends, specific features, strong and weak points of management, gaps and achievements, and recommendations for sustainable use of biological resources.

The ecosystems of the Republic of Moldova are grouped into three main types: natural (forest, steppe, meadow, paludous and aquatic, petrophyte, cavernicolous), agricultural (fruit-growing, vine-growing, vegetable-growing, etc.) and urban ecosystems.

Under the human impact, the most affected are steppe, meadow and aquatic ecosystems. Their area reduced by about 80% in the last 40 years.

a) *Forest ecosystems, protection and restoration measures*

Forests now cover 9,6% of Moldova. Today, forests have an average age of 40 years, are highly fragmented and are managed as 800 forest compartments with areas ranging from 5 ha to 1500 ha (*Figure 1*). The main goal of forest management in Moldova is to further increase the forest cover and to mitigate the fragmented nature of the national forest fund.

Moldova possesses diverse forest communities, but the most common dominant species are *Quercus robur* and *Quercus petraea*. In cultivated areas the introduced *Robinia pseudacacia* is common. The main differences in forests are as follows:

- In North Moldova, the forests are mainly those of coppice of moderate to high productivity, and occur in two types: *Quercus robur* with cherry and to a less extent, with *Betula* sp. (*Figure 1*). The forests here are highly fragmented;



Figure 1. Forest vegetation of the Republic of Moldova

- In Central Moldova, the forests are less fragmented than in the North, and the species composition is similar to that of Central-European leafy forests. The dominant species are beech (*Fagus sylvatica*) and oak (*Quercus petraea* and *Quercus robur*). They occur in four main associations: (I) beech forests mixed with *Carpinus betulus*, *Fraxinus excelsior*, *Tilia tomentosa* and *Acer platanoides*; (II) oak groves of *Quercus petraea* and *Carpinus betulus*, (III) oak groves of *Quercus robur* with *Carpinus betulus*; and (IV) oak groves dominated by *Quercus petraea*;
- In South Moldova, natural forests occur mainly on the Tigheci Plateau. The forests there are monodominant *Quercus petraea* and *Quercus petraea* with *Carpinus betulus*, and, at lower altitudes, stands of *Quercus robur* with *Prunus spinosa*. These forests are degraded and are now represented by young plantations;
- Riparian forests are found along the Prut and Nistru rivers and their tributaries in the North. These forests cover 4,7% of the national forest fund, and include stands of willow (*Salix triandra*, *Salix purpurea*, *Salix viminalis*), poplar (*Populus alba* and *Populus nigra* mixed with *Salix alba*) and oak (*Quercus robur*) and oak groves mixed with *Ulmus* sp. and *Populus* sp.;
- Forests on limestone deposits (petrophyte forests) along the Prut and Nistru rivers comprise 1% of the national forest fund. These forests, which include oak groves with *Quercus robur* mixed with *Carpinus betulus*, *Tilia* sp., *Fraxinus* sp., *Acer pseudoplatanus*, *Acer campestre*, and *Quercus petraea* with *Acer pseudoplatanus*, *Fraxinus* sp, *Carpinus betulus*, and *Cerasus avium*, are degraded as a result of poor natural regeneration by seeds.

Flora of the forest ecosystems includes 859 species. 123 associations have been described in the forest ecosystems. Fauna in the forests of Moldova includes about 172 species of terrestrial vertebrates (37,3% of the overall number of species) and about 9 000 species of insects. 35% of all the rare and endangered species are components of the forest ecosystems.

The guiding principle for the conservation of Moldovan forest ecosystems is to promote and restore their natural structure and species composition, which is consistent with both biodiversity conservation objectives and the development of highly productive and stable forest stands.

In order to ensure the ecoproductive functions and an efficient biodiversity conservation the rate of forest plantations should be increased by 15. This rate could be achieved by creating new forests, forest plantations on small river meadows, creation of connecting forest corridors for the existing forests, especially in the northern and southern zones of the republic where they do not exist, or are small.

The National Action Plan (chapter on forest ecosystem protection) provides restoration activities to be performed at different levels in order to prevent the further degradation of ecosystems and forest species, by rational use and restoring the forests, creating and maintaining their optimal structure. Forest biodiversity conservation requires changes in the existing legislative and institutional framework, which will further facilitate the creation of private forests (at present all the forests are state owned).

b) Meadow ecosystems, protection and restoration measures

At present there are no territories with primary meadow vegetation.

There are two types of meadow ecosystems: flood and non-flood ones. Both contain considerable diversity at the species and cenotic levels. Over the last 40 years an estimated 200 000 ha of natural meadow ecosystems in Moldova were destroyed, covering at present about 101 400 ha (3% of the country). The remaining vegetation of primary meadow communities occurs only along the Prut and Nistru rivers. The flora consists of about 650 species, the greatest number of which includes the genera *Poa*, *Alopecurus*, *Glyceria*, *Carex*, *Medicago* and *Trifolium sp*. As a result of human impacts, 28 species are now rare.

A total of 647,7 ha of river meadow vegetation is under state protection. The main human impacts on meadow biodiversity and biocoenosis are wetlands draining for agricultural use and excessive grazing. Much of the remaining meadow ecosystems exist now as fragments, degraded by the invasion of ruderal and halophytic species.

About 88 terrestrial vertebrates (23,2% of the total number in Moldova) are recorded in meadow ecosystems. As a result of habitat loss and degradation, a number of vertebrates, such as *Aquila rapax*, *Tetrax tetrax* and *Anthropoides virgo*, no longer occur in Moldova steppe and meadow ecosystems. Other species such as *Otis tarda*, *Glareola praticola* and *Circus macrourus* are migrant visitors but no longer nestle in Moldova. Finally, a number of species such as *Crex crex*, *Porzana porzana*, *P. pusilla*, *P. parva*, *Circus cyaneus*, *Spermophilus citellus* and *Mustela eversmanni* are now rare in Moldova steppe and meadow ecosystems and have been included in the Red Book.

At present vast territories of meadows of the lower Nistru River, middle and lower Prut River, Raut River, which have been extensively used in the past for agriculture, are now abandoned either due to their sublayer deterioration (destructuralization, salinization, hidrical lack of poise) or due to the lack of means for soil treatment and amelioration, and use of inadequate phytotechnical devices.

Meadow ecosystems are destroyed or essentially disturbed on the whole territory of the republic, whereas all attempts of their restoration initiated in the last years in the meadow of the Raut River have been futile. It is well known that the restoration processes of the meadow communities are extremely difficult. In order to ensure these successive processes it is primarily necessary to carry out specific researches and to develop an appropriate methodology for improving the biotopes, restoring the ecopaedological balance and the optimal structure (mechanical, chemical, biocenotical, trophodynamic etc.), and at the same time to exclude the negative human impact (cease of pollution and inadequate management processes).

The action plan for meadow protection includes:

1. Complete cessation of agricultural use of the territories with natural meadow ecosystems.
2. Improvement the deteriorated biotopes and restoration of forest and pasture ecosystems of the river meadows.
3. Restoration and conservation of genetic, specific, ecosystem and landscape biodiversity of the river meadows and wetlands.

c) Aquatic and paludous ecosystems, protection and restoration measures for aquatic resources

Aquatic and paludous ecosystems (i.e. rivers, lakes and other wetlands) cover 95000 ha (2,8% of the country). The hydrographic network consists of 3260 rivers and rivulets with a total length of more than 16000 km (Figure 2). The most important are the Danube, Nistru and Prut rivers, and the Raut, Bac and Botna rivulets.

Surface water quality. The water quality in Nistru, Danube and Prut rivers did not change significantly as compared to 2002. Some parameters, however, exceeded the quality standards for fishery waters. The oxygen regime was satisfactory. The content of heavy metals was higher in the river Nistru, downstream of the towns of Soroca, Tighina and Tiraspol, as well as after the inflow of the tributaries Raut and Bac. Between 30% and 76% of the total content of heavy metals (Cu, Zn, Pb and Cd) in water is bound to suspended particles. The chemically degradable organic matter accounts for 13-24% while chemically stable organic matter represents 15-45% from the total. The ratio between the concentrations of dissolved oxygen and BOD is in the range 1.5-5.1, which provides for a good auto-purification capacity.

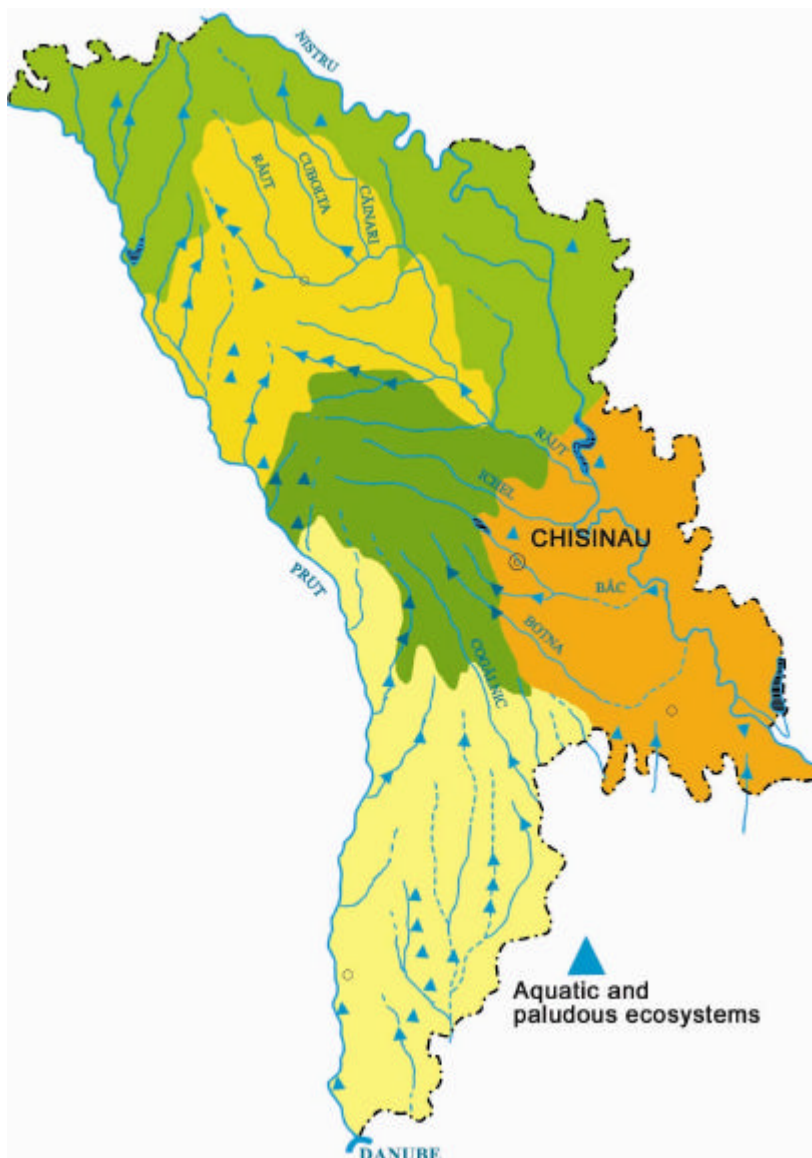


Figure 2. Aquatic and paludous ecosystems

The integrated water pollution index (WPI) – the average ratio between the concentration of the measured substance and its MAC – indicated a water quality class III-IV („moderately polluted”– „polluted”) in the Nistru, due to discharges of poorly treated waste water. For the same reason the water quality in river Prut deteriorated, especially during September-October. The pollution of

small internal water courses remained severe, with water quality classes IV–VI („polluted” - „intensely polluted”). Along the year, eight cases of extremely high pollution were registered, when the MAC was exceeded 100 times or more.

The auto-purification capacity of the small rivers is low. The most heavily polluted small rivers, in urgent need of rehabilitation measures, are Bac (downstream of Chisinau), Raut (downstream the city of Balti until confluence with the Nistru river), Cogalnic (downstream the town of Hancesti), Lunga (upstream and downstream the town of Ceadar-Lunga).

The hydrobiological monitoring of the Prut, Danube and Nistru rivers showed the water quality class III (“moderately polluted”). The small internal rivers predominantly fall in class IV (“polluted”). The sanitary-epidemiological status of surface waters used as bathing waters or for potable purposes is poor: between 20 and 57% of water samples failed to meet sanitary-hygienic standards in 2003.

Aquatic biota. The phytoplankton communities in Nistru river are represented by 61 taxa, with an average biomass 5.77 g/m³. The middle sector of river Nistru is populated by 35 species and varieties of protozoa. The saprobic index does not exceed 2.0-2.3, an indication of relatively clean water. The average saprobic index in the Beleu and Manta lakes (associated with the Prut river course) is about 2.5 corresponding to the a-mezosaprobic zone, indicating a fairly good water quality.

Zooplankton communities of the Nistru river total 42 species (23 rotifers, 10 copepods and 9 cladocers), with average density 24,800 ind/m³, and biomass 0.34 g/m³. Zooplankton communities of river Prut comprise 39 species and the Manta and Beleu lakes, 37 species, showing a tendency to eutrophication for these ecosystems.

The macrozoobentos of river ecosystems comprises 60 species in river Nistru and 85 species in river Prut. The lake ecosystems total 50 species in the Dubasari reservoir on river Nistru and 60 species in Manta and Beleu lakes.

The fish communities from river Nistru are represented by 42 species and subspecies from 8 families. Nine species are of economic interest, notably bream, rapacious carp, aspilus and barbel. Four species (lake herring, roach, zingel and Dnieper barbel) are included in the Red Book of the Republic of Moldova and are under state protection. The Lower Prut ecosystems host 37 species and subspecies of fish from 10 families. Ten species are of economic interest (e.g. sterlet, codling, sheatfish, flat herring). Three species (lake herring, Zingel zingel, Zingel streber) are included in the Red Book. The year 2003 provided poor conditions for the natural reproduction of valuable fish species in the rivers, mainly due to very low water during the reproduction period.

Groundwater: Seventeen groundwater horizons and aquifers of different geologic age are presented in the Republic of Moldova. The quality of groundwater is largely influenced by the geologic and geo-chemical conditions, notably by the natural anomalies of fluoride, strontium and selenium. In different aquifers, the concentrations of fluoride range from 0.2 to 18.0 mg/l, the strontium, between 0.1 and 17.0 mg/l and selenium, between 0.01 and 0.17 mg/l. Often ammonia naturally occurs in concentrations as high as 20 mg/l (*Table 1*).

The shallow groundwater is highly vulnerable to anthropic impacts. The range of natural and man-induced pollutants includes nitrates, pesticides, sulfates, etc. Water hardness often exceeds the sanitary-hygienic standards by 2-5 times and more.

Table 1. Main characteristics of groundwater aquifers in the Republic of Moldova

Aquifer	Average deepness, m	Debit, m ³ /hr	No. of sources	Main pollutants	Pollution sources
Quaternary (phreatic)	10-15	1-3	150,000	NO ₃ ⁻ , NH ₄ ⁺ , SO ₄ ²⁻ , NO ₂ ⁻ , pesticides, oil products	Waste dumps, storage places of pesticides, fertilizers and oil products
Middle Sarmatian	100-300	2-10	500	Solids, iron, sand	Fe in sand
Baden-Sarmatian Inferior	N – 50; C - 100-200; S - 200-260	50-100	3,000	NO ₃ ⁻ , NH ₄ ⁺ , SO ₄ ²⁻ , NO ₂ ⁻ , F ⁻ , hardness	Waste dumps, storage places of fertilizers, natural Ca and Mg
Cretaceous	N – 50-100; NC - 150-200	2-100	500	F ⁻ , hardness	Natural Ca and Mg
Superior Sarmatian	100-200 m in the Prut valley	3-10	50-100	Sand	Fe in sand
Pontic	100-200 m in the Prut valley	5-10	50	Sand	Fe in sand

N – North region; C – Center region; S – South region

One of the current concerns in Moldova is the large number of abandoned boreholes. An inventory made in 2003 by the State Ecological Inspectorate revealed 1630 such deep artesian wells being out of use. They are usually abandoned without any supervision and can become major pollution sources for groundwater layers. These boreholes have to be conserved or decommissioned.

The quality of groundwater abstracted for drinking purposes is particularly poor in the central and the southern region of the country, where 70% to 100% of groundwater samples do not comply with quality standards for chemical parameters.

Water Pollution Sources. The water pollution sources are most often categorized as point sources or non-point (diffuse) sources. The point-source discharges of municipal and industrial wastewater are usually known and supervised and their pollution loads can be quantified. On the other side, non-sewerage dwellings, agriculture fields, as well as occasional or accidental spills have a non-organized character and are, therefore, difficult to monitor and control. In the Republic of Moldova, the major point-source discharges are monitored. This primarily includes the wastewater discharges of the large water users and the centralized sewerage systems. In the same time, data provided by the State Ecological Inspectorate showed that other sources can be equally or more dangerous for the environment (e.g. water runoff from industrial sites, waste dumps) than point sources. The runoff from residential and industrial areas contributes to the surface waters significant loads of pollution (notably oil products and suspended solids). Domestic wastewater discharges from non-sewered population (70% of the total dwellings in Moldova) is another major pollution source. Other potential major pollution sources are the filtration beds of sugar factories, manure heaps, etc. Unfortunately, the environmental impacts of these pollution sources are not monitored. Lack of data hampers the sound assessment of the situation and taking adequate pollution mitigation measures to prevent further degradation of surface and ground waters.

The Hydrometeorological Service has recently installed four automated monitoring stations on the two transboundary water courses, Prut and Nistru. The on-line monitoring of the quality of transboundary rivers (pH, water temperature, water level, conductivity, turbidity and dissolved oxygen) allows for obtaining systematic water quality data and for timely warning the authorities, the industries, the population and the riverane states on accident emergency situations. During 2003, no cases of high or extreme chemical pollution of transboundary water courses were recorded in the Republic of Moldova.

2. Water resources management

The main sources of water abstracted in Moldova for different uses are the rivers Nistru (56%) and Prut (16%). Groundwater provides 20% of water used while the remaining 8% are abstracted from small internal rivers and water reservoirs. The two main rivers are major sources of drinking water. For example, 82% of the population of Chisinau is supplied with water from the Nistru river. On the other side, the towns of Edinet, Cupcini, Glodeni, Falesti, Ungheni, Leova, Cantemir, and Cahul abstract over 250 million m³ per year from river Prut.

The total volume of abstracted water for different purposes (industry, domestic, irrigation, etc.) is still on a downward trend. In 2003, it accounted for 865 million m³, which is some 3,000 million m³ less than in 1990, mainly due to the drop in industrial and irrigation use. Most small settlements in Moldova are supplied from groundwater sources, which often pose quality problems. This calls for development of modern but low cost potabilization technologies for water from local groundwater sources, using preponderantly local materials. Several such technologies have been developed in Moldova, for example the advanced removal of organic loads through carbon adsorption; the catalytic elimination of hydrogen sulfide through adsorption and catalytic oxidation; nitrate removal through electrochemical reduction.

The intensive abstraction of groundwater resulted in piezometric depression cones appeared in several places. About 50 such depression cones exist in the Baden-Sarmatian aquifer. In several locations the piezometric levels lowered by almost 100 m below the sea level and continue to decrease. Two smaller cones have appeared in the Cretaceous-Silurian aquifer in the North of the country and two others in the Middle Sarmatian aquifer in the South.

In 2003, the implementation of the Program on Water Supply and Wastewater Treatment for the settlements of the Republic of Moldova till 2006 continued and a number of water protection measures have been implemented. The share of the National Environmental Fund in water protection expenditures has gradually increased from 8% in 2001, to 17.7% in 2003. Foreign investments (Denmark, Netherlands and Switzerland) also keep a very important share with 37% from the total expenditures. In 2003, MDL 1.88 million has been collected as water pollution charges from 720 water users.

3. Information dissemination and public participation

The Republic of Moldova ratified the UN Convention on Access to Information, Public Participation in Decision Making and Access to Justice in Environmental Matters through the Parliamentary Decision No. 346-XIV on April 7, 1999. The provisions of this Convention were reflected in the Law on Access to Information. According to the Law any entity has the right to request and get information, as well as to share it. On the other hand, the Public Authorities are committed to provide the information, including the environmental information. The main sources and providers of information in Moldova are:

- the Law on Access to Information;
- Ministry of Ecology and Natural Resources;
- National Institute of Ecology;
- State Environment Inspectorate;
- State Forest Agency "Moldsilva";
- Center for environment observations;
- Local Public Authorities, etc.

Usually the information is provided to and disseminated among population in a given area, educational institutions, enterprises and NGOs. Involvement of water users associations and NGOs, e.g. as non-voting participants in meetings and other activities of competent authorities, will enhance the quality and the implementation of policies for sustainable integrated water management. Also the development and implementation of international documents (e.g. water management and contingency plans) and response measures are open to public participation.

The mass-media actively participates in the public awareness raising and information dissemination. There were published brochures and booklets on the importance, protection and restoration of forest, meadow and water ecosystems, including as water suppliers. Also, posters on rare aquatic plants and animals were made up, and radio and TV broadcasts were issued.

4. Research and monitoring

A fundamental feature of transboundary cooperation is the design and establishment of joint monitoring and assessment programmes. This process requires countries to define common information needs on the basis of their water management policies, and thereafter to design and operate monitoring programmes, agree on assessment strategies and review their water management strategies on the basis of the assessment results. Effective monitoring programmes should include exchange of harmonized data and information.

In the design of the monitoring programmes the need of integrated assessment should be taken into account. Cost-effectiveness and a stepwise approach are also important.

That is why the National Action Plan (2002) provides the following research and monitoring activities with regard to the aquatic and paludous ecosystems:

- For the period of 2002 – 2005 to assess the aquatic ecosystems and evaluate the status of their habitats and biota according to the requirements of Ramsar Convention, and elaborate recommendations for their protection;
- To monitor the aquatic biota in the most significant habitats of the country (Danube, Nistru and Prut rivers, Beleu and Manta lakes).

Also, the National Action Plan provides monitoring activities with regard to meadow and forest ecosystems:

- Between 2002 – 2005 to evaluate the status of meadow ecosystems and to perform floristic-geobotanical mapping;
- To elaborate the methodology and create the monitoring sub-program for meadow ecosystems;
- To prepare the lists of rare species and communities of meadow ecosystems and include them in the Red Book and Green Book of Moldova;
- To elaborate the typology and forest ecosystems mapping;
- To elaborate the Scientific Research Program on establishing the trends of forest ecosystem evolution; and,
- To develop the monitoring sub-system of the forest fund and establish information systems in the field. This activity is provided for the period of 2001 – 2006.

All the above-mentioned researches and monitoring activities are carried out by various experts and from the Ministry of Ecology and Natural Resources, Ministry of Education, scientists from the Academy of Sciences of Moldova, as well as professionals from different institutions.

5. Economic aspects

Apart from the regulatory instruments, the economic mechanisms and instruments are an other pillar on which environment protection and management are based. The economic instruments are the core of the “Polluter pays” principle implementation. Their use contributes to the accumulation of financial resources which are further spent for environment protection measures.

The range of economic tools used in Moldova includes fines for non-compliance with legal requirements, pollution charges, compensatory payments for environmental damages, subsidies, etc. The modifications brought in 2002 to the *Law on payments for environment pollution* (1998) introduced a new economic instrument, the charge for goods that pollute the environment in the process of their utilization.

The revenues collected through the application of economic instruments are accumulated in the National Environmental Fund (NEF) and local ecological funds. In the same time, the charges for natural resources use go to the central and local budgets. The environment protection measures are financed from the state budget, the local budgets, the internal resources of the industries, the environmental funds and foreign grants and credits.

In 2001, the total financial means spent for environment protection in the Republic of Moldova accounted for 112.5 million MDL or 0.5% of the GDP (*Table 2*).

Table 2. Expenses for environment protection in the Republic of Moldova, million Lei

Fields	1996	1997	1998	1999	2000	2001
Protection of water resources	47.83	56.19	53.04	67.12	68.26	77.40
Protection of soils	5.97	6.86	5.04	6.65	7.98	12.80
Protection of air	4.67	4.66	5.28	5.29	9.07	10.10
Waste	0.01	0.02	0.01	-	0.02	0.50
Others, including:	7.90	11.93	7.36	7.13	10.38	11.70
monitoring and information system	7.20	8.10	6.20	5.70	5.10	8.90
research	0.30	0.32	0.80	0.50	0.80	0.60
administration	0.40	3.51	0.36	0.93	4.48	2.20
Total	66.38	79.66	70.73	86.19	95.71	112.50

The largest part of environmental expenses are related to the operation and maintenance costs of the environment protection facilities as well as the implementation of environment protection measures (85%). The environmental investments have a share of 11% and major overhauls of environment protection facilities took 4% of the environmental expenses. 8.9 million MDL or 73% of the total investments were used for the construction of hydrotechnical anti-erosion works; 3.3 million MDL (27% of the total investments) were spent for construction / reconstruction of wastewater treatment plants and sewerage systems.

6. Legal and administrative background

At present a new legislative basis on environment protection is established in Moldova. New legal acts adequate to the market economy, which regulate the majority of aspects of utilization, protection and regeneration of biological resources are approved. They are related to the following fields:

- Protection of representative natural areas;
- Protection of natural habitats;
- Conservation of natural heritage of unique natural objects, important zones for reproduction of spontaneous flora and wild animals species;
- Regulation of biological resources use;
- Integration of biodiversity conservation pre-requisites in activities of national economy sectors, etc.

In this respect, the following laws and normative acts can be mentioned:

- The Law on Biological Security;
- The Government Decision concerning the approval of the Regulation on the procedure of establishment of the regime of a protected natural area;
- The Government Decision on the results of the national contest “The most green, healthy and well-organized settlement”.

The following laws have been improved and completed:

- Law on Animal Kingdom;
- Law on Environment Protection;
- Law on Production and Domestic Waste;
- Law on Payments for Environment Pollution;
- Law on Ecological Expert Evaluation and Environmental Impact Assessment;
- Forest Code, Code on the Administrative Contravention;

- Government Decision No. 988 dated September 21, 1998 on approval of the Regulation on Ecological Funds.

By Government decision there had been established:

- The National Ramsar Committee;
- The National Committee for Environmental Policy.

On the initiative of the Ministry there have been organized Parliamentary hearings on:

- the actual state and perspectives of the water management;
- the results of implementation of the Law on Ecological Expertise and the Environmental Impact Evaluation (1999).

The following draft laws and normative acts are submitted to the Parliament to be approved:

- Draft Law on Regulation of Economic and Social Activities Having an Impact on the Environment;
- Draft Law on the Fisheries Fund, Fishing and Conservation of Aquatic Biological Resources;
- National Strategy and Action Plan of the Conservation and Sustainable Use of Natural Resources;

Considering the strategic orientation of Moldova towards economical integration with European countries, it is necessary to begin the process of harmonizing the national legislation with that of the European Union. The EU Water Framework Directive is an important addition to the legal framework even if it is not legally binding for Moldova. The overall economic situation makes it at this stage very difficult to finance capital investment for water protection such as building of water treatment installations, or more efficient irrigation systems. It is also difficult to find resources to decrease risks for accidents in hazardous installations, tailing dams, etc.

The commitments of the Republic of Moldova on the implementation of the signed conventions are performed by the following ministries and institutions:

- Ministry of Ecology and Natural Resources (its basic sub-divisions are: State Ecological Inspectorate, "Hydrometeo" Service, National Institute of Ecology and Ecological Agencies);
- Academy of Sciences of Moldova;
- State Agency for Forestry;
- Ministry of Agriculture and Food Industry;
- Ministry of Health Care, and
- Ministry of Education.

There are about 40 NGOs in Moldova working as partners on the implementation of environment protection measures.

7. Transboundary cooperation

By ratifying in June 23, 1993, the *Convention on the Protection and Use of Transboundary Watercourses and International Lakes*, the Republic of Moldova showed its commitment to implement the provisions of this Convention. Two other regional Conventions and their future protocols are also of importance for the cooperation on transboundary waters: the UNECE *Convention on the Transboundary*

Effects of Industrial Accidents and the UNECE *Convention on Environmental Impact Assessment in a Transboundary Context*. They have been also ratified by the Republic of Moldova. These regional Conventions are complementary and have provisions dealing with such important issues as public participation, environmental impact assessment, activity of joint bodies, etc.

Moldova has been active at the international level, participating in the negotiations of UNECE and world environmental conventions and developing regional cooperation on the basis of various bilateral and multilateral agreements. The international cooperation of the Republic of Moldova at regional level is based on bilateral agreements in the field of environmental protection, signed by Romania, Ukraine, Belarus. These agreements include the establishment of common working groups in order to coordinate activities in the field of environmental protection, including

water conservation – common transboundary reserves and green corridors with Romania and Ukraine.

An important event of Moldova's implication into international cooperation was the signing of the Convention on Cooperation for Protection and Sustainable Development of the River Danube (Sofia, June 1994). In December 1994 the ministers of Danubian countries signed a declaration by which the objectives, priorities and strategies included in Strategic Action Plan for the Danube Basin are adopted and created an international commission for the protection of the Danube.

Also, the Agreement between the Government of the Republic of Moldova and the Government of Ukraine on the Joint Use and Protection of Transboundary Waters was signed by both Moldova and Ukraine on November 23, 1994 at Chisinau, Moldova. This Agreement refers to the rivers Nistru and Danube, having the area of application all surface waters and ground waters, which form or cross the frontier of the two States. The application field of the Agreement is qualitative and quantitative protection of water resources, regulating, water supply, flood and other water management activities.

The project "Transboundary Water Cooperation in the Newly Independent States (NIS)" aims at examining approaches to, establishing the status of and proposing measures for strengthening, bilateral and multilateral cooperation in a specific sub-region of the United Nations Economic Commission for Europe (UNECE). The sub-region in the focus include the following 12 countries: Armenia, Azerbaijan, Belarus, Georgia, Kazakhstan, Kyrgyzstan, Republic of Moldova, Russian Federation, Tajikistan, Turkmenistan, Ukraine, and Uzbekistan.

The ratification of the Conventions and their Protocols is also important to show commitment to international cooperation and build trust in the international community, including donors.

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