Implementation PEBLDS
in Central and Eastern European Countries

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The 'Environment for Europe' (EfE) process is an essential political framework for cooperation on environmental issues in the UN/ECE region. Since 1991 it regularly brings together Ministers of Environment at pan-European conferences to formulate environmental policy and to take important decisions in this area as well as to review the results achieved. The 5th EfE Ministerial Conference (to be held in Kiev, Ukraine, 21-23 May 2003) is the next important milestone in this process. It will focus on and seek common solutions for strengthening the environmental pillar of sustainable development in the region, providing environmental security and building new partnerships among all stakeholders.

In the period since the EfE was launched a large number of conventions, strategies and policies aiming at nature conservation have been developed, among them the Pan-European Biological and Landscape Diversity Strategy. Since its ministerial endorsement in Sofia (1995) the implementation of the PEBLDS is on the way. Many CEE countries adopted and/or ratified it, and eventually started to work on the practical implementation. However, in spite of all these efforts, there seems to be no significant improvement in the state of nature.

In the present study member organisations of the CEEWEB network from 10 countries want to give a comprehensive picture of the state of nature in the participating countries and of the level how PEBLDS is considered and implemented in the country.

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The report is elaborated according to an assigned form and consists of two parts. The first one (introduction and state of nature conservation) represents the baseline information about the country, as well as an assessment of its conservation policy in the field of biological and landscape diversity. The second part (implementation of the Pan-European Strategy) represents the experience of the 12 key Action Themes of the Strategy.

Introduction

1. General description of the country (history, political background, economy, NGO movement)

Physical-geographical description

Bulgaria is situated in the latitude of 41 44° N and the longitude of 22 - 28° E. It covers an area of 110,912 square km in the North-East part of the Balkan Peninsula, bounded on the west with Macedonia and Serbia, on the south with Greece and Turkey, on the east there is a large outlet to the Black Sea, and on the north it shares a border with Romania. The population of the country is more over 7,900,000 people. The capital is Sofia.

The country is characterized by a variety of relief and landscape as a result of millions of years of geomorphologic processes. The relief of the country is strongly segmented in vertical aspect. There are five identified belts: lowland, plain and hilly, low mountainous and high mountainous. 70% of the country territory is covered by lowlands and plains. The average altitude is 470m.

The highest mountain chains in the Balkans are located within the territory of Bulgaria - the highest peak of the Peninsula is Musala (2,925m).

The water reserves of the country are not very rich despite the numerous springing rivers - Maritsa, Tundzha, Struma, Mesta, Arda, etc., underground waters and karsts springs. The climate is continental to Mediterranean.

Short historical data

Bulgaria as a state on the Balkan Peninsula is established in 681. Since 1396 to 1878 the territory falls within the boundaries of the Ottoman Empire. After the liberation in 1878, following the Berlin Contract, Bulgaria is severely dismembered. On the north from the Balkan Mountains a new autonomous Bulgarian principality forms, tributary to the Sultan, and South Bulgaria remains entirely under the political and military power of the Sultan, with administrative autonomy and bearing the name South Rumelia. In 1885 Bulgarian principality and South Rumelia unite. In 1879 Turnovo Constitution announces the Monarchic rule in Bulgaria, which is preserved till 1944. From 1944 till 1989 the country is a Republic ruled by the communistic party, supported by the USSR. After 1989 the country undertakes the way of the democratic development.

After 1985 until 2000 the country suffers a hard economic crisis, caused by the change of the political system and high foreign indebtedness. As a consequence of a number of political
and structural collisions in the period of 1990-2000, political parties unanimously identify the foreign political course of the country towards accession to the European Union.

During the totalitarian regime (1944-89) the existence of an independent NGO movement was extremely impeded and almost impossible. The Communist party controlled the classical large organizations, such as the Red Cross, the Bulgarian Tourist Union and the Bulgarian Hunting and Fishing Union. Related to environment, a National Committee for nature protection existed, entirely controlled by the communist rule and broke down after 1989. The first informal organizations, founders of the NGO movement in Bulgaria, appear in 1987-88, after Russian perestroika started. The first environmental organization is the Committee for Saving Rousse, which later grew into the National Ecoglasnost Movement. The first nature conservation organization is Green Balkans, established in 1988. During the period of 1990-93 a number of environmental NGOs were established. At present they amount to 350. The major organizations that influence policy in the field of environment and conservation are: Green Balkans Federation of Nature Conservation NGOs, National Ecoglasnost Movement, Bulgarian Society for the Protection of Birds, Borrowed Nature, Bulgarian-Swiss Biodiversity Conservation Programme, Wilderness Fund, Balkani Wildlife Society. Only two organizations have established networks nationally: Green Balkans and Bulgarian Society for the Protection of Birds.

2. State of nature and nature conservation

**Biological diversity**

Natural characteristics of the country. Although Bulgaria has a relatively small territory (110 912 square km), it has a rich biological diversity due to its high diverse climatic, geological, topographic and hydrological conditions. These conditions allow the existence of a biota that includes 94 mammal species, 410 birds, 36 reptiles, 16 amphibians, 210 Black sea and fresh water fishes, about 27 000 insects and other invertebrates, 3 500 - 3 750 species of higher plants and more than 6 500 lower plants and mushrooms.

The riches of Bulgarian biological diversity is defined by the biogeographic location of the country. The small country territory contains biota, influenced by three biogeographic sub-regions of all eight: Palearctic - continental, Mediterranean and Irano - Turanean (Caspian). Bulgarian biota includes a significant number of endemic species and sub-species. Plant endemics comprise about 5 percent of the total flora - a rather large share compared to other, larger European countries. The information available for invertebrate taxa states that 8.8% of the non-insect species and 4.3% of the insect ones are endemics. This percentage will most probably be increased after a further complete study of the groups.

Rarity rate varies significantly in the different taxonomic groups. Rare for the flora and fauna have been categorized more than 700 higher plants, a great part of which are endemic species, distributed in high mountain regions; 567 species of non-insect invertebrates (approximately 23% of all known species); over 1 500 insect species; 29 species of Black sea and fresh water fishes; 2 snake species, 80 bird species (including 18 species of the list of globally threatened species of 1993 of the World Conservation Union [IUCN]); and at least 10 large mammals, including the Black sea Monk seal, the endemic dolphin sub-species of the Porpoise and the Bottlenosed dolphin, the chamois, the brown bear, the wolf, the otter and the European Marbled polecat. Summarized table for the species diversity is presented in Appendix 1.

Bulgaria is characterized by large habitat diversity and has examples of almost all main types of habitats and biotopes, known in Europe. The list of habitats that are unique and preserved
in that part of the Balkan Peninsula only, is not short. Due to a number of reasons, a lot of them have been destroyed in the other part of its Palearctic area. The sub-Mediterranean communities of Quercus rubescens Willd., Carpinus orientalis Mill., Juniperus oxycedrus, Moesian beech, etc., deserve to be mentioned here. The so-called pseudomaquis are dispersed in the southeast part of the country. Only here in whole Europe (Strandzha Mountain) the relict flora communities of South Euxine type occur. They contain Fagus orientalis, Quercus petraea, Carpinus orientalis and Quercus hortwissiana. Their undergrowth of Rhododendron ponticum, Teucrium latifolium, Daphne pontica, etc., is unique too. The dune communities along the black sea coast are also interesting, as well as the alluvial and floodplain forests along the Maritsa and Tundzha Rivers.

Special attention should be given to Bulgarian forests, which cover 33% of the total country area. 60% of Bulgarian forests are of natural origin.

Unfortunately, a complete evaluation of the habitat diversity has not been made to date. Experts agree that EU Directive 92/43 can include a further list of habitats of high conservation value on the territory of Bulgaria. The new Bulgarian Biodiversity Act defines 105 nature habitats of high conservation value. (Appendix ? 3)

**Protected areas and national ecological network**

4.9% of the country territory is protected in conformity with the Protected Areas Act. Less than 3 % are subject to a protection regime (national parks and nature reserves). The conclusion that the network of protected areas is extremely undeveloped and insufficient for the conservation of Bulgarian biodiversity is confirmed by a number of Bulgarian official documents, including the National Biodiversity Conservation Strategy. The reasons for that are a lot, mainly subjective and political, part of which are the insufficiently developed capacities. Experts point that over 42% of the country territory comply with conservation criteria of EU Directive 92/43 and Natura 2000. Despite the recommendations of European and Bulgarian experts, the political will was not enough for a timely start of Natura 2000. The programme started as late as in 2003, covering only limited areas throughout the country. Bulgarian nature conservation community is hoping that Natura 2000 instrument will develop a national ecological network that will secure protection to at least 30 % of Bulgarian areas of high conservation value.

**Priority areas in terms of nature conservation**

Coordinated with the National Biodiversity Strategy and the National Action Plan for Biodiversity Conservation.

- Development of the national ecological network.
  - Establishment of management plans for protected areas and sites under Natura 2000
  - Establishment of a common management code for the national ecological network
  - Capacity development for the management of the national ecological network.
- Intersectoral integration.
  Implementation of the requirements of the Convention on Biological Diversity for intersectoral integration and the National Biodiversity Conservation Strategy.

**Threats. Human impact.** Unfortunately, there is no national assessment and analyses of the threat action, considering the National Biodiversity Conservation Strategy as well. The
main reason for the threats listed below is the lack of effective management policy and capacities in the field of nature conservation. The prioritization that has been made is based on the opinions of Green Balkans experts.

**Destruction and degradation of habitats. Main reasons:**

- Environmentally unfriendly changes in forest policy, mass poaching and incorrectly conducted restitution of forest cause the elimination of 15% of Bulgarian forests in the period of 1992-2002, with particular damage to floodplain forests.
- Drainage and destruction of wetlands.
- Change of land ownership, which has caused the destruction of meadows and pastures due to restitution of land in the period of 1992-2000.
- Destruction of landscapes of high conservation value as a consequence of environmentally unfriendly infrastructure projects (construction of gas channels, water power plants and large resort complexes). Strong lobbyist interests caused change in Protected areas Acts and controlled EIA. Even National parks were affected, where the management plans were changed.

**Invasive introduced species**

A great number of species have caused hard damage on Bulgarian communities. The harsh consequences are caused by the mass introduction of Ailantus altissiama and Amorpha fruticosa in the country 30 years ago. These two species form entire communities in many regions of the country and are a serious threat to native habitats.

**Excessive exploitation of nature resources**

First, populations of medicinal plants and forests are threatened by environmentally unfriendly forest management projects. Harsh economic conditions have forced local population to poach in mass, which is hard to be controlled by state structures. This threatens seriously the populations of valuable game species.

**Intensification of agriculture**

It is not a leading threat for the period 1989-1999, due to an abrupt decrease of artificial fertilizers and pesticides per unit area because of economic reasons. In the past two years increase of the threat is observed due to incorrect policy in regard of agriculture subsidies. Environmental pollution. Not leading for the country as whole, but separate areas are damaged to a significant extent. Fortunately, they still have spot feature.

3. National nature conservation legislation - International commitments - Intersectorial integration

The inadequate assessment of the Bulgarian nature values, made by the Parliaments and Governments in the period 1989-97, delayed the reform in nature-conservation policy and legislation. Although the main package of international commitments from one to eight, BOX 1, was ratified in this period, actually this did not result in any change in the policy and reform in the institutions. Serious hopes for stimulation of the legislative and political activeness in the field of conservation were set on the last forum Environment for Europe that was held in Sofia, October 1995. The adoption of PEBLDS on Bulgarian territory did not manage to encourage and stir the political inertness.
INTERNATIONAL AGREEMENTS AND CONVENTIONS AND THEIR RATIFICATION

1. UN Convention on Biological Diversity, ratification - 29 February, 1996
2. Convention on Wetlands of International Importance especially as Waterfowl Habitat - promulgation 10 July 1992
4. Convention Concerning the Protection of the World Cultural and Natural Heritage - promulgation 17 December 1975
7. UN Convention on Desertification in Countries, Experiencing Serious Drought and/or Desertification, Particularly in Africa - ratification January 2001
9. European Landscape Convention - not ratified yet

Since 1997, the Bulgarian Government has started negotiations for accession, which provided a considerable external incentive for the development of nature-conservation legislation. For less than four years, 9 acts, related to natural resource conservation and management, have been adopted. Appendix ? 4.

The latest and most significant act for conservation of Bulgarian nature is the one adopted on August 9th, 2002 - Biological Diversity Act. This normative act completed the approximation of nature-conservation legislation to the European one. The Act integrated the commitments under the main documents in the field of biological diversity (CITES, CBD, Bonn etc.) and most of all the Habitat Directive (92/43)

4. Decision making system and institutional structure of the management of biodiversity and nature resources

State sector

The Ministry Of Environment And Waters (MOEW) is a body of the Implementing Authority.
The structure of MOEW in a hierarchical aspect is of two levels and consists of Central management and 15 Regional inspections. The unit responsible for biodiversity conservation is the Directorate of National Nature Protection Service (NNPS). NNPS is responsible for the application and implementation of the international commitments, the Protected Areas Act, Biodiversity Act and Medicinal Plants Act. The Service has a staff of 15 persons.
The territory of the country is divided in 15 parts, in each of which a Regional Inspectorate of Environment and Waters is established (RIEW), which is a local section of the MOEW and implements governmental policy in the relevant area.
There are 40 experts working in the 15 RIEW throughout the country (distributed unevenly, one to three in number).

As a consequence of the established tradition, a significant part of the policy related to nature conservation is made not only by MOEW but also by the National Forest Board (NFB), which is a Department to the Ministry of Agriculture and Forests (MAF). This refers not only to forest management and other nature resources, but also to commitments related biodiversity conservation in some protected areas. This type of distribution of responsibilities
has significant shortcomings, which will be commented in the conclusions and summaries of the reports.

A particular unit in the NFB, responsible for conservation policy, is the 'Protected Areas, International Cooperation and NGO relations' Department. The staff is rather small - only four persons. The specialists in the department are in charge of policy conduct in the field of protected areas of the Nature park type (most often analogical to IUCN Category V).

**NGO participation in the decision making system**

Due to insufficiently developed capacities and resources in state sector, a great part of the activeness in the past 10 years in terms of decision making and initiativeness is made by NGOs. Large NGOs as Green Balkans, the Bulgarian Society for the Protection of Birds and the Bulgarian Swiss Biodiversity Conservation Programme have proposed more and much larger in size protected areas than the Government has. The same applies to the mediation for securing international donors.

NGO contribution is also significant in regard of legislation activities. Six projects have been implemented under the programme 'Public support to the reform in nature conservation legislation', administered by Green Balkans, funded by the USAID and the EU. As a result of this programme, 127 texts have been approved by the Parliament in leading nature conservation laws (Protected Areas Act, Biodiversity Act, Forest Act, etc.) Part of this programme has accelerated the ratification of the Convention on Biological Diversity in 1996.

The Government still does not appreciate this serious NGO contribution to the sector and does not provide opportunities for a legitimate participation in the decision-making system. For example, only two NGO representatives are part of the National Consultative Council for biodiversity conservation, who have been chosen according to subjective criteria and do not represent NGO sector in this field. The efforts of the NGO movement for challenging public discussion on the reports on international conventions and their publication in Internet are uncountable. This has not been done for the moment.

**5. Conclusions and recommendations**

Unfortunately, the progress in the legislative reform does not correspond to the development of structures and institutions in the country. At this stage, there are no adequate structures for nature and natural resource conservation in the country. The international integration required by the international commitments has not been implemented either (Convention on Biological Diversity and Pan European Biological and Landscape Diversity Strategy). Despite availability of good laws and national biological diversity conservation strategy, if they are not integrated into the inter-departmental and regional strategies, plans and programs, the effect of the reform will be very meager. Bulgarian nature-conservation society, NGOs and independent experts insist on urgent implementation of institutional and structural reform in the field of biological diversity conservation and management. For this purpose, nationally responsible decision-makers should make an adequate assessment of the values and significance of Bulgarian nature, as the greatest of the national riches. This assessment is supposed to lead to a change of nature-conservation policy in the following directions:

- Improvement of the capacity and ability of the National Nature Protection Service for making management decisions. The Head of the National
Service should receive statute equal to the Deputy Minister of Environment. The regional subdivisions of the Service should considerably increase their numerical strength.

- Adequate attitude of the state budget to nature conservation problems. The budget should assume its responsibility for the development of the National Service structures, as well as for the structures of the Ministry of Agriculture and Forests, in charge of forests and natural resources.

- Bulgarian Government should elaborate a program for integrating recommendations of the National Biological Diversity Conservation Strategy, National Action Plan and relevant international conventions into regional plans and programs.

- Bulgarian Government, together with National Municipality Society, should elaborate qualification development and education programs of different structures and hierarchy in the field of conservation and resource management. Reform in nature conservation policy could not be implemented without adequate capacity development.

- In the nearest future, Bulgarian Government should elaborate a mechanism for development of high biodiversity areas network and introduction of "Natura 2000" program for Bulgaria (requirement of the new Biological Diversity Act).

6. Implementation of the Pan European Biological and Landscape Diversity Strategy (PEBLDS)

**Background. Evaluation of the implementation.** The historical decisions of Rio '92 emerged in Bulgaria in extremely hard and troubled times. It was a period of an arduous economic crisis and dramatic political changes. This is the main reason for them to remain insufficiently noticed by the Bulgarian politicians and the public as well. It took long time for the Bulgarian nature-conservation community to realize that the impetus given by Rio is not enough for stimulating the reform in conservation policy.

The news about Bulgaria hosting the Ministerial conference "Environment for Europe" in October 1995, gave fresh hopes to the optimistic nature-lovers. Bulgarian nature-conservation NGOs hoped to use the high forum for stimulating the legislative and institutional reform in the field of biological and landscape diversity. All hopes and glances were set at the most important outcome of the conference - the Pan European Biological and Landscape Diversity Strategy (PEBLDS).

The arguments held by west European experts on the functionality and adequacy of PEBLDS, comparing it with the Habitat Directive and other documents for Bulgaria, seemed unsuitable and inappropriate. The simplicity and clarity of PEBLDS define it as the right document in the right time, especially as far as East European countries are concerned.

Unfortunately, PEBLDS was not followed by intergovernmental agreements and detailed financial plan stimulating its implementation. The European Commission remained non-committed
to this document, which provided an excuse for the national governments, including Bulgaria, to disregard it. Criticizing PEBLDS did not improve its position, but only gave its opponents and lazy politicians reasons to completely forget it.

In the period 1996-2000 the Bulgarian nature-conservation community repeatedly used PEBLDS texts as an instrument for exerting pressure for changing conservation policy. PEBLDS instrument might have served perfectly, as it integrated the best of CBD, Bern, and Bonn Conventions as well as the best of Directive 92/43, which were not ratified in Bulgaria at that time. An extremely important conclusion is that this pressure did not succeed not because PEBLDS didn't have enough qualities, but rather because it was not taken seriously by the East European politicians as well as by the European Commission.

Only now - in the middle 2003, when the East European countries are on the threshold of the European Union, there are certain reasons to state that we could do without PEBLDS, as stronger instruments are available (ratified package of conventions and integration of Directive 92/43). East European politicians should take their responsibility for not using PEBLDS in the right time. If they had done this, the reform in the conservation legislation and policy would have been considerably accelerated.

Although PEBLDS was born in Sofia, the study conducted by Green Balkans experts submitted the terrifying result - there wasn't even a single formal governmental document found in the period 1996-2003, regulating or introducing PEBLDS. There wasn't even a document, where the title of PEBLDS is officially cited!

The lack of any movement of information and decisions concerning PEBLDS introduction and implementation does not prevent the representatives of the Bulgarian MOEW from reporting implementation at various extent of some of its action themes. This is due to the fact that some action themes are normatively secured in the internal nature-conservation legislation and planned by the national Biological Diversity Conservation Strategy and the National Action Plan. The indisputable truth shared by many experts is that till 2001 there had not been any implementation of action themes from 0 to 8 inclusive. Even planning of such activities has not been done.

How incorrect reporting of PEBLDS implementation could be done? For example, using action themes 9, 10 and 11, on the basis of which various measures have been envisaged by the Bulgarian Natural protected Areas Act or the international donor initiatives. Although we consider this way of reporting PEBLDS implementation as incorrect, we will provide a brief comment on the implementation of the action themes.

The common point of all action themes from 4 to 11 is that they require a specific approach, comprising the elaboration of program guidelines, change in the legislation, preparation of practical codes and action plans for each ecosystem within the scope of these action themes. This approach has not been implemented anywhere in Bulgaria. There are no elaborated specialized codes for performance and management of the quoted ecosystems etc. This is the most significant evidence that governmental projects, whose background and planning was realized through PEBLDS, have not been implemented. For that reason, there is no point in commenting the lack of such initiatives in the overview of the action themes implementation given below.

The projects listed below (in action themes from 4 to 11 inclusive), which are used by governmental officials for reporting PEBLDS implementation, are actually conservation initiatives, mainly of private organizations for protection of particular habitats or species.
- Action Theme 0. Pan-European action to set up the process

As we already mentioned above, during the studies carried out, no traces were found concerning any movement of information or decision-making by the Bulgarian government, related to PEBLDS introduction and implementation. Even at the level of a working group within the National Nature Protection Service, there were no internal-administrative proceedings or documents, proving that this process had been discussed at all. As an exception from the adopted methodology, two interviews with high-standing state officials within the MOEW and NNPS system were held as a last measure. They could not remember any discussion on this topic in the period 1996-2000. It is possible that a state official, who we didn't manage to find at that time, might have participated in an international conference, but no such traces were found.

In the period 1996-2000, Bulgarian NGOs, including BSPB, Green Balkans etc., using various occasions, appealed to the government through declarations to start working on the implementation of the document. No explanation or reply to these declarations was received.

The texts of these declarations could be provided if requested from the donors or managers of the project.

- Action Theme 1. Establishing the Pan-European Ecological Network

In the beginning of 1996, at the environmental NGOs conference, a decision was made for using all occasions to exert pressure through PEBLDS instrument for launching NATURA 2000 process in Bulgaria. In the period 1996-2002, PEBLDS was the only accessible instrument that could be used for that purpose, as Bulgaria had not integrated the requirements of Directive 92/43 in its internal legislation. The Ministry of Environment and Waters, and, in particular, the national Nature Protection Service, bears all the responsibility for not making a single try to use PEBLDS as an instrument before the Ministerial council for ensuring the capacity and financial launching of the program NATURA 2000. Unlike other East European countries, where the National Nature Protection Services have taken similar steps, in Bulgaria this request to the Ministerial council has not been made by the Ministry of Environment and Waters. What is even more surprising, steps for launching NATURA 2000 have not been required from MOEW by the National Nature Protection Service. The conclusion drawn by the experts and the authors of the report is that the responsibility for that inertness during this five years' period is born entirely by the administration of the National Nature Protection Service. More precise diagnostics could be made of the process in Bulgaria - to a great extent this is personal responsibility, namely of Hristo Bozhinov - head of NNPS, who is also PEBLDS national coordinator.

PEBLDS was an extremely suitable instrument, through which the National Nature Protection Service had to demand minimum capacity from MOEW for launching NATURA 2000. Despite the financial problems of the country, this would be a good idea for ensuring international funding. Similarly, this process was launched in many other East European countries.

NATURA 2000 was launched in Bulgaria only this year, with a six-year delay, thanks to the International Donor Program of DANCEE. The justification of the start of this process is not based on PEBLDS, but on the new Biological Diversity Act, adopted on 10.08.2002, which integrates the requirements of the Habitat Directive 92/43.
**Action Theme 2. Integration of biological and landscape diversity consideration into sectoral policies**

This is one of the most important PEBLDS action themes. This action theme develops and supplements art. 6, paragraph B of the Convention on Biological Diversity. Again, the Bulgarian government did not make any efforts for the inter-sectoral integration process (1996-2003) not only as implementation of PEBLDS but as implementation of CBD as well.

The requirements for inter-sectoral integration of action theme 2 are not legally binding for the Bulgarian government, but the integration requirements of art. 6, paragraph B of CBD have a very strong legally binding effect. This is provided by art. 5 of the Bulgarian Constitution, which gives CBD strength that is much greater than the strength of the internal legislation. (See Box 2)

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**Box 2**

Constitution of the Republic of Bulgaria, Art. 5, paragraph 4

"International agreements, ratified in accordance with the constitution, promulgated and effective for the Republic of Bulgaria, are part of the internal law of the country. They have the advantage over those norms of the internal legislation that contradict them"

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The assessment was implemented by Green Balkans experts. Sectoral plans of different hierarchy in the field of agriculture, construction and regional development were also considered. With only a few exceptions, we might say that elements of inter-sectoral integration were not found. The surveyed documents not only lack integrating texts but also do not mention the titles of the ratified in Bulgaria conventions on biological diversity, PEBLDS and even the Bulgarian National Biological Diversity Conservation Strategy. Special attention was paid to the national document called “National Economic Development Plan”. In this document, which, fortunately, is still a project, the Pan European Biological and Landscape Diversity Strategy and the National Biological Diversity Conservation Strategy are mentioned on one page only, in the form of brief information on their contents. The volume of the document is more than 400 pages, covering all sectors of the country’s development, but requirements of the conservation documents are not transported anywhere in the separate sectors.

The document was subjected to an assessment in conformity with the test “Strategic Environmental Assessment Methodology”, prepared by the Hungarian Ecological Institute for Sustainable Development.

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**Action Theme 3. Raising awareness and support with policy makers and the public**

In general, the conclusion is that activities, close to the topic of action theme 3, have been implemented in a very small volume and under the initiative of private donors. Non-governmental organizations implement and realize various education programs, thanks to the international funding. Noteworthy is the program of Green Balkans, related to development of capacities in the field of biological diversity conservation, whose subject was the ecologists of 40 municipalities. The program envisaged training in usage of conservation instruments (international conventions, strategies etc.), as considerable attention was paid to PEBLDS (2 hours' lecture and exercises). Again, under Green Balkans’ initiative, the "Ecology" subject has been introduced as two-hour lecture in the program of "Paisiy Hilendarsky" Plovdiv University, since the very establishment of
PEBLDS (1995). This is the only case in the country, where this document is officially studied. The document is part of the subject "Environment management".

- **Action Theme 4. Conservation of landscapes**
  The topic is extremely actual and new for the country. So far, the main principles for establishment of protected areas are elements of biological diversity, species and habitats at the worst. Landscape, as conservation value, has not been used for designation of protected areas, except for rocky formations and spot sites. The conclusion is that an appropriate moment for using PEBLDS instrument for protection of areas valuable in landscape aspect was missed again. It was just recently when Bulgaria signed the European Landscape Convention, but the convention has not been ratified by the Bulgarian parliament yet.

- **Action Theme 5. Coastal and marine ecosystems**
  There are three designated protected areas of low conservation statute along the Bulgarian Black Sea coast, which are intended for protection of coastal and marine ecosystems. One of the most significant of these was violently destroyed by powerful groups close to the Government, namely because Bulgaria lacked suitable instrument for landscape protection. The low protection category according to the Bulgarian law (V under IUCN) entitles the local Municipality to claim and elaborate Management Plan, which does not undergo EIA, as according to this category such assessment is not obligatory. All things considered, 90% of the protected area was legally destroyed for the establishment of resort complex. The project of this complex is recorded as part of the implementation of the very Management Plan for the protected area. This was made possible since the order for protected area designation does not include protection of the beach and ecosystem, but only spot habitats of protected plants. The perpetration of such absurdity is possible when no instrument for landscape protection exists. This could be avoided if in 1996 the Bulgarian government, on the basis of PEBLDS, had integrated the requirements of action theme 5 into the municipal development plans, or at least in the protected area designation order.

- **Action Theme 6. River ecosystems and related wetlands and**
- **Action Theme 7. Inland wetland ecosystems**
  Here again, as in some other cases, the activities under these action themes (6-7.) are result of private and NGO initiatives. More significant projects in this field have been implemented along the Danube, under the initiative of WWF-DCP. Part of these projects is also the Strategy for the Protection and Restoration of Floodplain Forests on the Bulgarian Danube Islands, proposed to the government for implementation. This is the only document where one might say that the inter-sectoral integration principle is implemented. Unfortunately, this document has very limited territorial and institutional significance. The biggest project that was just recently launched in the country, directly related to action theme 6, is Wetlands Restoration and Nutrient Pollution Reduction project. This is governmental GEF project, administered by the World Bank and initiated by WWF - Danube Carpathian Program and Green Balkans. The goal of the project is the restoration of two large wetlands, situated on the islands and the bank of the Danube. Significant projects for wetlands protection are implemented by the Bulgarian-Swiss Biodiversity Conservation Program, as subjects of the projects are large wetlands, lagoons and fresh-water lakes along the Bulgarian Black Sea coast. For more
than 20 years, Green Balkans Society has implemented more than 8 small projects aiming at protecting the remnants of floodplain forests and habitats of colonially nesting birds along the Maritsa River. Six new natural protected areas have been designated as a result of these projects, as the wintering grounds of the Pygmy cormorant are of the highest European conservation significance (70% of the Pygmy cormorant population, which is a threatened species, winters along the Maritsa River).

- **Action Theme 8. Grassland ecosystems and**

- **Action Theme 9. Forest ecosystems and**

- **Action Theme 10. Mountain Ecosystems**

All the activities under these action themes (8-10) are initiated not on the basis of PEBLDS implementation, but on the basis of the Natural Protected Areas Act. Description could be given of many small projects, implemented by NGOs and institutes, whose purpose is expanding the protected areas network in these ecosystems or protection of particular habitats. It wouldn't be correct, if PEBLDS were credited with the achievements in these ecosystems. So, in order to reduce the volume, there is no need of providing detailed description.

- **Action Theme 11. Actions for threatened species**

Partial movement under this action theme could be reported, regarding the implementation of several conservation initiatives of NGOs and the government. There are already several Action Plans on species, mainly globally threatened birds. The plans are elaborated by Green Balkans and the Bulgarian Society for the Protection of Birds, but they are not officially approved yet. Concerning action theme 11, two small ex situ programs are being implemented in Bulgaria in the past years. The background of these programs is not PEBLDS but CITES.

7. Conclusions and recommendations

PEBLDS was adopted at the Environmental Ministers' meeting in Sofia, October 1995. In the beginning of 1995, and many years after that, the Bulgarian conservation policy desperately needed such instrument, but, unfortunately, the parliament and the governments did not understand this need. At that time the national conservation instruments were underdeveloped and weak (few of the international conventions were ratified, CBD was not ratified, and there was no approximation of the internal legislation).

Unfortunately, the administration of the Ministry of Environment and Waters and the National Nature Protection Service neither introduced nor used PEBLDS instrument in their policy. This caused considerable delay in the reform of nature-conservation legislation and conservation policy.

Often the responsible Bulgarian policy-makers try to report PEBLDS implementation incorrectly, especially as far as Action Themes from 5 to 10 are concerned, using the work done in pursuance of the Bulgarian nature-conservation acts, mainly Natural Protected Areas Act. Although many concrete conservation initiatives, close to the logic of these action themes,
have been implemented in the country, actually none of these initiatives is motivated neither follows PEBLDS logic.

The chance was missed for using the Strategy as a preventing instrument against the mass degradation of habitats at that time. Another chance was missed as well - the one related to the start of the inter-sectoral integration process. Green Balkans experts believe that the shortcomings of PEBLDS could not be an excuse, neither could they dispense the Bulgarian politicians of the responsibility for refusing its introduction.

The Pan European Strategy still has merits, which, if the will and good political intentions are there, could become the basis for the elaboration of good conservation instruments. The greatest advantage of PEBLDS is the combination of concise and clear style with allocation of responsibilities. We believe that PEBLDS shouldn't "die" but should be used as good guidelines for planning, management and inter-sectoral integration in the future as well.

Contact addresses

**Who have provided data?** Green Balkans experts, on the basis of surveys, research and assessments of governmental documents and publications.

**Who are in charge with the implementation of PEBLDS in Ministries?** The only person, formally responsible for PEBLDS, is Hristo Bozhinov - Director of the National Nature Protection Service.

**Which NGOs are dealing with PEBLDS?** As it was mentioned above in details, several Bulgarian NGOs have provoked the Government through various declarations and statements to implement PEBLDS. Actively involved were Green Balkans, Bulgarian Society for the Protection of Birds, Wilderness Fund, Balkani Wildlife Society etc. In the period 1996-2002, Green Balkans has implemented a series of educational projects for local capacity development and promotion of PEBLDS ideas.
### Table 1. Biological diversity in Bulgaria

<table>
<thead>
<tr>
<th>Groups of organisms</th>
<th>Described species</th>
<th>Endemic species</th>
<th>Rare species</th>
<th>Extinct species</th>
</tr>
</thead>
<tbody>
<tr>
<td>Protozoa</td>
<td>1800 (est.)</td>
<td>na</td>
<td>422</td>
<td>na</td>
</tr>
<tr>
<td>Fungi</td>
<td>3500 (est.)</td>
<td>na</td>
<td>na</td>
<td>na</td>
</tr>
<tr>
<td>Macromycetes</td>
<td>2100 (est.)</td>
<td>na</td>
<td>65</td>
<td></td>
</tr>
<tr>
<td>Plants</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Nonvascular plants</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Sea weeds</td>
<td>2998</td>
<td>na</td>
<td>22</td>
<td>2</td>
</tr>
<tr>
<td>Mosses</td>
<td>668</td>
<td>0</td>
<td>19</td>
<td>na</td>
</tr>
<tr>
<td>Others</td>
<td>187</td>
<td>0</td>
<td>38</td>
<td>4</td>
</tr>
<tr>
<td>Lichens</td>
<td>709</td>
<td>14 (est.)</td>
<td>25 (est.)</td>
<td>na</td>
</tr>
<tr>
<td>Vascular plants</td>
<td>3553-3750</td>
<td>na</td>
<td>728</td>
<td>31[10]</td>
</tr>
<tr>
<td>Pteridophytae</td>
<td>58</td>
<td>0</td>
<td>15</td>
<td>0</td>
</tr>
<tr>
<td>Gymnospermae</td>
<td>16</td>
<td>0</td>
<td>2</td>
<td>0</td>
</tr>
<tr>
<td>Animals[12]</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Invertaebrates</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Nematoda</td>
<td>517</td>
<td>24 (est.)</td>
<td>157</td>
<td>na</td>
</tr>
<tr>
<td>Oligochaeta</td>
<td>54</td>
<td>10[9]</td>
<td>8</td>
<td>na</td>
</tr>
<tr>
<td>Molluska</td>
<td>432</td>
<td>116[16]</td>
<td>60[17]</td>
<td>na</td>
</tr>
<tr>
<td>Arachnida</td>
<td>1266</td>
<td>79</td>
<td>322</td>
<td>na</td>
</tr>
<tr>
<td>Myriapoda</td>
<td>215</td>
<td>104</td>
<td>16</td>
<td>na</td>
</tr>
<tr>
<td>Vertebrates</td>
<td>700[29] (est.)</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Fish</td>
<td>Fish (total/Balck sea)</td>
<td>12[29]/ na</td>
<td>29/12</td>
<td>3[29]/0</td>
</tr>
<tr>
<td>Amphibians</td>
<td>16</td>
<td>1[28]</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td>Reptiles</td>
<td>36</td>
<td>4[29]</td>
<td>2</td>
<td>2[28]</td>
</tr>
<tr>
<td>Birds</td>
<td>383[31]</td>
<td>0</td>
<td>78[32]</td>
<td>9[31]</td>
</tr>
<tr>
<td>Mammals</td>
<td>94[34]</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Bats</td>
<td>29</td>
<td>0[35]</td>
<td>0[36]</td>
<td>0</td>
</tr>
<tr>
<td>Small mammals[37]</td>
<td>42</td>
<td>2[39]</td>
<td>0[39]</td>
<td>0</td>
</tr>
<tr>
<td>Large mammals[40]</td>
<td>23</td>
<td>4[41]</td>
<td>10[42]</td>
<td>2</td>
</tr>
</tbody>
</table>

**NOTE:** The information in the table is derived from the papers prepared for the National Biological Diversity Conservation Strategy workshop. (NBDCS, Reports, Volume 1). Key: est.= estimated, na = not available.
Notes for the table:

1. Includes species, subspecies, varieties, and forms from the classes Mymomycetes, Ascomycetes, and Basidiomycetes.
2. Proposed based on research undertaken for the NBDCS workshop.
3. There are four Black Sea macrophytes that are considered endemics.
4. These are all Black Sea species that are classified as rare or endangered.
5. Both are Black Sea species. Other extinctions are likely, but unconfirmed.
6. Hydatophytes, nestophytes, helophytes, and hydatoneustophytes.
8. Bulgarian flora also contains approximately 847 subspecies and 2000 varieties.
11. Bulgarian endemics. An additional 100 subspecies are considered Bulgarian endemics. Bulgarian higher flora contains 200 Balkan endemic species and sub species.
12. The 1985 Red Data Book of the People's Republic of Bulgaria, Vol. 2. Animals assumes a total of "about 35 000 animal species within the country's limits, of which nearly 18 000 have been described."
13. Does not include protozoa.
14. Includes 68 species that are considered Balkan endemics.
15. Species and subspecies.
16. Includes taxa other than species.
17. Includes taxa other than species.
18. Refers only to isopods.
19. Refers only to isopods.
20. Includes the following orders: Odonata, Ephemeroptera, Plecoptera, Homoptera (Auchenorrhyncha), Heteroptera, Coleoptera, Blattodea, Mantodea, Isoptera, Orthoptera, Dermaptera, Embioptera, Raphidioptera, Neuroptera, Mecoptera, Hymenoptera, Trilophoptera, Lepidoptera, and Hydrachdia.
21. The total number of insect species in Bulgaria is estimated at 29 500.
22. Species and subspecies, including 166 that are also considered Balkan endemics.
23. All from the order Ephemeroptera.
24. Includes both indigenous and introduced species.
25. Both numbers include species and subspecies.
26. Freshwater fish endemic to the Balkan Peninsula.
27. Known extinctions among all taxa in Bulgarian fish fauna.
28. Subspecies.
29. Subspecies.
30. Nearly all herpetofauna that are classified as rare in Bulgaria are common or numerous through their entire ranges. The two snake species noted here - Coluber rubriceps and Vipera aspis balkanica - are extremely rare within Bulgaria.
31. Includes resident, migratory and wintering birds.
32. Includes 16 globally threatened species as well as 61 that were listed as rare or threatened in the 1985 Red Data Book of the People's Republic of Bulgaria, Vol. 2. Animals.
33. Includes six species extirpated from the Bulgarian avifauna but which occur in Bulgaria during migrations.
35. There are seven bat species that occur rarely in Bulgaria, but which are common or abundant in other areas.
36. Three bat subspecies that were first described as Bulgarian endemics in 1936 are no longer recognised.
37. Includes Insectovora, lagomorpha, and Rodentia.
38. The ranges of these two species - the hamster Mecocricetus newtoni and the dormouse Yomimus roachi - are restricted; they occur mainly within Bulgarian territory.
39. Although no small mammal species are noted here as rare, a number of species can be considered rare depending on the definition of rarity. These include species with populations that are small and discontinuously distributed, limited in their distribution, or represented by small scattered populations at limited number of locations.
40. Includes Carnivora, Pinnipedia, Cetacea, and Artiodactyla.
41. Refers to the two endemic subspecies of dolphin and the endemic subspecies of chamois and European marbled polecat.
42. Includes species, subspecies, and populations considered rare, vulnerable, or endangered within Bulgaria.
CZECHIA

Introduction

The Czech Republic (or Czechia - both are official names) is an inland country lying in the centre of the temperate zone of the northern hemisphere in the central part of Europe. With an area of 78,866 km² it is the 21st in size among countries of Europe. Its population of 10,309,000 inhabitants places it in 12th position in Europe. The CR has state border with Poland, Germany, Austria and Slovakia. The main European watershed passes through the CR, separating watersheds of the Baltic Sea and Black Sea. The central node of this watershed is Kralicky Sneznik mountain, 1423 m above sea level. The CR is very rich in geological sources and mineral water.

The Czech Republic has a rich and varied ecosystem due to its location between different ecological regions and variations in geography from fertile plains to high mountains. The impact of human activity varies significantly, on the one hand there are areas that have been utilised intensively for hundreds of years, and on the other hand there remain areas of pristine forests with a minimum of human impact.

There are more than 200 environmentally oriented NGOs in the CR. The biggest one according to its membership is CSOP (8,000 members)

1. State of Nature

The values of various components of nature or types of landscape are different. Previously the main interest of wildlife protection was to preserve specific species and communities that were rare, nowadays it is essential also to protect typical phenomena and processes. It is important to preserve remnants of natural and original communities, the climax communities, but also specific succession communities.

The most important ecological communities in the Czech Republic include:

- Wetlands, including low-lying moors and bogs - sites with a high number of species, but also being the last refuges of several critically endangered species. Moreover, this is a land with a high capacity to retain water in the landscape, which protects against flooding.
- Natural forests - areas more or less influenced by man, and which have regained their original state by self-regulation or human action. On the whole they do not contain a large variety of species, but they are important for a number of species that are dependent on the specific conditions in natural forests.
- Lakes - water reservoirs formed by natural processes, often habitats of endemic or endangered species of fauna and flora.
- Free flowing rivers and streams. They serve an important role as examples for revitalising damaged or regulated streams and rivers. They often form bio-corridors connecting different natural areas, also between regions and countries.
- Damp meadows, mountain meadows - semi-natural communities maintained by regular human activity: hay-mowing or using as pasture. Important communities with a high abundance of species.
The most essential types of landscape include:

- mountain areas with little-disturbed wildlife, covered to a large extent by forest communities;
- mountain meadows with extensive farming, particularly with large-sized meadows and pastures;
- hilly areas with a typically rural structure of settlement, including fields, meadows, forests and freely-growing trees and shrubs;
- flood-plain sites along large rivers with abundant wetlands, natural forests and meadows.

Nature Conservation

The Czech Republic covers only 0.76% of Europe, but 35% of 1,278 species of European vertebrate live here. The country covers 0.05% of the dry surface of the Earth but 1.04% of the known vertebrate species lives here. To summarise: the country is rich in vertebrate biodiversity.

The biological potential of the Czech Republic is fairly high, which also indicates the high level of responsibility of the country for preserving the world's biodiversity. This is also highlighted by the high percentage of endangered species here.

The country still has some gaps in species conservation. As an example, there are significant problems with the protection of the wolf and the bear, which is linked to hunting and damage compensations. The critically endangered great bustard and the European roller have disappeared. Many other species are critically endangered.

One of the main causes of the unfavourable state of wildlife and landscape protection has been the preference of economic aspects to ecological ones. For example, intensification of forestry resulting in unnatural species structure of forests (spruce monocultures) has reduced the biodiversity in the forests, and also caused certain instability of the forest ecosystems (e.g. serious outbreaks of bark beetles).

Species protection can also show some significant victories. To mention just a few, one of them is the successful introduction of the sea eagle that has again become a nesting species, bringing the lynx to Sumava where it is starting to spread, or the beaver in Litovelské Pomoraví Protected Landscape Area. The populations of otter, lesser horseshoe bat, corncrake, European bee-eater, corn bunting and others are growing.

The country has a well-developed system of protected areas: national parks, nature reserves, protected landscape areas and natural monuments. Small-size specially protected areas (nature reserves and natural monuments) cover 824 km² in total or 1% of the country's surface. Since 1933, when the first reserves were declared, the number has increased from nil to nearly 1,757 specially protected areas.

There are 4 National Parks and 24 Protected Landscape Areas (PLAs) are an important element in the protected area system, covering over 10,000 km², about 13% of Czech land. Within the protected landscape areas, important landscape elements are identified, which can receive more stringent protection. These important elements are ecologically, geomorphologically or aesthetically valuable parts of the landscape that complement its typical appearance or contribute to its stability. In compliance with the law on nature and landscape protection, important landscape elements are defined as forests, peat bogs, rivers and streams, ponds, lakes and flood plains. The legal existence of important landscape elements and their fairly simple registration provide an important tool for the conservation of Czech landscapes.
principle of territorial system of ecological stability has been introduced in the Czech nature conservation. This is an active and dynamic approach, where the leading ideas are to create an interconnected network of ecosystems that maintain a natural balance, with local, regional and supra-regional systems, including buffer zones and restoration zones.

International commitments

Czech Republic participates actively in international activities in nature protection, e.g. in Man and Biosphere programme (MAB, EuroMAB), European Ecological Network programme (EECONET), European Network of Biogenetic Reserves, and bilateral nature protection schemes.

Due to the long traditions in nature protection and adoption of modern approaches, the Czech network of protected areas in general is relatively comprehensive and appropriate. There are core areas that are protected totally, there are buffer zones and ecological corridors. The nature protection authorities are aware of the few gaps in the network and the needs to develop it (however the situation is not very thoroughly analysed).

Incorporation of nature conservation considerations into other sectoral policies

One of the main challenges of PEBLDS has been: to integrate principles of nature conservation in all sectoral policies. This was prepared by the MoE and adopted by the government’s State program (see references) but it has never been implemented.

Institutional structure of nature conservation, responsibilities allocated

The Institutional structure of nature conservation can be seen on Fig. 1, where the state authorities and institutions of nature conservation in CR are shown.

Fig.1. Decision making system

<table>
<thead>
<tr>
<th>Government</th>
<th>Ministry of Environment state administration</th>
</tr>
</thead>
<tbody>
<tr>
<td>State Environmental Fund</td>
<td>National Parks headquarter state administration</td>
</tr>
<tr>
<td></td>
<td>Landscape Protected Areas (CHKO) state administratino</td>
</tr>
<tr>
<td></td>
<td>Czech Environmental Inspection state administration</td>
</tr>
<tr>
<td>Statutory cities</td>
<td>Regional offices state administration</td>
</tr>
<tr>
<td></td>
<td>Local authorities state administration</td>
</tr>
<tr>
<td></td>
<td>Agency for Nature Conservation and Landscape Protection scientific support</td>
</tr>
<tr>
<td>Institute of ornamental gardening</td>
<td>Geofond scientific support</td>
</tr>
<tr>
<td></td>
<td>Czech Geological Institute scientific support</td>
</tr>
<tr>
<td></td>
<td>Czech Ecological Institute scientific support</td>
</tr>
</tbody>
</table>
Czech state nature conservation is well developed and relatively well organised; from the level of the ministry to the level of National Parks (NP), Protected Landscape Areas (PLA) and Regional offices. However, on lower level (local authorities) big problems occurred after the reorganisation of the administrative units. There is no specialised institutions for conservation biology in Czech Republic. On the other hand there are institutions (e.g. Institute for Ornamental Gardening or Geofond) which are managed by the MoE but they do not help with any problem which the MoE has to solve.

2. Implementation of the PEBLDS

PEBLDS was prepared in Strasbourg as a document between CBD and EU legislation to prepare a Pan-European document. After signing the document in Sofia nobody has taken care about the implementation of this document at all in Czech Republic. CBD has been in Czechia insufficiently implemented, while PEBLDS has NOT been IMPLEMENTED. One might ask the question why has the situation evolved this way in the case of PEBLDS. This question is really difficult to answer! One of the reasons for this is that in 1998 the Czech Republic started the process of the implementation of the EU legislation in the field of environment and nature conservation and from that time it has been the top priority for the government, the MoE and other governmental organisations. Because of this some goals were reached anyway (it is described in the specific Action Themes.) In other words - there are paradoxically some remarkable success, which are described below, but they are NOT the results of the PEBLDS implementation.

Action Theme 0. Pan-European action to set up the process
No action has been taken to promote an international (pan-European) co-operation.

Action Theme 1. Establishing the Pan-European Ecological Network
The Czech Nature Conservation Law sets the legal provision for the establishment of an Ecological Network in the Czech Republic. Every landscape plan has to contain a concept of an Ecological Network. Another proposal is to join an international eco- logical network.

Action Theme 2. Integration of biological and landscape diversity consideration into sectoral policies
One of the main challenges of PEBLDS has been to integrate principles of nature conservation into all sectoral policies. This was prepared by the MoE and adopted by the government's State program (see references) but it has never been implemented.

Action Theme 3. Raising awareness and support with policy makers and the public
No action has been taken.

Action Theme 4. Conservation of landscapes
Convention on protection of European landscapes, which was signed by Czech Republic, is in the process of ratification.

Action Theme 5. Coastal and marine ecosystems
Not relevant to the Czech Republic, as the country do not have any marine ecosystems.
**Action Theme 6. River ecosystems and related wetlands**
No action has been taken in the framework of the PEBLDS. However, there have been many activities due to Ramsar Convention and State Environmental Fund, State Program for Revitalisation of River Systems, State Program for Landscape Management.

**Action Theme 7. Inland wetland ecosystems**
No action has been taken in the framework of the PEBLDS. However, there have been many activities due to Ramsar Convention and State Environmental Fund, State Program for Revitalisation of River Systems, State Program for Landscape Management.

**Action Theme 8. Grassland ecosystems**
No action has been taken in the framework of the PEBLDS. But due to SAPARD program there are 5 PLA (Moravsky kras, Litovelske pomoravi, Bile karpaty, Poodri and Blanik) as a pilot project included in the Agro-environmental programs for conserving valuable grasslands.
For example: There is a goal in National program of nature and landscape conservation of the CR (see references) to reduce arable land from 75 % to 65 % of the whole agriculture land till 2005 (compare in the Netherlands the rate of the arable land is 45 % and in Austria is 40 %). This goal fits in the action theme 8. It is good and technically achievable but now it is clear, that it will not be fulfilled. Some funds are available to support restoring arable land to meadow or pasture, but the amount of these funds are very low.

**Action Theme 9. Forest ecosystems**
No action has been taken in the framework of the PEBLDS. However, with strong opposition of the Ministry of Agriculture and State Forestry Enterprise (Lesy Ceske Republiky) the Czech committee of Ecological Forestry (FSC-CR) - Forest Stewardship Council was established in 2001. There has been resigned only one certified forest - Masarykuv les near Brno (10 000 hectares). On the other hand also State Forestry Enterprise takes some measures for higher biodiversity in forest but not in the framework of the PEBLDS: a program of reintroduction of big predators runs, and a strategy is carried out for reducing numbers of ungulates in forest, etc.
As a bad example we can mention, although according to the State program of nature and landscape conservation of the CR the proportion of native tree species especially oak and birch has to be doubled till 2030. But no implementation plan has been adopted until now.

**Action Theme 10. Mountain Ecosystems**
We do not have great mountain range with glaciers like in the Alps or Tatras. Mountains of medium height as Sumava, Krkonoce, Jeseniky or Beskydy are protected as a PLA and many measures for conservation of biodiversity are taken resulting from the status of PLA but not in the framework of PEBLDS.

**Action Theme 11. Actions for threatened species**
No action has been taken in the framework of the PEBLDS. However, there were many activities due to State Environmental Fund, State Program for Landscape Management (e.g. lynx, fish otter, beaver etc).
3. NGO Evaluation and recommendation

In Czech Republic PEBLDS has not been implemented at all. Nobody know about this convention, nobody take care about it. It is not more than a sheet of paper. The Czech version of the text was published once in the magazine of the State Nature Conservation (Ochrana prírody) but it was neglected and not used. Czech NGOs have the opinion, that the only way to implement PEBLDS is to establish some legal or financial mechanisms, that is designed exclusively for the implementation of the PEBLDS. For example: the implementation of the EU Habitats and Birds Directives is supported by the Life program. Similar one for PEBLDS would be a good tool. An alternative could be that every state should pay one million Euro to a common budged every year, which can be used only for the implementation of the PEBLDS.

No co-ordinated action has been done under the PEBLDS till 1998 - it does not mean, that activities and goals listed in the strategy are stupid or not relevant. Just the opposite. But it has remained only theory. It is necessary to invent practical, achievable steps which will be supported, monitored and controlled (By whom?). If it is not possible - we suggested forgetting PEBLDS for ever.

Contact addresses
Theoretically Bohumir Kucera and/or Jan Plesnik in the Agency for Nature Conservation and Landscape Protection are responsible for the PEBLDS. But there is no reference to the PEBLDS in the official materials of this organisation or the MoE. Nothing can be found on web pages at all. Nobody in the Ministries is in charge of the implementation of PEBLDS. It is not a critical comment from the site of the radical NGO - this is a simple fact.

Formally no NGO is dealing with the PEBLDS. Practically all organisations, which are interested in biodiversity. Especially:

Czech Union for Nature Conservation
Hnuti Duha Movement- Friends of the Earth CR
Czech Ornithological Society
Arnica - association for Nature Conservation

References:
Pan -European Biological and Landscape Diversity Strategy. Council of Europe, Strasbourg 1998, 68 pp
Fakta a data o zivotním prostredí (Facts and dates about Environment - in Czech), MoE Praha, 2002, 74 pp
Statni program ochrany prirudy a krajiny CR (State program nature and landscape conservation of the CR- in Czech), Praha, 1998, 35 pp
Annual Report 2001 - Direction of Protected Landscape Areas of the CR - (In Czech and English) Praha, 2002, 66 pp
State Environmental Policy, Praha, 1999, 69 pp

Abbreviations:
MoE - Ministry of Environment
CR - The Czech Republic, Czechia
PLA - Protected Landscape Area
NP - National Park
Geofond - Geological fond (GO for registration of mineral richness)
Introduction

The Republic of Estonia is situated on the East Coast of the Baltic Sea, in the northwest part of the East-European platform. The total length of Estonia's land border is 663 km, including 294 km land border with the Russian Federation and 339 km with the Republic of Latvia. The coastline length is 3794 km; the scope of territorial waters is 12 miles. The area of the Republic of Estonia is 45,227 km². Estonia is the smallest of the Baltic States, with a total population of 1.439 million (1 January 2000). The average population density is 32 inhabitants/km², which is well below the European Union (EU) average of 114 inhabitants/km². Over 70% of the population is concentrated in urban zones, and population density within the country therefore varies considerably from the highly populated northern coast to the sparsely populated rural south. The territory of the state is divided into 15 counties. Each county has a county government headed by the county governor appointed by the Government of the Republic. Local issues are decided and organised by local governments. Local government units are rural municipalities and cities. There are 206 rural municipalities and 47 cities in Estonia.

The Republic of Estonia restored its independence in August 1991 and its new democratic constitution was approved in June 1992. Estonia is a parliamentary democracy - its parliament, the Riigikogu, consists of 101 members elected for a 4-year-period. Four parliamentary elections have been held after Estonia regained its independence. The Government of the Republic of Estonia is formed on the basis of coalition of parties represented in the parliament. The President of the Republic of Estonia performs the functions of representing the state and is elected for a 5-year-period.

Substantial restructuring of the Estonian economy towards market economy and establishment of the country's own national economic institutions started in 1989-1990. An essential step in transition to market economy was the currency reform of summer 1992, which created a basis for further macro-economic stabilisation. Most of the "ordinary" (i.e. non-infrastructural) enterprises were privatised during 1992-1995, mainly for privatisation securities (EVP-s) or cash, i.e. not for vouchers as in the majority of post-socialist countries. Foreign capital has been very active in Estonia: Estonia surpasses all other post-socialist countries except Hungary in terms of direct investments per capita. Rapid development and activeness of domestic newly-launched enterprises has also played an important role in successful economic transition in Estonia. As Estonia did not endeavour to preserve the former economic structures of the Soviet period, restructuring caused a considerably sharper economic decline here than in the formally independent post-socialist countries of Central Europe. A new economic growth started in early 1995. By then a fundamental change in the structure of economy had already been effected: the share of agriculture and industry in the GDP had sharply decreased while the share of the services sector had increased.

Today, a dozen years since Estonia regained its independence, it has to be recognized that civic initiative movements have a far less significant role in the society and political culture than prior to and during the restoration of independence. Today, Estonia's society is still undergoing the phase of recognizing the legitimacy of non-governmental organizations
(NGOs). However, without the contribution of NGOs it would be difficult to imagine how the norms, values and habits related to sustainable development, including the environmental aspects, could find common acceptance in the society. Identification of NGOs as channels for participation in civic initiative as well as the main watchdogs of legitimacy (and, thereby, also of the openness and dynamic nature of the society) is largely a task for the future.

1. State of nature and nature conservation

Estonia lies almost entirely within the drainage area of the Baltic Sea. In the west and north it has a long coastline on the Baltic Sea with more than 1,500 islands. It has approximately 3,780 km of coastline. The variety and mosaic of Estonian landscape results from the differences in bedrock and the retreating ice shield, which radically changed the appearance of the country after the last glacial period. Significant differences in climatic conditions over only a few hundred kilometres (from typical maritime to typical continental) have created diverse ecosystems. The variety of soil types has resulted in favourable conditions for flora and fauna. Beside the diverse natural conditions, unique changes in the land-use have occurred with four principal land reforms carried out during the 20th century. The last reform (since 1990), involved land re-privatisation and the re-transformation from industrialized agriculture to small-scale land-use.

Biological diversity

Estonia retains a rich diversity of flora and fauna, including the preserved wooded meadows in western Estonia, which have remained under traditional usage. The preservation of bogs, wooded meadows and wetland forests - mostly destroyed in the rest of Europe - is largely a result of the late introduction of intensive land use practices and the continued use of manual labour until relatively recently.

Thanks to variable natural conditions Estonia is rich in species and habitats and the biodiversity is remarkably well preserved. Several species, threatened on a European scale, are abundant in Estonia (e.g. beaver, wolf, otter, black and white stork, corncrake, lesser spotted eagle, cranes, etc.). This is probably due to relatively low human population density and to a lack of economic development during the Soviet period and to long-term nature conservation traditions starting from the beginning of the 20th century. The preservation of bogs, wooded meadows, wetlands, forests and several other landscape types, mostly destroyed in the rest of Europe, and the establishment of an extensive system of protected areas have been possible through the joint efforts of nature conservation activists and dedicated scientists, and support from the general public.

The Estonian National biodiversity report concludes that when compared to other regions with similar areas situated between 57th and 59th northern latitudes, the diversity of flora and fauna in Estonia is one of the richest in the world. The main reasons for it are:

- diversity of current and post-glacial climatic conditions;
- the existence of both islands (Estonia) and continent;
- the influence of the Baltic Sea;
- long coastline and large number of inland waters;
- diversity of soils (simultaneous occurrence of limestone and sandstone as a base for the formation of soils, and the resulting incidence of neutral, lime-rich and lime-poor soils);
varying surface forms and water regimes determined by young and developing post-glacial relief;
• transition of biogeographic regions and coexistence of species of boreal coniferous and nemoral broad-leaved forests;
• extension of a large number of species distribution range borders to the territory of Estonia;
• large proportion of natural landscapes;
• retention of traditional land use methods until the middle (and in many cases until the end) of the 20th century, extensive maintenance of semi-natural habitats and the limited role of alien tree species in forestry.

Habitat types
On a global scale Estonia has a relatively high level of biodiversity. For instance, in Estonia altogether 22 site-types and 71 forest types have been identified according to Estonian classification. The most important types include dry pine forests on sandy soils, temperate spruce forests, transitional swampy forests, dry heath pine forests, bog pine forests, fen birch forests, species-rich swampy black alder forests, floodplain forests and alvar forests. According to official data, 49% of the Estonian territory is covered with forests and forest lands (young forest plantations, open woodlands and bogs covered with trees). Estonia belongs to the temperate hardwood-coniferous forest zone. As a result of geographical location, there are features of both taiga and broadleaved forests.

Grasslands, meadows and natural or semi-natural pastures are some of the vegetation types most characteristic of Estonia. In 1939 these areas covered 24.5% of the territory. During the last fifty years the area of grasslands (meadows and pastures) has remarkably decreased. Mires cover approximately 9150 km² or 21.5%, together with water-logged areas where the peat layer is less than 30 cm, even 31% of the territory of Estonia. Fens (eutrophic mires) cover 57%, transitional (mesotrophic) mires 12%, and bogs (oligotrophic mires) 31% of the total area under mires. Estonian mires are deep-layered, hundreds of bogs have peat layers thicker than 5 m.

The list of existing habitat types is given according to Annex I of Habitat Directive. The code corresponds to the NATURA 2000 code and the sign '*' indicates priority habitat types.

Biological Corridors
Estonian green (ecological) network has been prepared and approved within the framework of the Planning and Building Act, by the long-term spatial strategy "Estonia - Vision 2010". The vision contains a chapter on "green networks" and a schematic map of the Estonian green network. Due to the abundance of natural landscapes and landscapes in close to natural condition, the green network in Estonia does not have to be constructed but rather "developed" from reality and perception. As a result, the network is quite large in area, covering more than 50% of the territory. For identification of core areas two criteria were used in this work - the size of the area in natural condition and its conservation value. Core areas of international importance are compact natural areas with a territory of at least 100 sq/km. In Estonia these form 12 major core areas (predominantly forests and swamps). Core areas of national importance are natural areas with a territory of at least 15 sq/km. Core areas of international importance are so large, guarded by protective measures and in the main located beyond the predictable concentration of economic interests, that there will be few
problems with their survival. The core areas are linked with corridors that are comprised of linear elements in the landscape, e.g. river valleys and valley flats, as well as interconnected parts of forests and coppices. Corridors bind the core areas into a structural whole, making the spread of species and exchange in the genotype of the association possible, thus undoing local damage to nature and recreating biodiversity" The national plan, Estonia 2010, has been approved and the action plan for its implementation adopted by Government Order No. 770-k of 19/09/00.

In 1999, the Government decree for the second phase of county planning (1999-2002) on defining environmental conditions for the development of land-use and settlement structure, was issued. The main tasks of the second phase of county planning include the design of green networks and defining valuable cultural/historical landscapes. By December 2003, each of the 15 counties of Estonia is obligated to prepare a map of ecological networks on a scale of 1: 50,000, as one of the layers of thematic spatial planning. Core areas and ecological corridors at different scales will be defined. In Estonian methodology the following criteria are considered during the pre-selection of corridors:

- the location of core areas;
- the morphometry of natural areas;
- corridors created by the implementation of legal Acts (for instance the Coastal protection Act, 1995 defines buffer zones for the water network);
- the location of settlements and other infrastructures (transport etc.);
- relief (location of primeval valleys, river valleys, etc.);
- the landscape characteristics of the area;
- the location of valued areas from the natural, environmental and heritage point of view;
- the actual or historical presence of species dispersal and migration ways ("dispersal and migration corridors"); chains of singular and small nature objects which are under the protection or valuable.

**Species and Genetic Diversity**

The Estonian territory is traversed by an important European biogeographical borderline which divides area into two provinces. Phytogeographically, the western part of the country belongs to the Mid-European province (on Ordovician-Silurian limestone bedrock with alvars, calciphilous fens, rich-in-species wooded meadows, broad-leaved forests, numerous calciphilous species dominating in plant communities, etc.). The eastern part belongs to the East-European province (with acid soils on Devonian sandstone bedrock, acidophilous plant communities with dominating pine in forests).

Many plant species are at their distribution border in Estonia (these are the so-called margin-species). It has been found out that 251 higher plants species in Estonia are on their northern, southern, eastern or western margin: 71 species on the northern margin (Cladium mariscus, Heliochrysum arenarium, Berula erecta, etc.), 50 species on the eastern margin (Juncus subnodulosus, Litorella uniflora, etc.), 32 species on the southeastern margin (Cornus suecica, Cochlearia danica, etc.), 9 species on the southern margin (Botrychium lanceolatum, Carex glareosa, etc.), 14 species on the southwestern margin (Carex brunnescens, C. globularis, etc.), 16 species on the western margin (Chamaedaphne calyculata, etc.), 59 species on the northwestern margin (Arenaria procera, Trisetum sibiricum, etc.).
During one century many vascular plants, lichens and bryophytes have become extinct in the flora of Estonia or have become very rare. Extinct in the flora are Alisma lanceolatum, Blechnum spicant, Botrychium lanceolatum, B. simplex, Carex rhynchophysa, Cochlearia officinalis, Crassula aquatica, Eleocharis ovata, Erica tetralix, Galium schultesii, Geranium columbinum, Hypericum humifusum, Juncus anceps, Melica ciliata, Orchis coriophora, Scrophularia auriculata (17 species).

Bryophytes are a very important component in the ecosystems of Estonia, especially in forests and mires. Of the 507 known species, 350 belong to the order Bryales, 120 to Hepaticae, 37 to Sphagnales. More than 100 moss species in Estonia are rare and endangered, 21 species have become extinct.

Algae (together with Cyanophyta which are transferred to Bacteria as Cyanobacteria in modern times) is a species-rich macrogroup in Estonian biota: at present we know more than 2500 freshwater, marine, soil and aerophilous algae species. One species of Phaeophyta, Waerniella lucifuga, is extinct.

Fungi is the greatest macrogroup in the old Kingdom of Plants with its 3,461 species; they grow on 1,160 phorophytes (on fir - 157 species, on pine - 121). The largest groups of mushrooms are Agaricales (772 species), Aphyllorhophorales (388), Uredinales (275), Helotiales (225), etc. There are data concerning 300 edible species among mushrooms (production 35,000 t/yr), 15 species have been found poisonous.

Lichen-flora consists of 786 species while its composition consist of many highly rare arcto-alpine, nemoral, xerocontinental and oceanic species. Lichens suffer essentially from air pollution - 38 macrolichen species have become extinct during the last five decades. Lichens are actively used in Estonia as the litmus organisms of air pollution levels in ecological monitoring.

Zoogeographically, Estonia is situated within a transitional area of the Western and Eastern Palearctic regions, while Western Palearctic species are dominating. The development of this fauna has particularly been influenced by the Baltic Sea, and, of course, by various types of inland waterbodies.

Invertebrates is naturally the greatest macrogroup - 11,597 species are known. There are many rare, relict and endangered species of various (subarctic, boreal, atlantic, subboreal) climatic periods among Protozoa, Nematbedmintes, Annelida, Mollusca and Arthropoda. The richest with respect to the species composition in invertebrate groups are insects - nearly 10,000 species (including Coleoptera, about 3,050 species, Lepidoptera, 1,787, Diptera, 2,113 species). Several invertebrate species are under national protection: the Freshwater Pearl Mussel Margaritifera margaritifera, the Common Red Ant Formica rufa.

The list of the Estonian vertebrates consists of 488 species, including the vertebrates which are naturally spread in Estonia and 8 wildbreeding introduced species. Cyclostomes (Cyclostomata) are represented by three species. Two species (the River Lamprey Lampetra fluviatilis and the Brook Lamprey L. planeri) are common while the Sea Lamprey Petromyzon marinus has been found occasionally. Fish-fauna (Pisces, 73 species) includes only 1 chondrostean fish species. The Atlantic Sturgeon Acipenser sturio, one of the protected fish species, has been recorded in the Estonian waters in 1997 the latest. Of teleost fishes 31 marine species include the most important commercial fishes (the Baltic Herring Clupea harengus membras, the Baltic Sprat Sprattus sprattus balticus), and also several saltwater species which appear only rarely in Estonian brackish coastal waters. Numbers of most migratory fish species (the Atlantic Salmon Salmo salar, the Sea Trout Salmo trutta trutta, the Vimba Bream Vimba vimba) have declined during the past decades, mainly due to hydrotechnical constructions and the pollution of spawning areas. Most freshwater fish (about 30 species) are also spread in the
brackish coastal waters of the Baltic sea. The protected teleosts (the Wels Silurus glanis, the Grayling Thymallus thymallus and the Asp Aspius aspius) are distributed only in freshwaters. In addition to the Baltic Sea, commercial fisheries are well developed on our largest lakes, Peipus (Peipsi) and Võrtsjärv.

There are 11 species of amphibians (Amphibia) recorded in Estonia; however, the occurrence of the Marsh Frog Rana ridibunda in Estonia is not certain. Some species are relatively widely distributed (the Grass Frog Rana temporaria, the Moor Frog R. arvalis, the Common Toad Bufo bufo, the Smooth Newt Triturus vulgaris), others are more or less rare or sporadic (the Crested Newt Triturus cristatus, the Common Spadefoot Pelobates fuscus, the Natterjack Bufo calamita, the Green Toad Bufo viridis, the Edible Frog Rana esculenta, the Pool Frog R. lessonae).

Reptiles (Reptilia) are represented by 5 species (including the widely distributed Viviparous Lizard Lacerta vivipara, the Adder Vipera berus, the Grass Snake Natrix natrix). The listed reptiles as well as the Slow-worm Anquis fragilis and the still rarer Sand Lizard Lacerta agilis are included in the list of protected animal species.

Of the 332 bird species, 222 are breeding in Estonia (206 regularly); in addition to those, dozens of species have been recorded as transit migrants and/or winter visitors (e.g. the Bewick’s Swan - Cygnus columbianus, the Long-tailed Duck - Clangula hyemalis, the Redpoll - Carduelis flammea, the Common Scoter - Melanitta nigra, etc.). Many species have declined in numbers (e.g. the Great Snipe - Gallinago media, the Willow Grouse - Lagopus lagopus, the Roller - Coracias garrulus etc.), therefore a number of species (56) have been included in the Red Data Book. On the other hand, some species whose abundance is decreasing in Western Europe have increased in numbers in Estonia, e.g. the White Stork (Ciconia ciconia) and White-tailed Eagle (Haliaeetus albicilla) which are interesting objects of study for many Nordic and western ornithologists who visit Estonia. The populations of several gull and passerine species are increasing while they often become urban inhabitants. The Estonian bird fauna is protected and thoroughly studied in the national parks (Vilsandi), state nature reserves (Matsalu), and bird sanctuaries. Bird hunting has considerably declined during this century. At present, game birds are represented by many ducks, doves, coots, geese and some waders.

Sixty-four (64) mammal species have been recorded in Estonia. Five (5) species having been introduced into the Estonian fauna (the Raccoon Dog Nyctereutes procyonoides, the American Mink Mustela vison, the Muskrat Ondatra zibethicus, the Red Deer Cervus elaphus. The European Beaver Castor fiber became extinct in the mid-19th century but a vital population exists in Estonia again since the 1950s due to its reintroduction from Russia.

Twenty-nine (29) mammal species have been taken under national protection. The endangered mammal species in Estonia are the European Mink Mustela lutreola, the Flying Squirrel Pteromys volans and the gleridans (Gleridae).

At present, 17 mammal species are used as game animals; the Moose Alces alces, the Wild Boar Sus scrofa and the Roe Deer Capreolus capreolus being of high commercial importance. Thanks to reasonable hunting policy, moderate forest management, etc. the abundance of several mammal species strictly protected elsewhere in Europe, have considerably increased during the last 60 years and have been included in the list of game animals in Estonia (e.g. the Wolf Canis lupus, the Lynx Felis lynx, the Brown Bear Ursus arctos).

Priority Areas from nature conservation point of view

The overall priorities for biodiversity conservation in Estonia are set in the National Environmental Strategy (1997):

This strategy specifies the trends and priority goals of environmental management and pro-
tection, and sets the main short-term and long-term tasks to be achieved by 2000 and 2010, respectively. The National Environmental Strategy proceeds from the main traditional goal of environmental protection - which is to provide people with a healthy environment and natural resources necessary to promote economic development without causing significant damage to nature, and to preserve the diversity of landscapes and biodiversity while taking into consideration the level of economic development. The priorities presented in the strategy are taken into account when planning environmental activities, developing international co-operation and allocating national funds.

Estonian Environmental Strategy contains the following aims on the maintenance of biodiversity and landscapes.

**Goal: to ensure preservation of viable populations of local plant and animal species, natural and semi-natural communities and landscapes typical of Estonia.**

**Tasks by the year 2000:**
- to improve protection of plant and animal species, their habitats and landscapes in accordance with revised legislation, bearing in mind international agreements and European Union requirements;
- to improve the existing network of nature reserves in accordance with EU recommendations in order to ensure protection of ecosystems;
- to establish a network of protected forests according to nature conservation criteria thus ensuring preservation of all natural and semi-natural forest types and communities.

**Tasks by the year 2010:**
- to establish a network of nature reserves corresponding to EU recommendations where zones of strict protection (strict nature reserves and special management zones) would cover up to 5% of the terrestrial area of Estonia.

**Human Impact**

The National Environmental Strategy (1997) highlights the following problems as factors endangering biological diversity: loss of semi-natural habitats, excessive population density in roadside and waterside areas, damaging of vulnerable communities due to local excessive intensity of economic activity, formation of extensive waterlogged wasteland in fallow fields, and enhancement of the above negative trends due to public attitudes that underestimate the need to preserve biodiversity.

The Soviet period (1940-91) brought about changed land uses and landscapes. The principal trends:

1. overall decrease in agricultural land and increase in forested land;
2. continuing decline in natural grasslands;
3. simplification and/or polarisation of landscape structure.

During this extremely short time-period, the patchy mosaic type of landscape, characterised by small fields, grasslands and woodlots, was re-organised and replaced by extensive fields and extensive forests. Cultivated lands were transformed from small to large units especially because of wider use of industrial methods in agriculture. It has resulted in contrary tendencies in land use and loss of valuable habitats. Meadows, marshes and fens have been drained for cultivation, and some decades later been abandoned. Meadows rich in species have been
cultivated into grasslands, while others have been afforested or overgrown with scrub. Water bodies have eutrophicated caused by increasing use of fertilisers. By 2001 the percentage of arable lands (incl. sown lands) in Estonia was the same as the European average.

Recent political and economic changes have caused considerable changes in human interaction with nature. Intensive utilisation of forest resources has started as a result of the fact that almost half of forest areas are becoming privately owned and many private forest owners regard it as a source of quick income. The proportion of old stands, which are the most important for threatened plants and animals, have particularly decreased. Forestry activities can also indirectly affect animal populations by disturbance during reproductive periods.

Due to land reform and the development of recreational activities, pressure is also increasing on coastal areas. On the other hand, agricultural development is experiencing significant decline, which reduces the pressure from agriculture activities on landscapes (e.g. decrease of fertiliser and pesticide use), but also results in loss of valuable agro-habits. Numerous semi-natural grasslands and former pastures are becoming overgrown with brush, as farmers quite often have no capacity to continue grazing and grass cutting and traditional agriculture practices are unprofitable.

Since Estonian industry is quite localised, its effects on biological diversity are more slight than one would expect considering the contribution of the industrial sector to Estonia's gross national product. The situation is also eased by the fact that the raw-material intensive and environmentally "dirty" industries bequeathed by the former Soviet Union have mostly folded up and the predicted moderate industrial growth in Estonia will be built on more modern technology. Mining is in steady decline especially oil shale mining, which has the greatest environmental impact.

Agriculture has a major influence upon the rural environment and can both create and destroy the quality of natural resources and the traditional features of rural areas. Estonian agriculture is no exception to this. Many centuries of traditional agricultural practices have contributed to the creation of varied landscapes and valuable habitats in Estonia. However, the expansion and intensification of agriculture during the Soviet period also resulted in major damage to the rural environment with the deterioration of many landscape features, damage to valuable wildlife habitats, loss of species diversity and the pollution of soil and water. The main trends in land-use dynamics in Estonia have been a decrease in the proportion of agricultural land, especially semi-natural grasslands (from 65 % in 1918 to 30 % in 2000) and an increase in the proportion of forests (from 21 to 49 %, respectively). The most relevant driving factors of this shift have been land reforms, collectivisation, formation of the Soviet border zone along the coasts, concentration of agricultural production, and urbanization. The area used for agricultural production has significantly decreased during the last 10 years due to the effects of agricultural restructuring and land reform. The resultant decline in animal and crop production has also altered the traditional patterns of land use.

The land reform, which started in October 1991, has not yet been completed. Restitution of land and changes in the land ownership caused major impact on the land use and, thus, on the habitats. On the one hand, the set-aside land soon becomes overgrown and reforestation process develops. On the other hand, the structure of the established land-use systems is changing: natural or semi-natural meadows are ploughed into fields and forests are clear-cut. Commercial pressure on certain habitat types is strong. Mature birch, pine, spruce and aspen forests suffer severely.
There is no comprehensive overview of introduced species to Estonia available. However, individual scientists have much information about certain groups of alien species in Estonia.

**International commitments**

As is the case for many other environmental problems, the loss of biodiversity is a problem that can only be resolved internationally, in cooperation of several instruments. Other international nature conservation agreements besides the CBD are still playing crucial role by regulating activities in particular areas of biodiversity protection. Numerous of these international forums are or could be of significance for Estonian biodiversity. After the restoration of independence in 1991 Estonia signed and ratified several international conventions on nature conservation (Table 1). The obligations coming from international agreements are gradually being introduced into national legislation.

**Table 1. Ratification of the nature conservation conventions**

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<th>Place and date of signature</th>
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<tr>
<td>Convention on Wetlands of International Importance Especially as Waterfowl Habitats</td>
<td>Ramsar, 1971</td>
<td>1993</td>
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<tr>
<td>Convention on the Conservation of European Wildlife and Natural Habitats</td>
<td>Bern, 1979</td>
<td>1992</td>
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<tr>
<td>Convention of the Conservation of Migratory Species of Wild Animals</td>
<td>Bonn, 1979</td>
<td>Not signed</td>
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<tr>
<td>European landscape convention</td>
<td>Florence, 2000</td>
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The Bern (1979) Convention on the Conservation of European Wildlife and Natural Habitats (entered into force for Estonia by 23.08.1992); The purpose of the convention to protect European species of wild animals and plants and their habitats with a special emphasis to endangered and vulnerable species does coincide many ways with the goals of Biodiversity Convention.

Ramsar (1971) Convention on Wetlands of International Importance Especially as Waterfowl Habitat, ratified by Estonia in 1993. The former Soviet Union included Matsalu on the list of Ramsar sites already in the 1970's. Estonia re-designated the area in 1994 as an Estonian Ramsar site. Since 1998 there are 10 Ramsar sites in Estonia: Matsalu Nature Reserve, Soomaa National Park, Nigula Nature Reserve, the Muraka Nature Reserve, Puhuto-Laetatu-Nehatu Nature Reserve, Islets of Hiiumaa with Käina Bay La, Alam-Pedja Nature Reserve, Emajoe Suursoo mire, Endla Nature Reserve and Vilsandi National Park. Sixteen areas, including already protected areas like the Läänemaa-Suursoo mire complex, Nätsi-Volla Bog, etc., and areas not yet protected, such as Kihnu Straits, Hari Kurk Straits, etc., have been designated as potential Ramsar sites.


In addition to environmental problems of the Baltic Sea the convention also pays attention to the conservation of natural habitats and biological diversity and to the protection of ecological processes throughout the Baltic Sea catchment area. The integrated coastal zone management plans for the Matsalu and Käina wetlands were elaborated by the respective task teams of Working Group on Management Plans for Coastal Lagoons and Wetlands (HELCOM PITF MLW) in 1995-1996. Baltic Sea Protected Areas - is one of the programs under this instrument. Area to be set aside for the representative ecosystems in the Baltic as well as to guarantee sustainable use of natural resources is an important contribution to ensure ample provident protection of environment and biodiversity. The Helsinki Convention through its Recommendation 15/5 has adopted in 1994 three marine and coastal areas in Estonia (Lahemaa, Matsalu and Vilsandi) to be a part of the system of Baltic Sea Protected Areas (BSPAs). Another two areas - Kopu Peninsula and Islets of Hiiumaa, both of them included in the West-Estonian Archipelago Biosphere Reserve - are planned to be established as BSPAs.


Paris (1972) Convention on Protection of the World Cultural and Natural Heritage. This convention addresses man-made and natural sites and objects of global significance. Tallinn is included to the list of World Cultural and Natural Heritage and the Tallinn Old City has got a certification as "Objects of Global Natural & Cultural Heritage". The Soomaa National Park, the Ontika Landscape Reserve, Kuressaare Bishops Castle are the other sites which have been proposed by the Estonian Government for inclusion in the list of UNESCO World Heritage Sites. Another UNESCO international programme is the "Man and Biosphere". To this international network consisting of 328 biosphere reserves of 82 countries, the West-Estonian Archipelago Biosphere Reserve (1989), belongs as the only representative of the Baltic countries space.

It has become a tradition that periodically specialists of three Baltic ministries and research institutes gather to the Baltic Conference on Environmental Conventions where the progress of implementation of nature conservation and environmental convention are being discussed. Such conferences were first held in 1993, and in 2001 the fourth meeting took place in Estonia.
Followed by the EU accession process, MoE is preparing for the establishment of Natura 2000 network, which expands the current network of protected areas by area and protection goals. Estonian Government has adopted a state programme on the establishment of Natura 2000 in 2000-2007 in Estonia. Estonia has ready to implement the European Habitats and Birds Directives, preliminary selection of NATURA 2000 areas has been completed by 2002. SPAs and pSCIs will be selected and proposed to the European Commission for consideration on the date of accession to EU. It is anticipated that the current extent of protected areas may expand. Amended structure, procedure of designation and management of sites will be stipulated in the new nature conservation act, which is currently being drafted.

National nature conservation legislation, incorporation of nature conservation considerations into other sectoral policies

The Act on Protection of Natural Objects (1994, amended in 1998, 2001) is one of the main legal instruments concerning nature conservation. This Act determines the nature of protection and the procedure for taking into protection of territories (landscapes), single objects of nature (geomorphologic features), plant, fungi and animal species. It determines the rights and responsibilities of land owners, land users and other persons in regard to protected natural objects and regulates the introduction and reintroduction of protected species, etc. A new nature conservation act is currently being prepared to meet also the legal requirements of EU Birds and Habitats Directives. Estonian Biodiversity Strategy and Action Plan was prepared during 1998-1999. Estonian NBSAP consists of two parts: first, textual part is the Strategy and the second part comprises tables of 13 sectoral action plans. The strategy part gives the overview about the current situation, identifies the gaps and constraints of implementation of CBD in Estonia, but it also gives recommendations for future activities. These recommendations are incorporated into the sectoral actions plans where concrete actions, responsible institutions, time schedule, budget and the possible or existing resources are identified. MoE is planning to submit the Action Plan for adoption by the Government. National Biodiversity Action Plan first completed in 1999. All sectoral action plans out of 13 will have been up-dated and finalised by the beginning of 2002, and the AP is planned to be adopted during 2002.

Several sectoral policies, like agriculture, forestry, transport, water management contain activities for preserving biological and landscape diversity. Biodiversity and landscape protection issues are presented in regional policies, urban and rural planning. The Estonian biodiversity strategy and action plan, approved in 1998, set several tasks of biodiversity management planning for several socio-economic sectors: forestry, agriculture, fishery, tourism and industry.

Estonia has integrated national forest programmes partly with national biodiversity strategy and action plan, as well as indirectly applying the ecosystem approach and sustainable forest management. It has been performed in the Estonian Forest Policy (1997); in advanced and more specific manner in decennial Estonian Forestry Development Plan (2002), not yet adopted. Several successful projects have been or are in run (Estonian Forest Development Plan, Estonian Forest Protected Area Network, Woodland Key Habitats Inventory, etc.). The national forest certification system is just currently starting to work. The Sustainable Forest Standard was completed in 2000. In 1998 the National Strategy for Sustainable Agricultural Development was compiled. The Strategy contains a chapter on Agriculture and Environment, which is dealing also with problems and recommendations of biodiversity protection. The Ministry of Agriculture (MoA) has developed an agri-environment programme (AEP) in 2000. The programme has been launched in 2001 in 3 communes and it is designed to be gradually expanded over the whole country. In 2002 55 communes were involved via environmentally friendly management scheme. Another important component of the environment programme is a financial support to landscape management in order to reduce the share of
unused or abandoned agricultural land. Estonia has committed state budget funding to the implementation of AEP notably to national implementation of four selected AEP measures starting from 2000. This is a support for organic farming and the breeding of endangered native cattle breeds (both under the MoA), plus from 2001 the management of semi-natural habitats (under the MoE) and growing traditional crop varieties (under the MoA). Implementation of the programme will lay a basis for an entirely new direction of agricultural policy, which would create preconditions for a balanced development of rural areas and the preservation of a traditional human settlement pattern as well as biodiversity.

See also Action theme 2.

**Institutional structure of nature conservation**

The environmental management system includes: Riigikogu (the Estonian Parliament) - the highest legislative body; the Government of the Republic of Estonia - supreme executive body; and the Ministry of Environment - higher executive body on the territory of the Republic of Estonia, responsible for carrying out national environmental policy and communicating with other states and international environmental organizations.

The Ministry of Environment is the largest ministry in the Estonian Government comprising ten departments (Nature conservation, Forestry, Waste, Water, Fish resources, International co-operation, Environmental management and technology, Strategy and planning, Investment, and Legal affairs), as well as the Land Board, subordinated bodies and academic institutions (see www.envir.ee). The Department for International Co-operation bears overall responsibility for implementation of international agreements.

Department of Nature Conservation of MoE is the overall responsible authority for nature conservation. At a county level environmental problems are dealt with by fifteen County Environment Departments, which are responsible for regional control of the use and protection of the environment and natural resources, and co-ordination of environmental activities of the municipalities. Overall, the Ministry of Environment counts 150 staff at the Ministry level and 300 in the 15 county authorities (i.e. about 20 employees per county office).

There are several NGOs in Estonia, whose primary activity is the protection of biological diversity (such as the Estonian Fund of Nature, the Estonian Ornithological Society, the Estonian Naturalists' Society etc), or to promote sustainable transport, energy, agriculture, etc. In the register, based on the results of a survey by the Regional Environmental Centre for Central and Eastern Europe (REC), there are 125 Estonian non-profit organisations, which deal with education and information dissemination on environment or nature conservation. Especially the species protection is a field of active work of NGOs. NGOs are involved by providing detailed information and expertise in their particular fields (the Ornithological Society concerning bird species and areas needing protection and the necessary degree of protection, the Estonian Theriological Society concerning e.g. mammals protection, the Naturalists' Society concerning lists of insect species, etc.). Some NGO-s like the Estonian Fund for Nature and Nature Conservation Association "Kotkas" do both the inventories and even manage the threatened species survival. Other NGOs worth mentioning are: European Mink Conservation and Breeding Committee (EMCC) Estonian branch, Lutra Society, Estonian Society of Lepidopterologists, etc.
**Interactions, gaps, bottlenecks, recommendations**

- The availability of financial resources for identification of spatial components of PEBLDS (e.g. habitats, landscapes) have been severely limited.
- It have been proved in practice that capacity Governmental Organizations working on PEBLDS in Estonia is insufficient to accomplish all the tasks of protecting biodiversity and cooperation between NGOs and GO could be more intensive.

**2. Implementation of the PEBLDS in Estonia**

*Action Theme 0. Pan-European action to set up the process*

The present preview considers the period from 1998 to the end of April 2003. The Pan-European Biodiversity and Landscape Strategy (PEBLDS), since the adoption by the European Environment Ministers Conference in Sofia, in 1995, has become the most important integrating response to the Global CBD process in the region. Estonia has actively participated in PEBLDS process. Several strategic documents on biodiversity and landscape have been worked out.

Important steps in the implementation of PEBLDS were the Act on Sustainable Development and the National Environmental Strategy adopted by the Estonian Parliament in February 1995 and March 1997 respectively. The Act on Sustainable Development includes Article 9, which sets the basis for CBD implementation.

Following logically from the Environmental Strategy, the National Environmental Action Plan has been prepared during the years 1997-1998 to elaborate in detail the actions necessary to implement the ten policy goals of the NES. An equal emphasis has been put on development of the NEAP document with well formulated and prioritised actions supported by financial plan, human resources plan, clear time-frames, responsibilities and likely sources of funding, as well as the NEAP process developed in line with the subsidiary principle, involving a wide range of stakeholders in active consultation and participation.

The overall priorities for biodiversity conservation in Estonia are set in the National Environmental Strategy (1997). This strategy specifies the trends and priority goals of environmental management and protection, and sets the main short-term and long-term tasks to be achieved by 2000 and 2010 respectively. The National Environmental Strategy proceeds from the main traditional goal of environmental protection - which is to provide people with a healthy environment and natural resources necessary to promote economic development without causing significant damage to nature, and to preserve the diversity of landscapes and biodiversity while taking into consideration the level of economic development. The priorities presented in the strategy are taken into account when planning environmental activities, developing international co-operation and allocating national funds.

National Programme Estonian NATURA 2000 for the years 2000-2007 was adopted by the Government in July 2000. This programme is necessary precondition for joining European Union. It is related with general nature protection policy and implementation of CBD.

The other policies relevant for preserving or developing biological and landscape diversity are the Estonian Forest Policy (1997), the Estonian Forestry Development Plan (2001), Forest management and protection in Estonia (2003) and the Estonian biodiversity strategy and action plan (EME and UNEP, 1999). Programme on Plant Genetic Resources is currently under preparation by Ministry of Agriculture.

Estonia has participated in the preparation and implementation of the Action Plan for European Protected Areas (Parks for Life, 1994), Pan-European Biological and Landscape Diversity Strategy (1995) and is involved in the establishment of the Pan-European Ecological network. The internationally available progress report on the Estonian CBD implementation process has been prepared in 1998 and 2002.

**Action Theme 1. Establishing the Pan-European Ecological Network**

The establishment of ecological networks has become one of the most promising applications through which ecological principles and biodiversity conservation requirements are integrated into spatial planning procedures and land use practices. By adopting the Pan-European Biological and Landscape Diversity Strategy in 1995, the development of ecological networks (the Pan-European Ecological Network) became the priority nature conservation strategy in Europe, as well in Estonia. Compared with western Europe, the natural preconditions for a well-functioning ecological network in Estonia is fairly good.

The development of National Ecological Networks provides a tool for setting priorities for the protection of biodiversity, and the start of integration of general and cross-sectoral policies. It also begins the application of the concepts of European and Regional Ecological Networks.

In Estonia the concept of ecological network is embedded in the spatial planning legislation, though the system through which these networks will be preserved and maintained, is not fully established. However, new legislation and environmental policies (the Estonian National Environmental Strategy, the Estonian Environmental Action Plan and Estonia - vision 2010 as a long-term strategy) gradually tend to extend the support for establishing and maintaining ecological networks at all of their hierarchic levels. Since the late 1990s a new term, "green network", as a synonym of "ecological network", has been taken into use in spatial planning in Estonia. From an ecological point of view, the concept of the green network simplifies the complex nature of the theoretical concept of ecological networks, but at the same time is a much wider approach, including other infrastructures (transport, settlements etc.) as well as social and economic aspects.

In Estonia the second phase of county planning (period 1999-2002) includes also the designing of green networks at county level. Consequently, by the end of 2003 each of the 15 counties must prepare a map of ecological networks as one of the layers of spatial planning on a scale of 1: 50,000. Due to the abundance of natural landscapes and landscapes in close to natural condition, the green network in Estonia does not have to be constructed but rather "developed" from reality and perception. As a result, the network is quite large in area, covering more than 50% of the territory. The maintenance of ecological networks is necessary for ecologically balanced development in Estonia, as well as for the implementation of principles of sustainable development, the maintenance of landscape and biodiversity and the application of the European
Habitats and Birds Directives (Natura 2000 areas). Ecological networks in the Baltic countries are a constituent part of the Pan-European ecological network. Therefore its main structural elements and their functions are the same as those the Pan-European. Whatever its scale (from regional or continental) an ecological network consists of the following elements: core areas (or biocentre), ecological (or biological) corridors, buffer (protective) zone, restoration (re-naturalisation, or nature development) area, and stepping stones. Each structural element has its function, and the whole complex makes the ecological network as a functioning system. Also in Estonia the designation of national ecological networks is based on both existing approaches and landscape planning traditions, and international obligations related with EU Habitats and Birds Directives, nature conservation conventions and other agreements.

Two joint projects with foreign participation have advanced the concept in Estonia. First was the project led by the World Conservation Union (IUCN) on Development of ecological networks in the Baltic countries in the framework of Pan-European Ecological network, in period of 1998-2001. As the result of the project the implementation scheme at the national level has been prepared and approved within the framework of the Planning and Building Act, by the long-term spatial strategy Estonia - Vision 2010. The vision contains a chapter on "green networks" and a schematic map of the Estonian green network. Secondly, the European Centre for Nature Conservation (ECNC) led project An indicative map of the Pan-European Ecological Network (PEEN) analysed the Estonian national level GIS data reflecting the natural status of an area. It showed a reasonable similarity between the GIS generated "suitability map" for ecological networks, and the expert-made ecological network map existing earlier.

The challenge of the ecological network approach is to integrate ecological principles, biodiversity and landscape conservation requirements into spatial planning procedures, as well as to other land use practices. At the same time the lack of coherence between policies for nature conservation and spatial planning, represents a key impediment for the implementation of the ecological network in Estonia. There is an urgent need for the elaboration of an integrated cross-sectoral implementation strategy for ecological networks in the Baltic States.

**Action Theme 2. Integration of biological and landscape diversity consideration into sectoral policies**

Several sectoral policies, like agriculture, forestry, transport, water management contain activities for preserving biological and landscape diversity. Biodiversity and landscape protection issues are presented in regional policies, urban and rural planning. The Estonian biodiversity strategy and action plan, approved in 1998, set several tasks of biodiversity management planning for several socio-economic sectors: forestry, agriculture, fishery, tourism and industry.

Estonia has integrated national forest programmes partly with national biodiversity strategy and action plan, as well as indirectly applying the ecosystem approach and sustainable forest management. It has been performed in the Estonian Forest Policy (1997); in advanced and more specific manner in decennial Estonian Forestry Development Plan (2002), not yet adopted. Several successful projects have been or are in run (Estonian Forest Development Plan, Estonian Forest Protected Area Network, Woodland Key Habitats Inventory, etc.). The national forest certification system is just currently starting to work. The Sustainable Forest Standard was completed in 2000.

There are taken measures to strengthen national capacities including local capacities, to enhance the effectiveness and functions of forest protected area networks like via
bilateral project 1996-2002 Estonian Forest Conservation Area Network. National and local capacities for implementation of sustainable forest management, including restoration, were performed in another bilateral project 1999-2001 Restoration of woodlands naturalness in Estonian protected areas. In 1998 the National Strategy for Sustainable Agricultural Development was compiled. The Strategy contains a chapter on Agriculture and Environment, which is dealing also with problems and recommendations of biodiversity protection. The Ministry of Agriculture (MoA) has developed an agri-environment programme (AEP) in 2000. The programme has been launched in 2001 in 3 communes and it is designed to be gradually expanded over the whole country. In 2002 55 communes were involved via environmentally friendly management scheme. Another important component of the environment programme is a financial support to landscape management in order to reduce the share of unused or abandoned agricultural land. Estonia has committed state budget funding to the implementation of AEP notably to national implementation of four selected AEP measures starting from 2000. This is a support for organic farming and the breeding of endangered native cattle breeds (both under the MoA), plus from the 2001 the management of semi-natural habitats (under the MoE) and growing traditional crop varieties (under the MoA). Implementation of the programme will lay a basis for an entirely new direction of agricultural policy, which would create preconditions for a balanced development of rural areas and the preservation of a traditional human settlement pattern as well as biodiversity.

The development of organic farming has been very rapid in Estonia in recent years. The area of land used for organic farming has rapidly increased. In 2002, there were 583 approved organic farmers who cultivated a total of 30,550 ha of organically farmed land or land in conversion to organic farming. During the last two years, the area under organic crops has increased by about 10,000 ha every year. This growth rate is expected to continue in 2004-2006, meaning that 70,000 of land should be used for organic farming in 2006. The production of organic products and their relative share should also increase noticeably. State started to regulate organic farming with the Organic Agriculture Act in 1997. The inspection system was revised completely in 2001 with adopting the New Organic Farming Act (RT I 2001, 42, 235) and introduction of a wholly state-run organic certification system. First state support to organic farming was launched in 2000. The marketing of organic products has still developed rather poorly. Several new initiatives will be launched soon, but consumers have still difficulties finding any organic products in the shops.

A Code of Good Agricultural Practices has been compiled by the Ministry of Environment and by the Ministry of Agriculture and was approved by the agricultural producers' unions in 2001. Also a draft Estonian Rural Development Program for 2004-2006 recognizes the vital role of agriculture for the management of landscapes and semi-natural habitats as well as for maintenance of biological diversity, stimulates a wise management of agricultural land, including organic farming methods and trying to reduce the use of fertilizers and pesticides as much as possible.

The draft Tourism Development Plan comprises a chapter on sustainable tourism, including eco-tourism. There is also country-wide NGO - Estonian Ecotourism Association, which is very active in promoting sustainable tourism in Estonia.

Action Theme 3. Raising awareness and support with policy makers and the public

There are no co-ordinated activities under PEBLDS in Estonia, but the awareness raising is quite well covered. There are several NGOs in Estonia, whose primary activity is
the protection of biological diversity (such as the Estonian Fund of Nature, the Estonian Ornithological Society, the Estonian Naturalists' Society etc.), or to promote sustainable transport, energy, agriculture, etc. In the register, based on the results of a survey by the Regional Environmental Centre for Central and Eastern Europe (REC), there are 125 Estonian non-profit organisations, which deal with education and information dissemination on environment or nature conservation. However, relatively little attention has been paid to the comprehensive tasks of the PEBLDS as such. On state level, the text of the Strategy is not fully published in Estonian language. The Ministry of Environment has organised several campaigns on PEBLDS. In generally the raising public awareness on environment and biological diversity has become more and more important in Estonia during the recent years. The Ministry of Education has developed recommendations for the integration of environmental education into the school curricula; advanced environmental education training for teachers and advanced training on biodiversity matters. The emphasis was put on the interrelations of natural, social and cultural environment and on the concept of sustainable approach to the surrounding environment. The National Curriculum includes biodiversity issue and understanding of sustainable development. Different institutions, Ministry of Education and Ministry of Environment have developed and published teaching materials for primary and secondary schools on biodiversity. It has been based on the principles of environmental education laid down in the Estonian National Curriculum and in the National Environmental Strategy.

Several faculties of the higher education establishments (universities, agriculture and technical universities, teacher training establishments) are working on issues of biological diversity. The Estonian Agricultural University has become one of the leading centres in the field of applied environmental sciences and education of biological diversity. Specifically, Biodiversity in ecosystems, Environmental protection and nature conservation, The biota of Estonian biotopes, Water management, Landscape protection and preservation and Forest management are the specialities most tied up with biodiversity issues. Tartu University provides academic education on several environment-related professions. All current curricula of the biology-geography department are related with biological diversity. About 50-60% of the BSc, MSc and PhD theses defended, are fully devoted to environment issues and have relation to biodiversity issues. The Tallinn Pedagogical University provides biodiversity-related professions: Marine biology-specialist on environmental subject and nature preservation, Hydrometerology and nature preservation, Gymnasium teacher of environmental sciences, Teacher of natural sciences, Geoecology and Ecology. Estonia has participated in several other education programmes on biodiversity and sustainable use. A project on Baltic Sea Agenda, joining universities around the Baltic Sea, provided video trainings and guidelines for protection and research of the common sea for nine countries.

In Estonia the media, radio, TV and Internet are playing an important role in promoting public awareness. The appearances in TV and radio, the articles in written media disseminate the information about nature conservation and biological diversity. Estonian Fund for Nature has established the website Green Gate which contains informative materials on biodiversity (www.greengate.ee). The Union of Protected Areas of Estonia running a popular nature list Time of Nature - Loodusaeg (www.ekal.org.ee).

Several activities in different sectors (agriculture, forestry, tourism) have support the increase of public awareness. The public awareness of pilot areas where the agri-environment support was paid in 2001 and 2002, has been raised considerably because of the training, field days and booklets provided.
**Action Theme 4. Conservation of landscapes**

There are no co-ordinated activities under PEBLDS in Estonia, but the topic is quite well covered. The landscape policy is partly integrated into the environmental and biodiversity strategies and action plans but not into water protection policy. Landscape culture and the activity which produces it - landscape maintenance - occupy a central position in Estonian rural culture. Landscape culture can be viewed as an amalgamation of principles from different cultural spheres, which has arisen from landscape ecological, aesthetic, and traditional local knowledge.

The biotopes, communities, ecosystems and landscapes are not so well elaborated terms in Estonian nature conservation legislation, therefore these are the values to be protected both inside and outside protected territories. Two laws - the Estonian Forestry Act (1998) and Act on Protection and Use of Animals (1998) - introduce the first elements of biotopes protection into the legal system of this country. Landscapes as such have no direct legal protection in Estonia. Landscape features can be among the preconditions to set a territory aside for nature protection (after Act on Protected Natural Objects, e.g. Art. 2). Landscape is one of the features taken into consideration in planning and building procedures (after Planning and Building Act, e.g. Art 8). The protective forests (one of the three forest categories in Estonia) include forests which protect the landscape.

In all types of protected areas, and natural monuments in addition, the landscapes can be protected following the Act on Protected Natural Objects. The specifics of landscape protection should be identified in the Protection Rules of an area. Currently the subproject of Valuable cultural landscapes is part of the county spatial planning on Environmental conditions directing settlement and land use structure. All counties should define and describe their valuable cultural landscapes by the end of 2003. In coming years each area of valuable landscape should have landscape management plan which gives overview of landscape values and set necessary activities for landscape conservation. Also agri-environmental scheme have several measures directed to landscape maintenance. Agricultural producers could apply money for restoring several landscape elements, like stonewalls, hedgerows, ponds as well for landscape management. For instance in the case of valuable landscape measure the applicant must manage the territory according to a farm landscape management plan prepared by an accredited specialist. All activities for landscape management, for instance maintenance works of valuable landscape elements, creating wooden fences and alleys, opening scenes etc, which are not supported in the framework of other measures could be part of the farm landscape management project.

**Action Theme 5. Coastal and marine ecosystems**

There are no co-ordinated activities under PEBLDS in Estonia, but the topic is quite well covered.

Chapters on Freshwater Biodiversity and Marine and Coastal Biodiversity are missing in National Biodiversity Strategy and Action Plan (NBSAP). These issues are partly covered in the Fisheries chapter, which deals primarily with commercial aspects only. Despite, in marine and coastal areas, several activities relevant to the work programme have been undertaken. For instance creation of marine and coastal protected areas, continuous implementation of monitoring program and performing of case studies of integrated coastal zone management. Coastal landscape is relatively young and rapidly changing landscape typical of Estonia and Monitoring of Coastal Landscape will supply information on the status, diversity and current changes of the landscapes. Monitoring of
the coastal landscapes was included into the state environmental monitoring programme in 1996. However, several important items of the work programme have received almost no attention from the governmental level (e.g. implementation of integrated marine and coastal area management), some of them having received support only at the institutional level only (e.g. alien species). Selected inland water ecosystems are also regularly monitored from biodiversity point of view. Pilot projects on watershed management have been undertaken and completed. However, in both cases (freshwater and marine ecosystems), the work programme has not been adopted at the national level.

NBSAP is mostly directed towards issues concerning exploitation of commercial fish stocks. Current funding level of the activities to carry out the action plan is insufficient: only ca 30% of the activities proposed in the action plan has received at least 50% of the requested funding. We should increase the funding for action plans, because plans contribute to the Pan-European Ecological Network.

Estonia participated in the HELCOM PITF MLW (Marine Lagoons and Wetlands) programme with two case studies on Integrated Coastal Zone Management (ICZM). These were the Matsalu Bay and Käina Bay. Ongoing extensive information exchange via HELCOM HABITAT workgroup and via EUCC (European Union of Coastal Conservation) facilities take place. Estonia is a Party to Baltic Sea Environment Protection Convention Helsinki Convention) from 1994, Convention on Fisheries and the Protection of Fish Resources in the Baltic Sea and Protection of Belts (Gdansk Convention) from 1992. The Helsinki Convention through its Recommendation 15/5 has adopted in 1994 three marine and coastal areas in Estonia (Lahemaa, Matsalu and Vilsandi) to be a part of the system of Baltic Sea Protected Areas (BSPA-s). Another two areas - Kopu Peninsula and Islets of Hiiumaa, both of them included in the West-Estonian Archipelago Biosphere Reserve - are planned to be established as BSPAs.

**Action Theme 6. River ecosystems and related wetlands**

There are no co-ordinated activities under PEBLDS in Estonia, but the topic is quite well covered. The chapter on Freshwater Biodiversity is missing in National Biodiversity Strategy and Action Plan (NBSAP). The issue is partly covered in the Fisheries and Nature Protection chapters.

Estonian fish fauna includes 74 species (incl. 3 species of cyclostomes). This list includes several marine species appearing rarely in low salinity waters of the eastern Baltic (e.g. swordfish, dab). Four species are protected by law (Atlantic sturgeon, wels, garyling and asp), and more than 20 species and forms are included in the Estonian Red Data Book. In addition, several species which are protected internationally (EU, Bern Convention) or which are rare or protected in neighbouring countries inhabit the Estonian water bodies. The abundance of several species has changed remarkably during the past years (due to over-exploitation of stocks of predatory fishes, low natural reproduction of pike, and warm summers in the 1990s). The abundance of nine-spined stickleback, gudgeon, roach, vimba bream, gibel carp and some other cyprinids has increased. At the same time, there has been a catastrophic decrease in the abundance of perch, pike, whitefish and some other species all over the coastal sea or locally.

Nearly 2000 species of invertebrates have been recorded in Estonian fresh water bodies - lakes, rivers, springs, ponds, puddles, bog pools, etc. The most numerous classes are insects (about 750 species), crustaceans (about 233 species), spiders (about 210 species) and rotators (about 200 species). The communities of fresh water bodies have been significantly influenced by anthropogenic eutrophication and pollution. The only species of potentially commercial interest is crayfish A. astacus. Many species are rare
and two of them (pearl mussel *M. margaritifera* and *Hirudo medicinalis*) are protected by the law. The number of species included in the latest Red Data Book (1998) is much higher than in the earlier version.

Hydrobiological water quality of rivers and lakes are monitored on national level by the Institute of Zoology and Botany. Chemical quality of water is monitored under the coordination of the Institute of Environmental Technology of Tallinn Technical University in 42 rivers, 58 measuring stations with more than 20 chemical parameters 6-12 times in a year. According to data of 2002 general water quality of rivers by total phosphorous and nitrogen have improved during the last seven years.

To simplify the management of water bodies it is practical to classify water bodies according to water quality. Basis for the classification of rivers and lakes is EU water framework directive and corresponding regulation of the Minister of the Environment on the water quality classes. Based on the data of the national monitoring of rivers and lakes, proceeding from limit values of the regulation of the Ministry of the Environment, it can be said that water quality of most Estonian rivers and lakes is sufficient at the moment. Estonia is divided into watersheds. In coming years each watershed must have the water management plan. The pilot project on compiling water management plan for Pärnu River finished by 2003. In coming years we should improve the efficiency of monitoring of water body communities and use of best available scientific advice and technology in sustainable management of water bodies and their communities.

Currently a large-scale inventory: Implementation of NATURA 2000 Network in Estonia regarding fresh-water and brackish water species and habitats financed by Danish Cooperation for Environment in Eastern Europe (DANCEE) is going on.

*Action Theme 7. Inland wetland ecosystems*

There are no co-ordinated activities under PEBLDS in Estonia, but the topic is quite well covered. The Ramsar Convention provides a framework for national action and international co-operation for the conservation and wise use of wetlands.

The wetland policy is integrated into the environmental and biodiversity strategies and action plans and with water protection policy. The elements of the environmental strategy relevant to wetlands are the chapters on better use and protection of ground water resources, protection of surface water bodies and coastal sea, preservation of landscapes and promotion of environmental awareness. Implementation of a State programme for the protection of wetlands is one of the maximum priorities activities of the Biodiversity Action Plan. Estonia has designated 10 Ramsar sites: Matsalu Nature Reserve, Soomaa National Park, Nigula Nature Reserve, Muraka Nature Reserve, Puhtu-Laelatu-Nehatu Nature Reserve, Islets of Hiiumaa and Käina Bay, Alam-Pedja Nature Reserve, Emajoe Suursoo mire and the Endla Nature Reserve, Vilsandi National Park. Sixteen areas, including already protected areas like the Läänemaa-Suursoo mire complex, Nätsi-Volla Bog, etc. and areas not yet protected, such as Kihnu Straits, Hari Kurk Straits, etc., have been designated as potential Ramsar sites.

Estonian mire inventory was carried out in 1996-1999. The overall objective of the project has been to develop a national strategy for wetland management in Estonia. Wetlands in the context of this project were determined as: coastal grasslands, mires and floodplain grasslands. The study has been carried out by Estonian scientists with technical and financial support from the Norwegian Government under the World Bank Agriculture Project. The responsible authority for the project were the Estonian Ministry of the Environment and the Estonian Fund for Nature. The results of the project have been compiled on a digital basis by means of the program software VisualFoxPro 3.0.
and Geographical Information System (GIS). A comprehensive and fully computerized database includes, together with earlier data, descriptions of 1,560 wetland areas. The EU Nature Conservation Directives - the Habitats and the Birds Directive - are of particular relevance to wetland conservation. Wetlands inventory and evaluation is one of the main priorities in the process of establishment of NATURA 2000 network. The main goal of the Wetland Programme was drafting Management Plans for all internationally important wetlands by the year 2002. The Management Plans have already been drafted and implemented for Matsalu and Alam-Pedja Natures Reserves and for the Käina Bay. Other plans are being prepared. The Ramsar work plan ranging the future tasks and activities is based on Ramsar documents.

An Estonian-Russian Intergovernmental Transboundary Water Commission was established in 1998 in accordance with the Estonian-Russian Bilateral Agreement on Protection and Use of Transboundary Waters. The process of preparation of the Lake Peipsi Watershed Management Plan is proceeding under the direction of the Transboundary Water Commission. Lake Peipus is the fourth largest lake in Europe, with a surface area of 3555 km² and it is the largest international lake in Europe.

**Action Theme 8. Grassland ecosystems**

There are no co-ordinated activities under PEBLDS in Estonia, but the topic is quite well covered by different activities. The policy for grassland ecosystems is integrated into the environmental and biodiversity strategies and action plans, as well as to agri-environmental program.

The characteristic semi-natural habitats of Estonia are most widely spread in Western and Northern Estonia and include the mown wooded meadows, floodplain meadows and other natural meadows or the grazed coastal meadows, alvars and wooded pastures. In addition their important role in maintaining biological diversity, these semi-natural habitats also have high cultural-heritage value and are a valuable component of the traditional rural landscape of Estonia. However, the abandonment of marginal or low productivity grassland, as well as the decline in traditional management practices and increase in intensive production methods have significantly decreased the area of semi-natural areas during the last 50 years.

The survival of the remaining semi-natural grassland habitats is now dependent upon the encouragement of appropriate agricultural management. In addition to the legal framework, network of protected areas, there are also schemes to rehabilitate semi-natural habitats (such as coastal meadows, wooded meadows, alluvial meadows, alvars etc.) and thus to restore the species diversity of these areas. By direct support from the national budget, the farmers are encouraged to mow and graze the abandoned and overgrown habitats. Restoration and management of semi-natural habitats have been supported since 2001 (administered by the Ministry of the Environment). In 2001, 1.2 Mio. € was allocated from the national budget all over the country. Also, two EU Life III funded projects were started in 2001 to restore semi-natural habitats in the western coast of Estonia. The restoration and management of 16,360 ha of semi-natural habitats was supported in 2001 and 17,830 ha was supported in 2002.

Matsalu Nature Reserve has the longest experience in involving local people into the management of the valuable habitats in mutually beneficial way. The financial support is provided from the national budget.

The agri-environmental programme under EU SAPARD programme is implemented in Estonia via pilot projects in three municipalities. The Programme includes also the measure on Management of semi-natural habitats. The objective of the measure is
to preserve biological and landscape diversity, as well as valuable cultural heritage, by promoting the management of valuable semi-natural habitats (wooded meadows, wooded pastures, coastal meadows, floodplain measures, alvars and dry meadows) using traditional farming practices.

Recently the following ecosystem level inventories have been carried out: Inventory of alvars (by universities of Uppsala (Sweden) and Tartu, in 1992-1994); Inventory of coastal and floodplain meadows (by Estonian Fund for Nature, in 1993-1996); Inventory of wooded meadows (by Estonian Fund for Nature, in 1995-1996); Inventory of wetland types (by Ministry of Environment, in 1997-1998); Inventory of all grassland types (by Estonian Fund for Nature, in 1998-2000); Inventory of traditional rural biotopes in Lääne County (by Estonian Semi-natural Communities Conservation Association, 1999-2000).

The National Biodiversity Monitoring Program contains following ecosystem monitoring projects: Plant communities of alvars (20 sites); Plant communities of heathlands (10 sites); Plant communities of boreo-nemoral grasslands incl. wooded meadows (20 sites); Bee communities of wooded meadows (20 sites); Ground-living insect and small mammal communities of grasslands (4 sites); Plant communities of floodplain grasslands (10 sites); Plant communities of coastal meadows (20 sites); Butterfly communities of coastal meadows (4 sites); Bird communities of coastal and floodplain meadows (26 sites); Plant communities of field borders (10 sites); Pollinator communities of cultivated grasslands (8 sites); Bird communities of cultivated grasslands and fields (20 sites).

**Action Theme 9. Forest ecosystems**

There are no co-ordinated activities under PEBLDS in Estonia, but the topic is quite well covered. Forest biological diversity attains rather high priority in Estonia. Estonia has integrated national forest programmes partly with national biodiversity strategy and action plan, as well as indirectly applying the ecosystem approach and sustainable forest management. It has been performed in the Estonian Forest Policy (1997); in advanced and more specific manner in decennial Estonian Forestry Development Plan (2002), not yet adopted. Several successful projects have been or are in run (Estonian Forest Development Plan, Estonian Forest Protected Area Network, Woodland Key Habitats Inventory, etc.). The national forest certification system is just currently starting to work. The Sustainable Forest Standard was completed in 2000.

There are taken measures to strengthen national capacities including local capacities, to enhance the effectiveness and functions of forest protected area networks like via bilateral project 1996-2002 Estonian Forest Conservation Area Network. National and local capacities for implementation of sustainable forest management, including restoration, were performed in another bilateral project 1999-2001 Restoration of woodlands naturalness in Estonian protected areas.

The Estonian Forest Policy (1997), a strategic planning document for the most important biological resource in the country, when considering the aspect of sustainable use of natural resources, estimates the total harvest rate in Estonia is unnecessarily low. The total volume of annual cuts in all Estonian forests was approximately 2.8 to 4.1 million m³ in the past ten years. According to the analysis of the Estonian Forest Survey Centre (1996) the annual maximum volume of wood harvesting in all Estonian forests without exceeding the sustainable level is 7.8 million m³. To the date this harvesting level has reached, and now widely discussed. A broad range of non-wood forest products is consumed in Estonia including berries, mushrooms, herbs, honey, flowers, birch sap etc. The most widely used products are berries (especially blueberry, lingonberry, cranberry)
and mushrooms, which are collected for household consumption, local processing and export, but no limits to harvesting have set yet.

The guiding principle in forest management and protection of the forest environment is the sustainable use of forest resources. In commercial production forests, management guidelines will be modified to improve biodiversity management, using measures such as the protection of key biotopes. A key biotope is an area, in a commercial forest, which needs protection, and where the probability of occurrence of endangered, vulnerable, or rare species is high; such areas include the vicinity of small bodies of water and springs small marshes, burnt woodlands and bog islands, species rich forest glades, forest margins, terraces and sections of virgin forest.

Recently the following ecosystem level inventories have been carried out: Inventory of old forest types (by Estonian Fund for Nature, in 1993-1996); Inventory of valuable forest sites and establishment of forest conservation area network in Estonia (by Estonian Forest Centre, 1996-2000).

**Action Theme 10. Mountain Ecosystems**

Not applicable in Estonia.

**Action Theme 11. Actions for threatened species**

There are no co-ordinated activities under PEMLDS in Estonia, but the topic is quite well covered. Threatened species playing an important role in the national biodiversity strategy and action plan, as well as in other strategic documents on environment like Estonian Environmental Strategy and Action Plans.

The Estonian territory is traversed by an important European biogeographical borderline, which divides area into two provinces. Phytogeographically, the western part of the country belongs to the Mid-European province (on Ordovician-Silurian limestone bedrock with alvars, calciphilous fens, rich-in-species wooded meadows, broad-leaved forests, numerous calciphilous species dominating in plant communities, etc.). The eastern part belongs to the East - European province (with acid soils on Devonian sandstone bedrock, acidophilous plant communities with dominating pine in forests).

Identification of priority components of biological diversity has mostly been carried out by compiling and up-dating of lists of protected species for the annexes of the Act on Protected Nature Objects (1994), and also by setting up Red Data Lists for National Red Data Books published in 1998. Whereas endangered species have been covered relatively well, there is a lack of nationally approved lists for threatened habitat types.

By 2002 more than 20 species have got a management plan (Aquila pomarina, Aquila clanga, Gallinago media, Rubus arcticus, Halichoerus grypus, Grus grus, Mustela lutreola, Tetrao urogallus etc).

Currently valid Red Data Book (completed in 1998) has assessed distribution of endangered species by habitats thereby also level of endangering of them.

The populations of rare and endangered species are monitored in the framework of the National Environmental Monitoring Program, launched in 1994. After 4 years of implementation, a need for improvements became obvious. In 1998, a PHARE Project: Establishment of GIS based Biodiversity Monitoring System for Estonia was carried out. This project also included identification of biological diversity components for further monitoring. The main efforts were put into the monitoring of habitats, but also landscape and species level components were monitored. For maintaining and analysis of monitoring and identification data, MoE has established a general national information system on data on nature - Estonian Nature Information System (EELIS).
This information system is a database containing data obtained via biological diversity inventories and monitoring programmes. Data in national nature conservation register is also available via EELIS. Estonian National Biodiversity Monitoring Programme (NBMP) contains the following species level monitoring programmes (total of 22 projects): Threatened vascular plants (ca 100 species in ca 300 sites); Protected vascular plants and habitat directive species (ca 100 species in ca 200 sites); Threatened mosses (12 species); Protected mosses and habitat directive species (19 species); Wildlife species (23 species in ca 20 sites); Ungulates (4 species in 7 sites); Seals (2 species in 12 sites); Otter (in 20 sites); European beaver (in 20 sites); Flying squirrel (in 5+15 sites); Bat species (11 species in 25+5 sites); Birds of prey (23 species in 10 sites); Eagles and black stork (7 species in ca 780 sites); Tetraonid birds (3 species in 10 sites); Geese, swans and common crane (12 species in ca 100 sites); White stork (in ca 70 sites); Woodpeckers (7 species in 3 sites); Mid-winter waterfowl census (all bird species in ca 100 sites); Amphibians (8 species in 12 sites); Threatened insects (23 species in ca 30 sites); Freshwater pearl-mussel (in only one site of occurrence) and Crayfish (in 20 sites).

A few specialised, but large-scale inventories have been carried out recently, e.g. Internationally Important Species in Estonia. In period of 1998-2000 the National Inventories of Internationally Important Species and Habitats in relation to International Conventions and Directives was compiled by Estonian Fund for Nature and financed by Danish Cooperation for Environment in Eastern Europe (DANCEE). Inventories are carried out by non-governmental specialised organisations. Distribution Atlas of Breeding Birds was compiled by Estonian Ornithological Society in 1977-1988 and published at 1993.

The species protection is a field of active work of NGOs. NGOs are involved by providing detailed information and expertise in their particular fields (the Ornithological Society concerning bird species and areas needing protection and the necessary degree of protection, the Estonian Theriological Society concerning i.e. mammals protection, the Naturalists' Society concerning lists of insect species, etc.). Some NGOs like the Estonian Fund for Nature and Nature Conservation Association "Kotkas" do both the inventories and even manage the threatened species survival. Other NGOs worth mentioning are: European Mink Conservation and Breeding Committee (EMCC) Estonian branch, Lutra Society, Estonian Society of Lepidopterologists, etc.
Introduction

Hungary is situated in the Carpathian basin in Central Europe. It was a party to the Warsaw Pact, thus economically, politically and socially the country was closely linked to the eastern block. The transition process toward market economy in Hungary began around 1990 and similarly to other former socialist countries. A deep economic crisis started in the second half of the 80's. The capacity of the economy touched the bottom in 1993 and at that time the GDP fell by 20%. The process of socio-economic transition restructured the production, the consumption and the political system, bringing about new economic, societal and environmental challenges.

The prospect of Hungary's accession to the European Union in 2004 is of strategic importance for political, economic and social reasons alike. The legal harmonisation work and the adoption of the Acquis Communautaire(AC) are well on the way, the final accession negotiations are closed. Therefore it is necessary to start the implementation of the Community legislation.

The awakening of the environmental NGO movement in the eighties took place together with the political changes. The foregoing changes and the evolving green movement mutually enforced each other around the transition to a democratic state. Since then the movement has developed a democratic structure, which is unique in the region. However due to the diversity of positions within the movement, it still cannot present a common stance in many cases towards the governmental sector.

1. State of nature and nature conservation

Introduction

Hungary is situated in the centre of the Carpathian basin in an overlapping zone of various biogeographical regions. Its territory is under various climatic influences. Apart from the Atlantic effect from the North, the Mediterranean one from the South and the Continental one from the East, there is also microclimatic influence from the Carpathian Mountains and the Alps. They all have contributed to the evolution of an extraordinarily rich mosaic of fauna and flora. There is a large number of indigenous species that are not native west of Hungary.

Another factor of this mosaic-like feature and of the rich biodiversity, is that during the last glacial period (ended approximately 10 000 years ago), the Carpathian basin was at the edge of the ice sheet. The species forced south by the ice could settle here. Several plants and most probably some lower animals survived during the ice age on the warmer, southern slopes, some of them evolving into new, unique species. After the thaw, some species remained in areas of Hungary that have a colder microclimate. (Of course, this migration towards the south was a thousand year long process; in such a long period even the forests were able to migrate from the north to the south). After the glacial epoch some species requiring warm climate, which had migrated more to the south from the Carpathian basin, could return to this place too, contributing to the diversity of the country.

Scientists have understood the uniqueness of the Carpathian basin for a long time, classifying its independent flora under the name Pannonicum. Of course this is not a political category, the described region stretches into neighbouring countries to some extent.
Biological diversity with special attention to their international importance

Habitat types

In the natural areas of Hungary no natural landscape structure exists any more. The continuous landscape structure was fragmented and transformed by human activities. Before the spreading of the human activity 85% of Hungary's present territory was covered by forests. Today forests only account for 18-19% of the total area. Most of the landscape - 70% - is occupied by agricultural activities, while 11-12% of the whole territory is covered by built-up areas. From this statement follows, that nowadays there are only fragments of natural and semi-natural areas that can be found in areas characterized by human activity. Areas of cultivation such as forests, gardens, vineyards, orchards, meadows, reedy and fish ponds which amount to 38-39% of the whole territory, contain comparatively many original habitats but only a few of these can be considered as near-natural habitats. More than half of the forests are planted monocultures containing mostly species alien to the landscape. After applying some stricter criteria - such as mixture and age-distribution - we will only find a few real natural forests. The vegetation structure in Hungary's lands can be referred to as natural or semi-natural only in 3-4% of the cases, and even if we put all temporary, converted and recovering semi-natural and near-natural habitats together, we must conclude that only as little as 15-17% of Hungary's whole territory - jointed all the natural and semi-natural habitats - account for 90-95% of its total biodiversity.

In Hungary the typology of the National Habitat-Classification System is applied, in which degraded and devastated habitats as well as near-natural habitats are characterized in an equally detailed manner.

Biological Corridors

As mentioned above Hungary's natural and semi-natural habitats are divided and isolated from each other by human habitats, hindering the migration of species and the gene-flow between the different populations. Ecological corridors that ensure the connection between the natural and semi-natural habitats form an ecological network.

In Hungary terrestrial habitats form four large subnetworks, which overlap each other repeatedly.

1. Range of mountain-subalpine habitats that form an arch containing the highest parts of the mountains, along an east-west axis, from Alpokalja to the Tokaj mountains.
2. Series of submountain habitats that also follows the east-west line from Keszthelyi-hegység to Tokaj-hegyalja. This zone is characterised by significant and diverse semi-natural ecosystems, a large amount of human influence, a fairly strong submediterranean climatic effect, considerable mosaic formations and a vulnerable stability.
3. Habitats of Dunántúli-dombság and those of some scattered individual mountains. This subnetwork shows the highest level of fragmentation. The rest of semi-natural habitats has a significant diversity, but they are very much isolated from each other by human habitats. The climatic effect of the Atlantic varies on a large scale but the submediterranean climatic effect is strong and even. A high degree of mosaic formation is typical for this subnetwork.
4. Plain habitats form the largest part of the country, but the proportion of semi-natural habitats is the smallest here. In our country continentality is growing in east direction.
The ecological stability of the areas is usually decreasing with the growth of aridity. In the fifth place we have to mention aquatic ecological corridors, and those that extend along rivers. These interweave the four networks mentioned above, and play an important role in the stabilisation of plain habitats.

The most significant natural and human obstacles that fragment the network are the following:
- The Danube and its infrastructure
- Intensive communal building activities on both shores of the Balaton
- The industrial-urban agglomeration in the Sajó valley and in the Móri-kisárok

The biggest problem with the river-network (which could serve as a natural corridor within the ecological network) is that it is under intensive cultivation. Along the banks of some rivers urban-industrial agglomerations of considerable size have emerged. A special problem is that except for the Sió and Zagyva, all Hungarian rivers have their sources beyond the Hungarian border, making the establishment of an ecological network by water management measures extremely difficult. As the country's borderland were isolated from the intensive developing trends in the last fifty years, some untouched ecological corridors could remain along the borders and these functioning corridors enrich the basin with different species.

**Species and Genetic Diversity**

In consequence of the facts described in the introduction, Hungary's flora and fauna have a very high diversity value. As a result of the different climatic influences Hungary possess many different flora and fauna element, which enrich the country's biodiversity. Some of them have a wide distribution area, while others are limited to smaller territories at the border of the Carpathian basin. 3.5 % of Hungary's 2424 vascular plant species are endemic in the Carpathian Basin.

Most of the vertebrate animal species (466 of the 541) as well as the endangered representatives of invertebrata (389 of about 42.000) are protected as are threatened plant species of which 515 are protected from the about 3,000 vascular plants and mosses in Hungary. We do not have precise scientific data on the genetic diversity, since it is very difficult to measure. We may maintain, however, that good genetic biodiversity is associated with big populations that live in widely distributed habitats. Small and isolated populations are very vulnerable in the preservation of their genetic stocks.

The genetic diversity in Hungary depends very much on the neighbouring countries and the health of the genetic pathways.

**Priority Areas from nature conservation point of view**

One field of the priorities is the territorial protection. 9,9% of the whole territory of Hungary is currently under protection. To save the optimum stage of biodiversity, 30% of the country's territory should be protected, supposing that sustainable land-use is a main priority acknowledged by agriculture. It is necessary to increase the territory of pasture lands and to further develop the network of forest reservations, as well as to select „Environmentally Sensitive Areas" as required by the National Agro-environmental Programme. (See the areas enlisted as part of the world's natural and cultural heritage and UNESCO Biosphere Reserves in the Appendix.)
Another very important priority is habitat protection. If we are to take care of species diversity we have to protect all kinds of habitats in the appropriate size. The threatened habitats are: mixed oak-elm-ash forests of great rivers, marshlands, bogs and all kinds of wetlands, lowland steppes, karstic grasslands and salt steppes.

The Hungarian legislation ensures ex lege protection (i.e. irrespective of where the areas concerned are situated) for certain habitat types (bogs, salt lakes, sink-holes of sinking streams, springs, caves), which can be attributed to their specially threatened status (for instance 97% of the bogs of Hungary have been destroyed).

There are territories out of protection which should be saved however, especially those intact zones that can be found near the borders, like the Tornai Karst, Ipolyság, Tokaji Mountains, Szathmár-Bereg, Kőröskők vidéke, Dráva-sík, Alpokalja etc. We should give priority to some refuge places, where unique biotopes or species of European importance can be found (Hortobágy, Kiskunság etc.).
Human Impact

The remains of the potential vegetation can be found only on the 9 % of the country's territory, and most of them are influenced by human activities.

Agriculture

The most significant type of human land use is the agriculture.

The main threats in agriculture also experienced in Hungary are:
· Large farming sites and farming lots
· Monocultures
· Chemical pest and weed control
· Use of artificial fertilisers
· No utilisation and recycling of by-products
· Continuous and intensive land use
· Heavy machines in cultivation
· Removing natural edge associations

Agriculture in Hungary has undergone a considerable recession after the political transition. The distribution of agricultural areas among sectors has changed. Namely, proportions of forestry areas, reed-beds and fish-ponds have increased by 0.3 %, 2.4 % and 0.4 % respectively, whereas the area of uncultivated arable land has been enlarged by 188 %. As positive changes we can mention that owing to the spreading of the ecological awareness there is a shift to cultivating technologies that enrich biological diversity, a few environmental organisations are interested in raising and producing traditional and regional species. However, negative tendencies can be observed as well: foreign species and hybrids gain more and more importance in agricultural production.

Industry and human settlements

One of the main characteristics of the communist system was the centralised heavy industry. Four bigger regions in the country were developed as industrial regions. This development brought about a high density of human population in these areas and eventually lead to a dramatic contamination of the vicinity of the industrial facilities. About 20 % of the whole country is hit by the heavy industrial pollution that made the flora and fauna actually disappear from these areas. Huge industrial agglomerations also create barriers for migrating species by splitting biotopes and corridors.

Water management

In the 19th century the intensive drainage of wetlands, the cutting-off of meanders of rivers and the regulation of water courses resulted in a long term negative impact on the biodiversity and on the water table. The loss of wetlands (as they were transferred into plough lands) decreased the habitat size and the genetic diversity of species. Struggle with nature finally resulted in disadvantages for the agriculture and the people through the frequent flooding. Some wet territories have been tried to recreate in order to improve the water supply of the soil, which created some new biotopes for birds and other animals as well.
Hunting and game management
As a consequence of the today hunting demands the stock of the games is enlarged, which causes the depreciation of the stock (like the deer stocks of Hungary), but it can also damage the habitat (such as wild boar stocks).
In addition the introduction of non-native species is a serious problem too. Mouflon was introduced from the Mediterranean region to Hungary. This species prefers staying on sunny rock grasslands, and damage this habitat by grazing, trampling and intensive dunging. Grasslands have a high biodiversity value, thus their preserving is an important element of the enhancement of the biological diversity in our country.

2. Nature conservation with an outlook to the significant changes occurred in the recent past

International commitments

Hungary ratified most international nature conservation conventions (though still has not signed the European Landscape Convention), however their full implementation has not been completed. The following multilateral nature conservation conventions have been signed/ratified by Hungary

- Convention on the Protection and Use of Transboundary Watercourses and International Lakes
- Protocol on Water and Health to the Convention on the Protection and Use of Transboundary Watercourses and International Lakes
- Convention on Cooperation for the Protection and Sustainable Use of the Danube River
- Convention on Wetlands of International Importance Especially as Waterfowl Habitat
- Convention on the Conservation of Migratory Species of Wild Animals
- Agreement on the Conservation of Bats in Europe
- African-Eurasian Migratory Waterbird Agreement
- Convention on International Trade in Endangered Species of Wild Fauna and Flora
- Convention on the Conservation of European Wildlife and Natural Habitats
- Convention on Biological Diversity
- Protocol on biological safety

There are also some commitments that have not been even promulgated in an execution decree (e.g. the Bonn Convention).

National nature conservation legislation

Due to the interwoven sectoral policies and the international commitments of Hungary, its national environmental management is largely influenced by such long-term processes as the European integration. Within the accession process to the European Union, Hungary prepared its National Development Plan for the initial period of 2004-2006, which is to determine a framework for long-term development and required tendencies, and identifies future activities and necessary actions for their achievement. All the programmes to be developed in harmony with one another are to serve the overall objective to achieve sustainable devel-
operation. Naturally, as a horizontal planning document, it will have important implications for global and Pan-European environmental management issues at the national level too. Due to the limited time for the preparation and lack of previous experiences in compilation of such documents, the NDP has some deficit and inconsistencies, and its main focus are development areas targeting further EU support from the EU Structural Funds. In addition, sustainability and more specifically environmental considerations are not sufficiently incorporated into the plan.

The concept of the National Environmental Programme (NEP), which covers the period of 2003-2008 (NEP-II), was approved by the Government in 2001. It promotes the integration of environmental considerations into other sectoral policies and thus focuses on the achievement of sustainable development. As an overall environmental policy document, the NEP also addresses issues relevant to bilateral, regional and global environmental commitments in an integrated, holistic approach. Almost two years have passed since the first governmental approval of the concept, the government should soon discuss and approve the program.

Within the framework of the NEP-II, a "National Nature Conservation Plan" was elaborated, which being the nature conservation strategy at the highest level in the country determines the main priorities and activities in the field of nature conservation for six years (2003-2008). It also identifies the difficulties regarding the fulfilment of the country's commitments under international conventions including the Convention on Biological Diversity, the Bern, Bonn and Ramsar Convention as well as the PEBLDS, and acknowledges the related necessary tasks for the future.

However nature conservation does not have a hierarchical planning system in Hungary, the National Nature Conservation Plan does not fulfil its true planning function and the possibilities provided by the Law on nature conservation are not utilised in their full potential. After significant delay, the National Agro-Environmental Programme (NAEP) was launched in 2002. The original target of NAEP is to establish an agricultural practice that is based on the sustainable use of natural resources (soil, surface and subsurface waters, genetic resources, forest and landscape), in addition to the preservation of biodiversity and rural areas and encourages production of healthy products. Hence, the underlying principles are sustainability and quality instead of intensive practices and mass production. The establishment of the Environmentally Sensitive Areas Network is also a related task that forms a part of the planned measures of the agro-environmental programme.

Considering the current development of the Hungarian agricultural industry, the NAEP considers that environmentally friendly processes are providing a comparative advantage for the country and recommends their application, as well as the establishment of stringent international requirements for the entire sector to achieve agro-environmental protection. The production of quality agricultural products will also increase the competitiveness of Hungarian agriculture.

The law on the overall regulation of environmental protection (No LIII of 1995) declares that the preservation and protection of natural heritage and environmental assets as well as the improvement of their quality are prerequisites for the human health and quality of life and neglecting them threatens the health of present generations, the existence of future generations and the surviving of many species. The Law introduced new instruments such as environmental impact assessment (EIA) and preliminary environmental state assessment (the 20/2001 Governmental Resolution on environmental impact assessment enlists the activities that must be subject to prior EIA). There are also other pieces of legislation that significantly contribute to achieving the objectives of the Convention. On of them being of key importance is the law on nature conservation (No. LIII. of 1996.), which progressively extends nature conservation concerns on the areas and landscapes not being under protection by ensuring ex lege protection
on certain natural territories (e.g. saline lakes, bogs, caves, springs, sinking holes). According to the resolution (28/1994 (V.20)) of the Constitutional Court the protection level of natural areas of that protection is ensured by separate law (i.e. they are not ex lege protected) cannot be reduced.

**Institutional structure of nature conservation**

The highest level of administrative-executive power for nature conservation and environmental policies is the Hungarian Ministry of Environment and Water. It also prepares the bills within its competence, which are discussed and voted about by the Parliament and in some cases are also sent back for improvement to the Ministry. The Environmental Committee follows the environmental and nature conservation related decision-making within the Parliament.

Following the general elections held in the spring of 2002 major structural changes took place in the course of the year and in the beginning of 2003. The Ministry of Environment and Water (MEW) is the governmental body with primary responsibility in environmental issues, which also includes the coordination of the implementation of the international nature conservation conventions. The national focal points for these conventions can thus work in tight co-operation, which is also justified by the overlapping between the obligations. After the structural changes in the institutional system the MEW is now responsible for the preparation and implementation of environmental legislation and regulations at the national level, to achieve integrated environmental protection, nature conservation and water management.

The National and Regional Environmental Inspectorates perform all the major tasks related to production, monitoring, and enforcement under the overall coordination of the MEW. The National Environmental Inspectorate is as the competent public authority at the national level. The provision and supervision of environmental services (public services as provision of water, sewage treatment and waste management) is assigned to the local authorities. However, local authorities often lack human and financial capacity to tackle environmental issues in addition to their responsibilities for environmental services. Unless major environmental problems are experienced, they tend to disregard small-scale environmental degradation. In some cases they do not even have the means to identify the threats and signs of environmental problems.

In the future the Environmental and Water Management Research Institute, a newly integrated institution will provide sound scientific background for the work of the MEW. It will carry out research and undertakes tasks such as the greenhouse gas emission inventories. Nonetheless, the present human and financial resources do not enable the expansion of the activities. Right now the above tasks are within the responsibility of the Environmental Management Institute.

The MEW, as the national coordinator of the Rio Conventions and other agreements is working in close cooperation with other Ministries involved, as the Ministry of Agriculture and Rural Development, the Ministry of Foreign Affairs, the Ministry of Internal Affairs, the Ministry of Economic Affairs and Transport, and the Ministry of Finance. An important organization which provides a platform for inter-sectoral coordination in the field of environment, as well as a window opportunity for non-governmental organizations to participate in decision-making process related to environmental protection and nature conservation is the National Environmental Council. Since 1996 it serves as an advisory body to the Government and holds up stance on guiding principles of different environmental programs, regulations and decisions related to environmental protection and various environmental issues. The Council
consists of 22 members with seven representatives from: a) non-governmental organizations with an environmental protection goal, b) professional and industrial advocacy organs and c) the epistemic community delegated by the President of the Hungarian Academy of Science. These three sectors are represented on equal proportion basis. The Council elects the chairman from among its members, while the Minister of Environment and Water, who represents the Government, is the co-chairman. No other comparable advisory body exists in any other sector of the country, similarly no other environmental and nature conservation advisory board with such authority and power exists in any of the neighbouring countries either.

Among the significant scientific institutions outside governmental authority, the Hungarian Academy of Sciences, the Hungarian Society of Agricultural Sciences and the Hungarian Hydro- logical Society are also dealing with different aspects related to international conventions.

3. Implementation of the PEBLDS

Introduction

Hungary played an especially active role in the preparation of the Convention on Biological Diversity, as well as its Pan-European strategy, the PEBLDS and still it is in the international conferences. However as for the implementation it is hard to identify the direct effect of PEBLDS in its Action Themes (6.-11.) on different types of ecosystems, though it can be stated that considerable efforts and progress can be seen in these areas. On the other hand at the preparation of the nature conservation act (No. LIII. of 1996.), the commitments deriving from all international conventions that Hungary is party to were taken into account, which have thus an indirect effect through this piece of national legislation as well.

Action Theme 0. Pan-European action to set up the process

Similarly to the Convention on Biological Diversity, Hungary took an outstandingly active part in the preparation of the Strategy through its representatives at the preparation of the Strategy and the international initiating process.

Action Theme 1. Establishing the Pan-European Ecological Network

Hungary designated the National Ecological Network while taking the recommendations of the Council of Europe and the natural characteristics of the country into account. During this process Hungary followed other global, European, EU as well as regional initiatives, agreements and action programmes too. Nine regional ecological networks were designated (under the jurisdiction of nine National Parks), of which data were integrated into a digital database (1:50,000 scale) of the national network.

The National Ecological Network encompasses territories of different status: protected natural areas, buffer zones of protected natural areas, natural areas, areas to be managed as natural areas (e.g. floodplains), near-natural areas, ecological and green corridors. However the official designation of the areas not under protection currently, namely the ecological corridors and the near-natural areas, has not taken place through a resolution due to the long consultation process (the draft ministerial resolution on the detailed regulation of the ecological network has been prepared), thus their protection has not been enforced either. The National Ecological Network Programme has to be elaborated for the period 2003-2008. Every territorial Directorate should make a so-called network
plan (that would replace the regional plans), for which the requirements have to be set and the preconditions for their implementation ensured beforehand. Similarly the habitat mapping of the Network has not been completed yet and there is still no monitoring system for the Network in place.

**Action Theme 2. Integration of biological and landscape diversity consideration into sectoral policies**

Although the integration of nature conservation considerations into all sectoral policies, their short and long-term plans as well as their daily activities is required by national law, this is still insufficiently implemented, also when it comes to urban and territorial planning. This is on one hand due to bypassing consultations during the planning process, on the other hand to the partial lack of national and regional nature conservation plans (management plans, ecological network plans, etc.), which should however be placed at the highest level of the planning hierarchy. In the preparation of territorial plans the authority for landscape protection can only comment on, but not prevent the implementation of plans.

**Action Theme 3. Raising awareness and support with policy makers and the public**

Raising awareness activities are not carried out in direct connection with the Strategy, and unfortunately are not sufficiently emphasised in education. However due to the increasing efficiency and quality of environmental education programmes and services as well as of education centres in National Parks (at about 60 sites), the number of visitors is getting higher and higher every year. Besides NGOs play a traditionally main role in awareness raising and environmental education through presenting the assets of nature, various campaigns and programs.

**Action Theme 4. Conservation of landscapes**

Despite international commitments and national legislation, landscape protection is still not taken efficiently into account when planning future developments and investments. In the planning hierarchy landscape conservation is not secured its proper place, though holistic approach instead of taking local interests into account should be adopted.

**Action Theme 5. Coastal and marine ecosystems (when applicable)**

Not applicable

**Action Theme 6. River ecosystems and related wetlands and Inland wetland ecosystems**

Wetland ecosystems (bogs, marshes, wet meadows) are greatly vulnerable and a great part of them are destroyed by drainage and water regulation schemes, involving new lands into the cultivation, etc. Thus special attention is devoted to their protection. Bogs are under ex lege protection irrespective where they are situated. This protection status (of which introduction is very progressive in nature conservation in the region) is also supplemented by the fact that 97% of the bogs in Hungary have been destroyed by human activities. Progress in these fields can be hardly connected to PEBLDS.

The act on nature conservation
**Action Theme 8. Grassland ecosystems and**

**Action Theme 9. Forest ecosystems**

Though the affect of PEBLDS is hard to measure in this respect, the Nature Conservation Plan of Hungary 1996-2002 determined specific objectives that are also relevant to these Action Themes, but directly connected to the Strategy. Concerning forest ecosystems the plan targeted afforestation so that forest areas exceed 20% of the country area (not achieved yet), and natural forest coverage should reach the ratio of 12% of the country as well. In every forest technologies that are in harmony with the laws of nature are to be used in order to ensure their sustainable use. Unfortunately this is also not implemented in the whole country. For the protection of natural grasslands representing original vegetation these "sustainable grasslands" are excluded from afforestation programs.

**Action Theme 10. Mountain Ecosystems and**

**Action Theme 11. Actions for threatened species**

Mountain ecosystems are not priority areas for nature conservation, and there is no specific progress in this field that could be attributed to PEBLDS. As for the actions for threatened species, PEBLDS had greater effect, though still difficult to measure correctly.

4. NGO evaluation and recommendation

There is not enough attention devoted to PEBLDS in Hungary, while the capacity and institutional background is also insufficient. In order to achieve more progress in its specified action themes, sufficient and earmarked financial resources for the specific tasks would be necessary as well more institutional and personal capacity, similarly to the prerequisites of the implementation of international conventions. The role of PEBLDS as a comprehensive framework for nature conservation activities could be more stressed at national level, and its strategic value utilised better.

The objective of establishing a Pan-European Ecological Network is an area where more progress direct connection with PEBLDS can be seen as compared to other action themes. However as this target is still not fully achieved, as the network is still not under protection, and enough attention should be devoted to this task with the necessary institutional, legislative and financial background. Especially because the PEEN has an added value in terms of targeting the establishment of a functional network of core areas interconnected with ecological corridors.

The scope of PEBLDS should be widened to cover other areas for instance agriculture and tourism. Large area of the countries is under cultivation, which has inevitably a major impact not only on the territories of arable lands, but also beyond their borders. Tourism, if not controlled properly can also have serious implications for biodiversity protection, or rather biodiversity decline. Especially regarding future tourism infrastructure developments, the foreseeable increase in environmental pressure from this field of activity should be tackled in time and in a strategic way.
Appendix

**Parts of the world's natural and cultural heritage in Hungary:**

- Budapest: the Banks of the Danube and the Buda Castle Quarter
- Cave System of Baradla-Domica
- Hollókő
- Pannonhalma
- Pécs Early Christian Cemetery
- Cultural Landscape of Fertő Lake
- Tokaj Wine Region Cultural Landscape

**UNESCO Biosphere Reserves in Hungary:**

- Hortobágy Biosphere Reserve
- Kiskunság Biosphere Reserve
- Fertő-tó Biosphere Reserve
- Aggtelek Biosphere Reserve
- Pilis Biosphere Reserve
LATVIA

Introduction

Latvia is situated in north-eastern Europe on the east coast of the Baltic Sea. Its coastline is 494 km long. Latvia borders on Estonia, Russia, Byelorussia and Lithuania, the total border length of Latvia is 1,862 km. The territory of Latvia is 64 589 km$^2$ of which 62 046 km$^2$ is land, 2543 km$^2$ internal waters. Latvia is divided into 4 regions: Vidzeme, Latgale, Kurzeme and Zemgale. The population of Latvia is 2 346 000 inhabitants, population density is 37 people per km$^2$, 70,8 % live in urban areas, 29,2% in rural areas.

Latvian state was established on 18th November 1918, independence of state was restored after occupation by the USSR (1940-1941,1945-1991) and Germany (1941-1945) in 1991. After regaining independence, Latvia had to resolve problems associated with stabilizing the independent state, the promotion of democracy and the transition to a market economy, while at the same time ensuring the creation of national state political and economic systems.

According to data from the Enterprise Register, there were 6,000 social or non-governmental organisations (NGO) registered in Latvia by 2002, and from these approximately 500 are involved in the environmental protection sector. Since 1992, due to changes in the normative acts, NGOs have substantially increased their practical opportunities to participate in decision-making. More and more often state institutions share the opinion that NGOs are partners in achieving environmental protection, social and education objectives.

NGOs have proved their effectiveness by drawing society’s attention to problems and motivating it to take action, as well as substantially influencing different decisions. Collaboration has been strengthened and delegation of functions is developing in areas such as environmental protection and social assistance.

1. State of nature and nature conservation

Natural features of the country

Forests cover 46% of the state's territory. Timber product reserves increase is 16,5 mill.m$^3$ per year. Agricultural lands cover 38,5%, bogs cover 4,9%, peatbogs cover 0,4% of the territory of Latvia. Water resources are rich. There are more than 12,400 rivers and 2,256 lakes in the country, which together with water reservoirs cover 3.7% of the territory.

Largest lake - Lake Lubans, 80,7 km$^2$
Deepest lake - Lake Dridzis, 65,1 m
Longest river - Gauja, 452 km
Largest river - Daugava, total length of 1005 km: 352 km in Latvia

Biological diversity can be characterized by following figures:
18 047 wild animals, including 507 vertebrate species
5396 plant species
4000 species of fungi
63 fish species registered in waters of Latvia, 34 of them are industrially important.
8.9% of territory of Latvia has been classified as specially protected areas.
Habitat types

2.9 mill. ha (46%) of the territory of Latvia are covered by forests. The total area, covered by forests is increasing due to overgrowing of abandoned agricultural lands and artificial afforestation stimulated by SAPARD. Approximately two-thirds of the forest area is covered by coniferous forests, in which pine (Pinus sylvestris) is the most widespread. Birch, white alder and aspen grow in considerable areas, while the surviving old oak and ash woods are very scarce. 23% of forests grow on drained soils.

EU habitats relevant for Latvia:
9010 * Western Taiga
9020 * Fennoscandian hemiboreal natural old broad-leaved deciduous forests (Quercus, Tilia, Acer, Fraxinus or Ulmus) rich in epiphytes
9030 * Natural forests of primary succession stages of landupheaval coast
9060 Coniferous forests on, or connected to, glaciofluvial eskers
9070 Fennoscandian wooded pastures
9080 * Fennoscandian deciduous swamp woods
9160 Sub-Atlantic and medio-European oak or oak-hornbeam forests of the Carpinion betuli
9180 * Tilio-Acerion forests of slopes, screes and ravines
91D0 * Bog woodland
91E0 * Alluvial forests with Alnus glutinosa and Fraxinus excelsior (Alno-Padion, Alnion incanae, Salicion albae)
91F0 Riparian mixed forests of Quercus robur, Ulmus laevis and Ulmus minor, Fraxinus excelsior or Fraxinus angustifolia, along the great rivers (Ulmenion minoris)

Agricultural land covers 39% (2,48 mill. ha) of the area of Latvia. 55% of agricultural land are arable (1,36 mill. ha), 23% are meadows and pastures (0,57 mill. ha), long-term agriculture (orchards) - 1% (0,025 mill. ha). 60% of agricultural land is drained. 0,133 mill. ha is wet, non-drained agricultural land. 21,7% of agricultural lands is abandoned.

EU habitats relevant for Latvia:
6110 * Rupicolous calcareous or basophilic grasslands of the Alysson-Sedion albi
6120 * Xeric sand calcareous grasslands
6210 Semi-natural dry grasslands and scrubland facies on calcareous substrates (Festuco-Brometalia) (* important orchid sites)
6230 * Species-rich Nardus grasslands, on silicious substrates in mountain areas (and submountain areas in Continental Europe)
6270 * Fennoscandian lowland species-rich dry to mesic grasslands
6410 Molinia meadows on calcareous, peaty or clayey-silt-laden soils (Molinion caeruleae)
6430 Hydrophilous tall herb fringe communities of plains and of the montane to alpine levels
6510 Lowland hay meadows (Alopecurus pratensis, Sanguisorba officinalis)

Wetlands cover more than 5% of the area of Latvia. 70% of them are relatively untouched. Raised bogs cover 42%, transition mires - 9%, fens - 49% of the total bog area. Peat extraction pits cover 4,2% of the total bog area. 12% of the wetlands are under national protection.
EU habitats relevant for Latvia:
7110 * Active raised bogs
7120 Degraded raised bogs still capable of natural regeneration
7140 Transition mires and quaking bogs
7150 Depressions on peat substrates of the Rhynchosporion
7160 Fennoscandian mineral-rich springs and springfens
7210 * Calcareous fens with Cladium mariscus and species of the Caricion davallianae
7220 * Petrifying springs with tufa formation (Cratoneurion)
7230 Alkaline fens

12,5 thousand rivers of Latvia have total length of 38,000 km. They host about 50,000 beavers and almost 5,000 otters. About 37% of rivers are regulated. The largest drainage basins of Latvia's rivers are those of the Daugava (87900 km²), Lielupe (17600 km²), Venta (11800 km²) and Gauja (8900 km²). Parts of the basins of Latvia's major rivers lie in the territory of other countries, with only 44% of the total discharge arising in the territory of Latvia, 56% being transit waters from Belarus, Lithuania and Russia. Because of this, through cross-border pollution, economic activities in neighbouring countries can affect water quality in Latvia.

Latvia has almost 3000 lakes with a total area of 1000 km². The greatest number of lakes is to be found in the Latgale Uplands, with more than 40% of Latvia's lakes, total lake cover reaching 5%. The lagoon lakes have particularly high natural value.

EU habitats relevant for Latvia:
3130 Oligotrophic to mesotrophic standing waters with vegetation of the Littorelletea uniflorae and/or of the Isoëto-Nanojuncetea
3140 Hard oligo-mesotrophic waters with benthic vegetation of Chara spp.
3150 Natural eutrophic lakes with Magnopotamion or Hydrocharition - type vegetation
3160 Natural dystrophic lakes and ponds
3180 * Turloughs
3260 Water courses of plain to montane levels with the Ranunculion fluitantis and Callitricho-Batrachion vegetation
3270 Rivers with muddy banks with Chenopodion rubri p.p. and Bidention p.p. vegetation

Latvia has approximately 500 km long shoreline. The shoreline of about 300 km along the Kurzeme shore supports ecosystems which have been little disturbed and which include many species adapted to this unique environment. There has been a coastal protective belt created along the shore of the Baltic Sea and the Gulf of Riga (300 m from waterline) with the purpose of maintaining protective functions of the forest, to conserve coastal landscapes and to ensure sustainable use of natural (including recreation) resources.

EU habitats relevant for Latvia:
1110 Sandbanks which are slightly covered by sea water all the time
1130 Estuaries
1140 Mudflats and sandflats not covered by seawater at low tide
1150 *Coastal lagoons
1160 Large shallow inlets and bays
1170 Reefs
1180 Submarine structures made by leaking gases
1210 Annual vegetation of drift lines
1220 Perennial vegetation of stony banks
1230 Vegetated sea cliffs of the Atlantic and Baltic Coasts
1310 Salicornia and other annuals colonizing mud and sand
1630 * Boreal Baltic coastal meadows
1640 Boreal Baltic sandy beaches with perennial vegetation
2110 Embryonic shifting dunes
2120 Shifting dunes along the shoreline with Ammophila arenaria ('white dunes')
2130 * Fixed coastal dunes with herbaceous vegetation ('grey dunes')
2140 * Decalcified fixed dunes with Empetrum nigrum
2170 Dunes with Salix repens ssp. argentea (Salicion arenariae)
2180 Wooded dunes of the Atlantic, Continental and Boreal region
2190 Humid dune slacks
2320 Dry sand heaths with Calluna and Empetrum nigrum
2330 Inland dunes with open Corynephorus and Agrostis grasslands

**Biological Corridors**

There are no regulations or layer of the territorial development plans that include a concept of biological corridors. But it should be mentioned that the characteristic coastal zones and the considerably well maintained forests contribute to preservation of natural corridors. Forest and other lands included in protected belts along the rivers also function as biocorridors.

**Species and Genetic Diversity**

About 27 443 plant and animal species are found in Latvia. The presently known species include more than 18 000 animals, about 5 000 plants and 4 000 fungi. However, the real number of species may be more than 30 000. Currently 747 species (2.7% of the total number) are rare and threatened. 3.3% or 907 species of all species registered in Latvia are protected. Latvia is the home for many of the globally threatened species, such as the black stork, corncrake, lesser spotted eagle, lamprey, wolf and lynx.

Ex-situ conservation targets are included in the National Programme on Biological Diversity. Nevertheless, in-situ conservation measures have a priority in Latvia. There are no native species or group of species that has reached critical size of populations or faced critical loss of habitats to give priority to ex-situ measures.

**Priority Areas from nature conservation point of view**

As priority at this moment are highlighted the requirements of the EU Birds Directive ("On Conservation of Wild Birds", 79/409 EEC) and the Habitats Directive ("On Conservation of Species and Habitats," 92/43 EEC). According to these directives, the EU member states create a network of the protected territories called NATURA 2000. By the time Latvia is ready for EU accession, it shall have to submit to the EU Commission the list and database of NATURA 2000 sites. In order to ensure appropriate protection of the potential NATURA 2000 sites, provisions for creation and protection of these areas have been incorporated into the national legislation.
Human Impact

Wood is an important export item for Latvia. In monetary terms, timber and timber products account for more than 40% of Latvia's exports. Experts estimate that the forestry sector contributes 14-16% to GDP. Timber cutting has increased from 4 mill. m$^3$ to 11 mill. m$^3$ per year over the last 10 years, but the total volume cut does not exceed 80% of the annual regrowth potential of 16.5 mill. m$^3$. The large increase in the cutting of forest resources has been due to private forests becoming commercially available, as well as market demand. The rapid cutting of forests leads to fragmentation of forest stands and loss of old-growth forests, which in turn threatens biological diversity. Due to economical disadvantage of agriculture and farming, large areas of agricultural land are abandoned and are overgrown or rapidly overgrowing. That causes disappearance of such habitats as semi-natural meadows and one of the rarest habitat types in Latvia - coastal meadows. Opposite situation is in fertile soil region - Zemgale, territories with intensively managed agriculture have lost practically all the important elements of the landscape: individual trees, shrubs and ponds.

The rapid increase of recreational pressure and extension of building activities in the coastal areas are the main threats to conservation of natural habitats and species.

In the beginning of the 90-ies the intensity of peat extraction has reduced though it is expected to increase in the next years. Few invasive alien plant species colonize secondary habitats and are not considered as threat for natural habitats. Monitoring of those species and habitats is included in the National Programme on Biological Diversity and in the Monitoring Programme.

International commitments

Latvia has ratified the following conventions:

- √ Convention on Wetlands of International Importance, Especially as Waterfowl habitat, Ramsar, 1971.
- √ Approximation of the EU legislation is finished

National nature conservation legislation, incorporation of nature conservation considerations into other sectoral policies

In 1995, a European agreement between the member states of the European Union and Latvia was concluded. According to this agreement, Latvia has undertaken to improve its
legislation and to incorporate the requirements of the EU Birds Directive ("On Conservation of Wild Birds", 79/409 EEC) and the Habitats Directive ("On Conservation of Species and Habitats," 92/43 EEC). According to these directives, the EU member states create a network of the protected territories called NATURA 2000. Latvia is working to be ready for EU accession, by this time we shall have to submit to the EU Commission the list of NATURA 2000 locations and the database. In order to ensure appropriate protection of the potential NATURA 2000 locations, provisions for creation and protection of such locations have been worked into the laws.

Nature protection legislation is based on two pillars - the law "On Specially Protected Nature Territories" and the law "On Conservation of Species and Habitats". Law "On the Specially Protected Nature Territories", 1993, 1997, 2002. Determines the key principles of the specially protected nature territories system, procedure for establishing such territories and ensuring their existence, process of territorial management, monitoring and registration. The law has been amended with the procedure for creation of the NATURA 2000 network of protected nature territories of European interest. It also provides for the development of compensation mechanism to the landowners in the protected areas.

Separate laws establish National Parks, Nature Reserves and Biosphere Reserve:


Nature Reserves, Nature Parks, protected Landscape areas are determined by the Cabinet of Ministers' Regulations:

CM regulations No 69 "On protected Landscape Areas", 1999.
Conservation of protected territories, their management, zoning and permitted and prohibited activities on these territories are determined by:

Specific management of some protected territories are regulated by individual regulations on general protection and use approved by the Cabinet of Ministers.

Objective of the law - to ensure biodiversity, conserving the flora, fauna and habitats characteristic of Latvia. The law determines lists of the specially protected species and animals and habitats, where the endangered, vanishing or rare species and habitats as well as the species inhabiting specific habitats. In order to prevent reduction of the numbers and spreading of the local species or vanishing of rare habitats, the law provides for establishing of micro-reserves outside the protected nature areas. The law also determines the rights and responsibilities of the landowners and provides for compensations for the damage caused by specially protected and migrating animal species on the land property. According to this law the Cabinet of Ministers has adopted several regulations:

- CM regulations No 34 "On the Order of Issuing Permits for Introduction, Reintroduction and Capturing of Individuals of Non-g Species", 2001.
- CM regulations No 117 "On Indemnification of Losses for Extermination or Damaging of Specially Protected Species Specimens or Habitats", 2001.
- CM regulations No 345 "On the Procedure of Compensation Amount Determination to the Landowners for the Substantial Damage Connected with Material Damage Caused by the Non-Game and Migrating Specially Protected Species, 2001.

In line with international commitments and EU legislation on sustainable use of resources, nature conservation requirements are incorporated into the laws of many branches of economy:


The objective of the law is to regulate sustainable forest management, guaranteeing equal rights to all forest owners, independence of economic activities and equal obligations. There are the CM regulations on the nature conservation in forests, on the basic principles of forest management, forest cutting regulations, forest monitoring and indemnification of intended losses to the game management, dependent on this law.


Determines game animals, state functions in protection of game resources, their registration and supervision.


The law regulates extraction, use, research, conservation, multiplication and monitoring of internal, territorial and the economic zone water resources. Determines a towing belt alongside waters. CM regulations regulate angling, industrial fishing in internal waters and determine the industrial fishing rights.

Determines responsibilities of the society towards the wild, domestic and agricultural animals, ensuring welfare and protection of all species.


The objective of the law is to prevent or to diminish adverse impact on the environment caused by foreseen activities of physical persons or legal entities. EIA procedure shall be performed for all projects that might have negative impact on the NATURA 2000 territories and their natural values. This procedure allows for choosing the best solutions for development projects and provides for compensating measures for intended nature damages.


The law determines protected belts - operational, sanitary and for various nature resources, including rivers, lakes and the sea. It determines a certain size of these protected belts, the procedure of their protection, maintenance and use, as well as the rights and responsibilities of the landowners. It has to be noted that landowners' ignoring this law has been hotly discussed by the public.


Objective of this law is to ensure the development of the territorial development planning system that would facilitate sustainable development in the country. It determines the basic planning principles, content of territorial plans and their development procedure. CM regulations dependent on this law foresee that in physical planning the restrictions in protected territories and protected belts of nature resources are taken into account. Nature conservation plans of the protected nature areas are also binding for the planers. In order to ensure public information and involvement in decision-making process, the public discussion procedure for all physical plans is developed. Sectors like forestry, Agriculture, Fisheries, Transport, Energy have to integrate provisions from the National Programme on Biological Diversity in their strategies and programmes.

Institutional structure of nature conservation, responsibilities allocated

In 2000, Nature Protection Department was established at the Ministry of Environmental Protection and Regional Development (MEPRD). The department is developing nature protection policy and strategy, performs transposition of EU legislation into the legislation of Latvia, co-ordinates implementation of the National Programme of Biodiversity, administration of the protected nature territories and international co-operation in the sphere of nature protection. Management of the Strict Nature reserves, nature reserves and Biosphere reserve is performed by administrations of these territories. Eight Regional Environment Boards perform monitoring and control of other protected areas.

In 2000, the Latvian Environmental Agency was founded to maintain the databases of the protected territories, species and habitats. The National Monitoring Programme that cover all aspects of biodiversity - diversity of species, ecosystems and genetic diversity was developed by the Agency and accepted by the Ministry of Environmental Protection and Regional Development at 2002.
In order to ensure execution of a unified policy of nature protection and use of natural resources there was established a new institution subordinated to the MEPRD - the Nature Protection Board. It supervises the implementation of the National Programme of Biodiversity, nature conservation plan for the protected territories as well as the development and implementation of species and habitats protection plans. It also ensures accessibility of information about nature protection and issue the permits determined by legislation.

Municipalities show more and more interest in the management of protected nature areas. They often create NGOs and funds for the development of nature conservation plans that serve as the basis for sustainable regional development representing the interests of both - nature protection and local communities. New jobs are created through planning of eco-tourism and more opportunities for development of small businesses appear.

In 1999, the State Environment Impact Assessment Bureau was established by merging the Environmental Consulting and Monitoring Centre and the Environmental Data Centre. Its task is to organise the procedure for assessment of the impact of business activities on environment, and to develop and maintain the respective database. During the short period of its functioning, the bureau has performed environmental impact assessment for more than 20 major projects in the waste management, road construction and energy sectors.

State Forestry Service. The State Forestry Service is a civil institution subordinated to the Ministry of Agriculture, which is responsible for a uniform implementation of the forest policy in all forests of Latvia, supervise the observation of legislative acts and carries out support programmes for sustainable forest management. The Service is responsible for issuance of permits, licences, certificates and other documents, monitoring of the pathologic conditions of forest, examination of hunters and issuance of hunters' certificates, controlling of forest fire safety and informing of the public about the condition and use of forest and game resources.

State Environmental Inspectorate. The State Environmental Inspectorate controls and supervises the implementation of legislation framework in the field of environmental protection and natural resources use in the territory of Latvia, continental shelf, economic zones of the Baltic Sea and the Riga Gulf, territorial waters and inland waters. It also supervises and guides the activities of Regional Environmental Boards, Marine Environmental Board and environmental inspectors at state reserves and other particularly protected nature areas.

Environmental Protection Fund - pursuant to normative acts, all revenue from the natural resources tax and excise tax on oil products paid to the national environmental protection special budget is managed on behalf of the Ministry by the Latvian Environmental Protection Fund. Funds of the Latvian Environmental Protection Fund also come from fines and late charges paid pursuant to the law "On Natural Resources Tax", fines and compensation for damage done to the environment laid down by other normative acts and other revenue laid down by normative acts. These funds may be used only to finance and credit measures and projects of environmental protection, repaying amounts of taxes received for goods and products harmful to the environment to businesses utilizing or recycling leftovers of these goods and products, financing programmes of environmental studies and projects, training and continued education of specialists in the environmental protection area, and other environmental protection purposes laid down in the Founding Law of the Fund.
**Decision making system**

**Designation of new protected areas**

New Specially Protected Nature Territories are established by particular Law or Regulations of the Cabinet of Ministers. Proposal for designation of a new Specially Protected Nature Territory must be submitted to the Ministry of Environment. Then the Ministry in collaboration with scientific organisations and NGOs prepare draft of Law or Regulations of the CM, which become discussed between affected ministries and then set to the Cabinet of Ministers. If the Cabinet of Ministers accepts Regulations, they come in force and are published. If the CM adopts Law it must be set to the Saeima (Parliament). Law comes in force after the Saeima accepts it.

In preparation process all legislation acts must be accessible for public (via Internet). All interested NGOs are actively participating in all stages of preparing and discussing process of legislation.

**Interactions, gaps, bottlenecks, recommendations**

**Lack of incentive measures**

Restrictions and limits of different kind of activities still are dominant in nature conservation practice in Latvia. People are not motivated to support nature conservation, incentive measures are not traditional and only first attempts have been done to analyse the current situation.

Report "Incentive measures in the field of protection of biological diversity. Survey of current situation" has been prepared. This is the first attempt to analyse existing mechanisms, resources, to find gaps. Report has been prepared within the project Priority Capacity Building for Biodiversity and Establishment of CHM structures, financed by UNDP / GEF. Suggestions for improvement of existing incentive measures, implementation of new measures must be developed.
Management of protected areas

Management of protected areas is one of the most important weaknesses in the system of protected areas. Latvia has not enough resources (both financial and human) to prepare management plans for protected areas and to implement them. It is stated by law that owners and local municipalities are responsible for management of protected areas (except those with administration), but they do not have resources and interest to do it. Management of protected areas should be organized and supported by the State.

2. Implementation of the PEBLDS

Introduction

On 5 June 1992, Latvia signed the Rio de Janeiro Convention on Biological Diversity, which was ratified in 1995 by the Saeima (Parliament) of Latvia. This confirmed the willingness to adhere to the convention and to integrate it into national policy.

In 1997, the European Union accepted the Biological Diversity Strategy, to integrate the requirements of the Convention on Biological Diversity into sector Regulations. Since Latvia is associated to this organisation by formal agreement, by which Latvia has confirmed its determination to harmonise its legislation with EU policy, then the Articles of the Strategy are binding also for Latvia.

Action Theme 0. Pan-European action to set up the Strategy process.

Cabinet of Ministers accepted a National Programme on Biological Diversity on 1st of February 2000. It has been developed with the support of the Global Environmental Facility and the United Nations Development Programme, involving representatives of all ministries, researchers from several universities and institutes as well as NGO’s. A Co-ordination Committee has been established for implementation of the Programme, consisting of the representatives from different ministries, and the Ministry of Environment coordinates its work.

Objectives of the National Programme are to ensure conservation of biodiversity, planning of natural resources management, sustainable development and fulfilment of international obligations regarding nature protection. The programme highlights the most significant nature protection problems, which cannot be solved without large investment and international assistance. The Programme provides guidelines for planners of sectoral development and municipalities.

The National Programme of Biodiversity is also a strategic document for the Ramsar, Bern, Bonn and Washington conventions. Integration of the requirements of these conventions into the National Programme of Biodiversity is the most efficient way of meeting the objectives set by these documents. It allows a small country like Latvia to save the financial resources and to use a limited human resources in a more efficient way, to avoid overlapping and facilitate implementation of the requirements laid down by the conventions and monitoring of this process.

The programme consists of a Strategy and an Action Plan, which covers 190 activities. Biodiversity conservation problems and the planned measures are attributed to various ecosystems and nature protection territories, as well as to various branches of economy that use the natural resources directly, or, whose activities are influenced by individual ecosystems and species. The Action Plan has been worked out for period until 2010 and determines the amount of work, priorities, executors and financing nee-
necessary for the implementation of the programme. The Action Plan of the Programme becomes revised by the project "Implementation of Latvian Biodiversity Action Plan" (2001 -2003) that is financed by Danish Ministry's of Environment and Energy agency DANCEE and implemented by Danish consultant company Carl Bro.

**Project objectives:**

1. Capacity building of government institutions and relevant stakeholders regarding biodiversity conservation.
2. Implementation of Latvian Biodiversity Action Plan - to develop detailed implementation plan, time schedule, and activities' schedule, to determine responsible implementation institutions, to develop activity-specific budget and financial models for BDAP unit.

**Action theme 1. Establishing the Pan-European Ecological Network.**

The Ministry of Environment is active and regular participant of Committee of experts for the development of the Pan-European Ecological Network meetings, the Head of Protected Areas Division of the Department of Nature Protection in the Ministry of Environment Ms. Vija Busa is chair of it.

Project Development of the European Ecological Network EECONET, 1999-2001. The project was implemented simultaneously in the three Baltic States - Latvia, Lithuania and Estonia. Initially the national planning conception and criteria were developed and then used in one region in Latvia - Kuldiga. On the basis of the acquired experience, a National Ecological Network has been developed and performed in the form of digital map. All EECONET elements are reflected on it - core areas, corridors and buffer zones. The ecological network on the local, regional and national level will serve as a guideline for physical planning of the territories on all levels. After obtaining of additional financing it is planed to harmonize the structural elements of the network with the neighbouring countries in the border zones and to publish a brochure.

**Action Theme 2. Integration of biological and biological and landscape diversity consideration into sectoral policies**

It has been decided that for Latvia will be prepared only one biodiversity related strategy, which will incorporate also strategic goals of Ramsar convention, Bonn convention, CITES convention and regional conventions like Bern and HELCOM. It is approved as the National Programme for Biodiversity. Sectors like forestry, Agriculture, Fisheries, transport, Energy have to integrate provisions from the National Programme in their strategies and programmes.

**Action Theme 3. Raising awareness and support with policy makers and the public**

By gradually adapting European and developed countries' experience in the area of environmental awareness, public interest in nature is growing in Latvia. General public becomes more and more involved in the discussion of environmental problems and firmly opposes the projects and plans that might harm the environment. The public should know the national nature protection policy and has to be aware of the changes brought about by transposition of the EU directives into national nature protection legislation. There was organized an information day for public organizations and mass media about the creation of NATURA 2000 network of protected territories in Latvia. There was organised a TV discussion with representatives of the general public about determining the NATURA 2000 territories and about the rights and responsibilities of the landowners in them. There were prepared a number of articles and interviews with
the press and radio about nature conservation problems in the country, a brochure about the progress in nature conservation in 2000-2002 and other educational brochures about the largest protected nature territories, NATURA network, protected species and habitats are published. There was created a regular TV programme "Environment Facts" and magazine "Environmental News" is issued. Information on the nature protection legislation is published every year. The website of Ministry of Environment is developed with links to different nature protection institutions and projects. Lectures for the specialists of different branches about conservation of biodiversity and nature protection legislation have been organised. The network of Environment Guides have been created all over Latvia and training workshops and exhibition cycles are organised in every region. Environmental education is becoming a part of tuition at schools. Nature tourism events are regularly organised in National Parks, Nature Reserves, Nature Parks and the Biosphere Reserve. The Latvian Nature Museum organizes interesting exhibitions and events the whole year round for education of children and adults. In most nature conservation projects activities for public information, involvement and awareness building are included as important component.

**Action Theme 4. Conservation of landscapes**

The concept of conservation of landscapes in being incorporated into management plans for protected areas. The strategy of conservation of landscapes is one of future priorities for the Ministry of Environment of Latvia, but work on this strategy is in early beginning stage.

**Action Theme 5. Coastal and marine ecosystems**

Main issues on marine and coastal biodiversity are included in relevant parts of National Programme for Biological Diversity. Most important strategic goals of the Part 1. Baltic Sea and the Gulf of Riga are to prevent further decline of macrophyte beds, decline in diversity of marine communities and species and changes in natural structure of communities. The goals for the coastal biodiversity are listed in the Part 2. Beaches and dunes. The reduction of the degradation process of beach and dune ecosystems is the most important goal. Public awareness issues, development of monitoring programmes, establishing of marine and coastal protected areas, compilation of management plans for particular sites are planned actions within Action Plan to reach the goals. Latvian Environmental Agency (LEA) developed National Monitoring Programme (NMP), including all aspects of biodiversity monitoring: species, ecosystems and genetic diversity. Subprogram Monitoring of Coastal Habitats and Species is included in NMP and will continue. Public awareness building, establishment of new protected areas and compilation of management plans are included in Life Nature project Protection and Management of the Coastal Habitats in Latvia (2002-2005) (http://piekraste.daba.lv/EN/par_projektu.shtml)

The goals for the fishery sector in the Part 15. Fishery are to maintain ecosystem and habitat diversity, species diversity and population productivity.

**Action Theme 6. River ecosystems and related wetlands**

Inland water ecosystems are included in the Part 3. Rivers and lakes (Section I.) and Part 15. Fishery (Section II) of National Programme on Biological Diversity. Accepted strategic goals are conservation of rapid flowing river stretches, ensure the function of ecological corridors along rivers, protect fish migratory roots, prevent the loss of sensitive species and communities, maintain species diversity and richness. Legislation
already now foresees restrictions for building of new hydroelectric stations and retention of river stretches. Legislation also determines restrictions on forest use and agriculture along the rivers. Planned actions foresee to develop methods of assessment and renewal techniques of freshwater habitats. Development of databases on river hydrological and lake morphometric parameters is planned.

**Action Theme 7. Inland wetland ecosystems**

Wetland ecosystems are included in the Part 5. Mires (Section I) and Part 23. Peat mining (Section II) of the Programme. Accepted strategic goals are to prevent future human-caused changes in biological diversity of the important plant and animal communities, reduce impact on plant and animal communities in territories surrounding peat harvest fields and prevent destruction of rare bog and forest habitats due to peat extraction. 12 % of the wetlands are under national protection, and project EMERALD/NATURA 2000 after second year of field inventories foresee establishment of new protected wetland territories.

**Action Theme 8. Grassland ecosystems**

Issues of agricultural biodiversity are included in two parts of Section I. Nature Protection: Part 6. Crop fields and Part 7 Meadows and pastures of the National Programme on Biological Diversity. Strategic goals in these parts are maintenance of typical plant and animal communities of crop fields, semi-natural grasslands and pastures, protection of local crop varieties and livestock breed. Strategic goals for agricultural sector are formulated in Section II. Sustainable use of biological resources Part 14. Agriculture. Among others, two goals are particularly important: to maintain the traditional rural landscape and to prevent a decrease in coverage of semi-natural grasslands. Measures taken in account in preparation of SAPARD support, Preservation of Biodiversity in Agriculture and Preservation of Rural Landscape were adopted. Several activities are included in 2 parts of Biodiversity Action plan. For maintenance of biodiversity in crop fields the emphasis is made on public awareness activities: publishing of the Code of Good Agricultural Practice (publicized, 2000) and popularisation of this practice. Several planned actions are connected with research (studies of soil biodiversity) and monitoring (bird monitoring). In the field of management of semi-natural grasslands the national inventory has to be carried out, the network of biologically valuable grasslands and the management programme has to be developed. Project Meadow Inventory in Latvia (2000 - 2002) was carried out by Latvian Fund for Nature with funding from Government of the Netherlands, PIN-MATRA fund, The aims of the project were to establish a database of biologically valuable meadows and formulate a framework for meadow protection.

**Action Theme 9. Forest ecosystems**

Part 4. Forests in the Section I. and Part 13. Forestry in the Section II. of National Programme on Biological Diversity lists forest biodiversity problems. The strategic goals are to prevent decline in diversity of forest habitats, ensure suitable conditions for populations of forest animals, protect migration paths and reduce the rate of forest fragmentation, maintain the characteristic species composition of forest communities. Among rather wide range of goals for forestry sector, several are particularly important: promote sustainable forest management, reduce the impact of disturbance from forest management, optimise the relative coverage of particular forest types, and improve forest age structure. All state owned forests are certified (FSC) in 2001 and 2002. New
restrictions on season of forest management activities are set in legislation. National inventories of protected flora and fauna species and protected habitats are planned in Nature Conservation Action Plan. Inventory of Woodland Key Habitats was carried out in state owned forests (1997 - 2002) and project EMERALD/NATURA 2000 after field inventories foresee establishment of new protected forest territories. Several activities included in Action Plan are connected with compiling and publishing of forest ecology textbooks and forest key habitat guidebooks. Forest Key Habitat (Woodland Key Habitat) Guidebook and other printed materials are prepared and distributed by State Forest Service in time period 2000 till 2003.

**Action Theme 10. Mountain Ecosystems**
Not relevant for Latvia.

**Action Theme 11. Actions for threatened species**
In the National Programme on Biological Diversity in situ conservation is included in Part 11. Species Protection. Under the target "Prevent decline in numbers and decline of distribution area of native species" most important measure is to develop network of micro reserves for particularly protected species outside protected areas. Development of species management plans, promotion of studies on species ecology and biology to have scientific bases for proper management also is among planned measures. With financial assistance from the Danish Environmental agency 11 species management plans were prepared for most threatened species like Lynx, Wolf, Lesser Spotted Eagle, Capercaillie, Corncrake, Great Snipe, Roller, Freshwater Pearl Mussel, Yellow Lady's Slipper and others. (http://www.vidm.gov.lv/vad/English/Plans/Species_plans.html) Sustainable use of commercially important wild species is another target in this part of National Programme. Particular stress is made on game animal management (Part 16.)

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LITHUANIA

Introduction

Lithuania is a state of Central Europe belonging to the Baltoscandian region. It is located in the eastern part of Europe, bordering Latvia in the north, Belarus and Poland in the east and south, and Kaliningrad (region of Russia) in northwest. In the west, Lithuania borders on the Baltic Sea. The National Geographical Institute of France has established that the geographical centre of Europe is 25 km northwards from Vilnius, the capital city of Lithuania, so Lithuania can geographically be regarded as a central European state. Total area of the country is 6.53 million ha. Total population - 3.692 million. Population density - 53.4 inhabitants in square kilometre. Lithuania is a country in transition. The macroeconomic trends for the country have been pointing in a favourable direction since 1994. GDP per capita in 2001 was 13752 Litas (3929 USD).

The name of Lithuania was first mentioned in the historical sources in 1009. In 14th -16th centuries the Great Duchy of Lithuania was one of the greatest European states. In 1940 Lithuania was annexed by the Soviet Union, and during the long decades the name of Lithuania, as of other Baltic states, was deleted from the political map of Europe. In 1990 it was one of the first former Soviet Republics to announce its independence. With the Restoration of Independence Lithuania has become a sovereign state again. The new Constitution approved in 1992 introduced a parliamentary system with President - the head of the state. Lithuania is divided into 10 counties and 44 districts. The population is evenly distributed between the 10 counties, which is considered an important strength for Lithuania.

The NGO movement started in 1998-90, as the public movement for independence. Environmental ideas served as a basis for political protests against the Soviet Union. This period was start of Lithuanian Green Movement, afterwards other environmental NGOs were established, and now their number is estimated at 80-100. Lithuanian environmental NGOs co-operate closely with international NGOs.

1. State of nature and nature conservation

Lithuania is considered as a country of plains, however, because of its rich variety of scenery, stimulating contrasts can be found within short distances. On the land surface, areas of hills and lowlands can be observed. The mean absolute surface altitude is 100 m above the sea level; the highest point (294 m) is in the east of the country.

Rivers account for the basic hydrographical network. There are 722 rivers more than 10 km long. The longest river is the Nemunas, with a length of 937 km. There are over 3 thousand lakes in Lithuania, 25 of them with areas of 10 sq. km and more. They take up 1.5 per cent of Lithuania's territory.

The climate of Lithuania is transitional between maritime and continental. The mean annual temperature is +6 degrees C. In January the range of temperature is from -3 degrees at the seacoast to -6 degrees C eastward, and in July from +16 degrees C to +18 degrees C. Westerly and south-westerly winds prevail. According to the mean annual precipitation and humidity evaporation, Lithuania lies in the redundant humidity subzone.
Biological diversity with special attention to the international importance

Of the 6.530 thousand hectares of total area, utilised agriculture area (UAA) at the beginning of 2001 equalled 3.488,7 thousand hectares, or 53.4 per cent of total country area. Arable land accounted for 2.932,6 thousand hectares (84.1 per cent of UAA), meadows and natural pastures - 497.1 thousand hectares, or 14.2 per cent of UAA and permanent crops - 59 thousand hectares, or 1.7 per cent of UAA. Forests cover 1998.4 thousand hectares (or 30.6 per cent of the total country area), water bodies - 262.1 thousand hectares (or 4.0 per cent of the total country area), roads - 131 thousand hectares (or 2.0 per cent of the total country area), build-up territories - 187.3 thousand hectares (2.9 per cent of the total country area), other land - 462.5 thousand hectares (or 7.1 per cent of the total country area). The reclaimed area equalled 3.05 million hectares, 85 per cent of which has been drained.

Lithuania occupies both the boreal and temperate biogeographic regions, with mixed-forest biome predominating at its southern boundary. The broadly ecotonal pattern at the boundaries of three biomes gives Lithuania special significance for biodiversity not only at the local, but also at the regional and national levels. In Lithuania, three main biogeographic regions are represented: Eastern Baltic, the Baltic Sea Marine and Central European. The main types of biodiversity in Lithuania are as follows: forest habitats and their components; open-land (meadows, water-meadows, dunes, etc.) habitats and their components; wetland habitats and their components, freshwater habitats and their components, marine habitats (including coast ecosystem) and their components.

Natural and semi-natural ecosystems in Lithuania (forests, wetlands, meadows, water bodies and sand) take up 1/3 of the territory. Species densities in these ecosystems is very varied. Most species live and grow in the forests. Lithuania belongs to the natural zone of mixed forests. Plant types of the zone are broad-leaved-coniferous forests. Deciduous trees and mature as well as over-mature forest segments are of greatest importance for the conservation of biodiversity in forest ecosystem. Forest structure in this respect in Lithuania is particularly inadequate. Mature forests comprise only 9.6%, deciduous trees are gradually replaced by coniferous ones; oak-woods and ash-groves account for merely 4.5%. The natural biological corridors are rivers and their valleys.

Lithuania’s rich biological diversity will make a significant contribution to European biodiversity. Some of the species found in Lithuania are very rare or even extinct in Western Europe, and Lithuania still hosts substantial populations of species such as the white stork and the wolf. Lithuania comprises 53 different types of preserved habitats of European importance. This represents 24 % of the entire number of preserved habitats (218) that are recognised in the European Union and listed in the Habitats Directive. Many of these habitat types need protection. They are found within various sea, freshwater, sand, meadow, forest, and swamp areas.

Lithuania can be characterised by a wide biodiversity because there are 24-25 thousand species occurring in it. The Lithuanian flora includes 1,796 plant species, Compositae (124 species), Poaceae (117 species), Cyperaceae (93 species) families are among the largest. Depending upon life forms, species have the following distribution: trees - 20 species, bushes - 57 species, shrubs and semi-shrubs - 23 species, herbal plants - 1266 species.
Most wildlife in Lithuania is associated with broad-leaf deciduous/coniferous forest and southern taiga. These two biomes encompass a variety of habitats (forest, meadow, aquatic, agricultural and urban). Although the largest wildlife biomass is found in deciduous and mixed forest, the highest species diversity occurs in ecotonal areas, such as where forests and wetlands meet. Even in comparatively well-studied groups, species new to Lithuania are being found. Taxa which are insufficiently studied in Lithuania, and which may yield new insights into Lithuanian biodiversity, are amphibians, reptiles, bats, small predators, insectivores and rodents.

There are some 500 vertebrate (70 species of mammals, 321 birds, 7 reptiles, 13 amphibians, 96 fish and 3 Cyclostomata) and 20,000 invertebrate species in Lithuania (of which ~15 000 species of insects, ~200 Arachnida, ~170 molluscs, 300 Rotatoria), most of the smaller of which, particularly Protozoa, insects, helminths, sponges, Coelenterata and Bryozoa, have been insufficiently studied. There are over 7000 species of fungi in Lithuania.

Territorial protection traditionally has been one of the main priority areas for biodiversity conservation in Lithuania.

The network of protected areas (natural parks, reserves, etc.) in Lithuania was developed in the last ten years. The system of legally protected areas of Lithuania is aimed at the conservation and where possible restoration of:

- Nature and cultural heritage features,
- Landscape ecological balance,
- Biodiversity,
- Gene pool for restoration of biota resources.

Also, it creates conditions for the development of interpretive, research and the promotion of nature and cultural heritage protection.

There are 4 categories of protected areas:

- Conservation areas - strict nature reserves or culture reserves, protected landscape features (nature or culture monuments), nature or culture reserves,
- Protection areas - protection zones for various purposes (buffer zones for strict reserves, national or regional parks, nature or culture monuments, water bodies, roads and railways, recreational areas, etc.),
- Restoration (recuperation) areas - sites where natural resources are protected or restored,
- Integration areas - national parks and biosphere monitoring areas.

In 2002, specially protected areas covered 773.9 thousand hectares, equaling 11.9 per cent of total country area. There were 1,062 protected sites listed in total, including 5 national parks and 30 regional parks. Most of the protected areas are concentrated in the Southeast Lithuanian regions.
With the factual development of the system of particularly protected areas before land reform, good preconditions for the conservation of landscape and biodiversity in Lithuania have been created; however, part of the areas especially valuable from the biodiversity point of view are still unprotected.

In 1983, in the national Integrated Nature Protection Scheme, the idea of Lithuania’s Nature Frame was raised and approved. Lithuania proposed the concept of Nature Frame, which became the concept and approach for the conservation and protection of Lithuania’s natural landscape.

The Nature Frame, which offers a universal approach, was put forward and legally established under the relevant laws of the Republic of Lithuania on environmental protection and protected areas. The Nature Frame links all natural protected areas with other ecologically valuable or relatively natural areas which underpin the general stability of landscape, to form a landscape system of geocological compensation zones. It is aimed not only at development of a complete system for natural buffering and connecting natural protected areas, but also at conservation of natural landscapes, biodiversity and natural recreational resources. It does so by providing guidelines and conditions for recovery of forests, optimising the structure of agrarian landscape from the geocological point of view, regulating development of agrarian activities and defining sustainable urbanisation. It is a concept based on catchment and biologically important areas.

The Nature Frame, however, is not a continuous network of green belts. Instead, it is an integrated process for all land use, management and protection. Currently, the Nature Frame covers about 60% of Lithuania varying from 35 to 80% depending upon natural conditions and land use.

Increasing the area of natural territories (forests, natural meadows, etc.) is one of the most important activities to increase ecological stability of landscape. From the point of view of the
ecological stability of landscape, forests are needed most and the priority is given to increase of forest area in the regions of central Žemaitija, western Aukštaitija and Suvalkija that do not abound in them. It is planned to plant forests in the most infertile agricultural lands and to increase forest coverage of Lithuania by 3-4 percent during the next two decades.

Lithuanian National Biodiversity Conservation Strategy and Action Plan defines priority goals and actions for different sectors, as well as territories of priority interest for biodiversity conservation. However, due to lack of institutional capacity and resources, at present the first national priority for conservation of biodiversity is preparation for implementation of the EU nature conservation requirements, including transposition of the EU requirements into national legislation, establishing of Natura 2000 network, and ensuring its implementation.

The quality of biological diversity is threatened by a combination of factors, including the privatisation of land (leading to an increase in construction), land-reclamation, development of road and urban infrastructure (causing habitat fragmentation), intensified forest felling, damage of forest ecosystem because of natural calamities and pollution, change in ecologic conditions of meadows due to economic activity or its reducing (land abandonment has become quite common phenomenon), making of rivers and rivulets into ponds, the weakening of administrative procedures and responsibility, lack of management plans, lack of public information and education, and insufficient inventories of flora and fauna etc. Precondition for that is the low level of economic consciousness.

2. Nature conservation with an outlook to the significant changes occurred in the recent past (since the beginning of the EfE process) and their implications

After the re-establishment of the independence of Lithuania on the basis of a new national economic development policy and taking into account new environmental protection problems and objectives as well as priorities of the environmental policy, the Parliament of the country approved the Environmental Protection Strategy of Lithuania in 1996. The Government adopted the Action Programme aimed at directing the country towards sustainable development so that the clean and healthy environment, biological and landscape diversity could be preserved and effective consumption of natural resources ensured.

Lithuania is a Party to a number of international conventions and agreements. Participation of Lithuanian officials and experts in the Helsinki Commission and implementation of CBD are the areas of most active international work. Lithuanian Parliament has ratified the ESPOO Convention on Environmental Impact Assessment in the Trans-boundary Context on 7 Oct 1999. Lithuanian Parliament has ratified the Washington Convention on International Trade of Endangered Species (CITES) and Bonn Convention on the Conservation of Migratory Species of Wild Animals on 22 May 2001 and Agreement on Conservation of Bats in Europe in 2001. Lithuania is a Party to Convention Concerning the Protection of the World Cultural and Natural Heritage (Paris Convention) from 1992, Convention on Biological Diversity from 1995 and Convention on the Conservation of European Wildlife and Natural Habitats (Bern Convention) from 1996. Lithuania is a Party to Baltic Sea Environment Protection Convention (Helsinki Convention) from 1994, Convention on Fisheries and the protection of Fish Resources in the Baltic Sea and Protection of Belts (Gdansk Convention) from 1992, Convention on Wetlands of International Importance Especially as Waterfowl Habitat (RAMSAR Convention) from 1993, Convention of the Protection and Use of Trans-boundary watercourses and International
Lakes was ratified in 2000. Lithuanian experts and officials of state authorities take an active part in the regional and sub-regional meetings of the conventions (CBD, RAMSAR, Bern, CITES).

Recently Lithuania has implemented a state programme "Gene pool" that corresponds the European Council Directive 1467/94. Lithuania is one of 34 European countries participating in the European Co-operative Programme for Crop Genetic Resources Networks (ECP/GR) and one of 30 European countries taking part in the European Forest Genetic Resources Programme (EUFORGEN).


The Amended Law on Wildlife was passed in 2001. and Law on Wild Flora regulate the use and conservation of species of wild fauna and flora respectively. According to the Law on Forest, there are four classes of forest, where Group I and II are state owned forests and are located in protected areas and administrated by Protected Areas administration. The Group III and IV may also be located in protected areas or outside but may well be either privately and state owned. Special rules apply for forest protection and use in protected areas since 1996.

In 2000 New Hunting Regulations was adopted by Government. Amended Hunting Rules were approved in 2000. There are about 30,000 hunters in the country. Rules for picking of mushrooms and berries was adopted in 1996. 9-10 species of mushrooms have the highest commercial value. E.g. in the period of 1996-1999 the mushroom sales have been fluctuating between 840 tons in 1999 to 2648 tons in 1997. Six species of wild berries are traded the most (lead by Vaccinium myrtillus) ranging from 202 tons in 1999 to 3668 tons in 1997.

Law on Fisheries was adopted in 2000. This law (art. 17) elaborates the protection and sustainable use of fish resources.
The regulatory measures for species and their habitats protection are in place, the enforcement and integration with legal provisions in other sectors (e.g. wild species conservation in agriculture, or road construction etc.)

*The Law on Wildlife, Law on Wild Flora and Law on Protected Animal, Plant, Fungi Species and Communities* promote the maintenance of species in their natural habitats. Replacements and introduction of species requires the permit from the Ministry of Environment. The legislation to protect the viable populations in the natural surroundings is generally in place. The requirement and procedure for developing management plan (or conservation action plan) could be considered.

*Law on Environmental Impact Assessment (EIA)* was adopted in 1996. EIA procedure is divided into two phases: initial review and full EIA. The Law sets the requirement that all documents of territorial planning are subject to initial review. The Governmental Resolution from 1997 further elaborates the list of proposed activities. The document also sets that the environmental measures of construction activities planned on the Protected Areas (national parks and nature reserves) shall be prepared according to the State Construction Standard and the preparation shall be coordinated to the established there order. Although, there is no direct reference to activities adjacent to protected areas in legal acts, the procedure to assess the environmental impact of planning (including areas adjacent to protected areas) is set in the Law on EIA and a special reference to proposed activities within protected areas is regulated by the Governmental Resolution.

Very important step in dealing with the protection of biodiversity at state level was preparation of *National Biodiversity Conservation Strategy and Action Plan. (BCSAP)*. It was completed in 1997, and approved by the Ministry of Environmental Protection (now Ministry of Environment) and the Ministry of Agriculture and Forestry (now Ministry of Agriculture) in January 1998. The preparation of BCSAP was financed by the World Bank and assisted by two international experts. The document comprises four parts: current status and trends (in biodiversity conservation), strategy, action plan and implementation of the action plan. Lithuanian Government has received financial and expert assistance for the implementation of CBD. For example, the World Bank has financed the compilation of BCSAP. A number of nature conservation and management projects have been implemented with the assistance from Danish, Finnish and Dutch Government. The BCSAP was prepared by 8 local experts, assisted by two foreign experts, all supervised by three members of the Task Force and three experts in the Steering Committee. The local experts represented the Institute of Ecology, Institute of Botany, Vilnius University and Klaipeda University. Sectoral working groups were established. A specialist from the previous Ministry of Forestry participated in the drafting of BCSAP. In terms of content the UNEP Guidelines were partly followed, but not in terms of the drafting process (inter-sectoral / inter-ministerial involvement).

*BCS Action Plan (1998)* comprises six areas of action: Nature Frame action plan, forest ecosystems protection, coastal ecosystems protection, inland water ecosystems protection, wetlands and meadow ecosystems protection, and anthropogenic environmental ecosystems protection. In addition to that it also addresses protection of species and ex-situ protection. BCS Action Plan provides six areas of action each split into four categories: actions needed in the fields of legal-institutional regulation, territorial planning, research and monitoring, and information, training and education.

Nature conservation strategy and measures, both at political and legislative level are in place. The integration of BD conservation objectives specified in BCSAP into other sectors such as forestry, industry and agriculture has been relatively slow, except for the agriculture, where currently developed agri-environmental measures also address some biodiversity conservation issues. EU approximation process has also boosted the integration of environmental issues.
into agricultural practices. The transposition of EU Rural Development Regulation is one of the examples.

Environmental Education Strategy and Action Plan (EESAP) was adopted by the ministers of Environment and Ministry of Agriculture and Forestry in 1996. The EESAP foresees for different institutions working in education, training or directly involved in environmental protection. It is stated in EESAP that information on biodiversity will be incorporated in different educational programs to be prepared for different levels of schools, and a number of corresponding publications and films will become available.

Lithuania started official negotiations for the membership of EU on 15 of February, 2000. During the process of negotiation those conditions, which are proposed by EU itself, may be accepted, but a candidate country may insist on the transitional periods or exemptions for the enforcement and implementation of the separate EU legal acts. Two main EU directives related to nature protection - Wild Birds Directive (79/409/EEC) and Natural Habitats of Wild Fauna & Flora Directive (92/43/EEC) form the legal basis for a network "Natura 2000". The main and most important task when implementing the EU and other international obligations is to combine them with national legal system. In order to implement the EU directives and international conventions, the changes of much national legislation were prepared and accepted during the last few years.

Until 2004 Lithuania undertook to establish the network of SPAs and SAC and guarantee protection of bird species and natural habitats of European importance. The selection criteria of SPAs and SAC were confirmed by the executive orders of the minister of environment (No. 22, 09-01-2001; No. 219, 20-04-2001). According to these criteria the list on sites, which could guarantee protection of species and natural habitats, enumerated in Annex 1 of Birds Directive and Annex 1 and 2 of Habitats Directive, was identified. A big part of the sites of the list is not involved in natural areas protected nowadays within the international context (national, regional parks, strict nature reserves or nature reserves). As a result, in order to guarantee the protection of species and habitats indicated in Birds and Habitats Directives, Lithuania will have to establish some new strict nature reserves and nature reserves and (or) correct the lines of the present ones. At the moment Lithuania still stands behind the supposed average of the EU member states according to the common area of the protected sites. The average should be not less than 13 % of state land surface. NATURA 2000 database will have to be filled in for every SPA and SAC and sent to the European Commission.

The Minister of Environment manages the implementation of the Government Programme in the area of environment. The Minister is accountable to the Parliament (Seimas) and the President and is directly reporting to the Prime Minister. The Minister of Environment is the head of the Ministry of Environment. The Ministry of Environment is a public authority financed from the state budget. The Regulations of the Ministry are approved by the Government. The Government of the Republic of Lithuania granted credentials to the Ministry of Environment to co-ordinate all measures aimed at preservation of biological diversity. These measures are carried out both at state and local levels. The Ministry of Environment Established Department of Biodiversity (current Nature Protection Department - 22 persons employed at present). Forest Department deals with forest conservation issues. Seeking to strengthen the effectiveness of activities in protected areas, a special Service of Protected Areas was established in 2001. The staff includes the headquarters in Vilnius, as well as administrations of 4 Strict Nature Reserves, 5 National Parks and 30 Regional Parks. The Seimas of the Republic of Lithuania determines main trends of environmental protection and nature conservation, adopts strategies and laws of environmental protection, approves State budget assignations.
for financing of environment protection, and ratifies the main international agreements on environmental protection.

The Government of the Republic of Lithuania adopts programmes and schemes of environmental protection by presentation of the Ministry of Environment, sets a system of state institutions working on environmental protection, co-ordinates activities of state and territorial governing institutions on environmental protection.

The Ministry of Environment is the main managing authority of the Government of the Republic of Lithuania which forms the country's state policy of environmental protection, forestry, utilization of natural resources, geology and hydrometeorology, territorial planning, construction, provision of residents with housing, utilities and housing, as well as coordinates its implementation. One of the main tasks of the Ministry of Environment is the preservation of characteristic Lithuanian landscapes, natural ecosystems, nature values and biological diversity. In this sphere the Ministry:

- drafts laws and other legal acts on the protection of biological diversity and resources, develops and approves rules, norms and standards for the use of biological resources;
- arranges activities for protected areas planning;
- creates programmes on environmental measures for the preservation of biological diversity;
- assigns limits and conditions for the use of biological resources;
- regulates and controls the register of natural resources;
- arranges for the compilation and maintaining of protected areas, plant and wildlife cadasters;
- makes proposals for the establishment of protected areas;
- regulates and controls activities in protected areas;
- organises activities of strict nature reserves, national and regional parks;
- compiles and supplements the Red Data Book;
- organises and performs activities related to the preservation and increase of rare and declining plants, fungi and animals;
- regulates the procedures of import and export of plants, animals, and trophies, and also the keeping of animals in captivity;
- determines the procedures for assessing the environmental impacts of economic activities and the approval of projects;
- organises and co-ordinates the integrated ecological monitoring;
- organises and co-ordinates applied research related to biological resources protection, formation of networks of protected areas, etc.

Ministry of Environment has participated in the preparation of the Action Plan for European Protected Areas (Parks for Life, 1994), Pan-European Biological and Landscape Diversity Strategy (1996) and is involved in the establishment of the Pan-European Ecological network. Ministry of Environment (and its predecessor) has been a member of the World Conservation Union (IUCN) since 1993. The Ministry is involved in the work of the IUCN European Region and the work of commissions or groups on protected areas and species.

State Service of Protected Areas within the Ministry of Environment is the responsible authority for protected areas.

Direct implementation of programmes for the conservation of biological diversity is the responsibility of strict nature reserves, national and regional parks' administrations.
programmes aimed at the conservation of biological diversity are implemented at the local level by municipal institutions.

All the municipalities of Lithuanian cities and districts have environmental units or responsible officials. Pursuant to the Law on Environmental Protection municipal institutions within their competence arrange for the implementation of environmental protection legislation and decisions on the issues of environmental protection made by the Government and the Ministry of Environment.

A Commission on Landscape and Biodiversity consisting of 22 members representing governmental authorities and NGOs and chaired by the Director of Institute of Botany advises the Minister of Environment on different relevant issues, including drafting the laws. The Commission is also authorised to monitor the implementation of BCSAP. A special document "Lithuanian Republic Strategy and Action Programme on Public Environmental Education" (EESAP) was adopted by the Government Resolution in 1998. A special Committee (with 25 members) chaired by a Vice-Minister of Environment has been established on Environmental Education, Training and Public Awareness to coordinate the implementation of the Action Programme. Universities of Vilnius, Kaunas and Klaipeda having faculties of biology, and Institute of Botany and Institute of Ecology are the leading institutions to identify, study and monitor the components of biological diversity. Also the contribution from the Lithuanian Ornithological Society, Lithuanian Fund for Nature and materials collected during various projects are valuable source for biodiversity identification.

In Lithuania there are about 80 environmental NGOs. The main tasks of NGOs are to raise public environmental awareness, instil harmony into the relations between man and nature, involve the general public in the process of solving environmental protection problems, initiate co-operation with the general public in foreign countries, instil respect and love for nature, biological diversity and responsibility for its preservation for future generations, involve experts from specific fields of science into the work of public environmental information and training of specialists.

The main non-governmental organisations working in the field of biological diversity conservation are Lithuanian Fund for Nature, Lithuanian Ornithological Society and others.

Recently the Minister of Environment of Lithuania Mr. Arunas Kundrotas and Ms. Margot Wallström, EC Member of the Commission for Environment, signed Memorandum of Understanding between the European Community and the Republic of Lithuania on Lithuania's participation in the Community action programme promoting non-governmental organisations primarily active in the field of environmental protection. This will ensure more active NGO involvement in the decision-making process. Nature conservationists are probably the most active group of stakeholders. For example, the hunters and forest owners have not yet become a well organised and powerful stakeholder groups.

Since most of international agreements on biodiversity conservation double and overlap with each other, countries with limited financial resources, like Lithuania can use this as an excuse not to form specific institutional structures or create specific action plans for separate treaties. Insufficient institutional capacities and lack of funding are also the main reasons for Lithuania's poor concrete effort to implement some Conventions. Since the CBD can be considered as a framework convention for biodiversity conservation and includes many aspects form other agreements, Lithuania was concentrating its work mostly on implementation of this Convention. The strict reporting procedures of this Convention also provide for putting efforts in activity co-ordination and evaluation. The same applies to the Ramsar Convention.
Other conventions, unfortunately, were regarded by Lithuania far less seriously. But it is very important, that the country has a strong basis for all kinds of nature conservation activities - National Biodiversity Conservation Strategy and Action Plan. During the last couple of years international funding available for biodiversity conservation has considerably increased, and more funds will be open with the EU accession. This should considerably increase Lithuania's capacity for practical implementation of international nature conservation requirements, and as a result, status of biodiversity in the country. In order to use these possibilities efficiently, co-ordination of all related activities would be needed.

3. Implementation of the PEBLDS

The Pan-European Biological And Landscape Diversity Strategy was signed by the Lithuanian Minister of the Environment at the first Environment for Europe Ministerial Conference in Sofia in October 1995. Biodiversity and Landscape protection in Lithuania is implemented according to the National Biodiversity Conservation Strategy and Action Plan. (BCSAP). From the 12 Action Themes of the PEBLDS, 11 are to different extent being implemented (there is no plan set up for implementation of the Action Themes, however, there are many ongoing national activities that can be incorporated in the implementation of the PEBLDS Action Themes). Action Theme 10 - Mountains Ecosystems - is not relevant to Lithuania, as the country does not have mountains.

Action Theme 0. Pan-European action to set up the process

With the ratification of the Rio de Janeiro (1992) Convention on Biological Diversity (CBD) in July, 1995, Lithuania undertook an obligation to start implementation of the Convention. This includes preparation of the country study and action plans. The National Environmental Strategy of Lithuania was the first step in preparing the action plans for biodiversity conservation, and was used as the background for the Action Plan for Biological Diversity Conservation.

In Lithuania, on the initiative of Environmental Protection Ministry, in 1996 when the World Bank offered financial aid, work on the Lithuanian Republic biological diversity conservation strategy and action plan was begun. The efforts are aimed at the development of the Biological Diversity Conservation Strategy and Action Plan for the conservation of the country's biological diversity for future generations, at the same time contributing to the global conservation efforts, at laying down the foundations for sustainable use and management of biological and landscape diversity by integrating its conservation measures into the national economy development programmes. The National Action Plan for Biological Diversity Conservation was developed using the National Environmental Strategy materials, supplementing it with biogeographic units of Lithuania, presenting the distribution of protected areas in biogeographic units; concrete actions were proposed, recommended projects indicated which needed foreign financial assistance, etc.

The Biological Diversity Conservation Strategy and Action Plan is prepared for 20 years although most of the actions are meant for 5 years. BCSAP has not been reviewed since 1998 and no amendments have been made into activity plan nor to the proposed budget. The reason for that has primarily been the budgetary constraints for nature conservation. But based on the information provided in BCSAP and the draft First national Report to CBD, Lithuania has remarkable achievements in inventories and identification of components of biological diversity.
**Action Theme 1. Establishing the Pan-European Ecological Network**

The concept of ecological network represents the process of integration of conservation and environmental aspects into different sectors, such as agriculture, regional planning, transport, etc.

In Lithuania, the territorial system of the sites important for the protection of biodiversity is identified on the basis of the recommendations for the development of ecological networks provided by the experts of the Council of Europe by making use of the material of the latest works on the protection of biodiversity (Ramsar sites, CORINE biotopes, IBAs, Natura 2000). The national ecological network consisting of core areas of European, national and regional importance, stepping stones, ecological corridors and buffer zones, has been developed and localised in 1999-2001, when Lithuanian Fund for Nature, with support of IUCN, implemented a project "Development of Ecological Network in Lithuania). The results of the project were establishment of the criteria for the selection of an ecological network in Lithuania and a digital map of the Lithuanian ecological network (1:200 000) and local ecological network of Klaipeda district (1:50 000). The implementation of ecological network is necessary for ecologically balanced development of the region and for implementation of the principles of sustainable development, maintenance of landscapes and biodiversity, as well as implementation of the EU Habitats and Birds Directives (Natura 2000 areas), Agri-Environmental programmes, as a process of the EU accession, and also Biodiversity and Bern Convention (EMERALD network). The general structure of ecological network - core areas, corridors, buffer zones and stepping stones - is accepted in the country. Development of the national ecological network provides Lithuania a tool for setting priorities in biodiversity protection and will start integration of general and cross-sectoral policies, applying concepts of European and Regional Ecological Networks. The project was implemented in co-ordination with Estonia, Latvia and Poland.

**Action Theme 2. Integration of biological and landscape diversity consideration into sectoral policies**

An appropriate balance between environmental, economic and social development can be achieved only by creating interaction between sectors ensuring and regulating the legal basis and special institutions functioning on its basis.

Lithuanian National Biodiversity Conservation Strategy and Action Plan (BCSAP) is not addressing sectors directly, but is based on ecosystems approach, which however, comprise actions, which other than Ministry of the Environment is responsible for (e.g. Ministry of Agriculture, Ministry of Education and Science). Since periodic reviewing and monitoring of implementation of BCSAP is not done, the role and progress of other sectors to integrate the principles in Strategy and actions listed in the Action Plan cannot be evaluated. The ministries responsible for implementation of actions referred in BCSAP have not incorporated these actions into their annual activity plans. It is due to the incoordination of activities between ministries and shortage of financial resources.

Rules on state and private forest use and management have been updated by including measures for biodiversity conservation and implementing principles of sustainable forest management. New forestry policy and strategy statement was prepared. The transport sector follows the requirements of all international treaties on transport and environment.

The National Programme for Agricultural and Rural Development for 2000-2006 devised by the Ministry of Agriculture is distinguished by the greatest integrity among the sectorial strategies and programmes. In this programme the main attention is paid to
integrated rural development by closely harmonising social, economic and ecological challenges. As the most common objective of agriculture and rural development "to contribute to the solution of economic, nature conservation, social and cultural issues related to rural prosperity and that of the whole country, to co-operate with private sector and local communities" is specified as a challenge.

**Action Theme 3. Raising awareness and support with policy makers and the public**

Ministry of Environment publishes quarterly and annual reports on the state of the environment, issues quarterly Newsletter leaflets "Ministry of Environment to the Public" with comprehensive explanation of the main adopted laws. These publications contain a lot of information on nature conservation, too. Information on activities of the Ministry of Environment towards the conservation of biological diversity is presented in Internet website (http://www.am.lt).

Ministry of Environment and different environmental NGOs each year issue different kind of publications aimed at informing different groups of the society and general public about biodiversity and its conservation. An example can be the book "A role of Nature Management in Biodiversity Conservation" published by Lithuanian Fund for Nature in 2001 with the support of the World Bank Small Grant Program, with the aim to emphasize the importance of nature management in biodiversity conservation; to transfer knowledge and experience of EU countries in preparation of management plans and managing habitats to nature protection institutions and non-governmental organisations.

The mass media also plays an important role in environmental education.

Ministry of Environment has been awarding annually three awards (a 8000 LTL) to environmental specialists for their special achievements and a long-term successful work, to a NGO for successful voluntary activities, both awards are given biannually, and to an artist/poet, writer describing/depicting natural values etc.

Following the change in the curricula of secondary schools, there is a possibility to devote a special cycle of lessons to analysis, identification and preservation of biodiversity and to encourage extra curricular activities for environmental protection. Only in 2000 and 2001, over 80 groups of outstanding extra curricular activities took part in competitions to win the award of Valdas Adamkus. Expeditions for pupils and students are organised so that they could study biodiversity of different territories. Original and translated textbooks and atlases encompassing problems of biodiversity for secondary schools and universities were published, as well as other publications for general public. Fundamentals of biodiversity are included in the curricula of the universities.

The research of the most important aspects of biodiversity is included in the plans and projects of the scientific studies of the main universities and scientific institutes.

**Action Theme 4. Conservation of landscapes**

Seeking to balance the regional differences, to formulate strategic objectives of the state and development trends, to determine activity priorities and establish territorial possibilities for their implementation, the Master Plan of the Republic of Lithuania was prepared in 1996-2001. The basic principle of the Master Plan is to ensure sustainable development of the country's territory, designating the best possible way to use the territory without harm to landscape and without violating interests of the present and future generations, preserving and strengthening the country's identity.
On the ecological foreground the following objectives are singled out:

- to keep and strengthen the present system of environmental healthiness, the protection of landscape and biological diversity and maintenance of the nature frame;
- to guarantee effective protection and rational use of national and cultural environmental values forming the identity of the country and it's regions;
- to ensure realisation of ecologically balanced land management programmes;
- to integrate the landscape and biological diversity protection requirements into the action plans of all economic activities.

The Master Plan identifies structural diversity of the country's landscape, establishes the most valuable landscape complexes, identifies the areas important for biodiversity protection and formulates general regulations on it.

The following priority tasks are provided for ensuring ecological balance of landscape and protection of its diversity in the Master Plan: optimisation of the general land use structure by strengthening the functions of the nature frame areas of ecological compensation; organisation of protected areas network and preventing degradation of their natural and cultural values; protection of wetland and karst landscape; protection of elements of natural landscape in urbanised areas; sustaining natural recreation environment and preventing urbanisation of the most attractive natural sites; re-cultivation of exhausted quarries and re-naturalisation of peatlands; protection of the structure of a natural hydrographic network.

In 2000 Lithuania signed the Convention of European Landscape. This allows the country to develop protection and management of the landscape more intensively within the context of the system of European legislation, to formulate a more accurate state policy in this sphere, to draw attention of the public to the problems. It is necessary to encourage integrated application of the principles of landscape protection and rational land use in the development projects. In implementing the principles of sustainable development, currently it is most important to co-ordinate and balance the strategic objectives of the state, municipal needs and private initiatives to guarantee effective protection and rational use of natural and cultural environmental values preserving the identity of the country and its regions.

**Action Theme 5. Coastal and marine ecosystems**

The activities relevant to this action theme started in 1993-1995 with the project "Biodiversity and Conservation Values of the Lithuanian Coastal Zone Hard Bottom Areas (The Baltic Sea)" implemented by Lithuanian Fund for Nature in the framework of World Wide Fond for Nature - Baltic Programme.

Further, Integrated Coastal Zone Management Plan for the Curonian Lagoon was prepared by HELCOM PITF MLW Curonian Lagoon Area Task Team with the aim to balance the impact of human activities with the need to protect and sustainably develop the fragile ecosystem. Lithuanian Fund for Nature prepared a management plan for Curonian Lagoon, and a management plan for Rusne Island (part of Nemunas Delta Regional Park) that is currently being implemented. The management plan for the Nemunas Delta Regional Park (Ramsar site) has been prepared and adopted in 1998. The latest development is a Finnish-Lithuanian project on mapping of underwater biotopes for integrated coastal zone management (2002)
**Action Theme 6. River ecosystems and related wetlands**

This action theme has received the least attention in Lithuania so far. Management of semi-natural ecosystems such as flood plains of river valleys (haymaking, cutting coppice) has been practiced in Nemunas River Delta regional park through the projects of Lithuanian Fund for Nature. However, the activities will increase when Lithuania will apply Integrated water basin management approach. Agreements with Russia and Belorus are already being prepared for Integrated Management Planning of Nemunas River Basin. Implementation of Birds and Habitats Directives/Natura 2000 will definitely contribute to conservation of river ecosystems in Lithuania.

**Action Theme 7. Inland wetland ecosystems**

National Wetland Policy does not exist in Lithuania as a separate document. But there are other documents related to this issue, and many completed and ongoing activities. The Ministry of Environmental Protection in 1995 produced the third supplemented edition of the State Register of Peatlands. It includes the majority of wetlands of Lithuania, as most are peatlands. The Register contains data on mires that are larger than 3 ha, which constitutes 5,735 peatlands. The Register does not include data on biological diversity, but there is a plan to add this type of information. One way to fill this gap may be to link the Register to the Register on Biodiversity on which the Ministry of Environment is starting to work. Data on biological diversity are currently spread among many institutions.

Lithuanian Fund for Nature made an inventory and a database of selected Lithuanian wetlands, prepared a wetland conservation strategy and published a booklet on the importance and protection of wetlands.

The countrywide inventory of all-important wetlands in Lithuania was initiated in 1997. The results were compiled in the book "Important wetlands of Lithuania" (1998). This publication describes all important elements of the most valuable Lithuanian wetlands (designated and potential Ramsar sites), their important habitats, fauna and flora, their natural functions, economic and ecological values, national system of wetlands conservation and management. This book was inspired and organized by Wetlands International. It has been published with financial support from the Dutch Ministry of Agriculture, Nature Conservation and Fisheries. 28 potential Ramsar sites were identified, there are plans to designate 5 potential sites into Ramsar List by 2008.

Lithuanian Fund for Nature implements a project for restoration of hydrological regime in the damaged mire Puscia. The management plan for the damaged raised bog Didysis Tyrulis is being prepared for its restoration. The list of eutroficated lakes (120 lakes) has been issued that should be renovated. Ministry of Environment has issued the Damaged land reclamation plan, including damaged peatlands restoration.

In 2002, a GEF project Conservation of Inland Wetland Biodiversity in Lithuania has started. The main goal of the project is to stop the decrease in biological diversity in the most important inland wetlands in the country (Zuvintas, Cepkeliai, Kamanos, Viešvile and Girutiškis strict nature reserves) and to prepare strategies and management plans which would ensure long-term protection of values. At the same time this project might serve as a pilot project, on the basis of which restoration of biological diversity and conservation works would be carried out in other territories. A wide range of activities is foreseen in this project, including nature management, institutional strengthening of the Strict Nature Reserves, legal actions, socio-economic activities, and public awareness and education actions. Preparation phase has just finished, and the implementation phase will last 4 years.
Action Theme 8. Grassland ecosystems

Unfortunately, during the last 30 years the area of natural meadows has decreased: Particularly reduced in numbers are natural continental meadows that were intensely cultivated or planted with forests.

On the other hand, the agricultural crisis speeded-up the degradation of meadow and other "open" habitats. Many farms were abandoned, and these areas were the most valuable ones from the biodiversity point of view.

For these reasons, conservation of grassland ecosystems nowadays is being regarded as one of priority areas for biodiversity protection in Lithuania. However, there were not many activities in this field so far.

Lithuanian Fund for Nature is promoting management of grasslands in the Nemunas Delta area (Rusne Island) since 1996. The activities are implemented through several short-term projects with the main aim of management of abandoned grasslands.

The biggest activity in relation to grassland ecosystems in Lithuania is National Inventory of Grasslands, which started in the end of 2002. It is a three-year project of Lithuanian Fund for Nature. The objectives of the project are as follows: to create comprehensive inventory of natural and semi-natural grasslands, development of database, preparation of grassland digital map, evaluation status of grasslands and contribute to grassland conservation and management, to raise public awareness for grassland protection in Lithuania. Funded by the Dutch Ministry of Agriculture, Nature Management and Fisheries (MATRA Fund/Programme International Nature Management).

In the future, management of grasslands ecosystems will be targeted though the Natura 2000 network and agri-environmental schemes.

Action Theme 9. Forest ecosystems

Conservation and sustainable use of forest biodiversity are ensured at national level through legislation, political and direct implementation measures, including Lithuanian Biodiversity Conservation Strategy and corresponding Action Plan, strengthened network of nature protection areas, etc. Structural and protection quality improvements were followed by the increase of protected area. Guidelines for Conservation of Biodiversity in Commercial Forests were prepared in 1996, Recommendations for Conservation of Rare Forest Habitats and Proposals for the Improvement of the Protection of Rare Forest Birds' Nesting Sites, in 1996. At present new forestry policy and strategy statement is being prepared.

The joint Swedish-Lithuanian project "Pilot Woodland Key Habitat Inventory in Lithuania" has been launched in 2001. Seeking to preserve biodiversity in the forest ecosystems the pilot inventory of all Lithuanian forests and development of methodology, organisation and training methods have been started. In addition there are a number of special research projects which have been successfully conducted or are being performed at the moment, for instance Inventory of wood-grouse in 13 forest enterprises and Dzukija national park, preparation of recommendations to manage inventoried mating-places and proposals to establish reserves for its protection, and recommendations of biodiversity protection in carried out forest management activities. At the end of 2002, Lithuanian Fund for Nature started a three-year project "Group certification for private forest owners in Lithuania" aimed at providing information on FSC certification for private forest owners and other stakeholders within forestry and nature conservation sector in Lithuania and promotion of protection of biological diversity in private forests. As referred earlier, further emphasis on forest and agricultural biodiversity could be drawn. However, the new project initiated in 2000 on the identification of potential
sites for Natura2000 network in Lithuania identified the important forest habitats for conservation.

**Action Theme 10. Mountain ecosystems**

Not relevant to Lithuania, as the country does not have mountains.

**Action Theme 11. Actions for threatened species**

The Red List of protected species was published in 1991 and revised in 2000. This list includes 777 species (22 mammal, 76 bird, 2 reptile, 4 amphibian, 8 fish, 4 mollusca, 4 arachnid, 108 insect, 7 crustaceans, 1 leech, 224 angiospermous, 1 gymnospermous, 13 cryptogamous, 101 moss, 18 algae, 130 fungi and 59 lichen species). In 2000, Lithuanian Red Data Book of Plant Communities was prepared. Publication on rare and protected plant and animal species "Red Sheets" is published by the Ministry of Environment every year (the 8th issue will be published in 2003).

The Law on Protected Plant, Animal and Fungi Species and Communities (1997) does not require action plan for species. However, the first such a plan has been prepared for the Aquatic Warbler by the Lithuanian Fund for Nature.

Meteliai Regional Park has implemented a project for conservation of population of European Pond Terrapin, another project concerning the same species was implemented by Lithuanian Fund for Nature, together with Meteliai Regional Park. In the framework of this project, a small leaflet of this protected species was produced and distributed to local community, mainly through schools, and this helped to find new localities of European Pond Terrapin in Lithuania. Lithuanian Fund for Nature also published a booklet on different dormice species and their protection in Lithuania. Lithuanian Fund for Nature has implemented a project on the protection of nests of birds of prey and valuable forest habitats. Veisiejai Regional Park is implementing a project on restoration populations of European Tree Frog and Fire-bellied Toad. It is planned to use EU Funds for complex conservation of the entire population of the European Pond Terrapin (together with Polish partners).

In future, conservation of threatened species will be done through the implementation of the EU Birds and Habitats Directives.

4. NGO Evaluation and recommendation

Practically all human activities, and all economic sectors have an impact upon biological diversity. Therefore, measures for the preservation of biological diversity, as well as the general environmental measures, should be provided for in developing programmes for all separate sectors of the economy. Human economic activities that do not confirm with the preservation of biological diversity are of adverse effect upon the environment and living nature. It is very important that the preservation of the biological diversity should become an integral part of the policies on agriculture, forestry, industry, construction planning, hunting and fisheries. This is especially needed now, with the present decentralisation and when the use of natural resources is intensifying.

Preconditions for a theoretical co-ordination of the interests of economy sectors in concrete areas are provided by the general territorial planning documents. The currently existing programmes of different economic sectors theoretically include the protection of biological diversity; however, in practice there is insufficient involvement in the necessary protection
efforts by many of the institutions which use and study biological resources, and their activities are also not at all adequately co-ordinated.

Lithuania has quite a good number of strategies, action plans and other documents related to protection and enhancement of biodiversity. Achieving the goals set out in the strategies should be carried out through implementation of specialised programmes and investment projects. However, not so much has been done up till now to implement many measures and actions set out in those officially approved documents. This is happening for several reasons. First of all, it is caused by lack of political will to understand that biodiversity conservation as an urgent priority. Until now, pollution is considered to be one of the most important environmental problems in Lithuania, therefore the actions related to minimisation of pollution gain more attention from the state institutions. Continual changes in the Government also do not help to consolidate the efforts for environmental protection and biodiversity conservation. Further, the complicated and poor economic situation of the country, creating lack of funds, is considered to be an official excuse for the responsible institutions not doing much in the field of biodiversity protection.

However, during the last few years, activities related to landscape conservation and biodiversity protection have considerably increased. Lithuania has acceded to several important international conventions, many important projects were initiated and started etc. The EU accession process has favourably influenced the whole process. We have to admit that NGO activities make a very important contribution to the implementation of the PEBLDS and other nature conservation activities. Their participation should be enhanced by strengthening their capacities and especially making national funds available to NGO activities.

Another very important factor is stakeholder participation. Therefore it is very important to strengthen different stakeholders motivation for participation, because only joint efforts can lead to achieving of the common goals.

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Institute of Botany http://www.ktl.mii.lt/botanika/bot_index.htm
Lithuanian Fund for Nature www.glis.lt
Nature Heritage Fund www.werlands.lt
Lithuanian Ornithological Society www.birdlife.lt
Environmental Policy Centre www.aapc.lt
Lithuanian Green Movement www.zalieji.lt
Rusne Fund for Nature www1.omnitel.net/rusne
Lithuanian Association of Forest Owners www.forest.lt
REC Lithuania www.rec.lt
Baltic Environmental Forum www.bef.lv
Poland

Introduction

General description of the country, (history, political background, economy, NGO movement)

In terms of its area, Poland is the ninth country in Europe. The span between the northernmost and the southernmost points is 649 km, between the easternmost and the westernmost points - 689 km. The area of the land is 312,685 sq. km, the area of the territorial sea is 8,700 km², and the area of lagoons (The Szczecin Lagoon and the Vistula Lagoon) - 1,200 sq. km. Poland stretches from 49°00' to 54°50' northern latitude and from 14°07' a 24°08' eastern longitude.

The beginnings of the Polish state date back to the 10th century. It is accepted that it began in 966, when prince Mieszko I was baptised. The present borders of Poland were established after World War II. After the war the communists seized power, supported by the USSR. Communist governments ruled until 1989. In January 1990 the Sejm introduced the new name of the state: The Republic of Poland. Currently Poland is a multi-party republic with a bi-cameral parliament. In 1998 a new administrative division was adopted into 16 provinces, which were divided into 373 counties and 2489 communes.

Poland is an industrial and agricultural country. Major branches of industry include mining, fuel industry, manufacturing cars, machines for farming, electric supply and foodstuffs. The total income of the national budget in 2002 amounted to 143,867,000,000 PLN, and the total expenditures - 182,979,500,000 PLN. 1 EURO = approx. 4.35 PLN (17 March 2002).

In Poland there are several hundred non-governmental organisations whose aim is protecting the natural environment. The largest of them are: the Polish Society for Bird Protection [Ogólnopolskie Towarzystwo Ochrony Ptaków], the Polish Society for Nature Protection "Salamandra" [Polskie Towarzystwo Ochrony Przyrody "Salamandra"], the Naturalists Club [Klub Przyrodników], the League for Nature Protection [Liga Ochrony Przyrody], the Polish Society of Friends of Nature "pro Natura" [Polskie Towarzystwo Przyjaciół Przyrody "pro Natura"], the Mazovian Society for Fauna Protection [Mazowieckie Towarzystwo Ochrony Fauny], the Committee for Eagle Protection [Komitet Ochrony Orłów], the Polish Ecological Club [Polski Klub Ekologiczny]. Most of them were established after 1990.

1. State of nature and nature conservation

Introduction

Poland has a comparatively very high variety of natural habitats. You can met here dry steppes and large marshlands, alpine zones of high mountains and big areas of sandy dunes, large areas of coniferous, deciduous or mixed forests and rural areas of extensive agriculture with fairly high biodiversity. This is the result of geographical location and the history of the country.

The biggest threats for Polish nature are: uncontrolled changes in the land use, fragmentation of wild areas by different kinds of investments, intensification of agriculture, insignificant sources assigned to the preservation of biodiversity and weak nature protection laws.
Natural features of the country

Terrain features
Poland lies in the eastern part of Mid-European Lowlands [Ni¿ ¿rodkowoeuropejski]. The average altitude above sea level is 173 m, the lowland area (up to 300 m above sea level) covers approx. 91.3% of the total area, the upland area (300 to 500 m) covers approx. 5.6%, and mountains (over 500 m) - only 3.1%. The highest point - Rysy - 2499 m above sea level, is in the Tatra mountains. The lowest point is in Zulawy - 1.8 m below sea level.
Although lowlands constitute the major part of the area, the Polish landscape is varied. Its main features are: striped arrangement of geographical regions and diverse shape of the land area. Along the coast of the Baltic Sea there is a belt of seaside lowlands (Pobrzeza Po¿udniowobaltyckie). The coastal line is generally not varied; there are two large gulfs: the Pomeranian Bay and the Gulf of Gdañsk. The coast itself is generally flat, accumulative (sand-bars, coastal lakes, dunes, sandy beaches). Only at some places there are steep cliffs. The northern part of the country is occupied by a lake region with the landscape of young glacial period, covered with postglacial sediments left during the last glacial period. The region is divided by the Vistula river into the Pomeranian Lakeland and the Masurian Lakeland. The lake region east of the Vistula has more lakes (so called Land of Great Lakes of Masuria). Further south there is a wide belt of the Mid-Polish Lowlands, with South-Great-Polish Lowland [Nizina Po¿udniowowielkopolska], the Silesian Lowland [Nizina ÇEl'ska] and the Mazovian Lowland [Nizina Mazowiecka]. A characteristic feature of Polish lowlands are broad, flat river valleys, usually shaped thousands of years ago by glacial waters.
In the south of Poland there is a belt of old mountains and uplands, which is highly diverse in terms of geology and sculpture. This include: the Sudeten (covering approx 3% of the area of Poland), the Foreland of Sudeten [Przedgórze Sudeckie], Silesian Upland [Wyzyna Słaska], the Upland of Kraków and Czêstochowa [Wyzyna Krakowsko-Czêstochowska], the Valley of the Nida [Niecka Nidziañska] and the Góry ¿wiêtokrzyskie Mountains [Góry ¿wiêtokrzyskie]. Approximately 6% of the area of Poland is occupied by young folded mountains - the Carpathians, comprising, among others, the Beskid Słaski, the Beskid Maly, the Beskid Makowski, the Beskid Wyspowy, the Beskid Zywiecki, the Beskid Sadecki, the Gorce, the Pieniny, the Tatry, the Beskid Niski and the Bieszczady.

Geological structure
In terms of the geological and tectonic structure, Poland lies in a transitional zone between Western and Eastern Europe. Three major geological units may be mentioned here:
1) East-European Pre-Cambrian Platform,
2) area of Palaeozoic folds (Caledonian and Hercynian) of Central and Western Europe, covering approx. 60% of the area of Poland,
3) the area of Alpine undulations of South Europe.
The area of Poland was affected by at least four glaciations, which resulted in accumulation (mainly in the north and centre of Poland) of large amounts of postglacial formations, such as sands, loams, boulders.
In the mountainous area most kinds of European types of rocks are found - lime, granites, sandstone, various types of slates, volcanic rocks.

Climate
The central position of Poland in Europe and the arrangement of geographical regions parallel to latitude make the moderate climate of Poland transitional. Colliding of various masses
of air (mainly of polar-marine origin from the Icelandic Depressions and the polar-continental from Eurasia) brings about frequent weather changes and fluctuations of season length in successive years. The differences are particularly apparent in the character of winters, which are either relatively warm and wet (of the oceanic type) or frosty (of the continental type). The average temperature of air (outside the mountain region) range from 6oC to 8.8oC. Average temperature: in July from 16.5°C in the north to 19°C in the Silesian Lowland, in January - from -1°C at the seaside to -4.5oC in the north-east. Atmospheric precipitations largely depend on the altitude above sea level. The average value over many years is approx. 600 mm; it ranges from 450 to 750 mm in the lowlands and uplands to 1200-1500 mm in the mountains. The rainfall level reaches its maximum in summer.

**Waters**

The river network in Poland was created as a result of the development of the sculpture of the surface in the tertiary (in the south) and quaternary (in the north) period. Rivers are mainly fed by rainfalls and snowfalls, which means that their level is raised twice a year (in spring and in late summer) and decreased twice a year (in autumn and in winter). Nearly whole area of the country lies within the catchment area of the Baltic Sea, in the drainage basins of the rivers: the Vistula (53.9%), the Oder (34%), the Baltic coastal rivers (11%) and the Niemen (0.8%).

In Poland there are 9296 lakes whose area is larger than 1 ha, including 1032 lakes with area larger than 50 ha. They cover approximately 1% of the country's total area. The largest number of lakes are situated in the northern part of the country, in the Pomeranian, Masurian and Great Poland Lakelands. They are usually postglacial lakes.

In Poland there are 106 big artificial water reservoirs; 97 of them are retention reservoirs and 8 serve as anti-flood protection.

Poland is one of the countries in Europe with little amount of water, which is a result of low level of rainfall, intensive evaporation and hardly rational water economy, little ability to control the flow of water (to increase their retention); therefore there are regions in Poland with periodical or permanent water deficit.

**Soils**

Three soil zones border on each other in Poland: podsol and buff soils, brown soils and chernozems. Podsol and brown soils occupy approx. 82% of the area, steppe chernozems - approx. 1%; the remaining 17% is occupied by zone soils, which include: bog soils (9%), fen soils (5%), black earth (2%) and limestone soils (1%). Major part of soils in Poland are medium quality.

**Vegetation**

Poland is situated in the centre of Europe in the transition zone from west to east, between oceanic and continental climate and from north to south between boreal and snow-forest as well as temperate warm and humid climate. Due to such a geographical position the country is situated in the area of so called central-European province of deciduous and mixed forests which belongs to the euro-siberian area and to the Nearctic (Holarctic) plant society.

Deciduous forests including oaks, limes, and hornbeams (oak-hornbeam deciduous forests Carpinion betuli) met on more fertile sites and mixed pine-oak forests as well as pine forests met on less fertile sites dominate on the area of lowlands and a floor of foot-hills.

In the natural plant society the aforementioned forests (together with mountainous forests) occupied about 99.5% of the country area including 58.1% of deciduous forests (41.6% oak-hornbeam deciduous forests Carpinion betuli), 19.1% of pine-oak forests Quercetea robiri-
patraeae, 11.4% of coniferous forests and 10.9% of alder-ash wet and swampy forests Alnion glutinosae et Alno-Padion. The rest 0.5% of the country area was covered with non-forest ecosystems: wetlands, fens, mires and raised bogs, alluvial meadows, coastal and inland sand dunes, alpine vegetation.

Nowadays 28.2% of Poland is occupied by forests the composition of which differs greatly from the natural one to artificial monocultures. Scotch pine Pinus sylvestris constitutes 70% of them, norway spruce Picea abies 7%, european fir Albies alba 2%, european larch Larix decidua 2% and deciduous species 19%.

**Biological diversity with special attention to the international importance**

**Habitat types**

In the natural plant society in Poland forests took up about 99.5% of the country area. Nowadays 28.2% of Poland is occupied by forests. Coniferous stands (78%) clearly dominate over deciduous and mixed ones (22%). Young stands - up to 40 years dominate (45%). Mature forest-stands (over 80 years old) occupy only 15%.

After deforestation the most fertile leafy forest sites have been to a large degree transformed into arable land (46% of the country area) together with permanent grassland (meadows and pastures). Grassland (meadows, pastures, steppic grasslands Festuco-Brometea) occupy about 13.5% of the country area. In the vast majority of cases these ecosystems have been created and maintained as a result of human activities (mowing, grazing, burning and deforesting). Natural grassland can only be seen in the mountains above the forest line. Peat lands and swamps occupy 5% of the country area. They are to a large degree used as meadows and pastures (mainly in the case of low peat lands in river valleys). Fens Magnocaricion constitute 90%, raised bogs Oxyccoco-Sphagnetea 6.5% and transition mires Scheuchzerio-Caricetea nigrae 3.5%.

Generally, in Poland 485 plant societies have been inventoried. 71 out of them are listed in the Appendix I of EU Habitat Directive.

**Biological corridors**

In Poland there are a few main ecological corridors having an international significance. These are big lowlands river valleys, especially the valleys of Vistula, Oder, Bug, Narew, Warta, and Noteci. All the aforementioned river valleys (or their parts) are the refugee for European birds as well as routes for different groups of migrating animals (fish, mammals, molluscs, insects) and routes for plants to spread. These corridors have a very important role which is not only due to the rivers themselves but mainly due to habitats in their valleys - sand islands in river mainstreams, waterlogged meadows, cyperaceous areas, old river beds, and marshy forests. The linear lay-out of these habitats is extremely important as a migration route for birds which nest in northern and eastern Europe and winter in western Europe and Africa - mainly the shorebirds and gulls (family of Charadriiformes) and birds from family of waterfowl Anseriformes. For these birds well preserved waterlogged habitat situated in valleys of big rivers are traditional resting and feeding grounds enabling them to replenish their metabolic reserves and to amass fat reserves necessary during next migration stages. The existence of such places is of a key importance for survival of species covering thousands of kilometres. As habitats of the big rivers valleys have undergone only a slight transformation and experience only a small population they are also very important migration routes of big mammals such as elks and wolfs wandering west from their refugees situated in eastern Poland.
and in the areas east from Poland. This migration is of a great importance for survival of the remaining population of these animals in western Europe.

Species and genetic diversity

It has been estimated that from 72 up to 75 thousand living species, including 33-45 thousand of animal species exist in Poland. Vascular plants are represented by about 2750 species and subspecies, and vertebrates by 620 species (including 87 fish species, 18 amphibian species, 9 reptile species, about 400 bird species, and 91 mammal species). Due to its specific geographical position Poland abounds in species having their habitat boundaries on its area. For example 30% of mammals, 16% of birds, and from 7% up to 50% of invertebrates (it depends on the taxonomic group) hosted in the country belongs to this group. Lack of natural geographical barriers and continuity of habitats in the parallel lay-out have made flora and fauna on Polish lowlands areas poor in endemic species which can mainly be met in the mountainous areas of the Carpathian and Sudeten ranges.

As a result of a direct and indirect human influence on nature at least 61 species of animals have died out or relocated from the area of Poland. These comprise 14 species of vertebrates including 9 bird species (among others: eurasian griffon vulture Gyps fulvus, little bustard Tetrax tetrax, great bustard Otis tarda, golden plover Pluvialis apricaria), 5 mammal species (aurochs Bos primigenius, tarpan Equus gmelini, europese nerts Mustela lutreola and European Souslik Citellus citellus) and 1 fish species (atlantic sturgeon, Acipenser sturio). Over the last 40 years more than 60% of species have disappeared pearl mussel Margaritifera margaritifera is one of invertebrate species which have already become extinct. This fresh water clam is also on the verge of extinction in whole Europe.

The list of species which are either dying out or heavily endangered comprises 130 items (among others: aesculapian snake Elaphe longissima, European pond turtle, Emys orbicularis, Atlantic salmon Salmo salar, many species of molluscs Mollusca and arthropoda Arthropoda). Species existing in small isolated populations as well as endemic and relict species (for example marmot Marmota marmota, dunlin Calidris alpina) are particularly endangered. The list comprising all animals in different stages of extinction is made up of 1318 species and it is systematically updated.

The regressive tendencies can be observed in cases of 1648 plant and fungi species including endangered 29% of lichens species, 20% of the liverworts and macrofungi, 18% of mosses and 15% of vascular plants. It has been estimated that over the last 200 years 124 plant species have died out or relocated. "Polish Red Book of Plants" comprising the phylum of vascular plants includes presently 296 taxons which make about 10% of the whole Polish flora. 34 species of the previously mentioned have lost all their natural sites in the area of Poland. Some of them have been relocated the to secondary (man made) sites or botanical gardens (e.g. polish scurvy-grass Cochlearia polonica).

Priority areas from nature conservation point of view

In Poland there are a few big forest complexes only slightly transformed by people which belong to the most precious natural areas. These include: Puszcza Bia³owieska (one of the last primeval forests in Europe), Puszcza Borecka, Puszcza Augustowska, Puszcza Knyszyñska and Lasy Janowskie. There are also big forest complexes created nearly completely by planting podsol (podosols) and inland dunes with pine trees. These are: Puszcza Notecka, Bory Dolnoslaskie and Bory Tucholskie. They also belong to very precious natural areas as some bird species which are endangered in their existence and which are typical for these specific habitats have their nests there (eg. nigtjar Caprimulgus europaeus, woodlark Lullula arborea, tengmalms owl Aegolius funereus). Ecosystems connected with big lowland river
valleys situated on mineral soil are equally valuable. The habitats characteristic for these areas include sand islands in the mainstreams, alluvial meadows growing on the mineral soil, and alder-ash alluvial forests. The valley of the Vistula is particularly valuable (this is the last such a big river in Europe the riverbed of which mostly hasn't been regulated) as well as the valley of the Bug, the lower Narwia, the Pilica, and the middle part of the Warta. Valleys of rivers flowing on peat lands are not less important. These are Biebrza Valley, Narwia Valley, lower Oder Valley or Noteæ Valley. The habitats characteristic for these valleys include extensively maintained hay meadows, fens, littoral communities, reservoirs in old river beds, swampy and alluvial alder-ash forest.

The seaside areas are also very valuable natural areas. These are for example Gulf of Puck (sand dunes, seaside meadows, marine benthic algae communities Ruppion maritimae), S’owiński National Park (coastal pine forests Empetro nigri-Pinetum, shallow seaside lakes) or Æwina Estuary (coastal salt meadows Juncetalia maritime, litoral communities Phragmitetea).

We cannot of course forget about mountainous areas such as Tatry (many types of alpine vegetation), Beskidy or Bieszczady (mountain spruce forest Vaccinio-Piceenion, beech forest Fagion).

The list of areas having a priority meaning for preservation of nature in Poland is much longer. A number of these areas have been inventoried by the Polish Society for Bird Protection [Ogólnopolskie Towarzystwo Ochrony Ptaków] (168 areas including 81 areas of an European significance). Many other areas which have been submitted for protection within the programme Nature 2000 have been added to the list. These are, first of all, water, peat lands, forest and mountainous ecosystems.

**Human impact (e.g. habitat loss/degradation, pollution, overexploitation, invasive species, agriculture, changing land tenure)**

Nowadays one of the most serious anthropogenic threats is related to changes in agriculture - agricultural production intensification (expansion of large-areas cultivation, decrease in cultivation mosaic), adaptation of new areas for cultivation by transforming grassland into arable land, introduction of melioration systems even in the areas of natural value, insufficient protection of valuable water ecosystems against pollutants coming from fields and farm constructions, and local abandonment of land use (especially in the case of waterlogged meadows situated in river valleys).

Other serious threats to nature are connected with waterlogged environments transformation - melioration, peat land deposit exploitation, hydrotechnical building development of river valleys (river-beds straightening, deepening and engineering, construction of embankments and dam reservoirs, waterside deforestation - including marshy forests).

There are also some other threats such as:

- utilization of open areas for housing, industrial, touristic and recreational purposes together with transport system infrastructure development;
- air, water and soil pollution;
- massive tourism (especially in some waterside, mountainous and lake districts);
- poaching;
- unlimited promotion of "alternative sources of energy" which leads to partition of rivers (small water-power plants), construction of barriers on bird migration routes and landscape spoiling (large farms of wind power plants), setting up large monocultural cultivation areas of power-engineering plants (e.g. rape fuel).
2. Nature conservation with an outlook to the significant changes occurred in the recent past (since the beginning of the EfE process) and their implications

International commitments
Poland is a signatory of thirty-four conventions, protocols and international agreements on the protection of nature and environment. Nine of these pertain to biodiversity. Up till now, Poland has ratified twenty of them and four are going to be acceded to or signed. Poland has also joint the agreement for cooperation in the protection of environment with 18 European countries, with all neighbouring countries and also with USA, Canada, China, Kazakhstan, Morocco and Iran.

National nature conservation legislation, incorporation of nature conservation considerations into other sectoral policies
The most important legislative act for the protection of nature in Poland is the Nature Protection Act (Ustawa o ochronie przyrody) of 16 10 1991. Since 1991 this act has been changed many times. Some of the changes are of significant importance for the effectiveness of the protection of nature. Unfortunately, many of the changes have weakened the law instruments of the protection (for example, suppression of Nature Protection Guard or giving the local municipality the law to veto the establishment of national parks and nature reserves). This Act is also incompatible with some regulations of Birds and Habitats Directives of the EU. Now the project of new Nature Protection Act is prepared by the Polish Ministry of Environment. Some regulations that are important for the nature protection are also incorporated into some other acts; such as the Forests Act (Ustawa o lasach), the Hunting Law (ustawa Prawolowieckie) and the Environment Protection Law (ustawa Prawo ochrony środowiska).
According to the Second Ecological Policy of the State (II Polityka Ekologiczna Państwa), the protection of nature and environment should be incorporated into policies of other sectors. Unfortunately, up till now this is often not the case. In such important fields as regional development, land use, water management, energy industry and agriculture, the nature protection is not taken into consideration at all or is taken to a not sufficient level - usually only in vague slogans, yet not implemented in particular solutions.

Institutional structure of nature conservation, responsibilities allocated
According to the Nature Protection Act (Article 6) there are only two units of state administration responsible for the protection of nature:
- The minister of the environment
- governors (the state authorities of regions = provinces)
Both units fulfil the duties of nature protection with the help of nature conservationists. On the country level there is a Main Nature Conservationist, who is the vice minister. On the province level there are Province Nature Conservationists, who are usually the subordinate to the Directors of The Province Departments of Agricultural and Environmental Affairs. The Nature Protection Act gives also some duties, rights and responsibilities connected with the nature protection to the local, municipal authorities.

Decision making system, Ministries, Parliament, Agencies, Scientific support, NGO participation
Interactions, gaps, bottlenecks, recommendations

Present system of the protection of environment and nature in Poland is far from being perfect. It is possible to distinguish five major problems that hinder effective protection of the biodiversity:

1) Insufficient funding. In theory many duties are allocated to different levels of the state administration by the Nature Protection Act, nevertheless financial funding is not secured. Financial resources that provinces obtain from the state budget do not often suffice even for one task, for example compensations for the damages made by beavers. It is enough to say that the funds for the protection of nature constitute less than 1% of financial resources that is spent on broadly understood protection of the environment.

2) No mechanisms and service that check abidance by law. Nature Protection Guard (Straż Ochrony Przyrody) was done away with a few years ago. It was not a state organisation and the guards did voluntary service. Nature Protection Guard was the only organisation that checked if nature protection rules and regulations were kept. Nowadays it is the police that should carry out the responsibilities of Nature Protection Guard, yet they have neither experience nor specialists in the field. What is more, they do not give priority to the tasks they should take care of. Province Conservationists of Nature and their employees (which makes about from three to six people in each province) are the only authorities that should deal with nature protection by law. The only exceptions are national parks and landscape parks that usually have a number of employees who protect nature in the given area.

3) Superiority of economy necessities over nature protection regulations guaranteed by law. In many cases the Polish law ensures that in case of the conflict of economy and nature, the absolute priority is given to the economy. For example, all the laws that pertain to protected species, even these on the verge of extinction, are not in force if they are in conflict with the "rational economy of people".

4) Lack of understanding of need of nature protection by authorities at all levels. Protection of nature is seen as a hindrance for the development by the majority of authorities at all levels - by local governments, province administration, ministries and state agencies. Environmental awareness nearly does not exist or is restricted to such issues as clean air, water and soil or noise - namely those that have a direct influence on the living conditions of people. Protection of endangered species or habitats seems to be an abstract problem for the authorities as well as for a big part of the society.

5) Nature protection acts incompatible with some international conventions and EU directives. Although some changes are being done, there is still a great deal of international norms that are not present in the Polish law (for example, CITES norms, norms on forming NATURA 2000 networks, etc.). A new Nature Protection Act that is bound to eliminate these contradictions is prepared at the moment.

6) Vague landscape protection criteria. There are no clear regulations that deal with the landscape protection. Therefore, the areas that are attractive because of their tourist values are devastated.

A great deal of work must be done in the field of nature protection in Poland. Not only should new laws be introduced, but also brand new mechanisms of financing nature protection must be established. What is more, plans that link nature protection and development of communes shall be drawn. Moreover, nature protection should be incorporated in policies of different sectors whereas landscape protection rules should be integrated in spatial planning regulations. Polish naturalists have been advocating to create a strong, apolitical structure of Nature Protection Service, which will range from the minister level to the counties (powiat) or the commune best. Raising environmental awareness in the society is a matter of urgency.
3. Implementation of the PEBLDS

Introduction

The Pan-European Biological and Landscape Diversity Strategy (PEBLDS) did not assume to aim at introducing new legislation or programmes. This assumption was completely fulfilled. First and for all, the Strategy was supposed to support the implementation of the Convention of Biological Diversity. In practice it was assumed that the realisation of the Convention would mean realisation of the PEBLDS postulates.

**Action Theme 0. Pan-European action to set up the process**

This Action Theme is addressed in its major part to international communities and organisations. According to its content, wherever possible, the Strategy should make use of existing structures, mechanisms and funds. This provision has been received in Poland as an indication that there is no point in spending time on implementing PEBLDS because implementation of other international conventions and agreements will automatically involve implementation of PEBLDS. That is why PEBLDS is almost completely unknown in Poland, even in the group of people dealing professionally with environment and landscape conservation.

Since implementation of provisions of international conventions is delayed in Poland, implementation of PEBLDS suffers the same delay. For example, the National Biodiversity Strategy and Action Plan was accepted not in the year 2000 the latest, as it was assumed in the Action Theme 0 (0.2), but only at the beginning of 2003. However, some important tasks have been implemented so far. For example, the national project of CORINE Biotopes network was created and its major part has been recently adapted for the emerging project of NATURA 2000 network.

**Action Theme 1. Establishing the Pan-European Ecological Network**

One of the European Union initiatives in respect to the nature protection was establishing of the Pan-European Ecological Network NATURA 2000. The NATURA 2000 programme is being gradually implemented in all the countries of the European Union. It's being prepared for implementation in the candidate countries, including Poland.

The idea of joining the areas of conservation in one coherent ecological network is not new in Poland. At first the project of the Ecological Network of Special Areas of Conservation (SAC) was set up. Later on other projects of the network were set up, for example in the framework of international EECONET and CORINE Biotopes programmes.

The preparation of NATURA 2000 network was started from the implementation of a project financed by Phare funds. The list of areas of NATURA 2000 network was supposed to be ready by the end of 2002 (it is still in the stage of preparation). A system of management of these areas is to be developed in the year 2003. The areas proposed for conservation were chosen mostly on the basis of archive materials. A data analysis was made with reference to those areas that were already under protection (national parks, landscape parks, nature reserves) and to the areas situated outside the areas of conservation. With this view all the source materials available were used, including data from bases of CORINE Biotopes, CORINE Land Cover, ATPOL (the base of the Atlas of Distribution of Vascular Plants in Poland), Bird Refuges. During the preparation of the NATURA 2000 network it turned out, that the very expensive, long-lasting environmental inventory made in communes (municipal level), financed from state budget, gave no reliable materials for national projects of nature conservation.
In 2002 a preliminary version of the research which included descriptions of the areas as well as their maps was sent to Province Implementation Teams established in all the provinces (voivodships). The objective of this action was to verify the proposals on the grounds of data being in the possession of local scientific institutions, nature conservationists and non-governmental organisations.

Until now ca. 280 areas have been chosen to be included in Natura 2000 network, all of them cover an area of 45,000 km² (15% of the area of Poland).

The size of chosen areas is diversified. Big areas prevail, there are more than 100 areas bigger than 10,000 ha, including 22 of an area exceeding 50,000 ha. Only 62 objects are smaller than 1000 ha.

About 7% of NATURA 2000 areas is conserved in national parks (all the national parks are to be included in the future network), 34% in landscape parks, 2% in nature reserves and almost 60% is not included in any of these forms of nature conservation, therefore they cannot be considered as protected areas. The fact that the majority of these areas is situated within so called "areas of protected landscape" has no practical significance due to the very low dignity of this form of nature conservation.

The method of choosing the areas to be included in NATURA 2000, the lack of uniform and clear criteria of qualification, insufficient scale of social consultations as well as the insecurity in reference to the perspectives of future financing of conservation of these areas, all this is stirring up a lot of emotions in the community of Polish environmentalists.

Action Theme 2. Integration of biological and landscape diversity consideration into sectoral policies

Implementation of assumptions of Action Theme 2 in Poland is limited and highly insufficient. Conservation of biological diversity is more and more often taken into consideration only in forestry. The remaining branches of the economy and social life either completely neglect nature and landscape protection problems or the actions performed or planned in connection with them are obviously inconsistent with the needs of conservation. Sometimes there can be found, but only in declarations, some slogans concerning the need to protect the nature. However, concrete solutions are very often contradictory to them. Conflicts between the pursuit of economic development and the needs of nature conservation become more and more stronger and in majority of cases the priority is given to economic and not environmental needs.

It is not only that protection of ecological refugia in agricultural environment is not institutionally supported by the state but on the contrary, huge formal obstacles are put in the way of those trying to perform these tasks in the framework of independent civic initiatives. When it comes to planning of agriculture development the one that wins is definitely the industrial lobby and all the ideas concerning implementation of agricultural-environmental programmes are put aside or completely abandoned.

System of financing the nature conservation actions is usually very casual and lacking the real social control. There are no uniform criteria and rules in this respect.

No mechanisms protecting against negative outcomes of privatisation of the areas valuable with reference to the nature and landscape have been developed and at present the property changes constitute one of the biggest threats to biological and landscape diversity.
**Action Theme 3. Raising awareness and support with policy makers and the public**

Two governmental departments are responsible for organisation and participation in the process of ecological education in Poland: the Ministry of Education and Sport and the Ministry of the Environment. These ministries carry out actions whose objective is to teach about the problems of nature and environment conservation to kindergarten children, primary and secondary school students as well as university students. Such a subject is being gradually implemented in most kinds of schools.

The Ministry of the Environment takes part in developing the rules of organisation of teaching programmes in schools of all levels. Until 2002 it also supported financially in some small part the actions concerning ecological education provided by non-governmental organisations and other institutions (specially publications). It has its own Training Centre for Environmental and Water Management Personnel - a unit dealing with trainings.

The state of ecological knowledge of the society has to be considered as insufficient. It is necessary to develop forms and improve methods of ecological education. The National Strategy of Biodiversity Conservation assumes wide social participation in nature conservation. Unfortunately, at the moment it is difficult to notice in practice any signs of a coherent policy of rising the public awareness about the environmental conservation. The measures taken have a rather casual nature.

In recent years there has been observed a quick development of non-governmental organisations. Their activity (including educational activity) receives more and more support and understanding from the society, even though the obstacles still can be found in their way.

Social indifference with reference to the environment conservation results mostly from the following reasons:

1. More than 40% of the population live in the country and they do not feel the lack of the contact with nature;
2. Polish society is poor and very often it is not able to pay or leave a part of their earnings for nature protection;
3. Education system in communist countries did not favour bottom-up initiatives and it strengthened the conviction that the ones responsible for nature conservation are the state and the bodies it established.

**Action Theme 4. Conservation of landscapes**

The basic form of landscape conservation in Poland is determination of the most valuable (at least theoretically) areas and putting them under protection in the form of national parks, landscape parks, nature reserves, areas of protected landscapes, documentary sites (form of law protection - e.g. of geological forms), environmental-landscape complexes and ecologically used lands.

Their number and area in Poland by the end of the year 2001 according to the data of the Ministry of the Environment was as follows:

- 23 national parks of a total area of 314,500 ha (1% of the area of Poland);
- 120 landscape parks of a total area of 2,552,800 ha (8.2%),
- 1345 nature reserves of a total area of 147,700 ha (0.5%), including 680 forest reserves, 160 vegetation reserves, 135 peat-bog reserves, 99 landscape reserves, 70 inanimate nature reserves, 33 steppe reserves, 30 water reserves, 4 salt meadows,
- 412 areas of protected landscape of a total area of 7,353,800 ha (23.5%),
• 102 documentary sites of a total area of 949.8 ha (0.003%)
• 173 environmental-landscape complexes of a total area of 78,900 ha (0.25%),
• 6448 ecologically used lands of a total area of 46,800 ha (0.15%).

However, this data is surely incomplete because there is no central system of conserved areas record.
The efficiency of activities of these forms of conservation is diversified. The bans introduced in case of protected landscape areas are minimal. Even though these areas occupy ca. 25% of the area of Poland (the most of all forms of area conservation), it can be regarded that in practice they don't conserve in any way the landscapes they cover and habitats of flora and fauna they host.

A few very valuable areas was nominated the World Biosphere Reserve of UNESCO "Man and Biosphere" (MaB) programme, and the Biaowieski National Park was got in 1979 on the list of World Cultural and Natural Heritage Sites.

Poland is also obliged to conserve landscapes under international commitments, Conventions of Ramsar, Bonn, Bern and Rio. However, these obligations are fulfilled to a very little extent. In the framework of the Ramsar Convention on Wetlands only 8 areas have been placed under conservation while there are 60 wetland areas of European importance recognised in Poland, some of them extremely valuable (for example the Valley of Vistula, the Valley of Bug).

The fact that almost 60% of the areas proposed to be included in the European Ecological Network NATURA 2000 in Poland (e.g. the areas of European importance) have not been provided with any kind of conservation (or only as a part of a protected landscape areas), is the best proof of big delays in Poland concerning the nature conservation, including landscape protection.

Action Theme 5. Coastal and marine ecosystems

Marine ecosystems in Poland are conserved with the areas of 2 national parks (Wolin National Park and Słowiński National Park) and 2 Landscape Parks (Nadmorski Landscape Park and "Mierzeja Wielana" Landscape Park). 7 bird refuges of European importance have been recorded in the coast area (Szczecin Lagoon, Pomeranian Bay, Slupska Shoal [Ławica Slupska], Baltic Sea Coastal Waters [refuge covering almost the whole Polish economic zone of Baltic Sea] Słowiński National Park, Vistula Estuary and Vistula Lagoon).

Since these are areas of particular importance as nests locations, flyways and winter-time habitats of water birds, Poland is obliged to protect these areas under international commitments - Conventions of Ramsar, Bonn and Bern. However, these obligations are fulfilled to a very little extent. In the framework of the Ramsar Convention on Wetlands only 1 coastal area has been placed under conservation - it was Słowiński National Park which was also nominated for the World Biosphere Reserve of UNESCO "Man and Biosphere" (MaB) programme.

Polish law on the environment does not include the legal conservation of the environment in the coastal areas. These areas are managed by other bodies of state administration and they cannot be transferred to the environment conservation bodies. It means that the conservation of biological diversity in the coastal areas is at this point an illusive one. An urgent change of law in this respect is necessary.
**Action Theme 6. River ecosystems and related wetlands**

The valleys of two Polish rivers, the Vistula and Bug, have been included in PEBLDS as some of the most valuable areas of this type in Europe. These are the last big lowlands rivers with mostly unregulated riverbed on this continent. The habitats which are distinctive for them are sandy islands in the midstream, mineral alluvial meadows and alluvial forests growing on the bottom of the valley. These are breeding-grounds of many bird species in danger of extinction in Europe (for example stone-curlew Burhinus oedicnemus, ringed plover Charadriius hiaticula, little tern Sterna albifrons, common tern Sterna hirundo, common sandpiper Actitis hypoleucos).

A huge majority of inland wetlands is situated in river valleys. These are especially fens (they constitute 90% of peat-bogs in Poland). The fens of largest areas are situated in the valley of Biebrza, Noteæ and the lower Oder rivers. These are some of the most important Polish breeding-grounds and migration flyways of water and marshland birds. Unfortunately only the Valley of Biebrza is protected in the form of the national park and it was assigned for conservation in the framework of the Convention of Ramsar. The valley of lower Oder is located within the area of a landscape park but the valley of Noteæ is in fact left without any kind of conservation.

In the valleys of these rivers 7 bird refuges of European importance have been recorded. They are conserved in landscape parks and this is still to a very little extent. They require an urgent conservation in form of reserves and national parks, especially taking into consideration the project of East-West Waterway. This investment, criticised both by natural scientists and environmentalists, would cover 864 km of the course of four main Polish rivers, including the Vistula and Bug and it constitutes a serious danger for birds building their nests there and their habitats. Particular danger is connected with regulatory works (rectification and deepening of the riverbed, construction of embankments), meaning the physical liquidation of breeding habitats of many endangered species.

In spite of the fact that the valleys of the aforementioned rivers are some of the most valuable wetland areas both in Poland and Europe, and their conservation is a legal obligation of Poland arising from international commitments, e.g. the Conventions of Ramsar, Bonn and Bern, they have not been put under sufficient protection so far. They are still threatened by proposals of hydrotechnical lobby, the ones like construction of huge dams and artificial water reservoirs.

One of the most endangered natural values of Poland is also the remains of alluvial forests growing along the rivers. They are cut out to a large extend with the excuse that this is done as part of the anti-flood protection.

**Action Theme 7. Inland wetland ecosystems**

Swamps and peat-bogs cover in Poland ca 1,500,000 ha, among which only 53,400 ha (3.5%) is conserved as nature reserves (including fauna reserves, a large part of which conserves waterlogged environments).

Thanks to the funds of - among others - the Secretary's office of the Convention of Ramsar a strategic research was made in 1998, entitled "Conservation of water and marshy habitats in Poland. The present state and perspectives". The research shows a review of water and marshy environments in Poland taking into account rivers, dam reservoirs, lakes, ponds, sea coast with lagoons., peat-bogs and swamps, an analysis of their present conservation situation (reserves, national parks, landscape parks) and it provides recommendations concerning strategies of conservation of these habitats in the future. 136 wetlands have been recorded in Poland as bird refuges so far, including 60 of European importance.
Although the natural values of wetlands in Poland are quite well recognised and they unequivocally require protection (we are obliged to that by international law - Ramsar, Bonn and Bern Conventions), this protection is definitely insufficient. This is one of the reasons for which a lot of non-governmental organisations (e.g. OTOP, PTOP "Salamandra", Klub Przyrodników, PTPP "pro Natura") carry out projects whose objective is conservation and restoration of wetlands and they carry out educational campaigns in connection with that subject. Unfortunately, Polish provisions concerning management of wetlands (such as the Water Law act) hardly ever give consideration to the nature conservation. On the contrary, many regulations introduce strong barriers that render difficult its efficient conservation. Therefore an urgent alternation of these regulations is indispensable.

**Action Theme 8. Grassland ecosystems**

Grasslands - in the area of Poland considered to be of highest priority according to PEBLDS (especially xerothermic grasslands) - cover very small isolated areas and they have a marginal importance with reference to the preservation of these habitats in Europe. In a great majority these are ecosystems created and maintained as a result of human activity (mowing, grazing, burning and deforesting). Some of them were put under reserve conservation (33 steppe reserves of a total area of 400 ha). As a result of maintenance abandonment (mowing or grazing) many grasslands is now being quickly covered by bushes and trees again, that is why they require active conservation. Such actions are also carried out by some non-governmental organisations, e.g. Klub Przyrodników. Up to now there have been no action plan in Poland for natural and seminatural grasslands (8.1), nor grassland agricultural management schema (8.2). There are either no traces of care about conservation of core areas are to be found in case of privatisation programmes (8.8).

**Action Theme 9. Forest ecosystems**

The forest ecosystems being the most valuable of the Polish ecosystems are conserved first of all in national parks (e.g. Białośliwieci NP, Kampinoski NP, Bieszczadzki NP, Drawieński NP), in many landscape parks and in nature reserves. Among 1300 nature reserves the most numerous ones are forest reserves - 680 sites with a total area of 51,600 ha. Unfortunately, these are mostly very small areas, sometimes not exceeding 1-2 ha.

Unfortunately, in spite of the efforts made by Polish environmentalists and international appeals, the biggest European complex of virgin, primeval forest - Puszcza Białośliwiecka - is still conserved as natural park only in its very small part. The majority of this unique area is treated as an ordinary "productive" forest. The basic reason for that is Polish law which gives communes authorities the right of veto with reference to creation of national parks. At the moment a project is being developed on putting a large part of this virgin forest under conservation as a nature reserve.

According to the national strategy of biological diversity conservation there is expected a change in function of forests in Poland from their mostly productive role to an environment-creating role. The concept of multifunctional forest is being implemented, a forest that apart from providing us with wood has to function as the habitat for various species of plants and animals and offer recreation opportunities. Implementation of this concept is connected with a long-lasting reconstruction of forest stands in vast areas (adjustment of the forest stands types to the sites). It is also planned to increase the percentage of forest areas of the country (up to over 30%) by means of
afforestation of agricultural grounds excluded from cultivation. Unfortunately, very often also the non-forest sites valuable from the point of view of the nature are afforested), which leads to their degradation.

**Action Theme 10. Mountain Ecosystems**

Mountain landscapes cover ca. 9% of the area of Poland. These areas are distinguished by high natural qualities. A part of most valuable areas have been put under conservation in the form of national parks. 9 of 23 national parks in Poland are situated in mountain areas. Four of them have been nominated for the World Biosphere Reserve of UNESCO "Man and Biosphere" (MaB) programme. 6 bird refuges have been assigned in Polish mountains, 3 of them of European importance. The major part of the most valuable mountain areas have been offered to be included in the Polish part of NATURA 2000 network.

Nowadays one of the biggest threats for mountain ecosystems is the development of tourism and downhill skiing.

Among the actions suggested in Action Theme 10, only one (10.7) was implemented on a larger scale. In recent years there has been promoted the idea of creating transfrontier protected areas and development of international co-operation for the goods of nature conservation as well as sustainable development of regions (e.g. in the region of Eastern Carpathian Mountains.)

**Action Theme 11. Actions for threatened species**

Threatened species of animals and plants are conserved in Poland mostly in a passive way (species conservation by law) or indirectly by protection of their habitats. According to the National Strategy of Biodiversity Conservation it is planned to connect strongly the activities of institutions dealing with breeding of endangered species (zoological gardens, botanic gardens, seeds and genes banks) with actions for preserving the biodiversity using the in situ method. Although in some cases these attempts were unsuccessful (like in the case of great bustard Otis tarda, capercaillie Tetrao urugallus, black grouse Tetrao tetrix and hazel grouse Bonasa bonasia). In other cases, like that of the European bison or the beaver, were entirely successful. There are also being made successful projects of this kind in case of peregrine falcon Falco peregrinus and European pond turtle, Emys orbicularis.

The Ministry of the Environment developed a strategy of conservation for some rare species of animals (including the wolf Canis lupus, capercaillie Tetrao urugallus, black grouse Tetrao tetrix), but they have not been successfully implemented so far.

A lot of non-governmental organisations carry out some projects with a view to protecting the species in danger of extinction, e.g. birds of prey (e.g. Eagle Conservation Committee KOO), bats (e.g. Polish Society for Nature Protection "Salamandra", Polish Society for Bats Protection OTOM), kestrel Falco tinnunculus (e.g. PTOF "Salamandra"), white stork Ciconia ciconia (e.g. PTPP "pro Natura", MTOF, OTOP), European pond turtle (e.g. PTPP "pro Natura"). Also the programmes of conservation of domestic farm animal breeds (e.g. pigs, sheep, rabbits, hens), or varieties of cultivable plants (e.g. old varieties of fruit trees) are mostly implemented by non-governmental organisations and scientific institutions. Presently Poland is paying more and more attention with reference to obeying the provisions of Washington Conference. There are systematic trainings for customs officers, alternations of the regulations are being prepared with a view to adjusting Polish regulations to the standards introduced by the Convention. Even though the CITES is still too much neglected, the changes are made in a proper direction.
4. NGO Evaluation and recommendation

Consulted non-governmental organisations agree unanimously that effects of existence of PEBLDS cannot be discerned in Poland. The resolutions from Ryo Convention are carried out slowly and with much delay. PEBLDS seems to have not much influence on the process of the realisation.

Some of the resolutions of the convention have been carried out in recent years, especially those that did not require rising funds or introducing changes in other sectors of life. For example, at the beginning of the year 2003, the National Strategy of Protection and Sustainable Use of Biological Diversity, together with the Action Plan were adopted. Polish non-governmental organisations criticise their aims to be by far not sufficient. Changes in the Nature Protection Act that are prepared by the Ministry of Environment in majority are seen as positive. As Poland wants to join the European Union, Polish part of Natura 2000 network has been prepared quickly.

Therefore, some of PEBLDS recommendations are carried out. However, the very existence of PEBLDS have not had any kind of influence on it at all. Non-governmental organisations do not see any priority of the Strategy objectives over other Convention objectives in practice. To summarise, PEBLDS does not play any role in nature protection in Poland. The document is not widely known and not used. As PEBLDS contains very general expressions, it is not possible to use it to put pressure on the state administration.

Contact addresses

Who have provided data?

This report has been based on the data that comes from various commonly obtainable sources of information about Polish nature values as well as on many publications and the authors' knowledge about protection of nature in Poland. We also used the Ministry of Environment reports about implementation of international regulations in Poland.

Who are in charge with the implementation of PEBLDS in Ministries?

In the Ministry of Environment, dr Bozena Haczek (e-mail: bozena.haczek@mos.gov.pl, Department of Nature Protection, tel.: +48-22- 5792282) is in charge of realisation of PEBLDS as well as some other international conventions, one of which is Convention of Biological Diversity.

Which NGOs are dealing with?

At the moment no nongovernmental organisations participate in PEBLDS realisation. All Polish NGOs that deal with protection of nature do realise the Strategy recommendations in practice. This is not intentional, however, and cannot be connected with PEBLDS.
Introduction

The governmental type of Romania is republic, its 1991 constitution proclaims Romania a democracy and market economy, in which human dignity, civic rights and freedoms, the unhindered development of human personality, justice, and political pluralism are supreme and guaranteed values. The constitution directs the state to implement free trade, protect the principle of competition, and provide a favourable framework for production. The constitution provides for a president, a Parliament, a Constitutional Court, and a separate system of lower courts that includes a Supreme Court. Romania is a country with a transition economy. The reconstruction process started in 1990 has determined a decrease of production in all fields of activity in the context of a pronounced lack of financial funds and equipments as well as of an unfavourable international climate. Starting from 1994, a recovery process of industrial production, has been under way accelerated in the last 3 years, based on monetary macro stabilization (inflation decreased from 296% in 1993, to 56,9% in 1996 and 34,5% in 2001).

The environmental movement in Romania seems to represent the most dynamic and coherent part of the nonprofit sector, at least in terms of activities conducted and coalitions established. Since 1990, environmental NGOs have constantly promoted networking, and some have reached distinguished levels of organizational development in their movement toward self-sustainability. Most Romanian NGOs focus on environmental education and training (88 percent), environmental fieldwork (65 percent), nature conservation, pollution prevention, and environmental information dissemination and raising public awareness (52 percent). They are less effective in influencing environmental legislation and lobbying.

Romanian environmental NGOs are generally poor in terms of financial resources: half of them have an annual budget of less than USD 500. Membership dues do not represent an important financial resource. Most groups are totally dependent on foreign funding, and only a few are capable of recovering part of their costs from the community. Training in fund-raising methods and financial management would increase their access to multiple funding sources, including local resources. There is a clear need for training on public participation practices and methods involving representatives from all three sectors (authorities, profit sector and non-profit sector).

1. State of nature and nature conservation

Introduction

Romania is situated in southeastern Europe with an area of 237,500 sq km between 43°37’ 07” North, and 20° 15’ 44” and 29° 41’ 24” East. Extending inland halfway across the Balkan Peninsula, it occupies the greater part of the lower basin of the Danube River system and the hilly eastern regions of the middle Danube basin. It lies on either side of the mountain systems collectively known as the Carpathians. Romania is a country with rich biodiversity (ecosystems, species and genetic diversity) and a high percentage of natural ecosystems - 47% of the land area of the country is covered with...
natural and semi-natural ecosystems. Since almost half of all forests in Romania (13% of the country) have been managed for watershed conservation rather than production, Romania has one of the largest areas of undisturbed forest in Europe. The natural integrity of Romanian forest ecosystems is indicated by the presence of the full range of European forest fauna, including 60% and 40% of all European brown bears and wolves, respectively. Europe's largest wetland, the Danube Delta, also lies predominantly in Romania. Major grasslands, caves, and an extensive network of rivers, add to the ecosystem richness.

Important for Romania's biodiversity is that the territory of the country is a meeting point between biogeographic regions. There are 5 European Bio-geographical Regions represented in Romania: Continental, Alpine, Steppic, Pannonic and Black Sea. The high level of geographic diversity in Romania and the consequence of its location as a biological meeting place, has produced a floral diversity that includes over 3,700 species and a fauna diversity estimated to be more than 33,802 species.

Climate: Moderate. In general Romania has a temperate climate with significant zonal aspects. Some regions have high humidity and low thermic amplitudes, dryer continental climate exists in other areas creating higher thermic amplitudes, while in the south and west the influence of the sub-Mediterranean warm and dry climate is felt. The average annual temperature is 8-10°C, with frosty winters (-3° to -4°C) and warm summers (21 to 22°C). The average annual precipitation is 637 mm, varying between 400-500 mm. (Romanian Lowland, Dobruja and the Danube Delta) and 1.000-1.400 mm. (mountains).

The relief is characterized by three main levels. The highest is represented by the Carpathian Mountains, the middle level by the hill-land around these mountains and the third is the lowland which includes the lower portion of rivers and the Danube Delta. The mountainous region is curve-formed and covers 31% of the total surface. The highest point is the Moldoveanu peak from the Fagaras Mountains (2.544 m). The hill-land area is situated inside (Transylvania) and outside (Subcarpathians) the Carpathians and covers 36%. Lowlands can be found in the western and south-southeastern part of the country and cover 33%. The biomes that existed on the country territory, prior to human modification, consisted primarily of forests (77%), steppe grasslands (16%), aquatic ecosystems and wetlands (5.8%) and alpine and subalpine ecosystems (1.2%).

**Biological Diversity**

In total 17 major terrestrial ecosystem formations exist in Romania including all of Europe's major ecosystems. These are boreal coniferous forests with 41 ecosystem types, mesophilous, hygrophilous and xerothermic broadleaved forests with 110 ecosystem types, different grassland ecosystem formations with 560 ecosystem types and different shrubby ecosystem formations with 47 ecosystem types. There is also a rich diversity of aquatic ecosystems including mountain springs and rivers, river floodplains, glacial lakes, coastal wetlands, bogs and others.

As a consequence of its geographical setting and the evolution of human society in the region, Romania has a unique and high level of biodiversity and intact ecological systems. Natural and half-natural eco-systems represent about 47% from the Romania's total surface. As a result of the studies financed through CORINE Biotope Programme, a number of 783 habitats types were identified and characterized (13 coastal, 89 wetland, 196 meadow, 206 forest, 54 swamp, 90 rocky/sandy and 135 agricultural) on 261 areas analyzed on the entire territory of the country.
The largely unbroken Carpathian mountain chain and the Danube River and its tributaries are particularly important in providing corridors for the spread of biodiversity. Romania is crossed mainly by birds population, which are migrating through the eastern part of the Mediterranean basin on the following route: Greece, Bosphorous - Nil Valley. The main migration zone of Romania is in the east between Carpathians and the Black Sea, Moldova, Dobrogea and the east of Muntenia. To this can be added the fly route through the West Plain, part of the Tisa Plain, with a lateral branch along the Danube from east to west. The secondary fly route is passing the Transylvania basin, from northwest to southwest.

In total about 3,700 species of higher plants exist in Romania. Among them, 23 species are declared as natural monuments, 39 species are endangered, 171 species are vulnerable and 1,256 are rare species (according to the Red List of Higher Plants of Romania, elaborated by the Romanian Academy 1994). Grassland species include 37% of the total species represented. About 600 species of algae and a total of over 700 species of marine and coastal plants exist. A very high percent of the species of plants (4%) are endemic. In total there are 57 endemic taxa (species and subspecies) and 171 sub-endemic taxa (with their territory mostly in Romania). 75% of the endemic and sub-endemic species are found in the Carpathian Mountains. The main endemic centres for plants are the Mountains of Rodna, Bistrita-Ceahlau, Bucegi-Piatra Craiului, Retezat-Godeanu, parts of these mountain massifs being declared as national parks.

Although Romania has a high level of plant diversity it is particularly important as a center of population density for a variety of threatened and endangered animals. Of greatest significance is the high density of bears, wolves and lynx. The Romanian populations of these species are highest of any country in Europe.

In addition to large carnivores, Romania has over 33,802 other animal species, out of which 33,085 invertebrates and 717 vertebrates. The vertebrates comprise a number of 191 species of fish, 20 amphibian species, 30 species of reptiles, 364 species of nesting and migratory birds and 102 species of mammals.

In addition to being rich in species, Romania has a very high level of genetic diversity among many species because of varying habitat conditions. There are for example a large number of genotypes of Norway spruce, pine, beech, and oak. These genotypes have varying growth rates and resistance to disease and pests. Picea abies, Larix decidua, Pinus nigra are all represented by Carpathian races and there are distinct climatic types of Quercus robur, Picea abies and edaphic types of Quercus robur, Q. petraea, and Fraxinus excelsior. There is also generally a high level of intraspecific variation among insects within Romania.

The following priority areas for nature conservation have been identified for targeting within the biodiversity conservation strategy (according to the National Strategy and Action Plan for Biodiversity Conservation and Sustainable Use of its Components):

Habitats characterized by a large number of endemic species and a high biological diversity A concentration of habitats with a great number of endemic, rare, relic species can be noticed in the mountain massifs of Rodna, Bistrita and Ceahlau, Bucegi and Piatra Craiului, Retezat-Godeanu, Cernei-Mehedinti, Apuseni. A high biological diversity can also be found in the Northern Dobrogea Plateau, in the southern Banat, on the Transylvanian Plateaux and Danubian gorges, as well as on the Moldavian Plateau. The most important wetland habitats are those in the Delta and the oligotrophic and eutrophic swamps conserving relict and rare species such as the Petea thermal lake and Valsan river. These areas of high biodiversity value need priority protection.

Habitats that are threatened to be irreversibly degraded or destroyed Habitats existing around extreme polluting sources that are threatened with irreversible damage should be a priority
target for protection. The floodplain habitats in which the underground water and the flood conditions have been modified (e.g. along the Danube River floodplain) and wetlands that are being heavily polluted and drained (Olt River) also need priority attention for conservation and restoration.

Habitats and species whose conservation and sustainable management can provide benefits at a local and national level Habitats which contain major species of trees with high wood production, herbaceous species with high medicinal, melliferous, fodder values, must be conserved and managed in a sustainable manner. All forest ecosystems with natural structures that are strongly diversified can provide large economic benefits, if managed in a sustainable manner. Aquatic ecosystems such as the Danube floodplains and tributaries, or the Danube Delta can bring large local and regional benefits if protected, restored and effectively managed. Habitats with high aesthetic landscape value which can be rendered through ecotourism also add to the above mentioned.

Habitats and species whose conservation and/or sustainable management can provide educational benefits Part of the habitats and species whose sustainable conservation and management can bring educational benefits, are contained within the boundaries of protected areas, national parks and biosphere reserves.

**Threatened habitats and species**, which must be controlled through special regulations

The utilization of grasslands, especially those on steep hills, should be regulated and strictly controlled in order to prevent their degradation and the reduction of biodiversity due to over-grazing and erosion. Stringent regulations and permanent control over the gathering and selling of wildlife plants and animals are needed in order to avoid the loss of valuable species and ensure their sustainable use. Moreover, special regulations should also be issued in order to prevent the reduction of the biodiversity in agro-ecosystems.

**Human activities** have significantly modified the Romania landscape. These modifications have reduced the abundance of certain elements of the ecosystem (most notably steppe grasslands) and also added new components. Although Romania is rich in biodiversity (particularly because of the large size and quality of valuable ecosystems) the country has suffered a progressive loss of biodiversity as a result of human activity. In particular, agriculture, industrial development, transportation and the expansion of cities have affected the biological diversity, both generally and locally. Pollution, alteration to river courses and hydrotechnical works, resource extraction and overexploitation of natural resources have been the principle factors involved. It has been estimated, that in the last fifty years, there has been a permanent loss of 250,000 ha of forest and grassland ecosystems and that an additional 280,000 ha have been temporarily or only partially lost. A total of about 400,000 ha of wetland habitat (much of it along the Danube River) has been permanently or partially lost as well.

Air, water and soil pollution have been and continue to be major threats to biodiversity in Romania. Industrial pollution decreased in the first years of the economic transition process due to significant reductions in industrial output. However, it can be expected that as the Romanian economy begins to grow, industrial pollution of air, water and soil will begin to rise again unless changes are undertaken by instituting new manufacturing processes or by installing pollution control equipment. Agriculture runoff is also a major pollutant factor in some areas. Part of the interior waters which could sustain a rich biological diversity is polluted and Danube brings from the upstream countries a pollution level with negative impact upon the river's biological diversity, as well as the delta and the Black Sea. The high nutrient load of the Danube River has caused eutrophication in the Danube Delta lakes where macrophyte, molluscs, benthic and fish species have consequently been reduced. This is particularly damaging to fish population but also to marine mammals.

Among the most significant ecological changes that have taken place in Romania has been
the alterations to the course of rivers and the building of hydrotechnical works. In most instances these actions have had major negative consequences for aquatic biocoenoses and caused the loss of natural ecosystems and terrestrial habitats, as well as the loss of ecological equilibrium of these ecosystems on a large scale. The loss of groundwater as a result of hydrotechnical works has, for example, produced the partial or total drying out of about 20,000 ha of forests.

The draining of wetlands was promoted by the previous government in order to create arable land for agriculture. This practice led to the loss of approximately 400,000 ha of floodplains, particularly along the Danube river and in the Danube Delta (80,000 ha). The embanking of the Danube and the building of the Portile de Fier dam has also had a major impact in destroying spawning areas of many fish species. Together with pollution this factor has led to a reduction of sturgeon harvest (50 times lower than previously reported) and carp (10 times lower than previously reported).

Building of dams on the Danube catchment area have reduced the sediment load to the Black Sea coast and caused the partial loss of some psamophyllous habitats. Reservoirs associated with dams in other areas have also reduced forest and grasslands surfaces by about 140,000 ha.

Resource Extraction and Use and Changes in the Land Use Since 1989, given the economic difficulties experienced by many Romanians, the tendency has been to exploit as much as possible the natural resources available in order to generate quick incomes. There has therefore been considerable illegal extraction and gathering of forest resources, including the cutting of small fir trees, mushroom collection, medicinal herbs, aquatic animals, poaching and others.

Chamois in the Rodna mountains are now threatened with disappearance as a result of poaching and the impact of poaching on sturgeon species is considered significant in causing major population declines. In grasslands there has been a continuous deterioration due to the number of grazing animals without a consideration of carrying capacity or organization of grazing cycles and rotations. Similarly there has been considerable overexploitation of fish resources and exploitation of peat in some boreal habitats.

Forest management practices in Romania have not always been highly sensitive to protection and sustainable use of biological resources. In particular the overexploitation of wood in some areas, the selective extraction of economical (and ecologically) important trees, and the introduction of non-native species or non autochthonous (Douglas fir and Austrian pine) have negatively impacted biodiversity. It is generally accepted that these practices have reduced the quality of biodiversity on about 1,000,000 ha of land.

Estimates are that about 40% of the agricultural area is affected by erosion with an average rate of 16.5 t/ha/yr. The total area of agriculture in Romania is 14,797,500 ha, silviculture utilises 6,680,200 ha - out of which 6,245,800 ha are forests and the grassland surfaces are of 4,872,100 ha, from which 3,378,400 are pastures and 1,493,700 ha are hay fields. Of major significance for biodiversity richness and useful natural resources is the total surface of water bodies of 888,300 ha. Irrigation of agricultural land (about 3,200,000 ha in 1989) has also brought about increased salination on large areas. Overgrazing in some areas is also reducing soil resources (e.g. contribution to erosion, especially on slopes).
3. Nature conservation with an outlook to the significant changes occurred in the recent past and their implications

International Commitments Romania has ratified most of the main multilateral environmental agreements, process that has been taken place especially after 1989. Romania is one of the countries, which first ratify the Conventions, and only after formal acceptance started to develop the necessary institutional, legislative measures that allow for compliance with international requirements. This is why in most of the cases the implementation is lagging behind the ratification procedure. In Romania the main authority for the implementation of biodiversity related conventions is the Ministry of Water and Environment through it's Directorate for Biodiversity Protection and Conservation, Protected Areas and Natural Monuments. There is a complex institutional framework for the implementation, with the involvement of many institutions, from central authorities, with their local branches, to various research institutes and various companies coordinated by the central authorities.

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<tr>
<th>Convention</th>
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<tr>
<td>Convention on the Conservation of European Wildlife and Natural Habitats (Bern Convention)</td>
<td>1993</td>
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<td>Convention Biological Diversity</td>
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<td>Convention on International Trade in Endangered Species of Wild Animals (CITES)</td>
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<td>Convention of the Conservation of Migratory Species of Wild Animals</td>
<td>1998</td>
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<td>Convention on the Conservation of European Wildlife and Natural Habitats</td>
<td>1992</td>
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<tr>
<td>Convention on Wetlands of International Importance especially as Waterfowl Habitat (Ramsar Convention)</td>
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**Romanian National Legislation in Nature Protection**

**List of basic environmental laws**

- Law No 137/1995 on Environmental Protection, republished in 2000 that includes two specific chapters, one for the protection of soil, subsoil and terrestrial ecosystems and one regarding the regime of protected areas and of natural monuments
- Law no 107/1996 on Waters providing specific obligation for conservation of ecosystems in water management activities
- Law No 82/1993 on the establishment of the 'Danube Delta' Biosphere Reserve, amended
- Ministerial Order no 287/1999 for the establishment of management structures in Retezat National Park, Piatra Craiului National Park and Vanatori Neamt Forestry Park and the establishment of the Service for Protected Areas within the National Forestry Authority
- Governmental Decision no 409/1999 for the approval of the Regulation of organization and structure of the National Institute for Research-Development Danube Delta (NIRRDD)
- Forest Code (Law No 26/1996) with following amendments
• Law on hunting fund (Law No 103/1996) amended
• Law no 192/2001 on fishing
• Law No 5/2000 on the territorial planning use - section III-Protected areas
• Law no 73/2000 modified by GEO no. 93/2001 regarding the establishment of the Environmental Fund, relevant for issues related to economic incentives
• Ministerial Order no 125/1996 for the approval of the regulation procedure for social and economic activities with environmental impact details the permitting procedures for new investments and existing activities, as well as for the methodology of elaboration of the impact assessment studies
• Ministerial Order No 184/1997 for the approval of the Regulation establishing the procedure for environmental audit
• Law no 462/2001 for the approval of the Government Emergency Ordinance no 236/2000 regarding the regime of natural protected areas, conservation of natural habitats and of wild flora and fauna
• Ministerial Order No 647/6.06.2001 for the approval of the authorization procedure for the cropping, seizing, and/or acquisition and trading on the domestic market and export/import of the plants and animals from the wild flora and fauna, clarifying some procedural aspects concerning the trading activity with CITES wild species (endangered) and not endangered.
• Government Ordinance No 49/2000 on the conditions of creating, testing, using and trading the genetically modified organisms as well as their derived products by modern biotechnologies
• Government Ordinance no 37/2002 on the protection of animals used for scientific and other experimental purposes
• Law no 191/2002 regarding zoos and public aquariums

The main deficiency of the Romanian NDP is that nature conservation considerations are not properly incorporated in other sectoral policies, inclusion of nature protection is only mentioned but not explained.

Institutional structure of nature conservation, responsibilities allocated and decision making system
In the Ministerial Council, the Ministry of Waters and Environment Protection is representing nature-protection. As protection of forested areas is under the authority of the Ministry of Agriculture, Food and Forests, this ministry also represents part of nature protection issues. Generally in Romania, the authorities responsible for environmental (and nature) protection are the Ministry of Waters and Environmental Protection (MWEP), the local Environmental Protection Inspectorates (EPIs) and the Administration of Danube Delta Reserve. The MWEP has three General Directorates, several Directorates and a State Inspectorate. A quite big number of other institutions such as ministries, units working under the MWEP, research institutions, etc. has certain responsibilities in nature protection.

**Relevant units subordinated to the MWEP:**
Public institutions financed by the state budget,
• The National Commission for Control of Nuclear Activities;
• 42 county Environment protection inspectorates (EPIs), including the Bucharest municipality inspectorate;
• Administration of the "Danube Delta" Biosphere Reserve
**Units under authority of the MWEP:**
- Romanian Water Authority
- Institute of Meteorology, Hydrology and Water Management

**Scientific research and design units coordinated by the MWEP, financed by extra-budgetary resources:**
- The National Institute for Research and Development for Environment Protection - Bucharest;
- The "Grigore Antipa" National Institute for Marine Research and Development - Constanta;
- The "Danube Delta" National Institute for Research and Development - Tulcea.

In nature protection issues inside the MWEP the General Directorate for Environmental Protection is relevant (there is also a Secretary of State in Environment Protection). This General Directorate has two sub-divisions:
- Ecological control and monitoring division
- Biodiversity conservation and protection, protected areas and nature monuments division

The "Biodiversity conservation and protection, protected areas and nature monuments" sub-division, under the direct coordination of the State Secretary, is the most important unit responsible for nature-protection in Romania (see the organigram of the Ministry of Water and Environment Protection).

This sub-division is represented in the Environment Protection Inspectorates (EPIs) by similar departments dedicated to biodiversity conservation and sustainable use of resources. Inside this sub-division there are separate departments treating different problems: conserving biodiversity, CITES regulation, management of nature protected areas, etc.

This subdivision has the following tasks regarding nature protection:
- coordinating the nature-protection activity in the country, elaborating the policy and strategies in biodiversity conservation and sustainable use of resources
- coordinating the administration of Protected Areas and Nature Monuments through the network of EPIs from the territory
- funding, elaborating and proposing for application - in collaboration with the Romanian Academy - different plans, measures and strategies regarding the protection of natural habitats
- proposing, in collaboration with the Romanian Academy and other specialized institutions, new protected areas and Nature Monuments to be included in the national network
- participating in the approval of Environmental Impact Studies for major territory management works, for exploitation of certain natural resources, etc.
- coordinating the preparation of the "Protected Area and Nature Monuments Catalogue" and of the "Red Data Book" concerning endangered species of Romanian Flora and Fauna
- assuring and safeguarding the application of recommendations and direction of the international Conventions signed by Romania in nature protection topic
The representatives of the MWEP in the provinces are the 42 local Environmental Protection Inspectorates (EPIs) subordinated to the MWEP. They play a key role in the enforcement of legislation. Most of the activities on implementation and enforcement of environmental legislation have to be carried out by the EPIs.

Their main functions regarding nature protection are:

- possessing information about the existence and distribution of endangered, rare or endemic animals and plants in the county where they work and taking steps for their conservation
- keep evidence, check and analyse periodically the state of protected areas of the county where they work
- assuring that management plans for the protected areas are applied
- authorizing - if it is the case - the collection of wild plants and animals by persons or institutions
- collaborating with local stakeholders (agriculture and forest authorities, prefectures, major-houses, etc.) in order to identify the territories unsuitable for other purposes and afforesting them
- identifying the damaged ecosystems and making plans for their ecological reconstruction
- analysing - from biodiversity point of view - and approving - if it is the case - the studies received in order to get authorization for the economical activities.

Scientific support

The Commission for the Protection of Nature Monuments of the Romanian Academy has direct scientific responsibility for all categories of protected areas (strictly protected areas, national parks, nature monuments, natural reserves and protected landscapes).

Other relevant ministries and authorities

Ministry of Agriculture, Food and Forests - this Ministry is particularly important, as where the protected areas are forest areas ROMSILVA (National Forest Authority - which is subordinated to this ministry) has management responsibility.

It is stated that, the Ministry of Agriculture, Food and Forests and MWEP supervise and control the enforcement of the regulations regarding forest protection.

In reality, MWEP has reduced control over the forested territories. Even if these are protected areas their management is made by the RomSilva personnel or under surveillance of RomSilva. This leads sometimes to contradictory situations because this authority has important financial income from logging which should be significantly reduced or stopped in nature protected areas.

The Autonomous Administration of Forests, ROMSILVA S.A., was established in 1990 to act as an agent with state capital, and based on economical efficiency and responsible for the administration and management of most of the state owned forests (99.5 %). ROMSILVA is coordinating 41 forest subsidiaries, corresponding to the administrative counties of the country. Under them there are about 400 forest districts, each covering from 6 to 20 000 ha of forest area.

Interactions, gaps, bottlenecks, recommendations

- the existing legislation of nature protection is good, but the enforcement of it is very poor
• subordination of the demands for biodiversity conservation to activities which have major ecological impacts
• Ministry of Water and Environment Protection has reduced control over the protected forested territories. These areas are managed by the National Forest Authority (RomSilva) who has important financial income from logging and this activity should be significantly reduced or stopped in nature protected areas. In this trade-off usually nature-protection looses
• incoherence of the legal and institutional framework for monitoring the exploitation of natural resources
• need for the implementation of the economical and financial instruments to stimulate the measures for the biological diversity conservation and sustainable use of its components.

4. Implementation of the PEBLDS

The Pan-European Biological and Landscape Diversity Strategy (PEBLDS) was endorsed by the Ministers of Environment at the Ministerial Conference in Sofia, on 25 October 1995. The strategy is not closely followed by Romania, there are very few initiatives aiming directly at the fulfillment of obligations deriving from PEBLDS. There are a lot of projects developed as part of national strategies for nature conservation (e.g. NBSAP) or activities related to the obligations concerning the ratified nature conservation conventions (CBD, Ramsar, CMS, Bern convention, etc.), which have strong relevance for the PEBLDS, as well. In the following section the results (and in some cases major obstacles) with relevance to different Action Themes of the PEBLDS are presented.

Action Theme 0. Pan-European action to set up the process

Romania has developed in 1996, with the support of GEF/World Bank, a National Strategy and Action Plan for Biodiversity Conservation and Sustainable Use of its Components (NBSAP). Officially "the developed strategy and actions plan have integrated the principles and objectives of the Convention on biological diversity conservation, the Pan-European Biological and Landscape Diversity Strategy, as well as the most pertinent international conventions and agreements in the field of nature and biodiversity conservation."

In total 17 major terrestrial ecosystem formations exist in Romania including all of Europe's major ecosystems. These are boreal coniferous forests with 41 ecosystem types, mesophilous, hygrophilous and xerothermic broadleaved forests with 110 ecosystem types, different grassland ecosystem formations with 560 ecosystem types and different shrubby ecosystem formations with 47 ecosystem types. There is also a rich diversity of aquatic ecosystems including mountain springs and rivers, river floodplains, glacial lakes, coastal wetlands, bogs and others.

As a result of the studies financed through CORINE Biotope Programme, a number of 783 habitats were identified and characterized (13 coastal habitats, 89 wetland habitats, 196 meadow habitats, 206 forest habitats, 54 swamp habitats, 90 rocky/sandy habitats and 135 agricultural habitats) of 261 areas analysed on the entire national territory.
Action Theme 1. Establishing the Pan-European Ecological Network

Romania initiated the drawing up of the National Ecological Network, during these first steps focusing mainly on the mountain ecosystems and on the Lower Danube Green Corridor (The Declaration of Cooperation for the Creation of a Lower Danube Green Corridor, was signed by the environmental ministers of Romania, Bulgaria, Moldova and Ukraine on 5th June 2000, Bucharest, Romania).

In the Carpathians there are 13 major nature protection areas (9 National Parks, 2 Biosphere Reserves and 2 Nature Parks), which are interlinked by areas covered by natural or semi-natural habitats. The Lower Danube Green Corridor project's aim is to designate new protected areas in Danube floodplain with a view to create a network of natural sites.

Romania signed the contract for the Emerald Network pilot project on 6 July 2000. The experts of the MWEP Directorate of Nature and Biological Diversity prepared a Standard Form at national level for Characterization of Protected Areas that were filled in by the County Environmental Protected Inspectorates experts with the available information (for all 844 protected areas). Lists of the Romanian Emerald species and Emerald habitats have been completed. There have been proposed 7 ASCI (Areas of Special Conservation Interest for Europe), which are submitted to the Secretariat of the Bern Convention.

Up to now Romania has two Ramsar sites recognized, according to the national report on the implementation of the convention there are 7 more areas identified that fulfil the designation criteria. The Ramsar Convention Bureau and Bird Life International recently published a report (Important Bird Areas and potential Ramsar Sites in Europe), according to the report there are 22 identified IBAs that fulfil the Ramsar criteria but lacking the designation in Romania.

It's a fact that for the moment most of the protected areas are "paper protected areas". Only four of them, the Danube Delta Biosphere Reserve, Rezeta National Park, Piatra Craiului National Park and Vanatori Neamț Forest Park have legally established management bodies. Several smaller protected areas have some forms of management due to the care of NGOs or other institutes/agencies.

The total surface of the 844 natural protected areas listed by the Law No 5/2000 for Land Use Planning, represents 1,234,710 ha, that means 5.18% of the country's surface. The Danube Delta protected area stands out, for its surface (580,000 ha) and level of biological diversity. The Danube Delta has a triple international status: it is a Biosphere's Reserve, a Ramsar Site (wetland of international importance), and also a Site of World Natural and Cultural Heritage.

The Romanian list of nature conservation designation types contains Scientific Reserves, National Parks, Natural Monuments, Natural Reserves (botanical, zoological, geological, speiological, paleonthological, forests, mixed), Special Protected Areas, Landscape Reserves, Natural Parks, Biogenetical Reserves, Biosphere Reserves, World Natural Heritage Sites, Wetlands of International Importance Sites (Ramsar Sites).

These designated and envisaged protected areas will form partially the National Ecological Network. Although these initial steps are very promising, Romania has to make significant (financial and scientific) efforts to achieve a functional National Ecological Network.
Action Theme 2. Integration of biological and landscape diversity consideration into sectoral policies

The integration of conservation considerations into sectoral policies is not satisfactory in Romania. The lack of sectoral integration of conservation considerations is one of the main deficiencies of the National Development Plan. There are some indices that the process of integration is started, but for the moment integration is far too general, providing very small probability for an operational realization of the expectations in the field of nature and biodiversity conservation.

Action Theme 3. Raising awareness and support with policy makers and the public

The public awareness on biodiversity and landscape conservation issues is very low in Romania. Several projects were conducted (mainly by NGOs) aiming at public awareness raising related to these problems. The results are slowly showing up, but the process must be fastened significantly as for the successful development of ecological (protected area) networks (e.g. Natura 2000) the achievement of a general public support is of crucial importance.

Action Theme 4. Conservation of landscapes

No well defined strategy for landscape conservation, although there are several projects with relevance to this action theme. The GEF supports the "Maramures Biodiversity Initiative" project in the Maramures Depression which covers landscape conservation issues as well. There are several Landscape Reserves established in the country. The NDP through its regional development plans is stimulating idea of development based on traditional knowledge and traditional craft industry.

Action Theme 5. Coastal and marine ecosystems

A Strategic Action Plan for the Rehabilitation and Protection of the Black Sea (developed with GEF support) has been adopted by the member parties of Bucharest Convention (Convention on the Protection of the Black Sea against Pollution) in Istanbul, 1996, process in which Romania has been involved. Biodiversity conservation is a major goal of the SAPRPBS. The National Strategic Action Plan for the Black Sea has been elaborated during 2000. Biodiversity problems related to Black Sea are quite well documented (e.g. Black Sea Biological Diversity - Romania, report 1997 and Red Data Book of 1999). It seems obvious that the decontamination of the Danube is of crucial importance, in solving the environmental problems of the Black Sea. The Government gives high priority to the rehabilitation and protection of the eroded Black Sea coast, which is reflected in the action plan of the Environment Protection Strategy for the Medium-Term 2000-2004.

The National Institute for Research and Development "Gr. Antipa"/NIMRD Constanta has developed the National marine monitoring program which includes biological diversity components.

The decision to introduce the Integrated Coastal Zone Management process in the Black Sea coastal zones has been adopted by the Odessa Ministerial Declaration (1993). This decision has been further elaborated in the BSSAP. The National ICZM Report and the National ICZM Policies and Strategies Report have both been written as well.

Romania is implementing the project Black Sea Agricultural Pollution Control with GEF support. The key objective of the project is to reduce the discharge of nutrients (nitrogen and phosphorous) into the Danube River and Black Sea through integrated land and water management. In support of this objective, the Project would assist the Government
of Romania (GoR) in its efforts to promote the adoption of environmentally-friendly agricultural practices and to restore part of the former floodplain areas along the lower Danube River, that will reduce the discharge of nutrients and yield substantial benefits in terms of improved water quality of the Danube River and the Black Sea. Educational and awareness activities with respect to marine life and the conservation of biological diversity have been organized by the Dolphinarium Constanta as joint activities with marine environmental NGO's ("Mare Nostrum", "Oceanic Club", "IOI Black Sea Operational Center")

**Action Theme 6. River ecosystems and related wetlands and**

**Action Theme 7. Inland wetland ecosystems**

The Romanian Ministry of the Environment has commissioned the Danube Delta National Institute for Research and Development with the management of all wetlands in Romania and with the coordination of all Danube Green Corridor activities. Romania does not have a specific strategy for wetlands, as this is part of the National Strategy and Action Plan for Biological Diversity Conservation and Sustainable Use of its Components. The inventory of national wetlands was done by the Danube Delta Research Institute.

Political documents with special relevance for this action theme are: Declaration of Cooperation for the Creation of a Lower Danube Green Corridor, signed by the environmental ministries of Romania, Bulgaria, Moldova and Ukraine (5 June 2000, Bucharest, Romania). Declaration of cooperation in the area of the Danube Delta and lower Prut river protected areas signed by the relevant Ministers of Moldova, Romania and Ukraine (5 June 2000, Bucharest, Romania).

The aim of the project Lower Danube Green Corridor is the recovery of the river and its tributaries, biological diversity conservation, ecological restoration and protection of river meadow forests, as well as development of sustainable agricultural systems. The objectives of the project fulfil the demands of the PEBLDS and they are in concordance with the objectives of the 6th action theme.

The Danube Delta is one of the most important wetlands of Europe with respect to ecosystem, species and genetic diversity. The Danube is also one of the most important rivers of Europe. The existence of this two high priority areas targeted by nature protection authorities as well as by national and international funding organizations, hinders conservation of other Romanian wetlands (which are usually considered of secondary importance). For example there are 22 identified IBAs that fulfil the Ramsar criteria but lacking the designation in Romania. There are several protected wetlands in Romania, from these only one (the Danube Delta Biosphere Reserve) has legally established management authority.

In the Danube Delta Biosphere Reserve in 1992, an important wetland restoration program was initiated. The program is focused on the restoration of the abandoned, unused, polders for agriculture and fishponds. Danube Delta Biosphere Reserve Authority identified the abandoned agriculture polders and fishponds, 11,425 ha of these areas, are already subjects of restoration works. Several restoration projects are envisaged along the Danube river (Romanian - Bulgarian border area) as well. There are smaller scale wetland restoration projects conducted by NGOs as well. (e.g. Restoration work in Niraj valley is implemented by the Focus Eco Center, Tg.-Mures)
**Action Theme 8. Grassland ecosystems**

There is no special conservation strategy or action plan for grassland ecosystems. Considerations with relevance to this issue are included in the National Biodiversity Conservation Strategy and Action Plan. In Romania different grassland ecosystem formations were identified, with 560 ecosystem types. The CORINE Biotope Programme identified 196 grassland habitats.

**Action Theme 9. Forest ecosystems**

Romania owns very important forest biodiversity resources: 60 native tree species, 10 groups of natural forest formations and 150 types of forest ecosystems. The total area of forested land in Romania is about 6.3 million hectares (27% of total country surface). Public authorities administer about 95% of forests, although the ongoing privatisation process is constantly reducing this proportion. Forests are an important component of Romanian biodiversity, their natural integrity being indicated by the presence of the full range of European forest fauna, including 60% of the European brown bear and 40% of the wolf population. One half of the forests are used predominantly for timber production, while the other half has a protection or recreation function, most notably water protection (18%), soil protection (19%) and recreation and research (10%). Because of big proportions of forests with special protection functions, the proportion of natural or semi-natural forests is very high in Romania.

The forests are not evenly distributed throughout the territory of the country. More than half (58.5%) is in the mountains (700 m or more above sea level), 34.8% are in the hilly region (150-700 m above sea level) and only 6.7% in the plains (less than 150 m above sea level). Conifer species represent almost a third of the forest trees (30.8%), and deciduous species 69.2%. Because of this uneven distribution, the network of protected areas in the Carpathians (9 national parks, 2 nature parks, 2 biosphere reserves) have important implications in forest ecosystems protection.

The major natural or semi-natural riparian forests can be found in the Danube Delta and along the Danube river. The forests from the Danube Delta are protected just like part of the forests along the Danube. The Mures Valley Meadow - Nature Park is also partly covered by semi-natural and natural riparian forests.

One of the main problems with forest protection is that the management of mainly forested nature protection areas is done by the Forestry Authority. Because of this, in some cases it's impossible to solve adequately the conflicts between conservation and forestry considerations.

**Action Theme 10. Mountain Ecosystems**

Information for this action theme was mainly obtained from the thematic report of the status of mountains ecosystems, regarding the implementation of the Convention on Biological Diversity (CBD) in Romania.

The most relevant project for this action theme is the Biodiversity Conservation Management Project implemented with funds provided by the Global Environmental Facility, the Romanian Government and the National Forestry Authority.

The aim of GEF project is biological diversity conservation and maintaining of the ecological integrity of Romanian forests, alpine ecosystems and meadows of the Carpathian range. The project is applied in distinct areas, which will constitute three different models for approaching priority problems in conservation process management and planning, which are common for many important threatened areas. In this way the needed experience in the replication of best practices in priorities conservation areas
from Carpathian region and other parts of country will be assured. The areas selected offer possibilities for the development and establishment of many strategies in conservation process, including national parks, natural park (protected landscape) and a sustainable management of mountain forests focusing on biodiversity.

The selected areas are:
- National park model: realized in Biosphere Reserve National Park Retezat from southwest of Carpathians region.
- Natural Park model: Natural Park Piatra Craiului from central - south part of Carpathian region.
- Sustainable management of forests model: Forest Park Vanatori - Neamt, from northeast of Carpathian region.

There is a national network of mountain protected areas in the Carpathians, with 13 major nature protection areas (9 National Parks, 2 Biosphere Reserves and 2 Nature Parks).

Activities considered threat for mountains ecosystems: grazing, forest exploitation, hunting, unsustainable tourism and agriculture, mining, natural hazards, etc.

Romania adhered at the Carpathian Ecoregion Initiative, which aims at conservation and sustainable use of Carpathians. Through this initiative the conservation measures are combined with actions targeted on supporting local economy and culture. The National Agency on Mountains Zones, established under the Ministry of Agriculture, Foods and Forests is working to develop a Strategy for Mountains Zones.

**Action Theme 11. Actions for threatened species**

No action plans developed for the protection of certain species (even despite the obligation for Romania under the Bern Convention). There are many projects emphasizing protection of certain species, these are implemented mainly by research institutes (DDNIRD) and different NGOs specialized for certain species or species groups (birds, bats, reptiles, fishes, large carnivores, seahorses, etc). The NGOs are working in some cases in close cooperation with the official authorities. The majority of the nature protection projects have relevance to threatened species protection, as well. No ex-situ conservation projects nor reintroduction programs are developed. There are a few cases where flagship species are successfully used for public awareness raising (e.g. DDNIRD - pelican).

### 5. Evaluation and recommendation

The main conclusion of the assessment is that the PEBLDS is not emphasized sufficiently by the Romanian officials. Nevertheless, we accept that there are significant results related to different international commitments and the EU accession process that have strong relevance to the implementation of the PEBLDS as well. Romania also initiated some activities that can be directly linked to the implementation of the PEBLDS, as the initiation of drawing up process of the National Ecological Network. The PEBLDS is a very powerful conservation tool if it's properly used, in the future Romania should safeguard the implementation by integrating provisions for its implementation in the main planning documents (NDP, NBSAP, etc.). As the main limiting factors in implementation are financial constrains, careful prioritisation of actions should be done for the most effective use of these limited resources.
General Recommendations

- Emphasis on the implementation of PEBLDS
- Development of a system for the coordination of activities with relevance to PEBLDS
- Awareness raising campaigns mainly for environmental NGOs
- Involvement of nonprofit sector in the implementation
- Proper incorporation of provisions for implementation in the strategic documents

Specific recommendations

- Emphasize protected area designation in the continental and steppic biogeographical regions
- Develop a realistic and functional national biomonitoring network
- Prepare species action plans, with the involvement of specialized NGOs
- Concentrate on unprotected wetlands (other than the Danube Delta and the Danube related ones)
- Emphasize forest protection (other than mountain forests)
- Realistic separation of the protected forests management from the profit oriented sector of the forestry
- Development of an action plan for grassland conservation
- Involve NGOs to achieve a cost effective implementation

Contact addresses

The national focal point for the PEBLDS is the Ministry of Waters and Environment Protection through its Directorate for Biodiversity Protection and Conservation, Protected Areas and Natural Monuments.
SLOVAKIA

Introduction
The Slovak Republic was established on January 1st 1993 after the peaceful split of the former Czechoslovakia into two independent sovereign countries. The country lies in the heart of Central Europe with geographical centre of Europe being situated on its territory and shares borders with five states: the Czech Republic, Austria, Hungary, the Ukrainian Republic and Poland. According to the Constitution of the Slovak Republic, it is a country with guaranteed human rights and freedoms, political rights, rights of ethnic minorities and ethnic groups, economic, social, and cultural rights, right to the protection of the environment and cultural heritage, and with the right to court and other legal protection. The only constitution and law-making body of the Slovak Republic is the National Council of the Slovak Republic, consisting of 150 members of Parliament. The environment protection is namely provided by the Ministry of the Environment of the Slovak Republic (ME SR). Since 1999 development has been directed by the SR Government Council for Sustainable Development.

The area of the Slovak Republic is 49,036 km$^2$. Total population of the Slovak Republic is 5,402,547, that represent population density about 110 inhabitants per km$^2$ (as of December 31st, 2000). According to the Act of the NC SR No. 221/1996 Coll. on Territorial and Administrative Division of the SR, the country is divided into 8 regions and 79 districts. Within this broader administrative division there are 2,893 municipalities including 138 towns.

1. State of nature and nature conservation

Introduction
The relief of the country is characterised by great differences in altitude which ranges from 94 to 2,655 m above the sea level. At the territory of Slovakia, there are represented two large biogeographic regions - the Carpathian mountain range and the Pannonian Region. At the same time there are borders between several European watersheds. The Slovak Republic is situated on the boundary of the climatic influence of the ocean and continent, which results in relatively mild summers and winters. The continental character of the climate has more influence in the eastern areas of the territory. The long-term average temperatures are 20.5 $^\circ$C and -3 $^\circ$C in the summer and winter periods, respectively. The temperature decreases by 0.52 $^\circ$C in average per each 100 m of elevation.

Great altitudinal differences, rich diversity of geological substrates, many geomorphologic phenomena in combination with a continental climate and a large diversity of microclimatic phenomena form the basic precondition for a rich diversity of flora and fauna, as well as habitat types in Slovakia. More than 11,270 plant species (including algae and fungi) and more than 28,800 animal species (including invertebrates) and 1,000 species of protozoa have been determined in Slovakia up to now. The estimates are even higher, for instance the number of animal species is estimated to be over 40,000.

The diversity of microorganisms is also very important. Some 4,760 species of bacteria are currently registered, but their total number is estimated to be 40,000. There are 353 species of cyanobacteria, and approximately 5,000 virus species of an estimated 130,000 that have already been determined in Slovakia. There is still insufficient knowledge of those groups of organisms which are difficult to monitor and classify like invertebrates and all microscopic organisms (bacteria, cyanobacteria, algae, micromycete, protozoa, infusorians and other single-cell organisms). Many species exist here as endemics. Also relic species can be found.
Biological diversity with special attention to the international importance

Almost 60% of the total area of Slovak Republic is composed of mountains, mainly of Western Carpathians. The largest mountains such as Tatry, Nizke Tatry and Slovenske rudohorie as well as smaller mountains are of rich geological diversity. Tertiary limestone, dolomites and young volcanic minerals are the prevailing geological composition while mesozoic crystalline minerals and older geological substrate are in minority. For southern parts of Slovakia the lowlands are typical by young tertiary and quaternary sediments. Danubian Lowland, situated along the Danube River, is the largest one. The lowest point (94 m above the sea level) is located in the South-Eastern border area, the highest point (2,655 m above the sea level) in the North. A typical feature of Slovak landscape is the division of mountain areas to valleys, created partly by rivers originating in mountains. Almost all rivers flow to the Black Sea. The most important Slovak rivers are the following: Dunaj (Danube), Vah, Hron, Morava, Nitra, Ipel, Hornad, Poprad, Ondava, Laborec, Latorica and Bodrog. There are three climatic zones in Slovakia: the warm zone of lowlands, the middle zone of lower parts of mountains and the cold zone of mountains.

Habitat types

Diversity of natural habitat types in Slovakia is influenced by three main factors: altitude, diversity of geological conditions and the availability of water, which influences the character of ecosystems in all vertical zones and on every geological substrates. For the semi-natural and artificial (man-made) habitats, the further important factor is the character, intensity and time period (duration) of human activities shaping the actual state of the respective habitat type.

The most important habitats for biodiversity in Slovak Republic include natural and semi-natural forests, wetlands and inland waters, grasslands, alpine and sub-alpine habitats. Forest habitats are an important source of biological diversity, represent the country's economic potential, and provide many functions related to management of water supplies, erosion control, soil protection, recreation, social-health and aesthetics. In Slovakia, forests cover 1,930,000 ha, which represents 40,8% of the country's total area. Of these forests, 40 to 48% are semi-natural, but what makes them specially valuable is that they have a composition of species that only slightly differs from the original forests. This is very special compared to most of the countries of central and western Europe. There are also over 70 fragments of natural and virgin forests with a total area of 20,000 ha that have been preserved.

Wetlands can be found from the lowlands to the alpine zone. Floodplain forests are considered both wetland and forest habitats. Soft wood (willow-poplar) floodplain forests are found in locations with regular, relatively high and long lasting floods. The underground water level remain relatively high, though it drops in drier periods. The soft wood floodplain forests have been one of the most affected habitat types in Slovakia and their last remnants are preserved only on the banks of the Morava, Danube and Latorica Rivers. Hard wood forests are located on the higher sites of the river floodplains. The areas are drier and are usually away from regular floods. Their usual location are the river valleys of the lowlands. Other wetland types, located mainly in the lowlands and along the river valleys, include riparian and swamp alder woods, stagnant and slow flowing waters and marshes. Sparsely at small areas there can be found also fens, bogs and mountain lakes. From the different kinds of grasslands especially high value of biodiversity have the wet meadows, dry sub-mountainous and mountain meadows and xerophilous habitats.
**Biological corridors**

In Slovakia the ecological network is called Territorial System of Ecological Stability (TSES). TSES is being developed at 3 main levels: national, regional (district) and local level.

- National Ecological Network is called the Supraregional Territorial System of Ecological Stability, and it was approved by the Government and the National Council of the Slovak Republic in 1992. It is the basic frame for the elaboration of ecological networks (TSES projects) at regional (district) and local levels.
- Regional (district) and Local Territorial Systems of Ecological Stability (ecological networks) are obligatory part of basic territorial (landscape planning) documentation.

The Territorial System of Ecological Stability has been also incorporated into the new rules for management of agricultural lands and for land amendment projects. The complex, sophisticated methodology has been developed for the planning and implementation of the TSES, especially at the local and regional level. TSES methodology is considered compatible with the idea of European Ecological Network (EECONET).

**Species and Genetic Diversity**

The location of the Slovak Republic in Central Europe and the wide range of altitudes determines the basic ecological parameters for a variety of species. Within this relatively small territory one can find continental and oceanic as well as Arctic-Alpine and sub-Mediterranean species. The scale of species varies from thermophilous species and Pannonnic species occurring in warmer southern and lowland regions to psychrophilous species in higher altitudes. The diversity of geological, geomorphological, hydrological and climatic conditions have influenced the variability of ecological conditions for flora and fauna that is reflected in the relatively large number of plant and animal species which occur in Slovakia. There are 3,124 species of higher (vascular) plants in Slovakia and 92 of these are classified as endemics. It is estimated that there are about 40,000 - 50,000 animal species living in Slovakia, most of them being invertebrates. Among them there are 102 classified taxa of Carpathian endemic animals. In total 85 species of mammals include 5 endemic taxa of which area of distribution is limited to the territory of Slovakia. There are also some relic species, that can be found in Slovakia. These species survived major geological and historical upheavals, but only in restricted areas with conditions that were similar to that before the upheaval. Relic species are classified according to the time and climate of their introduction, and are either pre-glacial (Tertiary), glacial, interglacial or post-glacial.

The continuous development of flora and fauna was interrupted by quaternary glacial event. Even then, drier and warmer periods alternate with moister and colder ones, which caused the spread of the steppe, in the former case, and the spread of forests, in the latter.

The territory of Slovakia may be geographically divided into two basic units with different histories, varieties of species, and stages of nature damage, the Carpathian Massif and the Pannonian Region.

The Carpathian Massif is highly articulated, and geologically diversified. Between the individual ranges of mountains there are basins with a significant continental climate. Relatively few sub-mediterranean elements occur.

The Pannonian Region is represented by the lowlands and foothills of the Carpathians with a lower endemism, the more frequent appearance of sub-mediterranean elements related to the Balkans, and continental ones of Pontic origin.

Accordingly, two types of flora interact: Pannonian and Carpathian, which subdivide into subregions and districts. The Pannonian type, with thermophilic flora, is characterized by numerous xerophytes (on limestone), swamp and aquatic plants. This flora is mostly spread
throughout the lowlands of Southern Slovakia: xerophytes on drift sands, floodplain forests along the larger rivers, and halophytes on saline soils.

The Carpathian flora subdivides into western and eastern subregions. The former contains a rigorous hierarchy of flora related to altitude. The latter is characterized by large beech wood areas.

*Vertical diversity of flora in Slovakia includes the following zones:*

1. **Lowland zone (100-200m)** - occupies the lowest areas of Slovakia with thermophilic flora and advanced agriculture. The original vegetation of soft and hardwood forests, and communities of blown sands have been preserved only sparsely compared to the prevailing fields, meadows, vineyards, orchards and gardens.
2. **Hilly landscape zone (200-500m)** features the abundant occurrence of oak and oak-hornbeam forests (Quercus sp., Carpinus betulus). The southern slopes are characterised by common "rocky steppes" with very varied xerophilous flora. The northern slopes are covered by beech forests. Fields occupy a large area in this zone.
3. **Sub-mountainous zone (ca 500-900m)** with prevailing beech forests. The lower sections may have enclaves of oaks. Fir or spruce in northern Slovakia grow in the upper sections. Fields are present in this zone.
4. **Mountainous zone (ca 900-1,550m)** is characterised by the prevalence of coniferous trees - spruce and fir. In its lower part, beech trees are found in several locations, but if the elevation is over 1,300 m, the spruce dominates. It may descend to lower altitudes in some areas. On the contrary, on several mountains, the beeches ascend very high while spruces form only a very narrow zone.
5. **Sub-alpine zone (ca 1,550-1,800m)** with dwarf pine (Pinus mugo).
6. **Alpine zone (ca 1,800-2,300m)** - deficient in tree species, characterised by alpine meadows, small willows and rocky habitats.
7. **High mountains or sub-nival zone (above 2,300m)** with sparse vegetation.

Fauna developed similarly to the vegetation. Many fauna species became domesticated in the region at the end of the last glacial period. At present, a spread of thermophilic species to the North can be detected (e.g. the occurrence of specific grasshopper species in Slovakia, the spread of the Balkan dove to Bohemia). Human beings cleared the way for certain species, e.g. for gophers and hamsters (by massive ploughing), for sewer-rats, etc. Certain intentionally introduced species spread rapidly, e.g. muskrats, pheasants, throat (Salvelinus fontinalis, Salmo gairdneri irideus). Some other species, however - especially larger mammals - were often over-hunted by human beings in some regions. In spite of that, the country ranks among those rich in fauna, as it is situated on the overlap of two subregions of the Paleoarctic zoogeographic region: steppe and greenwood zones. The greenwood zone spreads over the larger part of the country and subsumes 75 % of indigenous animal species, including in larger mountain areas the wolf (Canis lupus), bear (Ursus arctos), lynx (Lynx lynx) and wildcat (Felis sylvestris). The steppe zone covers lowland areas in southern and eastern Slovakia. Intensive agriculture had changed original greenwoods into cultivated steppe with important animal species: hare, hamster, gopher, partridge, roebuck. In south-western Slovakia there is also small, declining population of bustard (Otis tarda). Some species can be found in both low and highlands - wildboar, roebuck, deer.
Priority Areas from nature conservation point of view

Biological diversity in various territories of Slovakia depends on many factors including the substrate type, the diversity of relief, the isolation and fragmentation of habitats, biogeographical borders with various overlapping elements, the degree of habitat disturbance, succession, etc. In Slovakia, the areas richest in species are found in the karst sections of the Western Carpathians, where over 1,400 species of high plants have been registered on a relatively small area of Slovak Karst. The highest parts of Carpathians, which are formed by the complex of the High Tatras, are also very rich in species. So far, over 1,300 species of higher plants, including a large number of endemic and relic species, have been found there. Comparably, the karst areas of Muranska plateau have 1,150 higher plant species recorded and the area of the Slovak Paradise has 930 higher plant species recorded. The lowlands of Slovakia are the most affected by man's influence, but in spite of this, these regions still contain several well preserved areas and wealth of species that is comparable to the mountainous areas. As far as biodiversity is concerned, the Zahorie lowland is the most valuable, with the Morava River floodplain having over 1,200 species of higher plants.

Table 1. National Parks and Protected Landscape Areas in Slovak Republic

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<tr>
<th>National parks</th>
<th>Designation</th>
<th>Area (ha)</th>
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<tbody>
<tr>
<td>1. Tatry NP</td>
<td>18.12.1948</td>
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<td>3. Nizke Tatry NP</td>
<td>14.6.1978</td>
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<td>4. Slovak Paradise NP</td>
<td>18.1.1988</td>
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<td>5. Mala Fatra NP</td>
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<td>6. Muranska planina NP</td>
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<td>7. Poloniny NP</td>
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<td>8. Slovak karst NP</td>
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<td>9. Velka Fatra NP</td>
<td>2002</td>
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<td>2. Male Karpaty PLA</td>
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<td>3. Vychodne Karpaty PLA</td>
<td>1.9.1977</td>
<td>26,032</td>
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<tr>
<td>4. Vychodne Karpaty PLA</td>
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<td>5. Biele Karpaty PLA</td>
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<td>6. Horna Orava PLA</td>
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<td>7. Stiavnicke hills PLA</td>
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<td>12. Cerova highland PLA</td>
<td>10.10.1989</td>
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<td>13. Strazovske hills PLA</td>
<td>27.1.1989</td>
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<td>15. Danube floodplains PLA</td>
<td>3.3.1998</td>
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</table>
Human Impact

Slovakia is predominantly covered by forest (40.8%) and agricultural land (arable land - 30.2 % meadows and pastures 17.0 %). Lowlands and valleys are the most intensively used land, being used for agriculture, industry, transport and settlements. There are 138 towns in Slovakia, the largest are Bratislava (447,000 inhabitants), the capital of the Slovak Republic, and Kosice (240,000 inhabitants). Presov, Nitra, Zilina and Banska Bystrica have almost 100,000 citizens each. There are also 2,755 villages in Slovakia.

In contrast, in the mountainous regions one can find fragmented settlements forming the characteristic types of landscape. Regions intensively used for industrial activities have the most polluted air, streams and soil. The twelve most devastated regions of Slovakia show also the most serious negative effects on human health, wildlife, quality of agriculture and forest products.

In the Carpathian massif, nature is not under such a great pressure from human activity as it is in the Pannonian area. Deciduous trees covering large areas still exist here. There is almost no large-scale degradation of ecosystems. The impacts are relatively local, limited to individual basins and their surroundings. Even though these local impacts are sometimes catastrophic. As to other natural resources, local destruction of the countryside is relatively important. The changes in landscape management have had a negative impact on the diversity of species: diminishing pastures and intensive use of pasture remaining, and greater exploitation for recreational purposes in some mountain areas.

The Pannonian area is intensively exploited for agricultural production and locally for quarrying (mainly limestone, sand and gravel). In the lowlands, there have been large-scale changes in water management: water regulation, drainage of large areas, and extensive fertilization of land. For this reason oligotrophic localities are affected (mires, peatbogs), as well as other kinds of wetlands. All these areas had many specialized species, which have either disappeared or are critically endangered.

In Slovakia, the main reasons for the loss of biodiversity and the deterioration of the remaining natural areas, including the protected ones, are as follows:

Forestry:
- unsustainable forest management - clearcuts, construction of forest roads, planting monocultures of non-native species, e.g. spruce (in highlands) or poplars (in lowland floodplains).

Agriculture:
- intensive agriculture causing the large scale devastating effects - increased soil erosion, changes of natural water regime and nutrient accumulation eutrophication of the landscape - resulting in the loss of biodiversity.
- large-scale drainage and reclamation schemes on wetlands and moist meadows - occurs most often in lowlands and sub-mountain areas and significantly reduces their biological diversity.
- large-scale application of pesticides affects directly field weeds and other target organisms. The application of chemicals caused resistant types of weeds and vermin to develop. Contamination of the food chain has a direct or indirect impact on many other animals. Almost all species of top predators, e.g. birds of prey, and also human beings are endangered by accumulation of residuals in their bodies.
- eutrophication of the countryside - is caused by excessive and incorrect use of fertilizers, and by the impact of nitrogen from rainfall.
Water management:
- pollution, regulation and damming of rivers. Many rivers are polluted to a great extent; new large water reservoirs have been constructed which caused changes in water flows and in the physical and chemical features of the water. As a result many organisms living in large rivers are in a critical state near to extinction.

Industry and traffic:
- Air pollution mainly caused by industrial and traffic emissions. The decline and extinction of epiphytic lichens, the best known example, are closely connected with air pollution. We have only a very limited knowledge about the danger to other groups of organisms.
- excessive mining and processing of raw materials, often in naturally sensitive areas, e.g. brown coal, lime stone, dredging of sand and gravel, etc.
- fragmentation of habitats caused by construction of new traffic infrastructure - roads and highways.

Recreation and tourism:
- unregulated recreation and tourism - affects most seriously the most sensitive fragile ecosystems of high mountains (e.g. High Tatra Mts) but also in some other regions, e.g. natural areas adjacent to the large cities and touristic centres

Hunting and fishing:
- unsustainable hunting and fishing practices and legislation - even seriously threatened species are considered by hunting law as game species and intensively hunted (e.g. wolf)
- introduction of non-native types. The basic gene pool of the main types of wild game animal and fish species were negatively affected by hunting and fishing demands (fulfilled by the introduction of non-native game species), which also resulted in cultivating isolated breeds in more or less man-made facilities.

Spreading (invasions) of non-native alien species - it represents serious threat to native biodiversity, and can be directly related to some of the above mentioned problems (e.g. spreading of alien species in unsustainably managed forest stands, along the traffic corridors, within the mining areas, etc.)

Due to degradation of the natural environment in past decades many habitat types has declined substantially, as well as many plant species. Similarly, the diversity of animal species is declining. For example, the species like chamois and marmot (both are endemic subspecies, living only in Slovak and Polish Tatra Mountains) or bustard are virtually facing extinction.
Table 2. Overview of the threatened plant groups

<table>
<thead>
<tr>
<th>Group</th>
<th>Number of species</th>
<th>Number of threatened species</th>
<th>Threatened %</th>
</tr>
</thead>
<tbody>
<tr>
<td>Higher plants</td>
<td>3,124</td>
<td>1,135</td>
<td>36</td>
</tr>
<tr>
<td>Bryophytes</td>
<td>902</td>
<td>540</td>
<td>60</td>
</tr>
<tr>
<td>Lichens</td>
<td>1,493</td>
<td>583</td>
<td>39</td>
</tr>
<tr>
<td>Fungi</td>
<td>2,162</td>
<td>?</td>
<td>?</td>
</tr>
<tr>
<td>Algae</td>
<td>3,450</td>
<td>?</td>
<td>?</td>
</tr>
</tbody>
</table>

Table 3. Overview of threatened animal groups

<table>
<thead>
<tr>
<th>Group</th>
<th>Number of species</th>
<th>Number of threatened species</th>
<th>Threatened %</th>
</tr>
</thead>
<tbody>
<tr>
<td>Invertebrates (total)</td>
<td>over 28,000</td>
<td>ca 5,000</td>
<td>18</td>
</tr>
<tr>
<td>Fish and cyclostomes</td>
<td>78</td>
<td>35</td>
<td>45</td>
</tr>
<tr>
<td>Amphibians</td>
<td>17</td>
<td>17</td>
<td>100</td>
</tr>
<tr>
<td>Reptiles</td>
<td>12</td>
<td>12</td>
<td>100</td>
</tr>
<tr>
<td>Birds</td>
<td>352</td>
<td>114</td>
<td>32</td>
</tr>
<tr>
<td>Mammals</td>
<td>85</td>
<td>55</td>
<td>65</td>
</tr>
</tbody>
</table>

2. Nature conservation with an outlook to the significant changes occurred in the recent past and their implications

International commitments

International cooperation in nature protection is important for several reasons. First, nature does not recognize the administrative borders defined by man. Mountains and other units occurring at the territories of more states may be successfully managed only through common strategies applied in the long term. Such cooperation can be demonstrated using the example of the Vychodne Karpaty trilateral protected area, developed in Poland, the Slovak Republic and Ukraine.

Second, the preservation of natural beauty and its sources are significant not only for neighbouring countries, but also for European and global biodiversity. In Slovakia, for example, a part of the original forests has been preserved and the viable populations of large predators (wolf, bear, lynx) remain unlike in some neighbouring countries on the West. The presence of these nature values and their further maintenance is therefore important also from a European perspective.
And finally, beside a common approach toward management of ecosystems, the exchange of experience is the unique privilege of international cooperation. International cooperation in nature conservation is implemented mainly by
- international conventions;
- bilateral agreements;
- international organizations and their programmes or projects.

The Slovak Republic is a party to six international conventions and two international agreements, directly related to biodiversity conservation and sustainable use:
- Convention on Wetlands of International Importance especially as Waterfowl Habitats;
- Convention concerning the Protection of World Cultural and Natural Heritage;
- Convention on International Trade in Endangered Species of Wild Fauna and Flora;
- Convention on Biological Diversity;
- Convention on the Conservation of Migratory Species of Wild Animals;
- Convention on the Conservation of European Wildlife and Natural Habitats.

√ Agreement on the Conservation of Bats in Europe
√ Agreement on the Conservation of African-Eurasian Migratory Waterbirds

From the other relevant conventions, Slovakia is party e.g. to the Danube River Protection Convention and Antarctic Treaty.

The Slovak Republic has signed, on a governmental level or on the level of the Ministry of the Environment of the Slovak Republic, bilateral agreements on environmentally oriented co-operation with governments or partner ministries of the following countries (as of 2001): Austria, Canada, Germany, Poland, Turkey, Belarus, Croatia, Hungary, Romania, Ukraine, Belgium, Cuba, Latvia, Russian Federation, Uzbekistan, the USA, Bulgaria, Denmark, Norway, Switzerland, the Czech Republic, the Netherlands.

The European Agreement on Association, signed between the European Community and its member countries on one side and the Slovak Republic on the other, the so-called Association Agreement (Luxembourg, 4th October, 1993), which came into effect on 1st February 1995, contains a special Article 81 "The Environment" on the contractual basis of the co-operation between the Slovak Republic and the EU in the area of the environment (Article 80 on Nuclear Safety, Article 87 on Regional Development and Territorial Planning, Article 70 on Approximation of Environmental Legislation, Article 97 also on the Protection and Restoration of Monuments).

National nature conservation legislation, incorporation of nature conservation considerations into other sectorial policies

Following the political changes after 1989, the altered national legislation also modified the legal framework for nature and landscape protection. In 1994 the Act of the National Council of the Slovak Republic No. 287/1994 on Nature and Landscape Protection, was passed and became effective from January 1, 1995. The Act on Nature and Landscape Protection defined the complex nature and landscape protection, which is differentiated according to the natural values of the areas into five degrees (levels) of protection.
The Act on Nature and Landscape Protection further specified responsibilities of the state bodies during the decision making processes and the approval procedure. The state administration with respect to the nature and landscape protection, is executed by the Ministry of the Environment of the Slovak Republic, the Slovak Environmental Inspection, regional and district authorities. The Act has introduced personal responsibility for the state of nature. The Act, furthermore, has established several economical instruments. For instance, the owner (administrator, user) of the lands is obliged to allow for restrictions which are results of prohibitions and other conditions of nature and landscape protection. If due to this restriction, property loss occurs, the owner is entitled to compensation for the property loss, which is paid by the state. Along with the positive incentives, the Act has also introduced sanctions. First, violation of this Act can result in a fine. Second, the most significant violation of this Act, such as damaging or destroying of protected plant or animal species, cutting of woods growing outside the forest will be classified as a crime, according to the Criminal Code. The person who committed the offence may be either imposed a penalty or jailed up to maximum of 8 years. Third, it is the violator's obligation to restore the damaged, destroyed or negatively affected part of nature and landscape to its previous state.

The Act No. 287/1994 on Nature and Landscape Protection was an organic part of a new national legislation which has been revised since November 1989. This legislation is based on the Constitution of the Slovak Republic (Act No. 460/1990). According to the Constitution natural heritage, underground water, natural healing sources and water streams are owned by the state. The Sixth Part of the Constitution deals with the protection of the environment and cultural heritage.

The Act No. 17/1992 on the Environment is an umbrella law, which has introduced basic terminology with respect to the environment such as the environment itself, ecosystems, ecological stability, carrying capacity, sustainable development, ecological loss and others. In addition, this Act has established principles of environmental protection, including the institute of environmental impact assessment (EIA). The special EIA Act No. 127/1994 was also approved. Apart from above legislation, protection of several components of the environment (such as water, air, soil, forests) and economic activities (forestry, hunting, fishing) are subject to special legislation. Though the Ministry of Land Use of the Slovak Republic is in charge of state administration for agriculture, forestry hunting and fishing, their decision making process is obligatory based on written comments of the nature protection body. The nature protection body also gives comments for other activities, such as building.

The preparation of Slovak Republic to the EU accession in the area of nature conservation has mainly focused on approximation of relevant EU legislation, strengthening of institutional capacities and, in terms of practical actions, on fulfilling the provisions of Birds Directive and Habitats Directive - taking the practical steps towards the establishment of NATURA 2000 in Slovakia. In 2002 crucial national law with respect to nature conservation was finalised and adopted - Act of the National Council of the Slovak Republic No. 543/2002 on Nature and Landscape Protection. The new Act on Nature and Landscape Protection (replacing the Act of the National Council of the Slovak Republic No. 287/1994 of the Legal Codes) aims to be in line with the relevant EU legislation and at the same time reflects the other international concepts and agreements in the area of nature conservation. All EU regulations related to nature conservation were transposed into the above law, especially the Birds Directive and Habitats Directive. The law has been prepared in the light of previous review of national legislation within the EU approximation process (the Integrated EU approximation strategy in the Environmental sector was approved by the Government of the Slovak Republic on December 6th 2001) and is connected with institutional changes - building up the administration capacities.
These institutional changes were partially implemented in 2002 (e.g. 31 new staff persons were accepted in the State Nature Conservancy of the Slovak Republic especially for the EU approximation process). The further review of existing legislation and institutional structure is subject to the actually revised Nature Conservation Policy of the Slovak Republic. This document is based on cross-sectoral co-operation in nature protection.

**State environmental policy of SR**

Biodiversity conservation and its sustainable use is generally considered as important part of the state environmental policy of Slovak Republic. "Preservation of biodiversity, conservation and rational use of natural resources, and optimising the land use" is one of the five priorities of the official State Environmental Policy. In the document "Strategy, Principles and Priorities of the State Governmental Environmental Policy", approved in 1993 by the Government and by the National Council of the Slovak Republic, following objectives in the area of nature protection are explicitly stated:

- **long-term objectives (2010-2050)** - halting the reduction of biodiversity in order to preserve both ecological stability and non-renewable genetic resources; completing a territorial system of ecological stability at a national scale (national ecological network); complete the inventories of biocentres at local and district level and ensure their protection within the fourth and fifth degree* of protection; applying of the second and third degree of protection to significant areas in 30% of the territory, and completing the territorial system of ecological stability in lowlands and plains; reducing the threats to wildlife and facilitating the rescue of critically endangered species;

* Under the Act on Nature and Landscape Protection, five degrees (levels) of protection have been established for territorial protection of nature and landscape. The range of protection increases with each level. The first level of protection is valid in the whole territory of the Slovak Republic. The second to fifth level of protection is valid in protected areas and their protective (buffer) zones. For each level, specific activities are defined which require the prior approval from the nature protection body or are otherwise prohibited.

- **medium-term objectives (2000-2010)** - development of the system of national parks and protected landscape areas (on the basis of the General Framework of the Territorial System of Ecological Stability = National Ecological Network) and protection of biocentres (= core areas according EECONET terminology) (biocentres of national importance as well as biocentres located on national biocorridors), development of biocorridors of national importance; designation of additional bilateral and trilateral protected areas; application of legal and economic instruments regulating access into landscape and incentives for the owners of protected areas; introduction of a system of entries, nature trails and educational centres regulating number of visitors; maintaining and improving specially protected nature areas, mainly national parks; "greening" of municipalities, agricultural and industrial facilities; orienting science and technology towards the environmental problems;

These objectives as been further elaborated in two National Environmental Action Programmes (NEAP) which contain more concrete tasks and projects to improve the state of nature. The first National Environmental Action Programme (NEAP I was approved by the Resolution of the Government of the SR No. 350/1996). The second National Environmental Action Programme (NEAP II was approved by the Resolution of the Government of SR No. 1112 from 16th December, 2000).
Institutional structure for nature conservation, responsibilities allocated

Nature protection as a main component of biodiversity conservation is under responsibility of the Ministry of the Environment of the Slovak Republic (hereafter the "Ministry").

The responsibilities of the Ministry with respect to nature protection are mainly in three areas:

- the state administration at the national level (the Ministry itself is the central body for state administration for the environment) and also at regional and local level,
- the state supervision, especially under the responsibility of the Slovak Environmental Inspection;
- coordination and development of nature and environmental protection and monitoring, with assistance of the specialised institutions established by the Ministry:
  - Slovak Environmental Agency
  - State Nature Conservancy of SR
  - Slovak Caves Administration
  - State Geological Institute
  - Slovak Hydrometeorological Institute
  - ZOO Bojnice
  - Slovak Mining Museum
  - Slovak Museum of Nature Protection and Speleology

The Ministry of the Environment of the Slovak Republic cooperates with other ministries on the issues related to sustainable management of nature and landscape, mainly within the sectors of education, culture, land use, forestry, agriculture, land use and industry. Cooperation between the Ministry and non-governmental organizations is officially considered of high importance, namely with those dealing with environmental education and management of nature.

Decision making system

Institutional framework for environment and nature protection in the Slovak Republic consists of following components:

Legislation:

The National Council of the SR (Parliament) is the only constitution and law-making body of the Slovak Republic, consisting of 150 members of Parliament. There are 18 committees of the National Council of the SR, one of them is also the Committee for the Environment and Nature Protection.

Execution:

- President of SR with the Presidential Office.
- Government of SR

The Government of SR approved a proposal for the implementation of AGENDA 21 and evaluation of sustainable development indicators in the Slovak Republic by the Resolution No. 655 from 16th September, 1997 (135 indicators, including 41 social, 23 economic, 15 institutional and 56 environmental ones, of which 7 indicators on seas, seashores and deserts are not applied in the Slovak Republic) and established the Slovak Republic Government Council for Sustainable Development, chaired by the vice-prime minister, by the Resolution No. 78 from 27th January, 1999.
Jurisdiction:
- Constitutional Court of the SR
- Supreme Court of the SR and other Courts of the SR

Other Central Institutions:
- General Prosecution of the SR
- Supreme Control Office of the SR

Local State Administration Bodies:
- 8 Regional Offices
- 79 District Offices

Local Authorities: in 2,893 municipalities.

Interaction, gaps, bottlenecks, recommendations

Recently, in Slovakia the implementation of PEBLDS has been almost completely overlapped and "shadowed" with the NATURA 2000 implementation process. There are also some overlaps with some other international commitments, namely with the Biodiversity Convention, Bern Convention, Bonn Convention and Ramsar Convention. To overcome these overlaps, the coordination with other international conventions / commitments in the area of nature conservation should be strengthened. In spite of the remarkable progress made during recent years, there is still general lack of priorities and capacities for conservation and sustainable use of biodiversity components, including the threatened species and their habitats, and also insufficient utilisation of the financial resources available, both from the external and domestic resources.

Till now, the sectorial approaches (e.g. in the agriculture, transport, industry, military, forestry, hunting and fishing sectors) have been to a large extent in contradiction to the nature conservation approach. Therefore there is strong need for more sustainable, integrated approach, that would integrate both aspects - conservation and sustainable use of biodiversity components into one concept. Highest priority should be given to the in-situ protection of the most threatened species and habitats.

3. Implementation of the Pan-European Biological and Landscape Diversity Protection Strategy in Slovakia

Introduction

The Slovak Republic adopted the PEBLDS by the signature of the former minister of environment, Mr. Jozef Zlocha, who personally participated at the ministerial conference "Environment for Europe" in October 1995 in Sofia. However, for some reasons the PEBLDS has never been officially discussed at the level of Ministry of Environment of SR, nor in the Government of SR. For this reason the PEBLDS is only listed in some official documents, but it has never been officially implemented. In 1996 the National Secretariat for the Convention on Biological Diversity (NS CBD) was established at the Slovak Ministry of the Environment.
National Secretariat served as the fundamental organisational and co-ordinating unit, and was established as functional National Focal Point for CBD. The secretariat was staffed by two persons, who participated at conferences, workshops and other international activities organised by the Committee of PEBLDS (STRA-CO), and also in the starting of implementation of some of the Action Themes. Ministry of Environment and its Nature and Landscape Protection Division, who should have been responsible for the implementation of PEBLDS has not allocated any funds for it. Nor the specialised institution of the Ministry - Slovak Environmental Agency - which was that time responsible for international commitments also in the area on nature protection (since 2000 new institution - State Nature Conservancy of SR was established, which took over these responsibilities), did not show any interest in the implementation and further development of PEBLDS in Slovakia. In spite of the above described circumstances the official representative (member of National Secretariat for the CBD) was rather active, and was nominated to PEBLDS executive bodies. He also took active part in other activities focused on the implementation of the respective Action Themes and in some concrete projects. For instance, he participated at the preparation of methodology of PEEN (Pan-European Ecological Network), including the preparation and completion of the Indicative map of the ecological network of the Central and East Europe as a pilot project of the action theme 1 - PEEN.

This unfavourable situation continues till now, in spite of some recent positive developments both in the legislation (mainly the new Act No. 543/2002 on Nature and Landscape Protection) and in the institutional structure (establishment of specialised institution for nature and landscape protection under the Ministry of Environment - State Nature Conservancy of SR - since 1st July 2000). Although the State Nature Conservancy of SR since its establishment has achieved remarkable progress, till now it has not been able to develop its technical and personal capacities in extend to fully cover the implementation of all relevant international commitments, including the CBD and PEBLDS. By the decision of the minister, the National Secretariat for the Convention on Biological Diversity was abolished in autumn 2001, and its agenda was substantially reduced. By this decision, even the weak activities, related to the PEBLDS till that time, were further reduced to a state close to zero level. Both agendas - PEBLDS and CBD - has remained in the hands of one person, working at the Ministry, however without the needed establishment of the institutional and professional structures.

One of the main documents, adopted within the process of implementation of CBD was the National Biodiversity Strategy in the Slovak Republic, adopted through Government Resolution No. 231 dating from 1st April 1997 and endorsed by the National Council of the Slovak Republic through Resolution No. 676 from 2nd July 1997. From the 12 Action Themes of the PEBLDS, 11 has been to some extent incorporated in the strategic goals of the Strategy (since Slovakia is inland country, no actions focused on Action Theme 5 - the sea-shore and marine ecosystems - are envisaged). Other Action Themes of the PEBLDS are explicitly mentioned in the Strategy, except for the river and wetland ecosystems (Action Themes 6 and 7). However, these topics are to large extent covered by the national activities under the Ramsar Convention.

Action Theme 0. Pan-European action to set up the process

PEBLDS has contributed (through the UNEP Geneva) to the elaboration of the Framework for the National Biodiversity Strategy, which was developed in late 1995, with the financial assistance from the UNEP. The Framework, developed by experts under the co-ordination of the National Secretariat for the Convention on Biodiversity, outlined that the future strategy would be a complex document embracing all the aspects of the Convention. The Framework, subject to broad formal and informal consultations among different stakeholders, was further developed into the National Biodiversity
The PEBLDS contribution consisted in the expert assistance (consultation with experts, experienced in the development of the strategies of this kind).

**Action Theme 1. Establishing the Pan European Ecological Network**
Several Slovak experts were consulted during the development of the methodology of PEEN, and as consultants, they have also participated in the project "Indicative Map of the Pan-European Ecological Network for Central and Eastern Europe", which was co-ordinated by the ECNC.
Slovak representative, staff member of the National Secretariat for the Convention on Biodiversity (Mr. Straka), was since 1999 till 2000 vice-chairman of the organizing committee of PEEN, which co-ordinated these activities.

**Action Theme 2. Integrating of biological and landscape diversity considerations into sectoral policies**
There is very little if any co-operation with sectors other than the Ministry of Environment on the integrating of biological and landscape diversity considerations into sectoral policies. These sectors themselves often show minimum interest and willingness to do so. This causes the critical situation, that many of the sectoral policies or strategical documents (e.g. recently developed National Development Plan) are not sufficiently reflecting the international commitments of Slovak Republic, or they are even contradictory to these commitments (mainly to the CBD).
Another example can be the Ministry of Defence of SR. There are several large military training areas in Slovakia, with a total area more than 30,000 ha, which are managed by the Ministry of Defence. The value of these military lands for the forest and biodiversity conservation is very high. However, military and other state authorities are often not aware of the conservation values of individual sites and manage them without any regard to the conservation objectives.
For example, recent forest management practices in the Slovak largest military training area Zahorie (West Slovakia) are largely unsustainable and damaging for the biodiversity. Pine monocultures are being planted instead of natural and semi-natural mixed and deciduous forest stands. Large scale clear-cuts are being used as a prevailing logging technique. As a result of planting pine monocultures (which are extremely inflammable), the number of forest fires in dry seasons has increased dramatically. These practices have also resulted in the substantial reduction of forest biodiversity within the area.
There are no relevant strategies or individual actions to safeguard the conservation values of military lands. The sites of the actually national or even international significance for conservation on military lands are yet to be identified and assessed systematically so that recommendations can be made for better management or even protection of the most valuable sites within the military areas. However, till now, because of the lack of the co-operation of the Ministry of Defence, the military areas have been excluded from all nature conservation strategies, programs and projects. Even the most ambitious recent project focused on the establishment of Natura 2000 Network in Slovak Republic, does not involve these large, in biodiversity rich areas at all.

**Action Theme 3. Raising awareness and support with policy makers and the public**
There have been only minimum activities under PEBLDS on this Action Theme with practically zero efficiency. However, there have been also some other activities in this area executed mainly by NGOs and by some state institutions. These activities, however,
can not be related to the PEBLDS, since most of those who are implementing them are not even aware about PEBLDS existence.

**Action Theme 4.  Conservation of landscapes**

Till now Slovak Republic has ignored the European Landscape Convention (ELC) and it did not adhere to the Convention. The Slovak minister of environment did not even accept the invitation by the Italian minister of environment for the honorary opening of the Conference on Landscape in October 2000 in Florence, where the Convention was opened for signatures.

Although there are some provisions on conservation of landscapes in the existing legislation and some actions are taken, these activities have not been connected to PEBLDS.

**Action Theme 5.  Coastal and marine ecosystems**

Does not apply for Slovakia, since it is an inland country.

**Action Theme 6.  River ecosystems and related wetlands**

There have been some activities under Ramsar Convention, but no activities under PEBLDS.

**Action Theme 7.  Inland wetland ecosystems**

There have been some activities under Ramsar Convention, but no activities under PEBLDS.

**Action Theme 8.  Grassland ecosystems**

There have been some remarkable activities, but no activities under PEBLDS.

**Action Theme 9.  Forest ecosystems**

There have been some activities, but no activities under PEBLDS.

**Action Theme 10.  Mountain ecosystems**

No remarkable activities.

**Action Theme 11.  Action for threatened species**

Several Slovak experts have participated in the project "Planta Europea".

There have been also some other remarkable activities, but no activities under PEBLDS.
4. NGO Evaluation and recommendation

In relation to the PEBLDS the most important negative factor, which has recently practically eliminated its implementation in Slovak Republic, is the continuous ignorance and lack of the support by the Ministry of Environment of SR. The most outstanding example is the ignorance of the European Landscape Convention (ELC), that represents the result of the implementation of the Action Theme 4 - Conservation of landscapes, which has been opened for signatures in October 2000 (in Florence). This convention till now has not been discussed at any level, and similarly to the process of implementation of PEBLDS, it is ignored by the Ministry, in spite of the endeavours of the scientific and university institutions (e.g. SEKOS - Slovak Ecological Society, and Department of Landscape Ecology of the Faculty of Natural Sciences at the Comenius University, Bratislava). Although some of these institutions have tried to initiate the ratification of ELC, till now this effort was without any success.

Some other PEBLDS activities have been ignored by the Ministry as well, e.g. International Year of Mountains (2002) that was part of the implementation of the Action Theme 10 and was organised jointly by the Council of Europe and PEBLDS (there were no activities at national level in Slovakia). Slovak Republic, as one of few member states of the Council of Europe, does not contribute financially to any PEBLDS activities (for comparison - all other CEE countries accessing to EU contribute, as well as most of the west European countries. Also for this reason, Slovak Republic has not been officially invited to participate in the implementation of any specific project (only individual experts were invited). There has been also insufficient interest and exchange of information among Slovak NGOs about the PEBLDS. Till now, no Slovak NGO actively participates in PEBLDS related activities, coordinated by IUCN.

There is no sectorial (at the Ministry of Environment) or intersectorial task force or working group, which would assess the process of implementation of PEBLDS at the national level, and there is also no presentation of this process in media. Furthermore, in the present situation the most attention of politicians, professional conservationists, NGOs and media is attracted by the accession process to the EU. In this respect, the nature conservation topics are considered to be covered to large extend by the NATURA 2000 related activities, and therefore the PEBLDS remains in the "shadow" of this process. There are not sufficient institutional capacities to deal properly with the international cooperation (especially with the implementation of PEBLDS and CBD). Often the reduced personal and other capacities (generally the absorption capacity of Slovak Republic is very low) does not even allow to use the available assistance offered by the EU and by other international funds and donors. For example, in 2002 Slovak Republic was for the first time eligible for funding under the LIFE Nature Programme of EC.

However, only five applications were submitted totally, and from this number only one was submitted by the State Nature Conservancy, the remaining four applications were submitted by NGOs. The implementation of other international commitments in the area of nature and environmental protection is also far from being sufficient. There is lack of coordination among the individual conventions, programmes and projects.
Recommendations:

At international level (Council of Europe, Secretariat of PEBLDS, EHF, CEEWEB):
- provide regular feedback about the state of the general implementation of the PEBLDS, as well as on respective Action Themes, in the individual countries ("PEBLDS barometer")
- establish more strict reporting requirements to the member states (signatories of PEBLDS), similar to some other international conventions, to promote more active approach to the implementation of PEBLDS in some countries (e.g. Slovak Republic)
- provide more information to the member states about funding possibilities (resources available) for the financing of the projects and activities related to the PEBLDS implementation

At the national level (Ministry of Environment of SR, State Nature Conservancy of SR)
- clearly identify priorities and responsibilities in nature and landscape protection in general, and with special regard to the international commitments of SR
- introduce the principle of individual responsibility for the implementation of the international and other commitments in the area of nature protection at the relevant state institutions
- strengthen institutional capacities (mainly of the Ministry of Environment and State Nature Conservancy) to deal with the implementation of PEBLDS
- re-establish the joint National Secretariat for the Convention on Biological Diversity and for PEBLDS as a fundamental organisational and co-ordinating unit, to serve as national focal point both for CBD and PEBLDS, and eventually also for some other international conventions and agreements related to nature and landscape protection
- allocate sufficient financial resources from the state budget for the implementation of PEBLDS
- ensure full involvement of other relevant sectors to the implementation of PEBLDS (e.g. Ministry of Foreign Affairs, Ministry of Land Management)
- promote the involvement of NGOs, awareness of general public and media on the implementation of PEBLDS
- every year contribute financially to the Council of Europe to support some specific PEBLDS projects or activities, with the amount relevant to the contributions of the other CEE countries accessing to EU

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NGOs dealing with PEBLDS topics:

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DAPHNE - Institute of Applied Ecology (Action Themes 6., 7. and 8.)
SOVS - Society for Protection of Birds in Slovakia (Action Theme 11.)
SVODAS - Society for Research and Protection of Birds of Prey and Owls (Action Theme 11.)
WOLF - Forest Conservation Association - protection of forest habitats and large carnivores, sustainable forestry (Action Theme 9. and 11.)
SLOVENIA

Introduction

The Republic of Slovenia (capital city is Ljubljana) lies in the middle of Europe where the Alps and the Mediterranean meet the Pannonian plains and the Karst. Slovenia has a population of 2 million. The official language is Slovene. Slovenia measures 20,273 km² and has 46.6 km of sea coast.

History. The Slavic ancestors first settled in the area in the 6th century AD. In the 7th century the Slavic Duchy of Carantania was established, the first Slovene state which in AD 745 becomes part of the Frankish empire; the Slavs convert to Christianity and gradually lose their independence. From the 14th century to 1918 all the Slovene regions belonged to into the possession of the Habsburgs, later the Austro-Hungarian monarchy. In 1918 the Kingdom of Serbs, Croats and Slovenes was formed, in 1945 Federal Peoples' Republic of Yugoslavia. In April 1990 the first democratic elections took place, still in the former Yugoslavia, and on 23 December 1990 88.5% of voters at the referendum vote in favour of an independent Slovenia. On 25 June 1991 Slovenia officially declared its independence. On 1 February 1999 Association Agreement with the EU comes into effect.

Economy. Slovenia is among the most successful of the countries in transition from socialism to a market economy. It boasts a stable growth in GDP and ranks among the countries with the lowest degree of risk. The completed privatisation process and other measures are increasing the competitiveness of its economy directed towards the EU. GDP per capita: 9,451 USD (2001). Growth in gross domestic product (GDP): 4.6% (2000), 3.0% (2001). Standardised rate of unemployment (ILO): 6.4% (2001). Inflation rate (%): 7.5 (2002). External Trade: Exports (in Mio USD): 10,357 (2002); Imports (in Mio USD 10,929 (2002); Export/import ratio (%): 91.2 (2001). Major external trade partner countries (2002): Exports: Germany, Italy, Croatia, Austria, France. Imports: Germany, Italy, France, Austria, Croatia. NGO movement. Number of NGOs active in many different fields boosted after independence and introduction of democracy after 1990-91. Now there are some 150 environmental NGOs with some 25% of them very active.

1. State of nature and nature conservation

Introduction and natural features of the country

The small territory of Slovenia is characterised by a rich diversity of plant and animal species, ecosystems and landscapes. This rich diversity results from Slovenia's transitional position at the contact area of tectonic units and biogeographical regions (the Mediterranean, Pannonian, Alpine and Dinaric), changing relief (from the sea bottom to the altitude of 2,864 m) and its diverse geological, pedological, climatic and hydrological conditions. The Slavic, German and Roman cultures influencing human activities has also contributed to the rich cultural and landscape diversity of the present.
Main characteristics: Geology: juncture of four geotectonic units: Eastern Alps, Dinarids, Pannonian Basin, Adriatic- Apulian foothills (Placer, 2000), diverse rock structures. Biogeographic regions: the Alps (30 %), the Dinaric Mountains (30 %), the Mediterranean Basin (10 %), and the Pannonian Plain (30 %), covering a total area of 20,273 km2, give the country an ecotone character. Relief: varied relief, altitude above sea-level 0 to 2,864 metres 1/6 of the territory is of Quaternary sediments, some 44 % carbonate bed-rock, mainly karstified areas (over 7,000 caves registered). Hydrological: two drainage systems: 2/3 to the Black Sea, 1/3 to the Mediterranean Sea; five catchment areas: the Soèa, Sava, Drava in Mura rivers, and the Slovenian Littoral relatively large karst area with no surface streams. Vegetation cover: 56 % of the territory covered by forests 36 % of the territory is agricultural land. Flora: about 3,200 vascular plants; 60 endemic taxa, including 22 narrow endemics with predominant distribution in Slovenia. Fauna: about 13,000 - 15,000 species (expected 50,000 up to 100,000); about 4,000 endemic taxa (above all cave animals).

In Slovenia, well preserved forests, mountain areas and freshwater underground ecosystems with the high diversity of plants and animals, including many endemic species, and the diverse ecosystems are of particular importance. The natural features and the limited impact of the economic factors in the past are the reason for the relatively high biodiversity in Slovenia. However, the data show that it has declined in the last decades. The development of industry and agriculture, the construction of transport infrastructure and the urbanisation have contributed significantly to the pollution of surface and underground waters, soil and air and to the degradation of specific areas. The result is the biodiversity loss at the ecosystem, species and genetic levels and loss of landscape diversity.

Biological diversity with special attention to the international importance

Habitat types

Almost the entire territory of Slovenia would have been covered by forests if there had been no human impact (thinning of forests, land use for agricultural production, drainage of wetlands, modifications to the coast and canalisation of watercourses, mining, construction of roads, urbanisation, etc.) As a consequence of human activities, the plant and animal species had been forced to find refuge in rather small areas. Many habitats, like lowland forests and wetlands (bogs, fens and reed beds) have locally disappeared and with them the populations of species characteristic of such habitats.

On the other hand, new landscapes, such as pastures, grasslands, fields, have been created which often interchange with the remains of forests, hedges and watercourses. Large mammals (brown bear, wolf, European lynx etc.) withdrew to the remote parts of their primary habitats, some species became extinct, others adapted to the new agricultural landscapes.

The typology of habitats was prepared in 2001, based on the PHYISIS system for habitat coding. There are 7 types of habitats at the first level, followed by 35 subtypes at the second level:
In Slovenia, more than 2,000 species were identified as endangered in 2001. Some of them are included in the lists of species for which conservation measures are required in accordance with the international regulations. More than 300 such species are found in Slovenia. The reasons for the decline in the populations of species are the direct destruction of specimens or the loss of their habitats.
Most of the species on the Slovenian Red Data List are species which are threatened because of the loss of their habitats. Some habitats are more threatened than others because of their specific traits (rare bedrock formations - 'mrazišča') and in general declining (wetlands).

**Biological Corridors**

No special biological corridors have been established so far.

**Species and Genetic Diversity**

According to the data compiled, the diversity of species in Slovenia is extremely high, despite the smallness of its territory. Only a small proportion of the species that are believed to live in Slovenia has so far been identified. Approximately 22,000 species have been recorded. The estimated number is between 50,000 and 120,000, which reflects the outstandingly rich biodiversity for such a small area.

**Genetic diversity of crops and domestic animal breeds**

Crops: Indigenous cultivars and populations named after Slovenian settlements and regions are evidence that our ancestors had been breeding these plants for centuries. Varieties of some of the indigenous cultivars have been selected and entered in the list of varieties, such as: *salad Ljubljanska ledenka* (included in the European list as Laibacher Eis), *cabbage Ljubljansko zelje*, *rampion Ljubljanski motovilec*, *carrot Ljubljansko korenje*, *onion Ptujska rdeča eebula*, *garlic Ptuijski spomladanski ėesen*, *Ptuijski jesenski ėesen*, *chicory Goriški radiè*, *beans Ribnišan*, *Jeruzalemski šol*, *hop Savinjski golding*, *stubble turnip Kranjska okrogla repa*, *Kranjska podolgovata repa*, *olive tree Istrska belica*, *apple trees Dolenska vošèenka*, *Gorenjska vošèenka*, *Goriška sevka*, *Štajerski mošancelj*, *apricot tree Pišeška marelica*, *cherry tree Vipavska ěešnja*, *pear tree Tepka and vine Bela glera*, *Briška glera*, *Cundra*, *Danîjela*, *Diêeka*, *Dolga petljá*, *Klarnica*, *Osipka*, *Pinela*, *Pergolin*, *Planinka*, *Poljåkica*, *Racug*, *Radgonska ranina*, *Ranfol or Štajerska belina*, *Reèigla*, *Rozica*, *Sladkoèica ali Sladkoèrn*, *Verbena*, *Volovnik*, *Vrtovka*, *Zelen*, *Zelenika*, *Zunek - durelo*, *Zametovka*.

Domestic animal breeds: In Slovenia the breeding of domestic animals was already well developed in the Middle Ages. At the beginning of the 20th century the number of domestic animals was higher than today; indigenous breeds used to be a main source of income for many farms in Slovenia. Nowadays, many breeds are lost or hybridised and others are only preserved in extremely low numbers.

**Table 1: Number and degree of threat of specific Slovenian indigenous domestic animals in 2000** (Source: Biotechnical Faculty Ljubljana, Department for Zootechnology).

<table>
<thead>
<tr>
<th>Breed</th>
<th>Year</th>
<th>Estimated number</th>
<th>Degree of threat</th>
</tr>
</thead>
<tbody>
<tr>
<td>Lipicanec - horse</td>
<td>1999</td>
<td>600</td>
<td>Endangered population</td>
</tr>
<tr>
<td>Cika - cattle</td>
<td>2000</td>
<td>400</td>
<td>Endangered population</td>
</tr>
<tr>
<td>Jezersko-Solèavska ovca - sheep</td>
<td>2000</td>
<td>4,500</td>
<td>Vulnerable population</td>
</tr>
<tr>
<td>Bovška ovca - sheep</td>
<td>2000</td>
<td>1,500</td>
<td>Vulnerable population</td>
</tr>
<tr>
<td>Istrska pramenka - sheep</td>
<td>2000</td>
<td>600</td>
<td>Endangered population</td>
</tr>
<tr>
<td>Belokranjska pramenka - sheep</td>
<td>2000</td>
<td>250</td>
<td>Endangered population</td>
</tr>
<tr>
<td>Krškopoljski prašiè - pig</td>
<td>2000</td>
<td>300</td>
<td>Endangered population</td>
</tr>
<tr>
<td>Štajerska grahasta kokoš - hen</td>
<td>2000</td>
<td>1,000</td>
<td>Vulnerable population</td>
</tr>
<tr>
<td>Kraški ovèar - dog</td>
<td>2000</td>
<td>950</td>
<td>Endangered population</td>
</tr>
</tbody>
</table>
Slovenski planinski goniè - dog 2000 35 Critical situation
Posavski goniè - dog 2000 470 Endangered population
Resasti istrski goniè - dog 2000 460 Endangered population
Kratkodlaki istrski goniè - dog 2000 1,020 Vulnerable population
Kranjska ´ebela 1999 162,000 beehives Stable situation
Carniolan honeybee (Apis mellifera Carnica)

Genetic diversity of forest woody plants

It is generally believed that the established concept of sustainable management in Slovenian forestry ensures the genetic diversity of the complex of biological components in forest ecosystems. This belief arises from ignorance of the actual genetic diversity, affected by the introduction and promotion of spruce in the past, the selective forest cultivation measures, supporting only individual tree species, the introduction and uncontrolled transfer of propagating material, the selective human impacts on forests - in particular the pollution of environmental media and climate change - the ignorance of the biocomponents of the forest soil, the biology of symbionts and pathogens of the forest trees, etc. Despite the traditionally sustainable forest management and the long-lasting expert work on the forest gene bank the origin of some of the prevailing tree species found in Slovenian forests is not known. Problematic species are in particular: spruce, which was uncontrollably transferred across Central Europe; even the origin of seed in the seed bank is doubtful; oak, in particular English oak and sessile oak, whose origin is not clear; oak species are also a taxonomic problem because the species are cross-breeding; the data provided in the Forest inventory issued by the Slovenian Forest Service do not reflect the actual status; fir, whose natural rejuvenation is hindered by the abundant game. Rare and endangered species or species, whose distribution boundary is in Slovenia, are Taxus baccata, Sorbus domestica and Sorbus torminalis, Ulmus glabra, Ulmus minor, Ulmus laevis, Castanea sativa, partly endangered species like Pyrus pyraster, Malus sylvestris and Juglans regia. In addition to the mentioned, other rare, mostly sub-Mediterranean, species of Slovenian forests are also endangered. Amongst them are: Laurus nobilis, Mespilus germanica, Pyrus amygdaliformis, Cercis siliquastrum, Pistacia terebinthus, Acer obtusatum, Acer tataricum, Ilex aquifolium, Quercus crenata, Quercus ilex, Celtis australis and Phillyrea latifolia.

Priority Areas from nature conservation point of view

Establishment of nature protection areas (regional and landscape parks) and first of all establishment of Natura 2000 network.

Human Impact

The result of human impact is that the natural habitats in Slovenia are getting smaller, their fragmentation is continuous and their ability to support life is reduced; the isolation of small populations causes that they are no longer capable of maintaining the biologically important links to larger gene pools of the primary ecosystems. The number of threatened species is continuously increasing. One of the main obstacles to assessing the situation is the insufficient availability and quality of data on ecological parameters for specific habitats and the needs of the species that populate these habitats. In spite of its incompleteness, the overview of the habitats shows the richness of Slovenia in the main habitat categories.

Invasive species. For Slovenia, data are available for plants and freshwater fishes. The highest proportion of invasive plant species is in ruderal habitats (e.g. along railway lines and streets, in landfills, etc.), clear-cuts and riparian communities of tall herbs where non-indigenous species have entirely out-competed the native ones (e.g. Impatiens glandulifera, Echynocystis
lobata, Fallopia sp.). Among the woody invasive plants, Ailanthus altissima and Robinia pseudoacacia spread considerably. Out of them, seven reproduce successfully. Mosquitofish (Gambusia affinis) was introduced in the Primorska region to reduce the number of mosquitoes, while other fishes were mainly introduced to increase the number of angling fishing species. The American trout is spawning wherever it has been introduced and it has spread all over Slovenia. It is successfully invading the native species, brown trout and grayling. Pumpkinseed and largemouth bass are also on the list of invasive species (illegally introduced also into the accumulation lake of Vogersèek). Ctenopharyngodon idella has been successfully introduced into stagnant waters threatening water plants and, in turn, all the vegetation-dependent species. Two species, Chondrostoma genei and Chondrostoma soet, have become extinct in the Adriatic catchment due to the introduction of nase (Chondrostoma nasus) native to the Danube catchment.

2. Nature conservation with an outlook to the significant changes occurred in the recent past and their implications

International commitments

Table 3. International biodiversity related conventions ratified by Slovenia

<table>
<thead>
<tr>
<th>SHORT NAME</th>
<th>STATUS IN SLOVENIA</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>GLOBAL CONVENTIONS</strong></td>
<td></td>
</tr>
<tr>
<td>Ramsar Convention</td>
<td>notification in 1992 (Ur. l. RS, 15/92)</td>
</tr>
<tr>
<td>Paris Convention</td>
<td>notification in 1992 (Ur. l. RS, 15/92)</td>
</tr>
<tr>
<td>Washington Convention</td>
<td>ratified in 1999 (Ur. l. RS, MP* 31/99)</td>
</tr>
<tr>
<td>Bonn Convention</td>
<td>ratified in 1998 (Ur. l. RS, 72/98, MP 18)</td>
</tr>
<tr>
<td>Rio de Janeiro Convention</td>
<td>ratified in 1996 (Ur. l. RS, 30/96, MP 7)</td>
</tr>
<tr>
<td><strong>REGIONAL CONVENTIONS</strong></td>
<td></td>
</tr>
<tr>
<td>Bern Convention</td>
<td>ratified in 1999 (Ur. l. RS, 55/99, MP 17)</td>
</tr>
<tr>
<td>Florence Convention</td>
<td>signature and ratification under way</td>
</tr>
<tr>
<td>Aarhus Convention</td>
<td>signed in 1998; ratification under way</td>
</tr>
<tr>
<td>Salzburg Convention</td>
<td>ratified in 1995 (Ur. l. RS, 19/95, MP 5)</td>
</tr>
<tr>
<td>Barcelona Convention</td>
<td>notification in 1992 (Ur. l. RS, 15/92)</td>
</tr>
</tbody>
</table>

National nature conservation legislation, incorporation of nature conservation considerations into other sectoral policies

The Constitution of the Republic of Slovenia gives the grounds for regulation environmental protection and nature conservation. In its general provisions it is laid down that the State provides for the preservation of the natural wealth and creates opportunities for the harmonious development of society and culture in Slovenia. The Constitution stipulates that the acts and other regulations have to comply with the principles of international law and the international treaties which oblige our country. This provision is of great importance for the nature conservation and the protection of the environment because the relevant conventions
form a constituent part of Slovenia's legislation. With regard to the hierarchy of legal acts, the laws and executive regulations which have not been harmonised or are in contradiction with the mentioned conventions and international treaties may not be applied pursuant to these provisions.

**Environmental Protection Act** (EPA) is a fundamental act regulating the objectives and principles of environmental protection. The purpose of the legislation is to protect the closely connected living and natural environment and to direct the developmental processes and activities affecting the environment based on the balanced developmental and environmental needs. The EPA provides the principles, the basic instruments and the institutes for the regulation of the legal protection of the environment which form a framework for the preparation of all other acts regulating the specific environmental protection fields. With regard to the natural assets (natural public good, natural resources, valuable natural features, natural wealth) the EPA sets only the general directions that have to be taken into account and discussed in sectoral acts (Agricultural Land Act, Waters Act, Forests Act, Nature Conservation Act, the regulations concerning mineral raw materials, game, fish, air, etc.).

Pursuant to the Environmental Protection Act, the Government had drawn up the National Environmental Action Programme adopted by the National Assembly. In the programme the objectives, directions and strategies for the protection of the environment and the use of natural assets have been defined for the next ten years. Within the NAEP a framework programme for the biodiversity conservation until 2008 and the programme of measures until 2003 are included. Its basic objectives in the field of the biodiversity conservation are: BIO 1: to prevent the reduction of biological diversity at the ecosystem, species and genome levels; BIO 2: to prevent further threats to natural equilibrium of ecosystems caused by inappropriate exploitation of animal and plant species.

The EPA provides ENVIRONMENTAL PROTECTION MEASURES, many measures and procedures are also important also for biodiversity conservation:

**The Nature Conservation Act** (the NCA) is the fundamental regulation in the field of the conservation of biodiversity of wild plant and animal species. The conservation of biodiversity in nature is closely linked to the maintenance of the natural equilibrium. In order to protect the environment, the measures for the biodiversity conservation have been determined and the system for the protection of valuable natural features established. The biodiversity conservation measures regulate the protection of wild plant and animal species, including their genetic material, habitats and ecosystems. The system for the protection of the valuable natural features lays down the procedures and methods for the designation of the status of a valuable natural feature and for their protection. Both systems are combined and complemented to ensure the effective nature conservation. The NCA establishes a general conservation regime for all wild plant and animal species. The regime is based on the fundamental limitations and prohibitions and on the detailed rules of conduct stipulated by the Government. The general conservation of plant and animal species stipulates the minimum rules of conduct which have to be respected by all the entities involved and which apply to all human activities. In compliance with the environment conservation development, only those human activities are permitted which meet human needs in a reasonable manner. Pursuant to the NCA, the nature conservation measures and the system for the protection of valuable natural features are taken into account in the spatial planning and in the use and exploitation of natural assets in a way stipulated by the law. In the NCA, the biodiversity conservation measures are divided into different groups, i.e. the conservation of diversity at the genetic, species and ecosystem levels.
Other more relevant legislation:

**Caves Protection Act** will regulate the protection and use of caves as particularly threatened habitats, and the restoration of the polluted and damaged caves.

**Animal Protection Act** regulates the public responsibility to protect animals (their life, health and welfare). In view of the biodiversity conservation this act is of extreme importance for the protection of species. Its provisions also apply to wild animals.

**Legal framework for the sustainable use of the components of biological and landscape diversity**

Sectors which directly exploit the components of biodiversity are: forestry, agriculture, hunting and fisheries and the water management sector; other sectors have a more indirect influence (transport, industry, tourism etc.). All these activities are regulated by sectoral acts. Unfortunately, most of these acts do not incorporate the principles of biodiversity conservation and the sustainable use of its components. The exceptions are the forestry sector and, lately, agriculture. The strategies and development programmes of other sectors comprise only a few strategic objectives and directions for the biodiversity conservation. The only exceptions are the strategy of economic development and the regional development strategy, where the first steps in this direction had been taken.

**Forests Act** regulates the conservation, protection, cultivation, exploitation and use of forests as natural wealth in a manner to ensure their sustainable and multipurpose management in compliance with the principles of protection of the environment and valuable natural features, and the optimum functioning of forests as ecosystems.

**Agriculture Act** defines the objectives of the agricultural policy, planning of the agricultural and rural development, the measures of agricultural policy, etc. Rural development plan adopted in December 1999 declares that the development of the countryside significantly affects biodiversity and nature conservation in the major part of Slovenia. The international and national legislation concerning biodiversity conservation through the in situ conservation of endangered species' habitats and endangered habitats are still not taken into account. In the substantive part of the Rural Development Plan - the strategy and priority tasks for acquiring assistance from the European Agricultural Guidance and Guarantee Fund (EAGGF) - the assistance for the measures concerning biodiversity conservation has not been provided for. This deficiency has been partly covered by adoption of the Agri-Environmental Programme of Slovenia, but the trend towards depletion of biodiversity has still not been halted.

**Agri-Environmental Programme of Slovenia** (SKOP) reflects substantial progress for the established management and a transition towards environment friendly agriculture. The programme is divided into three sections which determine the nature and content of the measures concerning direct payments: Section I: reduction of negative effects of agriculture on the environment; Section II: conservation of natural attributes, biodiversity, soil fertility and traditional cultural landscape; Section III: protection of protected areas.

Rules on organic production and processing of agricultural products and/ or food regulate organic farming.

**Agricultural Land Act** regulates the use of the agricultural land and its protection, the trade in it and the lease conditions, the agrarian operations and the management of common pastures. None of the measures, requirements, conditions and procedures concern the nature conservation.

National Farmland and Forest Fund Act stipulates the setting-up of the Fund of the Republic of Slovenia for Agricultural Land and Forests and its tasks, competencies, rights and obli-
Seeds and Propagating Materials Act regulates the production, processing and placing on the market of seeds and propagating materials intended for agricultural and forestry production, etc. The provisions of this Act concerning the species and genetic diversity conservation could be important for biodiversity conservation, but unfortunately no relevant measures have been adopted.

Freshwater Fisheries Act regulates the protection and breeding of fish and the designation of fisheries, fishing areas and districts. It specifies the fishbreeding plans, regulates the fishing activities in open waters, establishes and regulates the functioning of the fishing organisations and lays down the competencies and responsibilities of the fishing inspection. For biodiversity conservation, several measures are important.

Hunting Law regulates the protection, breeding, hunting and use of game (hunting) and the management and maintenance of hunting grounds for the conservation of the balance between game and plants in the environment. Several measures of the Hunting Act are directly or indirectly relevant to biodiversity.

Water Act (1981): The relevant measures relate in particular to the protection of the human environment and drinking water supply but are also important for the biodiversity conservation.

Spatial Planning Act defines spatial planning as the protection of a public good. It regulates the purposeful land use, the directions for the development of activities and their spatial organisation.

The act regulating the management of genetically modified organisms regulates the management of GMOs and stipulate the measures for the prevention of their possible detrimental effects on the environment, in particular on the conservation and sustainable use of biodiversity, and human health, as a result of the contained use of GMOs, their deliberate release into the environment and their placing on the market.

Institutional structure of nature conservation, responsibilities allocated / decision making system, Ministries, Parliament, Agencies, Scientific support, NGO participation

NATIONAL ASSEMBLY OF THE REPUBLIC OF SLOVENIA adopts the laws, programmes and other documents which are important for the biodiversity conservation. It has established the Council for Environmental Protection whose tasks concern the biodiversity conservation. The Council is a civil society institution and it deals with the protection of the environment and nature. The Committee for Infrastructure and the Environment is, as a working body of the National Assembly, responsible for the preliminary reading of the material covering the field of nature conservation and thus biodiversity as well.

GOVERNMENT OF THE REPUBLIC OF SLOVENIA adopts the executive regulations and directs and harmonises the implementation of policy decisions through the competent ministry. In 1997 the Government established the Council for Sustainable Development whose tasks also include the nature conservation issues.

Ministry of the Environment and Spatial Planning The Nature Conservation Department within the Ministry makes decisions, implements the nature conservation policy and harmonises the intersectoral projects and strategies which have an impact on the nature conservation (7 employees).

Environmental Agency of the Republic of Slovenia is a body within the Ministry of the Environment and Spatial Planning. It covers various working areas of the ministry (nature conservation, environmental protection, water management, hydrology, meteorology, moni-
toring of the state of the environment, geophysics, rehabilitation). There are 21 civil servants employed in the field of nature conservation which is 5.3 % of all the Agency's staff.

Nature Conservation Institute of the Republic of Slovenia. The Institute has been conferred powers to issue environmental protection consents and guidelines, to keep the register of valuable natural features and the records and data bases in compliance with the law, to guarantee the uniformity of methods and procedures, to implement the technical supervision and direct control of the designated areas and to grant consents in the procedure for obtaining consent for legal transactions on the real-estate located in protected areas. Currently 40 experts are employed at these institutes. In compliance with the new legislation these public services are planned to be reorganised.

Management institutes. By 2001 three management institutes had been established (Triglav National Park, Škocjanske jame Regional Park and Kozjansko Regional Park), and one concession granted (Škocjanski zatok Nature Reserve). These three public institutes have 71 employees. The manager of the protected area carries out the management, protection, technical and control tasks in the protected area. He/she also draws up a management plan proposal, cooperates with local communities, and manages real-estate located in the protected area, if stipulated by the instrument of protection; guarantees the protection of valuable natural features; presents the protected area and carries out other tasks in compliance with the Nature Conservation Act.

Stewardship of valuable natural features On the basis of a public tender the steward of the Sečoveljske soline Landscape Park has been selected.

Inspection of the implementation of the provisions of the Nature Conservation Act is carried out by the inspectors responsible for the nature conservation at the Inspectorate for the Environmental and Spatial Planning.

NGOs.

In the areas which are important for the biodiversity conservation societies/associations mainly participate in the field work, in the public awareness raising and advocating their ideas. The institutes and institutions function as non-profitable providers of services on the market and as advocates of their ideas. In the past, mainly the environmental NGOs and their members made an important contribution to biodiversity conservation and the implementation of the activities concerning the Convention on Biological Diversity. So far, the NGOs have helped to conserve biodiversity by the collection of data on natural heritage and the state of biodiversity and by their active participation in the preparation of strategic documents. A more detailed presentation of the Slovenian environmental and nature conservation NGOs is available on the REC homepage (http://www.rec-lj.si). In 2000-01 a Programme of cooperation between environmental NGOs and the Ministry of the Environment and Spatial Planning has been developed - 'Partnership for the Environment'. The programme sets the specific objectives, mechanisms and activities for the establishment of efficient cooperation.

Interactions, gaps, bottlenecks, recommendations

The effectiveness of the work on the institutional level suffers from the overall and deep changes in the political, administrative and social system that are an important cause of changes or imbalances in the institutional mandates. Capacity constraints in the management of Institutions are a lack of qualified and properly skilled personnel to manage institutions in the condition of a market economy, resulting in weak management, oversight and enforcement, lack of team work within the institutions. Capacity constraints in the Staff Management
Policies: salary structures and the incentives system within the public institutions not possibly affect the individuals' motivation, general lack of certain professions working in the area of biodiversity due to deficiencies in education system. Capacity constraints in the Financial Resources framework: public institutions in general, and particularly those of the environment, education and research sectors tend, to be underfunded to the extent that it hinders their effective functioning. The availability of Human resources such as lack of qualified staff in the public sector, lack of opportunities for decision makers to receive training in novel concepts relevant to sustainable development, including biodiversity conservation, gaps in curricula at all academic levels, environmental education lacks an economic background, education in social and economic fields lacks a background on environmental issues, hence the general level of understanding of linkages between the environment and development is low, and the consequences of biodiversity loss are not understood, lack of qualified lectureres in certain fields, particularly in environmental policy and economies and in environmental communication. On Individual level there is a critical lack of environmental economists, environmental lawyers and bank analysts concentrating on the economic and financial analysis of environmental and nature conservation projects. An important general deficiency is also the lack of training opportunities, on the one hand, and the lack of interest in adequate training on the other.

References:

3. Implementation of the PEBLDS

Action Theme 1: Slovenia is taking part in the establishment of the Pan-European Ecological Network with Emerald pilot project, as a part of preparation for Natura 2000.

Action Theme 2.: Integration of biological and landscape diversity consideration into sectorial policies is the basic part of the implementation of CBD Convention; in Slovenia there are activities related to this issue mostly in agriculture and forestry.

Action Theme 3.: Raising awareness and support with policy makers and the public: communication projects are part of implementation of CBD Convention and Natura 2000 project. Some projects are part of Dutch connection and in connection with experts from IUCN Commission (a MATRA project for setting up the basis for the establishment of the Sneznik Regional Park).

Action Theme 4.: Conservation of Landscapes: National Office for Spatial Planning (Ms. Blanka Bartol) has an overview on the activities. There were no concrete actions. 5 books were published that are dealing with the topic
**Action Theme 5.** Coastal and marine ecosystems and

**Action Theme 6.** River ecosystems and related wetlands and

**Action Theme 7.** Inland wetland ecosystems

These Action Themes (5-7) are not a part of the Slovenian PEBLDS Programme anymore.

**Action Theme 8.** Grassland ecosystems: activities in accordance with Natura 2000.

**Action Theme 9.** Forest ecosystems:

No special activities, Agency of Environment cooperates with the Department of Forestry at the Biotechnical Faculty in Ljubljana.

**Action Theme 10.** Mountain Ecosystems

In Slovenia is not the topical subject, there are no important threats.

**Action Theme 11.** Actions for threatened species:

Activities in connection with Bonn and Bern Convention.

The formal protection status of species in Slovenia threatened on the European level: all are included in the Slovenian Red Data lists, but not all of them are protected formally yet. New Act is expected at the end of 2003.

There were no specific measures (besides legal acts) related to the species that are subject to the prohibition of hunting (Annex 5). There are some measures for sustainable use of habitats of threatened species: in agriculture (agri-environmental programme), forestry and in the regimes of protected areas.
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