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HUNGARY:

FIRST NATIONAL REPORT
ON THE IMPLEMENTATION OF
THE CONVENTION ON BIOLOGICAL DIVERSITY

by the GEFAJNEP Project entitled

National Biodiversity Strategy and Action Plan and First National Report to the Convention on Biological Diversity (CBD) of Hungary

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EXECUTIVE SUMMARY

1. Introduction

- Article 26 of the Convention on Biological Diversity (CBD) states that each Contracting Party shall, at intervals to be determined by the Conference of the Parties (COP), present to the COP, reports on the measures taken for the implementation of the provisions of the Convention. The 2nd Meeting of the COP (Jakarta, 6-17 November, 1995) decided that the 1st National Report will focus on the measures taken for the implementation of Article 6 of the CBD as well as the information available on biological diversity (Decision II/17). Article 6 of the CBD specifies "General Measures for Conservation and Sustainable Use" as: a.) development of national strategies, plans or programmes for the conservation and sustainable use of biological diversity and (b) integration of conservation and sustainable use of biological diversity into relevant sectoral or cross-sectoral plans, programmes and policies.
- Hungary is just developing its national strategy and action plan on biological diversity (biodiversity) in the framework of a project to be accomplished at the end of 1998. However, several strategic documents including also biodiversity, had been drawn up by various institutions during 1992-1997. The first priority as reflected by these documents and the basic need due to the political and economic transition of the country was the establishment of appropriate new legislation, that also legalises the objectives of various international conventions and programmes in which Hungary participates. Thus, several general measures have been taken to implement the CBD.
- The First National Report is intended to give an account on these measures and to summarise information on the state of biodiversity, in accordance with the Decision II/17 of the Conference of the Parties to the CBD and the document UNEP/CBD/SBSTTA/3/Inf. 16.

2. National goals and objectives and the CBD

- Hungary ratified the CBD in February 1994 and it has been enacted by the Parliament as an Act (No. LXXXI of 1995). In harmony with the country's tradition in nature conservation and with the growing public awareness of environmental problems, Hungary is committed to performing the objectives of the CBD.
- The conservation of biodiversity, the sustainable use of its components and the sharing of benefits arising out of their utilisation (CBD Article 1) are reflected by several new laws, enacted since the adoption of the CBD, on the conservation and use of biological resources and also on other related fields. The acts on the environment, on nature conservation, on game protection management and hunting, on fishery, on forest and forest protection, on local governments, together with their enacting clauses and the legislation on impact assessments, all implement the appropriate principals and goals of the CBD.

- They are also included, for the next 6 years in the "National Environmental Protection Programme" (NEP) approved recently by the Parliament.
- The legislation on patents is harmonised with European legislation and its further development will be harmonised with the international changes relating to intellectual rights,
- Hungary is also party to most of the other relevant international conventions. The area of Ramsar-sites has been increased recently (19 sites, 149,000 ha). Hungary uses every effort to implement the CMS, CITES, Bern Convention and the Pan-European Landscape and Biodiversity Strategy as the European initiative to implement the CBD, endorsed also by the Hungarian Minister of the Environment in Sofia, 1995.

3. **Background, status and management of biodiversity**

- Hungary is situated in an overlapping zone of various biogeographical regions. Its territory is considered as a gene-bank and the juncture of several elements of the Eurasian fauna and flora. The resulting biodiversity, in comparison with the rest of Europe, has survived in a relatively good state in spite of the fact that it is basically determined by the population density (115 capita per square kilometres) and by the agriculture, forestry and water management. Nearly 70 % of the territory is utilised by agriculture, 19 % is now covered by forests (as a consequence of recent increase), about 2 % by natural waters and 10 % by settlements, roads, and other establishments.
- The tradition to protect elements of biodiversity goes back to the 19th century. Much activity began in the 1970s to protect threatened species and to establish protected areas. Now all the native higher plants and vertebrate animals, including some domestic forms, known to be threatened, are protected together with 389 endangered invertebrate species. Following a slight increase since the signing of the CBD, the network of various nature conservation areas covers 8.6 % of the country's territory.
- The intensification of agriculture has also decreased agricultural biodiversity in Hungary since the 1950s. Large scale farming became dominant and the territory given over to arable land was very large. Species and genetic diversity including soil organisms and even weed diversity has decreased. At the same time, arable lands are significant feeding grounds for several wild animals, especially after harvest as long as they are not ploughed. The extent of fallow land increased significantly since 1990, as a consequence of the transition process, and the area of forests, reed-beds, fish-ponds, some of them already being good semi-natural habitats for threatened elements of biodiversity, has slightly increased.
- The existing gene bank network maintains valuable elements including domestic species, cultivars and breeds. The support and development of the activity of gene banks should be improved to be able to extend collections for still neglected elements, e.g. traditional fruits and certain old breeds of animals.
- The assessment of the value of biodiversity is an important and unresolved problem. Proposals made for the consideration of natural values in economic processes and development plans (e.g. liability for the use of nature, fee for its use) came unstuck because of the lack of appropriate assessment possibilities.

A possibility in the case of protected species is the use of "ideal values" initiated in 1975. These are monetary values from 10 to 2,500 USD (depending on the level of protection) given to each specimen of that species. The aim of these was originally to help the administration and justice system when applying sanctions against illegal actions and violation of law, bringing about damage. They are now also taken into consideration e.g. when carrying out EIAs. Certain local governments introduced a similar valuation of trees within their area of jurisdiction.

- A renewed legal framework for biodiversity conservation has recently been established (see Section 2). The new Act on Nature Conservation (No. LIII of 1996) contains regulations to implement several obligations arising from the CBD, even outside the scope of "traditional" nature conservation (e.g. CBD Articles 1, 2,6-11, 13, 14, 18, 19). As a consequence, a Bill on GMOs has also been prepared and has been submitted to Parliament for adoption.
- Apart from a few exceptions, no separate policies on biodiversity have been prepared so far. At present, the most significant policy framework, the National Environmental Programme for the next 6 years is intended to implement the principles and goals of the CBD together with other international instruments. A National Concept on Regional Development and concepts on some sectoral fields (energy-policy, traffic, water management) have also been established. The National Agricultural Programme is in the course of elaboration. The Hungarian Academy of Sciences (HAS) prepared its "Foundation for developing a national strategy of biodiversity conservation" in 1993. Important proposals have been put forward by NGOs. The National Society of Conservationists (NSC) formulated a Programme on Sustainable Development for Hungary (1996) emphasising the need for consideration of ecological aspects in planning and development and for example the importance of the economic valuation of natural resources and a new tax system.
- The Hungarian institutional background is similar to that of most of the European states. The Ministry for Environment and Regional Policy (MERP) is responsible for the co-ordination and the implementation of the CBD. Agriculture, forestry, fishery and game management is administered by the Ministry of Agriculture. The Hungarian Commission on Sustainable Development (HCSD) also deals with biodiversity problems on the inter-sectoral level, as well as the National Council on Environmental Protection (OKT), which is the related advisory body to the Government. Environmental Committees generally advise on related activities of local governments. The evaluation and research of biodiversity are traditional fields of various institutes (HAS, Hungarian Museum of Natural History and regional museums, universities etc.). However, the existing good level of expertise is insufficiently equipped and struggles with inadequate resources.
- Apart from the global and regional environmental changes threatening biodiversity (e.g. acidification, climatic change, the expansion of non-native species, increasing exploitation of natural resources, mass tourism, new industrial style techniques in agriculture and forestry, nitrophilisation, etc.) the transition to the market economy may involve grave consequences to biodiversity. The division of fields into plots in the vicinity of settlements and increasing construction on greenfield sites and road-building cause

unavoidable direct destruction to the elements of biodiversity and further fragmentation of habitats.

4. National Strategy and Action Plan on Biodiversity (NBSAP)

- The NBSAP to be prepared by 31 December, 1998 under a UNEP-GEF project has to build upon existing documents, programmes and proposals and further ideas, and to select appropriate actions primarily for the following sectors: agriculture, biotechnology, fishery, forestry, freshwater, hunting, land use, mining, regional development and tourism.
- The selection of actions should mainly be guided by their feasibility, also taking into consideration the necessary financing and the organisations responsible for the implementation of the programme.
- It is also significant to focus on the solution of existing gaps in the realisation of the CBD. The most important of existing strategies is e.g. the "Foundation for developing a national strategy of biodiversity conservation" (HAS, 1993) which focuses on the optimisation of nature conservation, the protection of habitat and taxonomic diversity and also on *ex situ* conservation and biodiversity in agriculture.
- The NBSAP should be prepared with special regard to make understandable and to secure recognition of sustainable use of biodiversity, and to help achieve the acceptance of sustainable use as a real possibility, where appropriate, equal to conservation in maintaining biodiversity.
- At the same time, strengthening of *in situ* and *ex situ* conservation activities is also required, where the conservation, restoration and strict protection are the only possibilities.

5.Collaboration and Partnership in the implementation of the CBD

- The real involvement and acceptance of all sectors in the implementation of the CBD is a long-term process. This is particularly the case in countries with economies in transition to the market economy. This is because of two factors the main priority is the improvement of the economy and public involvement in planning and development actions is still low. In Hungary the participation of the public in civil groups is now cca. 20 %. Only a few organisations existed before 1990, the Hungarian Ornithological and Nature Conservation Society (MME) being one of the earliest and largest with some one thousand members. Nevertheless, the number of environmental social groups (NGOs) has proliferated since 1989/1990 and they are quite active participants, both at a local and at a national level. Their role in exercising influence on various sectors and local governments, as well as in raising public awareness is really significant. Their representatives are also participating in advisory committees e.g. in the HCSD and OKT.
- Hungary highly appreciates the relevant intergovernmental and other international organisations and takes part in their activities. Biodiversity issues are priorities in the activity of the Central European Bureau of ECNC, IUCN, WWF and the Regional Environmental Centre functioning in Hungary. Their local activity in Hungary, especially that of the IUCN and WWF, is also significant.

- Bilateral agreements and declarations of intention on co-operation with all of the adjoining, and in addition several other countries, help the solution of environmental problems including implementation of the CBD. Within the most recent "Agreement between the Governments of the Hungarian Republic and the Romanian Republic on co-operation of environment protection" (1997) the maintenance of biodiversity has been given special significance.
- In the collaboration of Hungarian research and educational institutions with other countries the biodiversity issues have played a significant role since the adoption of the CBD. Similarly, relationships of the NGOs have multiplied with various international organisations and those from other countries, also receiving significant support from certain European organisations. The Central and East European Workshop for the Enhancement of Biodiversity (CEEWEB) should be mentioned as a good example of this type of co-operation.

6. **Resource availability**

- One of the most important aspects of the NBSAP will be the assessment of available financial resources and the estimation of funds needed for the actions scheduled. The existing major resources are state funds established in the 1990s, such as the Central Environmental Protection Fund (KKA), Regional Development Fund and the Water Management Fund. Incomes of these are based upon product fees, various fines and a share from the state budget. Tax allowances and, in certain cases, reduction of customs can also be interpreted as financial resources. It remains to be decided when a certain type of activity, listed in the legislation, on the use of these resources can be considered as direct and indirect implementation of the CBD.

- The environmental expenditure ranged between 1.0 and I. 1 % of the GDP, and the NEP forecasts its increase to be 1.7 % in the period 2000-2002. According to the Biodiversity Country Study the direct expenses for improvement of biodiversity can be estimated to 2 % of that, in recent years. Certainly, 20 % of the KKA shall be used for public purpose and 10 % of that should be spent on biodiversity conservation and on protected natural areas.

7. **Monitoring and Evaluation**

- A project supported in the framework of the PHARE Programme on the National Biodiversity Monitoring Planning (NBMP) was accomplished in 1996. Based on this a Biodiversity Monitoring Service (Service) should be organised within the MERP, Authority of Nature Conservation. The objective is to follow, through a biomonitoring network, the changes of biodiversity under the influence of human impact and the decisions and actions taken to implement the CBD.
- The ten-volume Manual on "National Biodiversity Monitoring System" is also now published as a result of the NBMP. The Service will have to establish connections to other significant data sources and to gather further specific information on processes having effects on biodiversity.

8. Status of the Clearing House Mechanism (CHM)

- An Add-on Component to the NBSAP has been approved in November 1997 to support the establishment of the CHM in Hungary. The main task is to establish appropriate co-operation between organisations registering national information relevant to the implementation of the CBD, data processing and to generate new information for decision making.
- Important detailed information and meta data are collected by various institutions, such as the Central Statistical Office, the Hungarian Patent Office, Hungarian Natural History Museum, Institute of Ecology and Botany (HAS), and by universities, NGOs and private expert groups.
- The CHM Regional Workshop for Central and Eastern Europe was hosted by Hungary (27-29 October, 1997) in accordance with Decision III/4 of the COP. The Workshop helped greatly to foster understanding of the role of the CHM and to set up appropriate objectives.

LIST OF ACRONYMS AND ABBREVIATIONS COMMONLY USED IN THE REPORT

ANTSZ	State Public Health and Medical Officer's Service
CBD	Convention on Biological Diversity
CEEWEB	Central and East European Workshop for the Enhancement of Biodiversity
CHM	Clearing House Mechanism
CITES	Convention on International Trade in Endangered Species of Wild Fauna and Flora
CMS	Convention on the Conservation of Migratory Species of Wild Animals
COP	Conference of the Parties
COMECON	
ECNC	European Centre for Nature Conservation
EIA	Environmental Impact Assessment
EM	former Ministry of Health in Hungary
EMEP	European Monitoring and Evaluation Programme
ESA	Environmentally Sensitive Area
EU	European Union
ÉVM	former Ministry on Building and Urban Development in Hungary
FM	Ministry of Agriculture
GDP	Gross Domestic Product
GEF	Global Environment Facility
GIS	Geographic Information System
GMO	Genetically Modified Organism
GRID	Global Resource Information Database
HAS	Hungarian Academy of Sciences
HCSD	Hungarian Commission on Sustainable Development
HUF	Hungarian Forint (national currency unit)
IEP	Inspectorate for Environmental Protection
ISO	International Standardization Organisation
IUCN	International Union for Conservation of Nature and Natural Resources
KKA	Central Environmental Protection Fund
Korm.	Hungarian Government
KTM	Ministry for Environment and Regional Policy (the Hungarian abbreviation)
MERP	Ministry for Environment and Regional Policy Hungarian Ornithological and Nature
MME	Conservation Society
MAB	Man and the Biosphere Programme
MÉM	former Ministry of Agriculture and Food in Hungary
MSz	Hungarian Standard
NBMP	National Biodiversity Monitoring Planning
NBSAP	National Biodiversity Strategy and Action Plan
NEP	National Environmental Programme
NGO	Non-Governmental Organisation
NSC	National Society of Conservationists
OECD	Organisation for Economic Co-operation and Development
OGY	Hungarian Parliament
OKT	National Council on Environmental Protection
OTvH	former National Authority for Nature Conservation

PHARE	
SBSTTA	Subsidiary Body on Technical Technological and Scientific Advice to the CBD
TIM	Information and Monitoring System of Soil Conservation
UNESCO	UN Educational, Scientific and Cultural Organisation
UNEP	UN Environmental Programme
UNO	United Nations Organisation, UN
USD	US dollar
WHO	World Health Organisation
WWF	World Wide Fund for Nature

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1. INTRODUCTION

Article 26 of the Convention on Biological Diversity (CBD)
States that each Contracting Party shall, at intervals to be determined by the Conference of the Parties (COP), present to the COP, reports on the measures taken for the implementation of the provisions of the Convention. The 2nd Meeting of the COP (Jakarta, 6-l 7 November, 1995) decided that the 1st National Report will focus on the measures taken for the implementation of Article 6 of the CBD as well as the information available on biological diversity (Decision II/l 7).

Article 6 of the CBD on the "General Measures for Conservation and Sustainable Use" specifies the "General Measures" as the development of national strategies, plans or programmes for the conservation and sustainable use of biological diversity (a) and the integration of the conservation and sustainable use of biological diversity into relevant sectoral or cross-sectoral plans, programmes and policies (b).

Hungary is just developing its national biodiversity strategy and action plan (NBSAP) in the framework of a project to be accomplished at the end of the year 1998. The NBSAP should be approved at the highest possible administrative level. Consequently, it would be sufficient for reporting to summarise the steps taken to implement the project. However, on the one hand, there is a long tradition of nature conservation i.e. the conservation of threatened elements of biodiversity in Hungary and of the efforts to use biological resources in a sustainable way. On the other, several documents on biodiversity strategy and programmes reflecting the measures set out in the CBD had been established by various institutions during 1992-1997. Thus, the report is designed to show, what measures have already been taken through relevant activities of the administration and economy to implement the CBD, in addition to specific conservation activities.

The first priority was the establishment of appropriate legislation. This was pointed out or reflected by the strategic documents which considered, among other topics, the basic needs for new legislation due to the political and economic transition. New legislation has been established by Parliament and Government which legalizes the objectives of various international conventions and agreements and important programmes, linked with the conservation and sustainable use of biological resources. Thus, although a detailed, official, national strategy and action plan on biological diversity in Hungary has not been adopted as of yet, basic and general measures have been taken to implement the objectives of the CBD. Besides the summing up of available information on the state of biodiversity in Hungary, the aim of the report is to give an account on these measures. While preparing this, the suggested guidelines provided by the COP (Annex to Decision II/17) in the light of the document UNEP/CBD/SBSTTA/3/Inf. 16 will be followed, where appropriate.

2. NATIONAL GOALS AND OBJECTIVES

The implementation of the objectives of the CBD can not be dealt with separately from measures taken to implement other general goals of the economy, various sectors and environment management.
Realisation of the goals of the Convention has been initiated not only after the ratification of the CBD. In Hungary, similarly to the situation in other countries, the protection of endangered species and habitats and the establishment of a network of protected areas commenced fairly early, and elements of sustainable agriculture and sylviculture have also appeared.

2.1. Major documents on goals and objectives

The preparation of the Rio Conference had already motivated the experts to summarise the state of biodiversity in Hungary and the measures necessary for its maintenance. This resulted, for example, in the birth of an NGO document (*Zöld Akció*, 1992) and other strategic and policy matters. The most important of these is the "Foundation for developing a national strategy of biodiversity conservation" prepared by the Department on Biological Sciences of the Hungarian Academy of Sciences (HAS) at the same time as the acceptance of the Convention (1993). (CBD. Art. 6(a), 7)

Appropriate sectoral concepts were also established suitable to the transition process, e.g. on traffic, energy-policy and water management. A National Concept on Regional Development has been established and the National Agricultural Programme is now in the course of elaboration. On the other hand, adoption of new Acts on the most important areas was also unavoidable (see: Section 3.3). (CBD Art. 6(b))

With a view to the implementation of the international requirements and conventions as well as the new domestic policies and legislation, the most important document is the "National Environmental Protection Programme" (NEP), which was approved recently (16 September, 1997) by the Hungarian Parliament. The NEP is a 6 years-plan which includes the Nature Conservation Fundamental Plan and which is based on proposals and obligations arising from:

- related international conventions and programmes, e.g. CBD and other conventions that Hungary participates in (see Section 2.3), Agenda 21, Action Plan on the Environment for Central and Eastern Europe - Luzern, 1993, 5th Action Plan of the European Union on the Environment and bilateral agreements especially with neighbouring states, and

- former national documents, such as the Short- and Medium-term Action Plan on Environment Protection adopted by the Government in 1991 or the National Environmental and Nature Conservation Policy Concept (1994). (CBD Art. 6(a))

2.2. Relating the basic principles and goals to the CBD

Sustainable development: two principles are included 1. the maintenance of environmental values and 2. the responsibility for future generations. Regarding their practical implication related to the biodiversity, the sustainable use ("sustainable nature and rational region-utilization" ***(4))*** of the environment, that is the improvement of the quality of life should be done within the regenerating capacity of natural resources and the life-sustaining ecological systems (6).
According to the Act on Nature Conservation the ***sustainable use: "the use of natural values to an extent and at a rate that does not exceed their regeneration capacity, does not lead to loss of natural values and biological diversity"*** (Paragraph 4/f).

The ***precautionary principle*** and ***prevention:*** the limited sources should be used primarily for prevention, even if the elimination of existing problems needs a longer time because of this (6). The requirement is also to be ensured by the system of impact assessment.

The ***subsidiarity principle:*** the integration of objectives into sectoral policies and in the activity of local governments.
The ***holisticprinciple:*** it is fundamental not to restrict nature conservation only to the protected objects (e.g. species, habitats, caves). Nature conservation includes both: the genera1 protection of natural and close to nature systems consisting of animate and inanimate components (land, ecosystems, biocenoses, populations) and the special protection of some especially valuable, typical or threatened elements included in these systems.

The ***principle of process:*** the functioning of natural systems should be maintained continuously, the so-called functional integrity of the system concerned, i.e. the process should be assured.

Conservation of the ***biological diversity*** should be realised:

- ***on the level of populations,*** where the main target is the maintenance of genetic diversity and the protection of gene-reserves considering both non-domesticated plants and animals and cultivated plants and animal breeds,
- ***on the level of species,*** where the extinction of species has to be prevented and viable populations of various species have to be maintained in adequate diversity,
- ***on the level of biocenoses,*** where the preservation of the species diversity of biocenoses and the maintenance of the variety of species combinations are to be regarded as the main purposes. These require in practice the maintenance of habitat diversity.

The goals of the NEP include among others:

- "the conservation of a semi-natural state of animate and inanimate environment, the protection and assurance of maintaining natural systems and natural values and the inherent information of natural processes".
- raising public awareness and appropriate information to ensure the

participation of the society,
- increasing of surface water supply in areas of scarcity of waters,
- to reduce the quantity of organic pollutants transferred into natural waters to under 20 % of the present level over the long term,
- development of up to date regulation and incentives for more economic utilization of water,
- modernisation of subsidies for the protection of the quality and the maintenance of the fertility of arable land,
- the recultivation of opencast mining grounds and waste heaps left behind,
- the development of green areas/green belt of settlements to the possible greatest extent,
- the protection of natural values and habitats within settlements and conservation of their biodiversity,
- the enhancement of environmental activities of local governments,
- completion of base-surveys in all the nature conservation areas,
- the territory of afforested areas should reach 20 % (and 25 % in the long run) and that of the semi-natural forests 12%,
- for reafforestation primarily native species should be used and the biological diversity of forest should be enhanced by more appropriate species- and age-composition, management and felling technologies,
- establishment of a national ecological network,
- establishment of gene banks operated by the nature conservation authority, including *ex situ* gene banks when *in situ* conservation is not possible and in the course of the next two years the identification of the species concerned.-
- in the framework of sustainable farming, the system of Environmentally Sensitive Areas (ESA) should be established together with economic incentives,
- the National Biodiversity Monitoring Network should be organised and operated,
- financial bases of a nature conservation compensation system should be ensured,
- the establishment of a national landscape register should be started and the toleration capacity and loading-limits of landscapes should be surveyed and included into EIAs,
- a Programme to introduce Environment-Respective Management and its Tools especially in institutions of the industry, agriculture and local governments should be launched.

2.3. **Other international agreements and programmes which Hungary participates in**

Hungary participated in the preparation of the European regional initiative to implement the CBD, the Pan-European Biological and Landscape Diversity Strategy endorsed by the Ministers on the Environment in Sofia, 1996. Hungary has an interest in the realisation of the Strategy in particular to establish the Pan-European Ecological Network (Action Theme 1), integration of biodiversity considerations into sectors (Action Theme 2), conservation of landscapes (Action 3), river ecosystems and related wetlands (Action 6), inland wetland ecosystems (Action 7), grassland ecosystems (Action 8) forest ecosystems (Action 9) and Action 11 for threatened species.

Table 1: International Conventions whith Hungarian participation

Conservation of the Natural Environment	Venue	Adoption, Entry into force	Entry into force for Hungary
Convention on Wetlands of International Importance Especially as Waterfowl Habitat (Ramsar Convention)	Ramsar	1971, 1975	1979
Convention Concerning the Protection of the World Cultural and Natural Heritage (World Heritage Convention) (UNESCO)	Paris	1972, 1975	1985
Convention on the Conservation of Migratory Species of Wild Animals (Bonn Convention) CMS	Bonn	1979, 1983	1983
*Agreement on the Conservation of Bats in Europe	London	1991, 1994	1994
*Agreement on the Conservation of African-Eurasian Migratory Waterbirds	The Hague	1995. -	-
Convention on the Conservation of European Wildlife and Natural Habitats (Bern Convention)	Bern	1979, 1982	1990
Convention on Biological Diversity (CBD)	Rio de Janeiro	1992, 1993	1994
Convention on International Trade in Endangered Species of Wild Fauna and Flora (CITES)	Washington	1973, 1975	1985
Protection of Elements or Properties of the Environment			
Convention on Long-range Transboundary Air Pollution	Geneva	1979, 1983	1983
*Protocol to the 1979 Convention on Long-range Transboundary Air Pollution on Long-term Financing of the Co-operative Programme for Monitoring and Evaluation of the Long-range Transmission of Air Pollutants in Europe (EMEP)	Geneva	1984, 1988	1988
*Protocol to the 1979 Convention on Long-range Transboundary Air Pollution on the Reduction of Sulphur Emissions or their Transboundary Fluxes by at least 30 per cent	Helsinki	**1985, 1987**	**1987**
*Protocol to the 1979 Convention on Long-range Transboundary Air Pollution Concerning the Control of Emissions of Nitrogen Oxides or their Transboundary Fluxes	Sofia	1988, **1991**	**1992**

*Protocol to the 1979 Convention on Long-range Transboundary Air Pollution Concerning the Control of Emissions of Volatile Organic Compounds or their Transboundary Fluxes	Geneva	1991, -	
*Protocol to the 1979 Convention on Long-range Transboundary Air Pollution on Further Reduction of Sulphur Emissions	Oslo	1994, -	
Vienna Convention for the Protection of the Ozone Layer	Vienna	1985, 1988	1988
*Montreal Protocol on Substances that Deplete the Ozone Layer	Montreal	1987, 1989	1989
*London Amendment to the Montreal Protocol on Substances that Deplete the Ozone Layer	London	1990, 1992	1994
*Copenhagen Amendment to the Montreal Protocol on Substances that Deplete the Ozone Layer	Copenhagen	1992, 1993	1994
United Nations Framework Convention on Climate Change	New York	1992, 1994	1994
Convention on the Prevention of Marine Pollution by Dumping of Wastes and Other Matter (MARPOL)	London	1972, 1975	1976
International Convention on the Prevention of Pollution from Ships	London	1973, 1983	1983
*Protocol of 1978 Relating to the International Convention for the Prevention of Pollution from Ships	London	1978, 1983	1985
Convention on the Protection and Use of Transboundary Watercourses and International Lakes	Helsinki	1992, -	
Convention on Cooperation for the Protection and Sustainable Use of the Danube River	Sofia	1994, -	
Base1 Convention on the Control of Transboundary Movements of Hazardous Wastes and their Disposal	Base1	1989, 1992	1992
Convention on Environmental Impact Assessment in the Transboundary Context	Espoo	1991, -	-
Convention on the Transboundary Effects of Industrial Accidents	Helsinki	1992, -	
The Energy Charter Treaty	Lisbon	1994, -	
*Energy Charter Protocol on Energy Efficiency and related Environmental Aspects	Lisbon	1994, -	

3. BACKGROUND, STATUS AND MANAGEMENT OF BIODIVERSITY

3.1. Status and trends in biodiversity

Hungary is situated in the centre of the Carpathian basin in an overlapping zone of various biogeographical regions. Its territory is considered as a specific gene-bank and juncture of migration routes for several significant elements of the Eurasian fauna and flora. The resulting biodiversity, in European comparison, survived in a relatively good state in spite of the fact that the ecological diversity is basically determined by the agriculture, forestry and water management.

Species diversity and species conservation

Most of the vertebrate animal species (466 of the 541), as well as the endangered representatives of invertebrata (389 of cca. 42.000) are protected as are threatened plant species of which 5 15 are protected from the cca. 3,000 cauline plants and mosses in Hungary (see: **Table 2**), but relevant measures are necessary for further elements including also lower taxa. (CBD Art. 8(k)) Special care is taken of species with sporadic distribution and endemic species as well as of those habitat-types which are endangered. It is necessary to publish Red Lists periodically.(CBD.Art.7(a)). The 1st Red Data Book was published in 1989, reflecting the status of threatened fauna and flora elements of biodiversity up to the year 1985 **(Table 3)**
The introduction of non-native species is regulated by relevant legislation on nature conservation, game management, fishery and plant protection. (CBD Art. 8(h)). According to the new Act on Nature Conservation the handling and use of GMOs should be regulated by separate legislation and the draft Act on that has been submitted to Parliament in the autumn of 1997. (CBD Art. 8(g)).

Habitat protection
(CBD. Art. 8(a),(b),(c),(k))

A task of primary importance for the conservation of threatened elements of the biodiversity is to establish and protect the areas suitable for sustaining biota. The present status of protected areas is shown by **Table 4** and **Figure 2** (map). Our objective is in a larger framework, to develop an adequate national ecological network. To do so, mapping the suitable areas (nature conservation areas, mosaics of areas among cultivated land, wetlands etc.), and if necessary, purchasing the areas concerned in order to establish (or re-establish) state ownership and responsibility have been and still are *the most important tasks.* Relevant conservation policies (e.g., stricter regulations for forestry, hunting and fishery) have been realised by *new legislation* (Acts: on Nature Conservation, on Forestry, on Game Protection, Management and Hunting, Act on Fishery).

As a result of *earlier conservation measures,* the stocks of some vertebrate species have slightly increased in recent decades, while the population of several species has decreased in spite of all conservation efforts. The information on

invertebrate fauna is insufficient and present and future activities should be concentrated on these (Art. 7). There are some basic *causes of the degradation process:* direct devastation (pesticides etc.); indirect devastation (monocultures, *overuse* etc.); habitat changes (degradation, area reduction, change of the structure of cropland, isolation).
The strategy in this area should be based on the following steps: measurement of diversity status and transformation; direct protection of species; protection of animal communities; habitat protection; developing conservation-oriented research and land use practices; operating a monitoring network; preparing habitat inventories and maps; developing national or regional action plans.

Genetic diversity
(CBD Art. 9(a), (b))

Besides some vertebrate and a few representatives of other species, there is hardly any data on *genetic diversity* concerning species living in the wild. However, even in the case of certain common species a decreasing trend of the population size could be observed. Consequently, the genetic diversity of certain well known fauna and flora species is lessening.
The *capacity of gene banks for domesticated species* and their varieties and wild relatives should be improved and they need support to explore and maintain further traditional forms. In this respect, the most significant is the Institute of Agrobotany (*Tápiószele*). A gene bank of *medicinal plants* and that of *micro-organisms* also exists in the Research Institute for Medicinal Plants and the National Collection of Agricultural and Industrial Micro-organisms, respectively. They are important for maintaining not only certain species, but various genetic features.

Programmes for the conservation of biodiversity
(CBD Art. 8 *(a)*, (c), (i), (j))

Several special programmes, including internationally supported *biodiversity conservation programmes*, have been and are being carried out, the most essential elements of these are as follows:

- Further development of conservation of biota in heavily endangered areas (e.g., lowland steppe and karstic grasslands, meadows, wetlands, riverine forests) and of habitats of endangered species.
- 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". New incentives should also be applied and developed.
- Ecological improvement of uncultivated lands and public areas near settlements, industrial and infrastructure facilities, and agricultural areas and steps for the enhancement of the biodiversity of artificial biotopes (e.g., parks, gardens, "protecting''-forests) in residential areas should be undertaken. Any increase of built-up area coverage should be strictly regulated, requiring environmental impact assessments to sustain the natural and semi-natural areas.

Table 2: Data on protected fauna and flora species
(1 Dec. 1997 compared to 1994)

	Number of species of the world	Number of species in Hungary	Protected 19940997	Strictly protected 199411997	Sum 1994/1 997
2.1. Plants	350.000	3.000	4541463	47/52	501/515
Mosses	25.000	589	20		20
Ferns	13.000	60	3s	1	39
Gymnosperms	640	8	1	1	2
Angiosperms	311.360	2.343	404	50	454
2.2. Animals	1.250.000	42.000	778 / 778	76 / 83	854 / 861
Invertebrates	1.205.000	41.460	397 / 396	- / -	397 / 396
Vertebrates	45.000	541	381 / 382	76 / 83	457 / 465
Cyclostomata	73	2	2	-	2
Fish	22.900	81	25	1	26
Amphibians	3.000	16	16		16
Reptiles	6.300	15	13	2	15
Birds	8.700	361	278	69	347
Mammals	4.100	83	4s	11	59
Total	1.600.000	45.000	1232 / 1241	123 / 135	1355 / 1376

Source: Register on Nature Conservation

Table 3: Summary of animals and plants listed in the Red Data Book, as a function of endangerment categories

Taxonomic groups	Extinct and vanished	Endangered	Vulnerable	Rare	Total (2+6)	No of Species in Hungary
1	**2**	**3**	**4**	**5**	**6**	7
1. Mammals	5	7	7	1	20	83
2. Birds	13	21	40	9	83	346
3. Reptiles	-	3	-	1	4	15
4. Amphibians	-	-	1	-	1	16
5. Fishes	-	2	-	-	2	81
I. VERTEBRATES	18	33	48	11	110	540
6. Crustaceans	-	-	-	-	-	1058
7. Snails	-	1	17	-	18	202
8. Insects	35	41	145	51	272	40200 <
II. Invertebrates	35	42	162	51	290	41460 <
ANIMALS (I.+II.)	53	75	210	62	400	42000
9. Angiospermae	35	40	114	384	573	2343
10.Gymnospermae	-	-	-	2	2	3
11.Ferns	1	1	13	20	35	60
12.Mosses	4	32	39	45	120	589
PLANTS	40	73	166	451	730	3000
Animals and Plants	93	148	376	513	1130	45000

Source: Rakonczay Z. (ed): Red Data Book - Budapest, 1989

Table 4: Change of the territory of protected areas in Hungary (1990-1997)

	1990	1991	1992	1993	1994	1996	dec. 97
National Parks	146956	159139	159100	170500	177700	247515	422844
Landscape Protection Areas	413442	422361	431500	473600	466700	425871	319630
Nature Reserves	35006	35590	37400	26200	26200	27926	25402
Nature Reserves with local importance	35800	35800	35800	35800	35800	35800	35800
Total	**631204**	**652890**	**663800**	**706300**	**706400**	**737421**	**803676**

Source: Register on Nature Conservation

Figure 1: Extension of nature conservation areas (1990-1997)

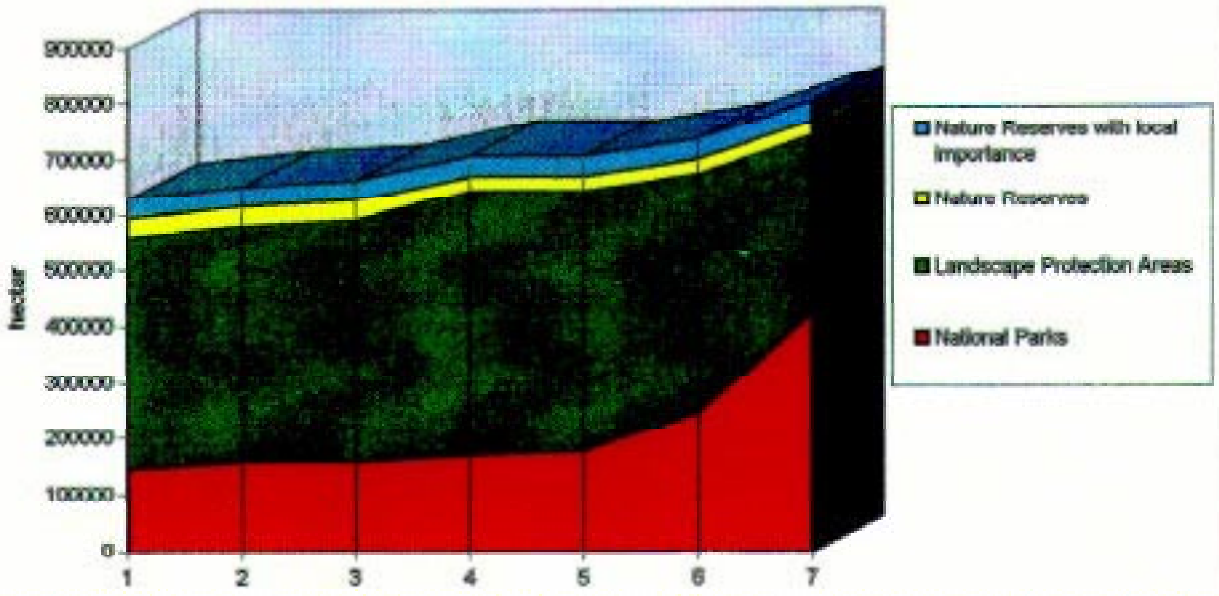
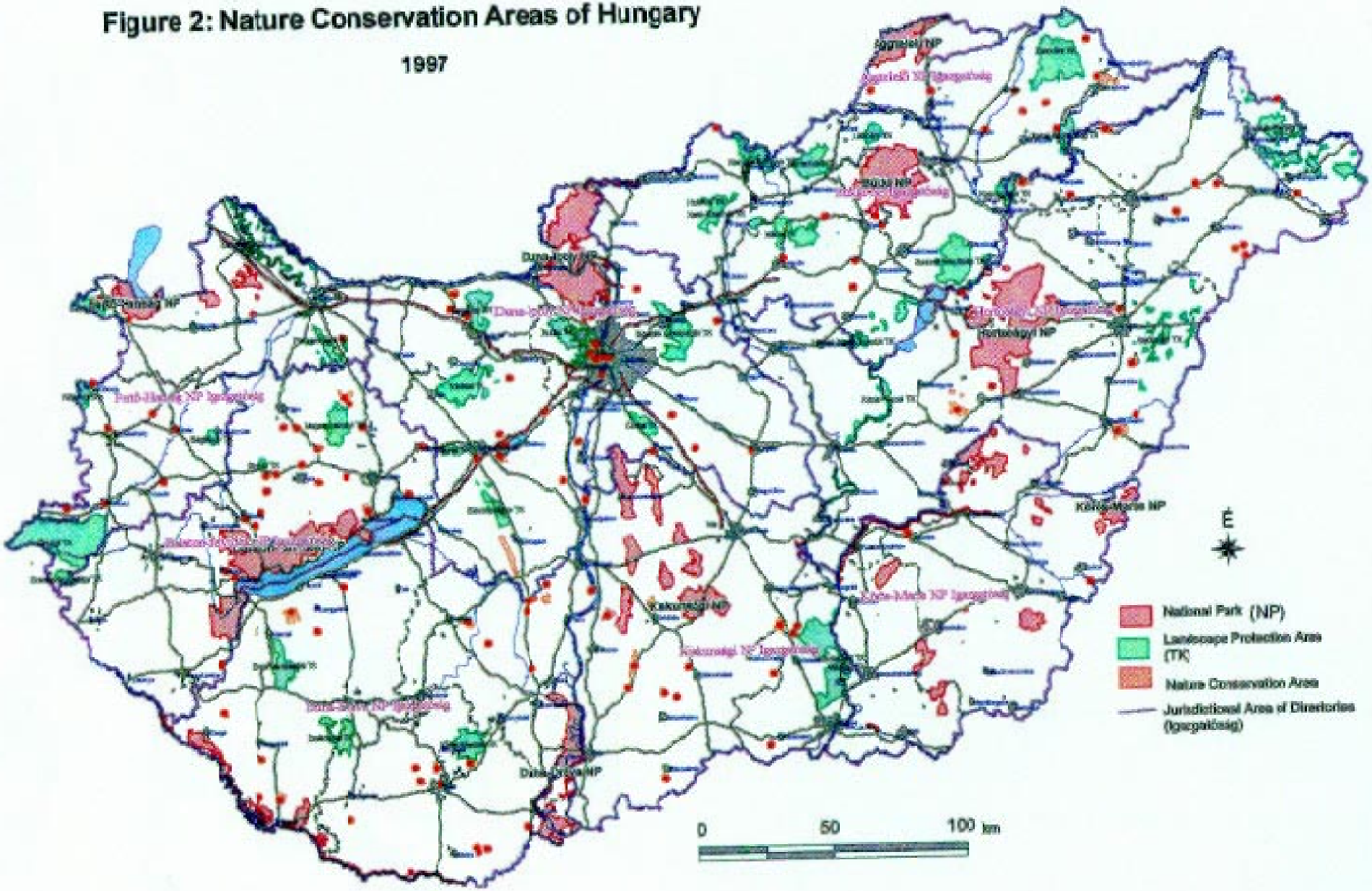


Figure 2: Nature Conservation Areas of Hungary

1997



State of biological diversity outside protected areas
(CBD Art. *7(c))*

More than 70 % of the Hungarian territory is cultivated, less than one third of the forests can be regarded as semi-natural. 8.6 % of the land area is protected for its natural values, but significant wildlife, even some threatened species survived outside the protected areas. The sustainable use of the biological resources is indispensable to also safeguard these elements of biodiversity.

Several *areas with traditional management* types have survived in Central and East-European countries including Hungary (floodplains of big rivers with meadows, pastures and orchards; particular settlement structure and management in the western part of the country (foothills of the Alps), species-rich hay meadows of submontane and colline regions; poor pastures on sandy soils and salt-affected areas.) These traditional types have already been seriously affected by large scale industrialised agriculture. The planned establishment of the *Network of Environmentally Sensitive Areas* is aimed at creating a more harmonious relationship between agriculture and nature conservation.

Agriculture

Hungary, compared to most European countries, is in a peculiar position, since more than 85 % of its territory is suitable for exploitation of soil fertility by sylvicultural and agricultural activities. The remaining 15 % serves for infrastructure, mining, industrial and military use as well as housing. Owing to this the agricultural sector has a considerable impact on biodiversity.

Agriculture in Hungary has undergone a considerable recession during recent years. The economic-political changes caused uncertainty, agrarian cut backs, loss of the domestic and foreign markets and reduction in the agrarian subsidies. Gross production decreased by one-third in 1989-1993 followed by a slow increment during in recent years. Production increased in volume by 2.6 % in 1995 and by 5 % in 1996, compared to preceding years.
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 % (Table 5, Fig. 3 and Fig. 4). The extent of uncultivated areas has increased by 21 %, compared to the 1990's figure. This was caused by the uncertainty of ownership due to economical-political changes and also the growth of privatisation.
The increasing environmental problems arising from agriculture originate from changes in consumption habits, improvement of agricultural products, progressive globalisation of markets, green-field investments as well as fi-om the influence of the national and international agrarian policy.

Although the various contaminating chemicals of agricultural origin, threatening biodiversity, have decreased in volume technological backwardness and lack of development still cause a considerable problem. (CBD Art. 8(l)). The use of fertilisers has strongly declined, namely, by 83.8 % from 1980 to 1993 (211 kg

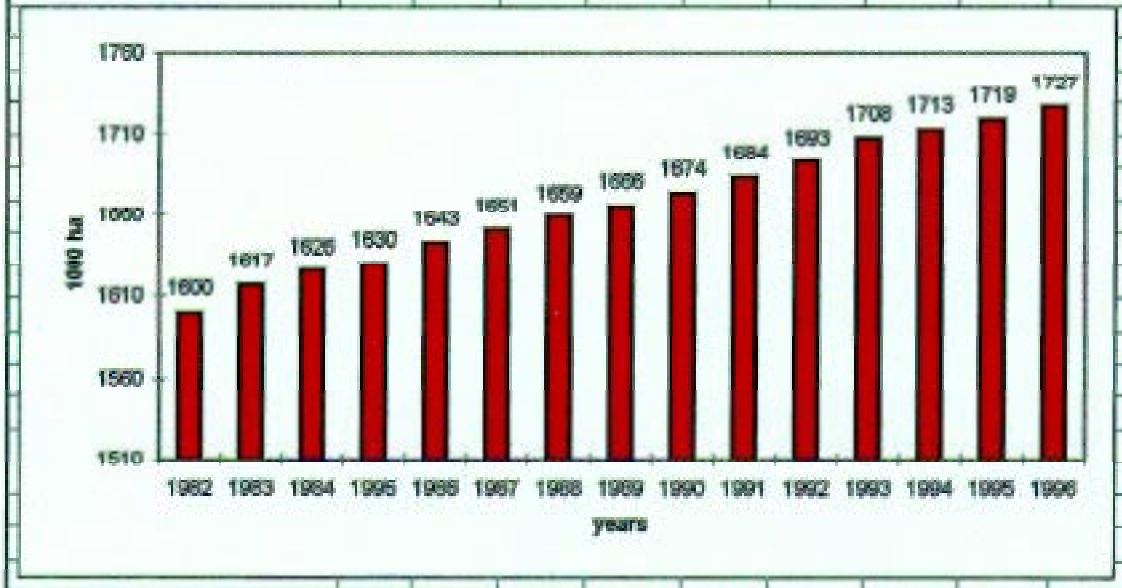
versus *34* kg per hectare). It has slightly increased throughout recent years and reached a rate of 54 kg per hectare by 1996 **(Fig. 5).** The presence of weeds in arable lands increased considerably, probably due to the inappropriate use of herbicides in recent years. The progression in the expected rate of pesticide and fertiliser use should be followed by technical development in any event, since inadequate handling and storage has caused contamination in several cases.

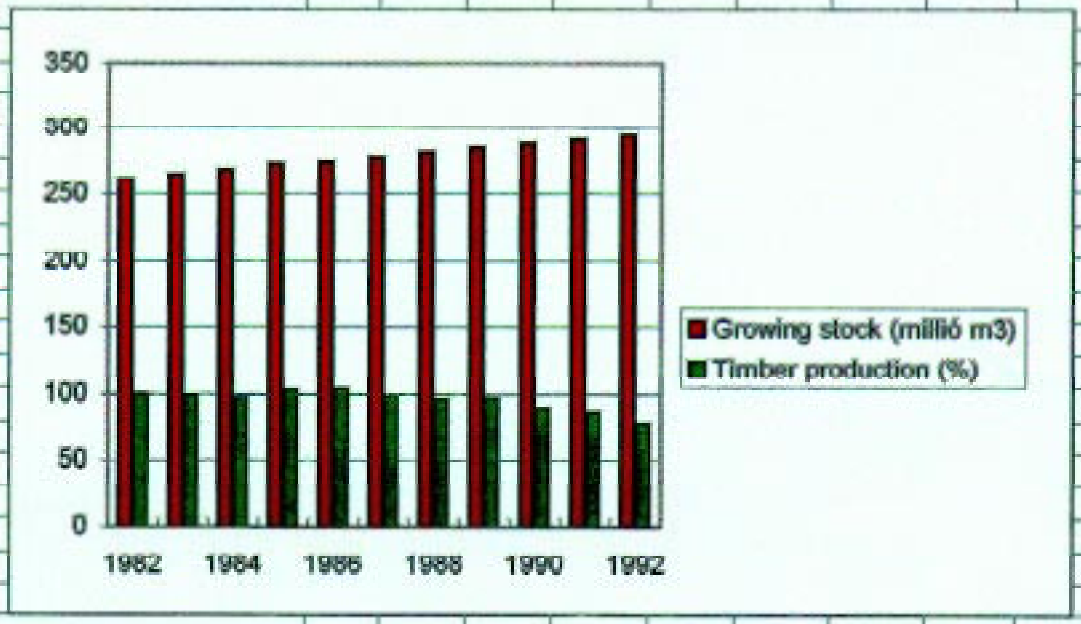
For the maintenance of the state of the agricultural environment and minimising the impact of production to the environment several Acts *and regulations* have come into existence.

Act No. LV of 1994 on arable land refers to the cultivated lands, as well as the mitigation of contamination arising from agricultural activities, including liquid manure handling. (CBD Art. S(1))
One of the most important problems is liquid manure handling. This is also considered by the Government Decree No. 106/1 995 (IX.8) "On environmental and nature conservation requirements of disposal and liquidation". This orders the submission of detailed information on the environmental state of agricultural fields, including impacts **or** contamination to the atmosphere, water and the soil, and the use of liquid manure among others, back-dated 5 years. (CBD Art. 7(c), 8(l))

The use and registration of chemicals are discussed by Law-decree No. 2 of 1988 on Plant Protection and Order No. 5/1988 (IV.26) MEM, referring to its execution. The use of pesticides (fungicides, herbicides, insecticides, yield-stimulators) can be done on the basis of the Order and according to authorization. The prerequisite for authorization is further appropriateness to the general and special environmental toxicological requirements.
Among others: degree of acute and chronic toxicity to, and reproduction effects on, wildlife species (pheasant, quail, mallards, brown hare), to fish, Daphnia, bees and other wildlife e.g. protected species, including micro-organisms, non-target insects, the experience accumulated, further metabolism of active ingredients, and their decomposition in soil and water. It also requests permission to introduce biological pesticides compounded of non-indigenous organisms and live insects into Hungary, even for scientific experiments.
Order No. 7/1992 (II.25) FM on Aerial Plant Protection regulates the appropriate distribution of pesticides so as to mitigate contamination arising from inadequate use (this includes such measures as the keeping of safety strips, and wind barriers *over* a determined velocity of wind). It is noteworthy, that aerial spraying has considerably decreased in volume these last years, mainly due to the high application costs. (CBD Art. 8(l))
For the technical solutions of environmental protection and the maintenance of biodiversity in agrarian areas and for the distribution of *subsidies* for the protection of cultivated lands the minister of agriculture and partly the ministers for environment and regional development are responsible. (CBD. Art. 20.1.)

Figure 6: Data on the Hungarian forests





Source: National Forest Database, FM Forest Managment Service, 1996

	1982	1983	1984	1985	1986	1987	1988	1989	1990
Growing stock (million m3)	262	266	269	274	275	278	282	285	288
Timber production (%)	100	99	97	103	104	99	96	97	90
	1991	1992	1993	1994	1995	1996			
	291	294	298	303	309	315			
	87	79	70	69	74	79			

Table 6: Forest area in Hungary compared to some European countries

Country	Forest area (1000 ha)
Luxembourg	850,0
The Netherlands	3340,0
Switzerland	11300,0
Hungary	16750,0
United Kingdom	22070,0
Portugal	27550,0
Norway	86970,0

Source: UNECE/FAO (1992), CEC/UNECE (1993)

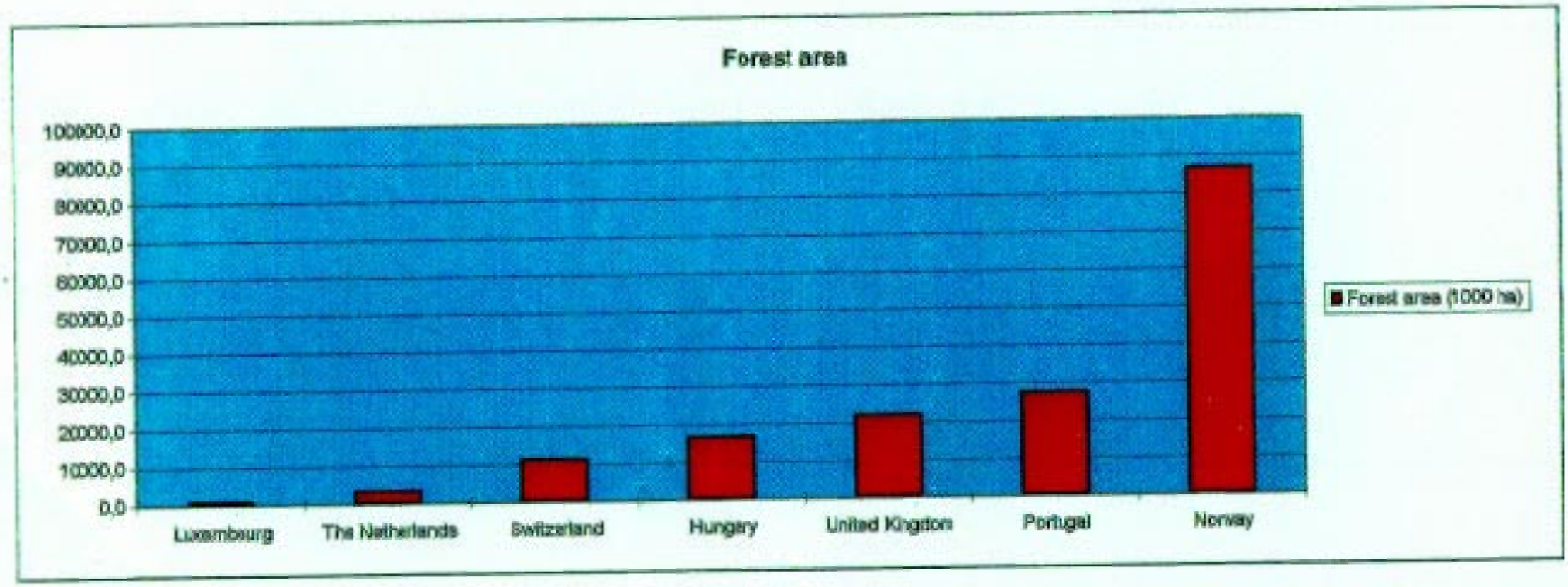


Figure 7: Distribution of forest area by species group in 1996

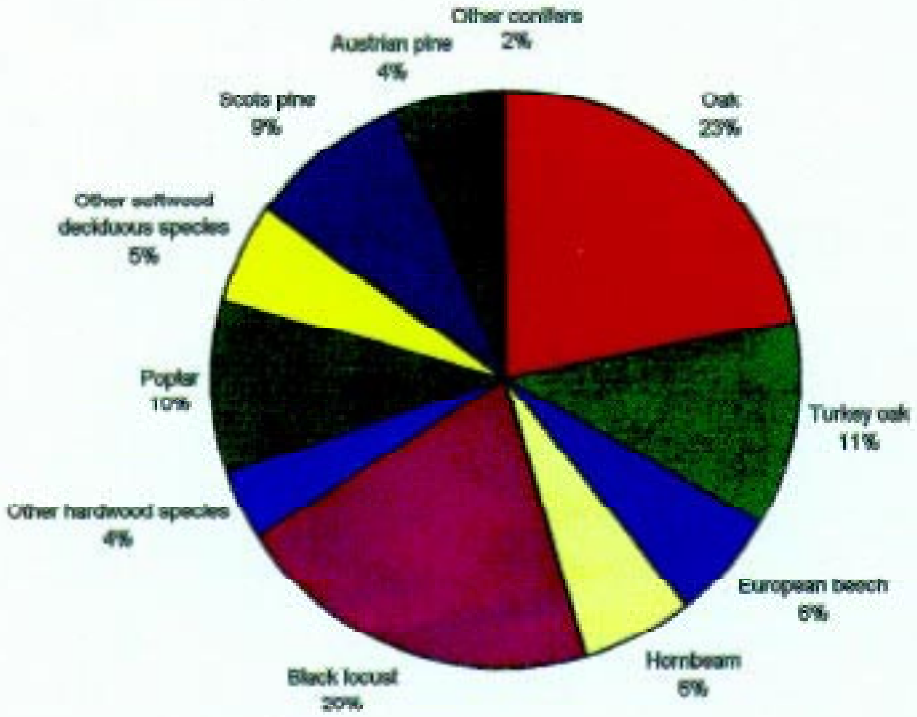


Table 7: Some selected threats to biodiversity and their general impact

FAUNA	Vertebrata	Invertebrata
Habitat destruction	moderate	partly * serious
Over-harvesting	insignificant	partly *serious
Pollution	insignificant	partly *serious
Inappropriate introduction of foreign plants	not relevant	partly *serious
Inappropriate introduction of foreign animals	partly * moderate	partly *serious
Restructuring of land use	partly moderate	partly *serious
FLORA	Cauline plants	Other
Habitat destruction	partly * moderate	no available information
Over-harvesting	insignificant	partly *moderate
Pollution	no available information	no available information
Inappropriate introduction of foreign plants	partly * serious	partly * serious
Inappropriate introduction of foreign animals	partly * serious	no available information
Restructuring of land use	partly * moderate	no available information

*partly: in the case of certain species or taxonomic groups

Some basic data on the economy:

GDP/per capita (1996):	4.347 USD
Unemployment rate (1996):	10.7 %
The distribution of GDP in various sectors (1995):	
Agriculture and forestry (incl. hunting and fishery):	7.2 %
Industry (including building and construction)	26.6 %
Services	66.2 %

Regarding the main economic sectors, from the end of the eighties, the Hungarian economy was considerably transformed. The rate of agriculture was 20 % in the seventies and eighties, after which this value dropped to below 10 %. Industry also decreased by 10 to 15 %. All of these trends have resulted in a rapid and significant growth of services in recent years. The present ratio of the service sector is near to the average of the developed OECD countries.
The *employment structure* of the active population generally follows these transformation trends. Due to the economic recession, mainly caused by the transformation, the unemployment rate greatly exceeds the present average rate of OECD countries. Moreover, this ratio shows significant differences in various regions of Hungary.
During the last 10 years, the number of companies and enterprises grew about tenfold and a number of state-owned companies were privatised. These resulted in an increasing number of small and medium-size enterprises and the development of the private sector.
One of the most important methods of ownership restructuring is the privatisation of state companies. The basic goal of ownership reform is the improvement of economic productivity and to establish a company ownership that is directly interested in the utilisation of resources.
At the end of 1994 the number of economic organisations bearing a legal status reached 100,000. The number of small enterprises was about 800,000. A similar trend characterises proprietary changes. In the middle of the 80's more than 90 % of GDP was generated by the state sector. In 1994, the share of the private sector exceeded 50 % of the GDP. About one-quarter originated from companies partly or completely foreign owned. Recently, the state-owned servicing enterprises have also been privatised, for example, natural gas distribution and the electricity supply.

The *new environmental standards,* drawn both from national and international requirements are also being introduced during this restructuring process.

Transport

In Hungary the public road network has expanded only marginally during recent years. The 1996 data of 30 thousand km showed an increase of only 200 km compared to the 1989's figure. Within this the length of highways increased from 218 km (1989) to 336 km in 1996. The railway system has, in turn decreased by 300 km over the last 8 years **(Fig. 8).** It is however noteworthy, that the length of electric tramlines has increased by 100 km.
The traffic and transport, and their various forms (public road, railway, water, air

and sub-way) all may considerably affect biodiversity. Over and above contamination the transportation lines also imply ecological barriers and traffic is directly associated with the devastation of living beings in very high numbers. This may lead to the irreversible destruction of habitats, over and above landscape degradation, habitat fragmentation, eutrophycation, acidification and obstructing migration.

A good index of hazard estimate is the extension of the road-network or the changes in the car and track stock. At the end of 1996 the number of cars amounted to 2264, that corresponded to an increase of a half-million (22 %), compared to 1989. The car stock has gradually been changing to stock of "western" type, however the greater number of cars entering the country are used vehicles. The car composition of the stock is also obsolete to a large extent with high fuel consumption and presenting problems of environmental pollution. The average age of cars increased to 11.7 years in 1996, compared to the 8 years average in 1989. Parking spaces for trucks has increased by 3 1 %. The number of trucks increased from *205* thousand (1989) to 300 thousand by 1996.

Road traffic is regulated by the 1988's Act No. I. The Act has undergone several modifications, most recently by the 1996's Act No. X. This Act specifies the basic conditions of road traffic and the rights and obligations of the persons and organisations involved, so as to promote public security, construction of public road network, establishment of modem vehicle fleet, as well as transport of passengers and goods, with a special attention to environmental conservation. It also orders paying attention to the interests and goals of environmental and landscape conservation during public road development.

Foreign trading, tourism

Following the economical-political changes, Hungary has moved into the spotlight of international interest and this is fairly indicated by the abrupt increase in the number of tourists. The number of tourists visiting the country has increased from 24.9 million (1989) to 37.6 million by 1990, that corresponds to 5 1 % increase per year. Throughout 199 l-l 992 this increase was followed by a decline of 4 million, compared to 1990's. Then in 1994, the number of visitors surpassed 40 million and it has now stabilised with little variation. The figures fairly indicate that the importance of tourism has been increasing. In all likelihood ecotourism may also increase. Exact data referring to this are not available, however information on tourism in natural areas would indicate this **(Fig. 9)**

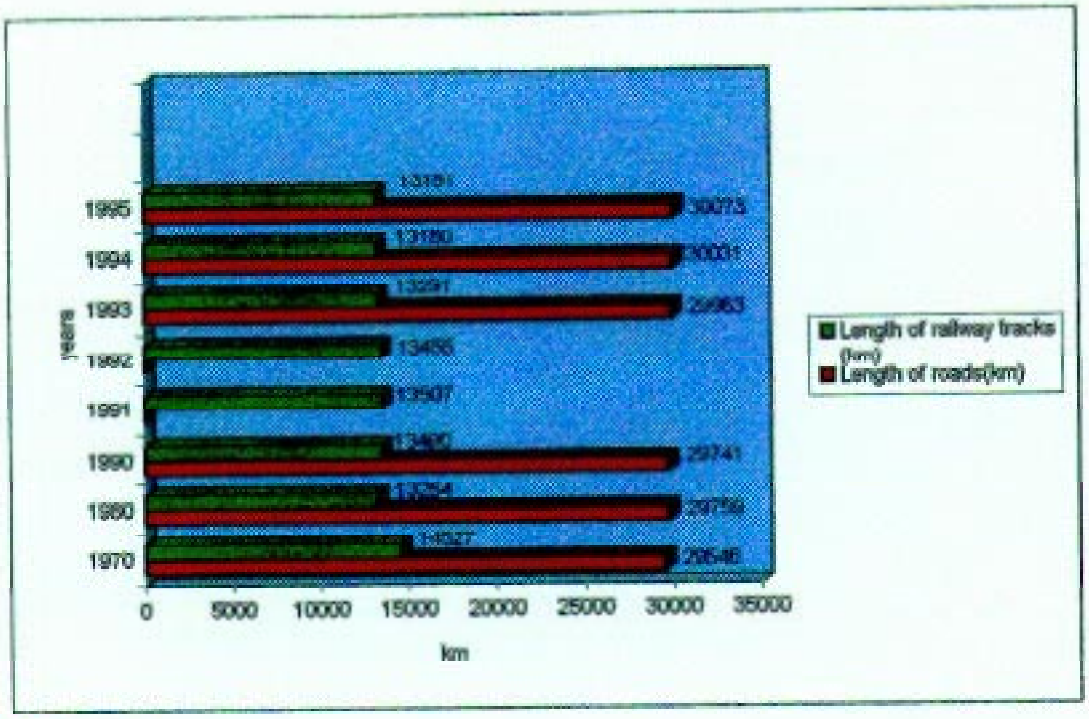
Settlements

Settlement is the second most important element of landscape formation, after agricultural activity. The settlement may exert considerable negative effects on biodiversity and the natural environment to a varying extent depending upon the size and infrastructure of the settlement. The number of homes built and the closely related green area sizes per inhabitant are useful indices of the effects of settlement on the natural environment. In Budapest the figure of 6985 home-buildings registered during the 1990's dropped to 3553 newly built homes by

Figure 8: Changes of length of Hungarian roads and railways

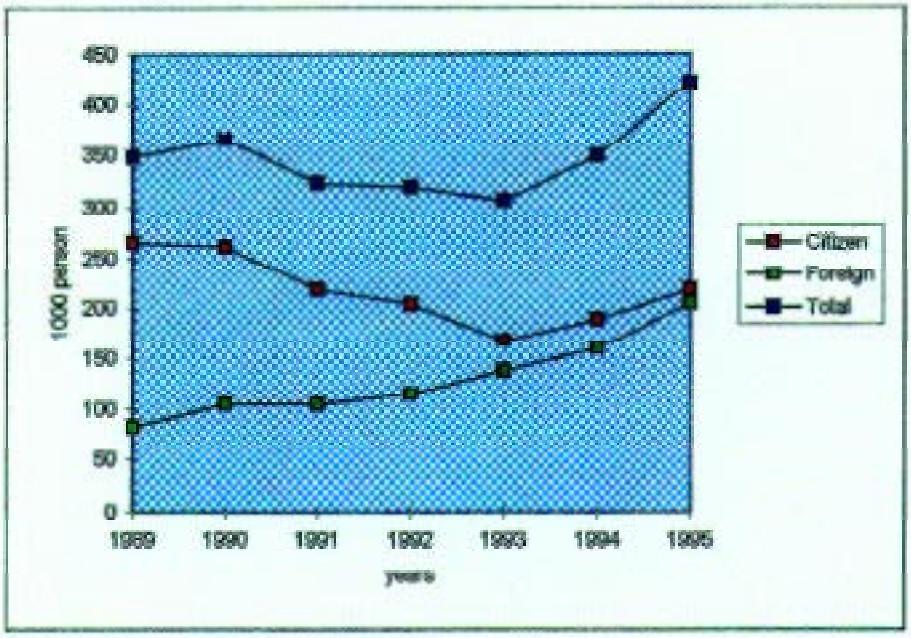
	1970	1980	1990	1991	1992	1993	1994	1995
Length of roads(km)	29546	29759	29741	*	*	29963	30031	30073
Length of railway tracks (km)	14527	13264	13490	13507	13455	13291	13180	13181

*-no data available



Source: KSH Yearbook, 1996

Figure 9: Number of tourists in a natural region (Northern Hills "Bükk-Mátra")



(1000 ✕)

	Citizen	Foreign	Total
1989	265	83	348
1990	261	105	366
1991	218	105	323
1992	204	115	319
1993	168	138	306
1994	169	180	349
1995	218	205	423

Sources: KSH Yearbooks, from 1989 to 1995

1993. This tendency was reversed from 1994 to 1995. The 2910 home-buildings registered in 1994 increased by 15 %, i.e. 3354 in 1995 **(Fig. 10).** This tendency was characteristic of the whole country. At the same time the proportion of green areas has changed in inverse proportion to the rate of new home construction **(Fig. 11).**
The relevant act is Act XXI of 1996 on Regional Development and Regional Planning. This is aimed at promoting a balanced regional development of the country, to assert a global regional development policy for the harmonisation of the region development and country planning tasks at the country and regional level. The Act has been constructed according to the requirements and principles of joining the institution system of the European Union.
The ministerial order of the National Building Code No. 2/1986 (11.27) ÉVM regulates the building activities and investments on the ground-use-units such as dwelling, institutional, industrial, further storage, traffic, forest, green-belt and agricultural purposes.

3.3.Assessment of the value of biodiversity, in terms of conservation

The NEP states that "the country is in possession of significant natural resources and environmental values, the protection of which is also an economic interest". However, assessment of the value of biodiversity is an unresolved problem and *actually no assessments* are to be found on the economic valuation of biodiversity or any of its elements. Proposals made for consideration of natural values in economic processes and development plans (e.g. liability for the use of nature, fee for its use) came unstuck because of the lack of appropriate assessment possibilities.
The legislation on Nature Conservation was initiated in 1975 (by the order No. 3/1975. OTvH) the so called *ideal monetary value* of protected species, ranging now from 10 to 2,500 USD (depending on the level of protection). The aim of these values was, and is, to help the administration and justice authorities when applying sanctions against illegal actions on, and violation of, law which bring about damage to that species. They are now also taken into consideration e.g. when carrying out EIAs. Certain *local governments introduced* similar valuation of individual trees within their area of jurisdiction.

3.4.Assessment of the legal and policy framework for biodiversity conservation and use

Steps taken since the signing of the Convention on Biological Diversity (CBD)

Hungary ratified the CBD in February 1994 and the Convention has been enacted by Parliament as an Act. The obligations under the convention are also reflected in the National Environmental Programme (6) and in the new legislation.

The first steps of the implementation of obligations arising from the CBD coincided with the significant *economic and social transition* from a centrally planned economy into a market economy, transforming property

relations through privatisation as one aspect of this many-sided process of primary importance. The transformation has been, and is, hampered by several problems (e.g. considerable debt for foreign countries, loss of export markets at the outset, unemployment and increasing poverty) and it is even unfavourable with a view to conserving certain elements of biological diversity. But despite all of these, it also offered an opportunity to establish new policy and legislation on the maintenance and sustainable use of biota and *to* improve the surveillance system.

Thus, the **new Act on the Environment (Act No. LIII. of 1995 on the general rules of environmental protection)** stated the need for the establishment of further acts concerning nature conservation and the use of wildlife (Paragraph 3.) and "the use of wildlife should go on the way, which is not damaging the biological diversity and its functioning" (Paragraph 23.). The **Act on environmental product-fees (Act No. LXI. of 1995)** has broadened the range of products charged by an environmental fee (formerly fuels have been the only materials burdened).

Some of the **Government decrees or ministerial orders** issued since the signing of the CBD implement its provisions. Thus, the number of protected and strictly protected flora and fauna species has been significantly increased (order No. 12/1993 (III.3 1) KTM), an interim Government decree (No. 86/1993 (XII.3.) Korm.) has been enacted on the obligation for *Environmental Impact Assessments* (EIAs). This, following its modification in 1994, has also been modified in 1995 by the decree No. 152/1995 (XII. 12.) Korm., broadening significantly the spectrum of activities where EIAs are obligatory. The most important elements of these, and additional new provisions of law for biodiversity conservation (CBD Articles 6, 10 and 11) are:

Act LXV of 1990 on Local Governments ensures local communities the right to self-determination within their jurisdictional area and specifies the scope of duties of the local governments including the conservation of the natural environment.

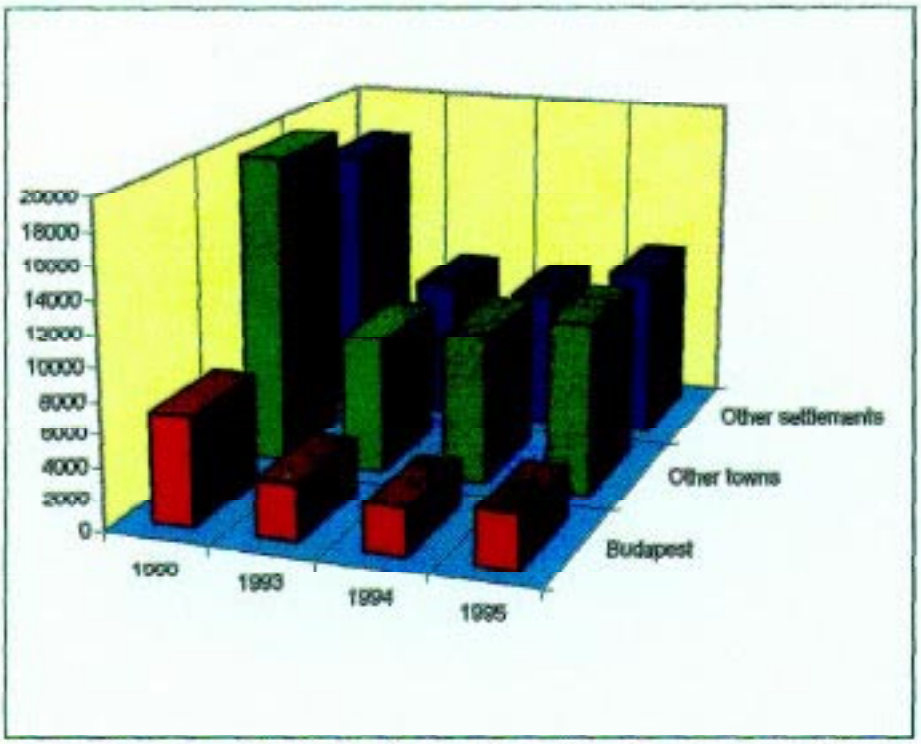
Act XLII of 1993 on the notification of the Ramsar Convention and its modifications issued in a single charter

Act LV of 1994 on Arable Land

The goals of the Act are to ensure the prevalence of market relations to private ownership, to effectively promote the functioning of the new operating organisations, further to establish land holdings suitable for competitive agricultural production so as to avoid the adverse consequences of land fragmentation to the proprietary structure of agriculture, as well as to provide undisturbed agricultural production for farmers, to keep agricultural land reduction in rational limits and finally, to ensure an appropriate legal background for the protection of arable land.

Certain passages of the Act mention that the elements determining the *morphological and local climatic features of the Ian&cape should be maintained* during land use, preparation and implementation of amelioration plans and other

Figure 10: Number of homes-built in various settlements

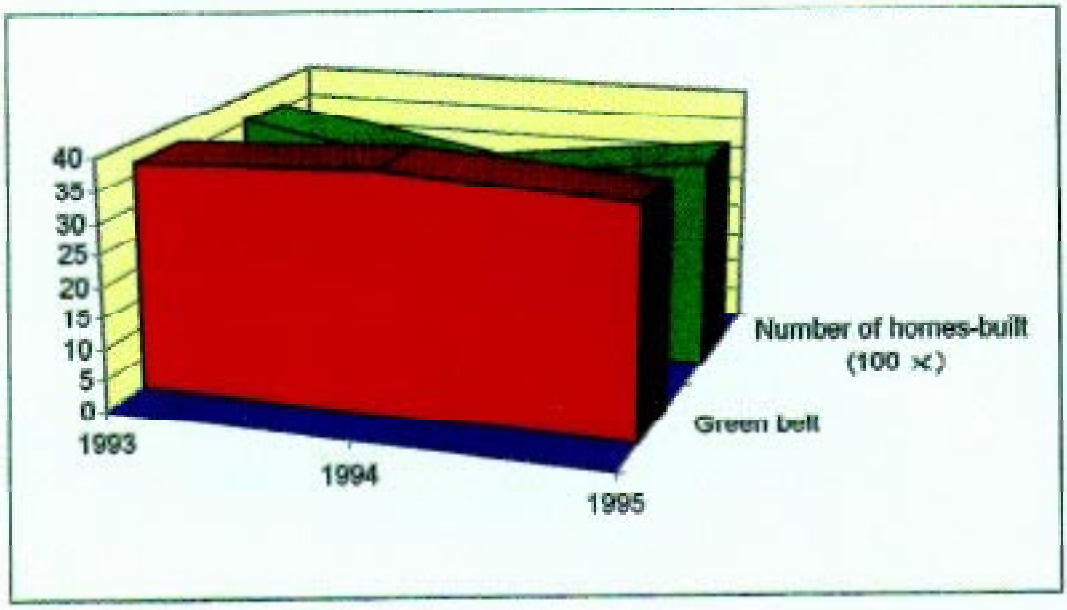


	1990	1993	1994	1995
Budapest	6985	3553	2910	3354
Other towns	19640	8612	9460	10844
Other settlements	17146	8760	8577	10520

Sources: KSH Yearbooks, from 1990 to 1995

Figure 11: Green belt and homes-built in Budapest

	1993	1994
Green belt	36,9	38,6
Number of homes-built (100 ×)	35,53	29,1



activities, *in particular* the relief and the peculiar configurations of the terrain, the natural water surfaces, the reed-beds and marshland habitats, further the natural flora of lands unsuitable for agricultural production, the values of cultural and historical importance. It is important to remark that the Act orders the keeping of prescriptions for the soil protection in areas where production does not take place(CBD Art. 10(a), (b), (c)).

The Act LIII of 1995 on Environmental Protection implies a framework law for the protection of the environmental elements by enforcing the principles of precaution, prevention and restoration. The aims of the Act are to establish a harmonic relationship between man and his environment, to protect the elements and processes of the environment, and to *ensure the environmental conditions for a sustainable development.*

The act provides suitable scope for asserting the constitutional rights for a sound environment in accordance with the precautionary principle and equitable bearing of burdens. It promotes:

a) mitigation of the use, load and contamination of the environment, prevention of its destruction, improvement and restoration of the destroyed environment;

b) protection of human health and improvement of the environmental conditions for quality of life;

c) conservation and maintenance of natural resources, making rational use of the resources thereby ensuring their revival;

d) harmonisation of other governmental tasks with the requirements of environmental protection;

e) establishment of international co-operation needed for environmental protection;

f) motivation of the inhabitants to take initiatives and participate in environmental activities, in particular the discovery and awareness of the state of the environment, and setting the agenda for government and local government in relation to environment protection;

g) harmonisation of the operation of the economy and social and economic development in line with requirements related to environmental protection;

h) establishment and development of the institutional system needed for environment protection;

i) establishment and development of public administration for providing the protection and maintenance of the environment.

The Act prescribes the constitution of *additional acts* in the interest of conservation and sustainable use of wildlife, referred to as nature conservation,

hunting, fishery and forestry.

The Act LIII of 1996 on Nature Conservation (CBD Articles 1, 2, 6-11, 13, 14, 18, 19)

Maintenance, management and improvement of the state of natural values, and their conservation for future generations, ensuring the economic and rational use of the natural resources, the protection of the natural inheritance and biological diversity and the further establishment of a harmonious relationship between nature and man according to our international obligations, requires the effective protection of nature. The legal basis of this is primarily served by the Act on Nature Conservation.

The objectives of the Act are as follows:

a) General conservation of the biological diversity of natural values and areas, landscapes, furthermore their natural systems, to promote cognition and sustainable use, and satisfy the sound and aesthetic requirements of society for nature;

b) keeping and improving the results of traditional nature conservation, strict protection, maintenance and development of natural values and areas.

The most important elements of the Act related to biodiversity conservation are summarised below.

General protection of habitats - CBD Art. 8(c), (d), (e)

Compared to previous legislation on nature conservation, the new Hungarian Act on Nature Conservation also gives priority for the protection of areas not included in the nature conservation areas. Namely, *sustainable use* is to be ensured during agricultural-, forestry-, reed-beds, fishery- and game management, implying duration, use of environmentally friendly methods, and the conservation of biological diversity.
The same refers also to afforestation, grass management and water management activities.
The natural flora of wetlands and of areas with adverse habitat endowments for farming is to be maintained.

Primary protection of natural areas - CBD Art. S(a), (b), (e)

Beyond basic protection and regulation at country level, the areas of high-significance in respect to biodiversity conservation get priority by the Act.

The protected areas are listed into the following categories:
a) national park, b) landscape protection region, c) nature conservation area, d)

natural monument.
Under the ruling of the Act *all the marshlands, caves, salt ponds* are automatically classified as nature conservation areas, whereas *all the springs, sumps, barrows and earthworks* are considered as natural monuments.
Generalprotection of wildlife - CBD Art. 8(c), (d), (g), (h), (i), (1).

The economical, farming and marketing activities, exerting impact and load to the wildlife organisms, are to be done so as to sustain functioning of natural values and systems and biological diversity.
Among other matters, the mass-destruction of wildlife organisms and artificial alteration of their genetic material is prohibited. The Act prescribes, that any activity with *genetically modified organisms* (GMOs) can only be done according to the specifications of a separate Act. (In 1997 the draft of this Act was completed and submitted to Parliament for approval.)(CBD Art. S(g), 19)
Introduction of *non-indigenous living organisms* requires permission in the welfare of the native biocoenoses. It is prohibited to introduce non-indigenous fish species into natural or semi-natural waters (CBD Art. S(h).

Protectedfauna and flora species, their associations - CBD Art. 8(c), (k)

In the interest of maintaining biological diversity the wildlife organisms deserving conservation, their communities, and furthermore their habitats, including residencies, should be declared as protected. It is prohibited to endanger the individuals and communities of the protected species or destroy them without permission.
Landscape protection - The task of landscape protection designated in the law is to protect landscape, as a spatially distinct part of the earth's surface with a peculiar structure and features, so as to protect the peculiar natural values and natural systems and the characteristics of the human culture.
It is also aimed at ensuring the natural and semi-natural state of landscapes during the use of the natural values, furthermore to provide for the protection of the aesthetic endowments, natural values peculiar to the landscapes, as well as that of the natural systems and individual landscape values.

Act LIV of 1996 on Forest and **Forest Protection** specifies the requirements of management related to forest, that was issued in an organic structure with the Ministerial Order No. 29/1997 (IV.30) FM. The goal of the Act is to promote continuous protection and multiplication of the forest, as a living community and habitat depending upon natural factors and human activity, furthermore as an indispensable part of the natural environment and a renewable resource, as well as to ensure long-term maintenance of forest estates and harmonisation between the proprietary and management interests.
Hungarian legislation also intends to regulate proper forest management by the Act XLIX. of 1994 on Forest Proprietary Associations. This Act deals with the foundation, organisation and operation of the associations and commitments of the members. It authorises the state to have the right of pre-emption in the case of part-ownership being in a nature protection area. (CBD Art. 8(c), (f), (h), (1), 10, 11)

Act LV of 1996 on Game Protection, Game Management and Hunting was issued in organic structure with the executive order No. 3011997 (IV.30) FM.
In the interest of nature conservation and rational exploitation of the game population, the Act obliges the person entitled to hunting to conserve the game population in his hunting ground and its biological diversity, further to take care of the game and its habitat. This Act also regulates or binds to permission, the release of bred game and non-indigenous species into the wild (CBD Art. 8 (c), (f), (h), (l) and IO).

Act XLI of 1997 on Fishing and Angling is enacted for the specification of the fishing conditions, in the interest of the conservation and permanent revival of the natural diversity of the fauna and flora, further the harmonisation of exercising the right to fishing with the requirements of the market and protection of the aquatic wildlife and natural environment of waters. The section referring to biodiversity declares that the authorised person is obliged to protect the fish population and the aquatic biocoenosis and habitat within his fishing waters, and to promote natural feeding and reproduction of fish, including the saving of young fish in the event of flooding. The Act regulates or binds to permission, the release of reared and non-indigenous animals into Nature. (CBD Art. 8 (c), (f), (h), (1) and 10, 11)

Legal bases referring to the elimination of adverse effects
(CBD Articles 6, 8, and 11.)

In the conservation and sustainable use of biodiversity not only the rules referring directly to the wildlife are involved, but the legislation. on environmental protection also occupies a considerable part, which attempts to prevent, minimise, and eliminate contamination arising from human activity.
The additional laws, important in respect of biodiversity, enacted by the Hungarian legislation are as follows:

Act LVII of 1995 on Water Management specifies the basic rights and obligations. related to the use of waters, further the maintenance of the exploitation and prevention of damage, according to the requirements of environmental protection and nature conservation.
The power of the Act comprises the sub-soil and surface waters, further to the natural reservoirs of the sub-soil waters, as well as to the bed and banks of surface waters. For the protection of waters and their biocoenoses and for the exploitation potential the Act orders:

a) Regular supervision of the exploitation conditions,

b) Prevention of water contamination,

c) Protection of waters or regulation by establishment and operation of water objects,

d) Prevention, mitigation or elimination of water quality deterioration hindering water use,

e) Water protection oriented maintenance of waterbeds and water objects. (CBD Art. 8(f), (l), 11)

Act XXI of 1996 on Regional Development and Regional Planning is aimed at specifying the basic tasks and standards for regional development and country planning and to establish its institutional system so as to determine land use, according to the load and tolerance of the environment and the developmental targets (CBD Art. 8 (1) and 11).

The Hungarian legislation attempts to extend the environmental conservation so as to be present in most of the spheres where any activity may exert effect on the environment and its elements.
The main provisions of **Act XLVIII of 1993 on Mining** related to biodiversity are as follows:
Research for mining purposes in Hungary requires the approval of the nature conservation authority. The obligations of the person entitled to the mining area (reinstating damage caused by the mining process, country planning, i.e. recultivation of opencast mining grounds, and safety) subsist after the annulment of the space, in respect of environmental and nature conservation (CBD Art. 8(l)).

Act CXIV of 1993 on Animal Breeding provides that the methods applied in animal breeding should satisfy the requirements of environmental and nature conservation, animal protection, public health, market and veterinary hygiene.
The protected native species represent a significant genetic value. Their conservation in an original state is a national interest and a governmental task. Besides the native species, the Act also contains provisions to protect the endangered species with a high-genetic value (CBD Art. 2, 8(g), (I), 9(a), 11). A separate act (Act XCI of 1995) deals with veterinary hygiene; wild animals also come under its ruling.

The Government Decree No. 152/1995 (XII.12) on Environmental Impact Assessments – (CBD Art. **14.)**
Environmental impact assessment (EIA) serves as a useful tool of biodiversity conservation. The obligation to perform an EIA was primarily ordered by Act II. of 1976. It was followed by the Government Decree No. 86/1993 (VI.4), that was modified complementarily by the Government Decree No. 67/1994 (V.4) and recently by that of No. 152/1995 (XII. 12). The aim of the impact assessment is to determine, describe and evaluate the effects of various activities and development specified in its Annexes. Namely, those effects that, in some form or other, may influence man, animals, plants, soil, water, atmosphere, climate and landscape. It is therefore a tool for the assertion of the Precautionary Principle.

The EIA report should contain overall information on the impact of any activity on the environment. In Hungary the system of impact assessment consist of two parts: a preliminary and a detailed one. These should analyse among other matters:

- The environmental, natural and landscape conservation functions of the affected area,
- The possible changes in these functions due to the intended activity,
- The effects beyond the area of the planned activity (signalling separately the effect beyond the country borders - CBD Article 3,
- The measures for environmental protection to be effected.

There are 111 sorts of activity listed in the appendices that require the performance of EIAs. A separate appendix lists additional activities necessary, e.g. in the case of nature protection areas (the laying of sub-soil pipes and cables and air corridors, tourist facilities; game release).

The **Government Decree 102/1996 (VII.12) on Harmful Waste** Materials (on the basis of the Act on Environment Protection - CBD Art. 8(l)
The power of the Order covers harmful waste materials and related activities, furthermore it extends to the holders and possessors of harmful waste materials. The holder of the harmful waste materials is obliged to prevent the contamination or damage of the environment, by harmful waste material getting into soil, surface and sub-soil waters, and the atmosphere.
The Order details the permission for activities with harmful waste materials, that also requires ecotoxicological testing. Furthermore, it deals with the handling, collection, storage, transportation, exploitation, as well as the import and export and transit-transportation of the harmful waste materials, The Order's supplement lists the materials classified as harmful waste materials, and also includes the ecotoxic materials and wastes (which by getting into the environment via biological accumulation or toxic effects may produce immediate or delayed adverse effects).

Other existing legislation relevant to help maintaining biodiversity (CBD Art. 8(l))

In the Hungarian legislation there are several regulations which have an influence upon the biodiversity and conservation of its elements.

Act I of 1988 on Traffic, modified by Act X. of 1996 specifies the basic conditions of road traffic and the rights and obligations of the persons and organisations involved. This promotes public security, construction of the public road network, the establishment of modern vehicle fleets, as well as the transport of passengers and goods, with special reference to environmental protection. The protection of inhabited areas, in particular the historic districts of towns, the care

of monuments and protected natural areas, further the health- and pleasure resorts from the adverse effects of traffic are to be ensured.

The Government Decree No. 21/1986 (VI.2) Korm. on Air Pollution Control
The Decree specifies the most important regulations referring to the prevention, mitigation or elimination of harmful air pollution, in the interest of the protection of human health and the human environment.
For the protection of air quality the decree assigns the various areas of the country into the following categories.

- Primarily protected category comprises those areas where increased protection of air quality is reasonable in the interest of health and environmental protection (e.g. nature protection area, health-resort, pleasure resort).
- The requirements of air quality may be lowered in the case of the connected industrial areas and large-scale agricultural farms, devoid of direct contact with the inhabited and primarily protected areas, bearing in mind the effects of the air drift of contamination and the prescribed protective belt.

The decree deals with:

- The enforcement of the requirements for air quality protection during planning,
- The requirements related to new air-polluting sources established/fixed to the ground,
- The requirements related to the operation of air-polluting sources,
- The requirements of air pollution control referring to certain products,
- The exceptional measures and the fine for air-pollution.

The order on the **National Building Code No. 2/1986 (II.27) ÉVM** contains the regulations of building site formation and various building operations, as well as the conditions relating to prohibition on building and the restriction on building. The marking out of the ground-use-units is to be done so as to *maintain the features and flora of the Ian&cape.* There is an important stipulation regarding the conservation of natural values. It is the *ban on building* until countermanded with limited deadline, and until the implementation of the particular condition, if necessary in the interest of archaeology, the care of monuments and environmental and nature conservation.

Law Decree No. 2 **of 1988 on Plant Protection** contains agrotechnical, physical, biological, chemical, or other measures for the prevention of the spreading of pests damaging to crops and yields, to control their damage, to prevent their introduction, and if necessary for the destruction of pests, in harmony with the protection of human health, the human environment and Nature (see also Section 3.1 Agriculture)

Access to Genetic Resources (CBD Article 15)

Wildlife species:
The Act on Nature Conservation requires permission for 'the following: the establishment of gene banks and banks of reproductive materials, further input of protected plant species into these banks, as well as the exchange, transport, purchase and sale of animal genes.

Cultivated plants and bred animals: the State takes the responsibility for the professional and financial supervision of those contracts, brought about by the conservation and development of the biological bases, to the debit of the Agricultural Development Fund.

3.5. **Existing policy instruments or other measures aimed at sustainable management of biological resources (See** also: Section 2 and 4)

The implementation of the CBD is governed and directed by the Hungarian Commission on Sustainable Development (HCSD) including the various economic sectors. The HCSD initiated in 1995 the preparation of a country study on biological diversity following the UNEP Guidelines (1993).
The Government approved in 1996 the National Environmental Protection Programme (NEP) which includes several elements of the conservation and sustainable *use* of biological diversity for the next 6 years (see Section 2.1 and 2.2).
National Concept on Regional Development and concepts on some sectoral fields (energy policy, traffic, water management) have also been adopted.
The National Agricultural Programme is open to a nation-wide debate.
The Hungarian Academy of Sciences (HAS) prepared its "Foundation for developing a national strategy of biodiversity conservation" in 1993.
The "Long-term Environmental Plan of Hungary - Phase I. Natural Environment: Air, Water, Soil, Biota" (Institute for Social Conflict Research, HAS, 1994) formulates long-term objectives as the desirable status of the natural environment by 2000 and 2010. The document outlines three scenarios of possible structural and economic changes and the interventions to be implemented for obtaining the objectives.
Important proposals have been put forward by NGOs. The Institute for Sustainable Development prepared a draft (Zöld Akció, 1992). Another significant material of the same Institute is the "Guide to the Convention on Biological Diversity" (Gergely and Gyulai, 1996).
The Hungarian WWW Office published the document on "Possibilities of Maintaining Biological Diversity" (Haraszthy, L., 1995).
The National Society of Conservationists (NSC) formulated a Programme on Sustainable Development for Hungary (1996) emphasizing the need for the consideration of ecological aspects in planning and development as well as the importance of the economic valuation of natural resources and a new tax system.

3.6. Assessment of institutional responsibilities and capacity

The Hungarian institutional background is similar to that of most of the European states. The Ministry for Environment and Regional Policy (MERP) is responsible for co-ordinating the implementation of the CBD. Agriculture, forestry, fishery and game management is administered by the Ministry of Agriculture. The Hungarian Commission on Sustainable Development (HCSD) also deals with biodiversity problems on the inter-sectoral level. Environmental Committees generally advise on related activities of local governments. The evaluation and research of biodiversity are traditional fields of various institutes (HAS, Hungarian Museum of Natural History and regional museums, universities etc.). However, the existing good level of expertise is insufficiently equipped and suffers from a lack of adequate resources.

4. NATIONAL BIODIVERSITY STRATEGY AND ACTION PLAN (NBSAP)

The NBSAP to be prepared by 3 1 December, 1998 under a GEF/UNEP project has to build upon existing documents, programmes and proposals and further ideas, and to select appropriate actions primarily for the following sectors: agriculture, biotechnology, fishery, forestry, freshwater, hunting, land use, mining, regional development and tourism. The selection of actions should mainly be guided by their feasibility taking into consideration the necessary financing and the implementing organisations. It is also significant to focus on the solution of existing gaps in the realisation of the CBD.

The NBSAP should be prepared with special regard to make understandable, and to secure -recognition of sustainable use of biodiversity, and to help the acceptance of sustainable use as a real possibility, equivalent to conservation in maintaining biodiversity, where appropriate. At the same time, strengthening of *in situ* and *ex situ* conservation activities is also required, where the conservation, restoration and strict protection are the only possibilities.

It should explore new strategies establishing and developing links with interest groups and bodies including NGO's in other countries and promote knowledge among international bodies of the often unique value of Hungarian ecosystems. Hungary contains many sites of international importance. -The unique inland delta regions of the rivers Danube and Tisza, wetland areas with a mosaic of landscapes and some of Europes last surviving floodplain forest complexes, are home to over 1000 plant species and almost 2,800 animal species. Hungary is the custodian of these regions and as such should be supported in its efforts to sustain it.

It should also place emphasis on raising the general public awareness of the environment and the national heritage of biodiversity. Education programmes in schools, universities and other institutions can greatly help to make the public aware of the considerable genetic wealth and diversity contained within Hungary. A wealth that has value, both intrinsic and real, and that should be preserved and enhanced. By doing this the conservation of biodiversity can be seen as a responsibility for which all Hungarians must be accountable both for the benefit of themselves and for future generations.

The most important existing strategic documents are as follows:

- "The Programme for Maintaining Biological Diversity" (Zöld Akció, 1992 - MS, in Hung.)

- "Foundation for developing a national strategy of biodiversity conservation" (HAS, 1993 in Hung., Engl. transl.: 1994) which focuses on the optimisation of nature conservation, protection of habitat and taxonomic diversity and also on *ex situ* conservation and biodiversity in agriculture.

- "Long-term Environmental Plan of Hungary - Natural Environment: Air, Water, Soil, Biota" (HAS, 1994 - in Hung. with Engl.sum.), see Section 3.4.

- "National Environmental and Nature Conservation Policy Concept" (MERP, 1995), see Section 2.2.

- "Possibilities for Maintaining Biological Diversity in Hungary" (Haraszthy L., 1995 - in Hung., Engl. transl. exists). The document summarises the problems of biodiversity conservation and sustainable use examining the activity of sectors most important in this respect, such as: settlements, infrastructure (roads etc.), agriculture, forests, industrial forest plantations, freshwater, reed-beds, certain areas out of cultivation including marshes, strictly protected areas, biosphere- and forest reserves. It also makes proposals for legislative, administrative and practical measures necessary to maintain and improve the biodiversity of the areas concerned.

- "National Environmental Programme" (MERP, 1997), see Section 2.2).

These documents have several elements in common, which can be summarised as follows.

The importance of biodiversity conservation has been recognized as one of the basic tasks of the nature conservation policy. It incorporates conservation measures for all major levels of biodiversity, namely:

(i) on the level of populations, where the main target to be achieved is the maintenance of *genetic diversity* and the protection of gene-reserves, considering both non-domesticated plants and animals, cultivated plants and bred animals;
(ii) *on the level of species,* where the extinction of species has to be prevented, the reduction in the number of species has to be stopped and viable populations of various species have to be maintained; and
(iii) *on the level of habitats,* where the preservation of the species-diversity of biocenoses and the maintenance of the variety of species-combinations are to be regarded as major objectives.

They mainly focus on the conservation of *threatened elements of biodiversity,* thus on the protection of species that have reached' a critical stage of their existence, to reserve areas which include the habitats of all these species (moreover with extensions that provide for the support of a viable population). Special attention is also to be paid to those belonging to the group of species with a so-called sporadic distribution; it seems reasonable to publish the Red Data Book periodically which should contain the lists of endangered animal and plant species, as well as those habitats which are extremely threatened. An expert committee dealing with the assessment and treatment of *non-indigenous species* is also to be established. Relevant measures are necessary for the plant species (of which 3,000 exist in Hungary) because of the increasing risks of adverse influences. (36 plant species, including one /Puccinella pannonica/ that was endemic in Hungary, have become extinct recently and 41 species are directly threatened, most of which are so-called relict species (boggy, alpine etc.) For the natural communities of these plant species an area of appropriate size should also be protected and special attention should be paid to those habitats representing

"islands". Protection of the flora cannot be separated from the protection of the soil and the forests. Some of these tasks are described in more detail below.

Conditions for maintaining the biodiversity of the natural vegetation

There are some important planning, operating, managing tasks of conservation authorities such as:

- The optimisation of the protected area network to maximise biodiversity and (CBD Art. 8).
- The survey and classification of habitat types according to threats (CBD Art. 7(a).

Network of environmentally sensitive areas (ESAs) - CBD Art. 8(i), (j) and 10

Several areas with traditional management types have survived in Central and East-European countries including Hungary (floodplains of big rivers with meadows, pastures and orchards); peculiar settlement structure and management in the western part of the country (foothills of the Alps), species-rich hay meadows of submontane and colline regions; poor pastures with sandy soils and salt-affected areas. These traditional types have already been seriously affected by large scale industrialised agriculture. The planned establishment of the Network of Environmentally Sensitive Areas is aimed at creating a more harmonious relationship between agriculture and nature conservation, considering also the agro-ecological capacity of various areas.

Developing a biodiversity monitoring network - CBD Art. 7(b)

The objective of creating a biomonitoring network is to follow the changes of biodiversity under the influence of society and of the decisions and actions initiated by a national programme for maintaining biodiversity (see Section 7).

Forestry and biodiversity conservation - CBD Art. 8 and 10

About 45 % of the Hungarian flora and a great proportion of fauna exist in forests. Consequently, forests play a fundamental role in maintaining species diversity. This function can only be fulfilled on a sustainable basis if the present forestry practice is changed substantially towards an environmentally more friendly approach. Conservation of biodiversity calls for the implementation of some important tasks such as:

- Forests need to be regenerated naturally by applying gradual regeneration cuts; natural regeneration causes the least damage to the biota so that the survival of native dominants and associated species is ensured;
- If natural regeneration is not possible for any reason, the choice of species to plant is decisive; reconstruction of native and semi-natural communities should be preferred; where habitat factors allow, the creation of

monocultures should be avoided;
- Afforestation of areas that still preserve the relics of pristine vegetation should be avoided; wetlands, rocky and loess grasslands deserve special attention as important gene preserving biotopes;
- Biodiversity is threatened and radically reduced by the residues of pesticides and herbicides, consequently, their use needs to be minimised in forestry;
- Overpopulated large game of our forests need to be controlled drastically in accordance with the carrying capacity of the particular areas;
- Biodiversity conservation aspects also underline the significance of further development of the forest reserve network.

Conservation strategies for maintaining the biodiversity of animal communities - CBD Art. 7(a), (b) and 8 and 10

As a result of the former measures of nature conservation, the stocks of some vertebrate species have slightly increased over recent decades, while the population of several species has decreased in spite of conservation measures.
The information on invertebrate fauna are insufficient, and present and future activities should be concentrated on those. There are some basic causes of the degradation process: direct devastation (pesticides etc.); indirect devastation (monocultures, overuse etc.); habitat changes (degradation, area1 reduction, isolation).
The proposals in this field are based on the following steps: measurement of diversity status and transformation; direct protection of species; controlled (sustainable) use of certain species, protection of animal communities; habitat protection; developing conservation-oriented research and land use practices; operating a monitoring network; preparing habitat inventories and maps; working out and starting regional actions.

Ex situ conservation - CBD Art. 9

The most effective way of preserving biodiversity, including species and genetic diversity, is its protection in habitats: the *in situ* conservation. Nowadays there are more and more cases, where the in situ protection is not a sufficient solution alone, thus *ex situ* measures are also to be improved.
Ex-situ conservation highlights the importance of basic and applied genetic, taxonomic and reproduction biological research all over the world. Botanical gardens should be emphasised, since an action plan of biodiversity conservation can be best exemplified on their activities. The botanical gardens in Hungary originally were not established for diversity preservation, so now they are forced to somewhat change their activity. Zoological gardens contribute to conservation not only by education, but also by active participation in different programs for the preservation of animal species. The Hungarian zoological gardens - with their intellectual and material capabilities - should play a more significant role in species protection in the future. The role and capacity of *ex situ* gene-banks of domesticated species and their relatives as well as medicinal plants and old varieties of fruits should also be increased, in appropriate institutions and in national parks (see also Chapter 3.1. and *Genetic diversity).*

Strengthening financial resources of biodiversity conservation – CBD Art. 11

Under the conditions of a market-economy the commercialism of environmental conservation is a difficult task. Besides payment and forced payment of the production factors and prices of the consumption goods the real social value of the natural resources should also appear in the equation. (The Damager Pays Principle, the User Pays Principle.)
A system of interests is to be established appropriate to biodiversity, protecting both the economy and public interest. The use of well-defined management and farming is to be preferred and the related material background to be ensured. A general change in the way of looking is to be achieved in planning, economy and also in public perception and behaviour.
With privatisation the regulating role of the state is decreasing but the former regulations which fostered a nature destroying economy (for example, in water- and forest management, agriculture, game-management and reed-harvest) are to be adequately modified. The mechanism of incentives and supports should be elaborated for the non-profit and environmentally friendly ways of management (biofarming, ecotourism, etc.).
The permitting-controlling legislation may be supplemented by the means of fees, subsidies and price regulation. The charge for environment use (the term "charge for environment use" implies payment for the use of and load to the environment if the magnitude of load cannot be measured, but the load appears), tax allowances, environmentally friendly product qualification etc.
The maintenance of protected natural values and areas should also be promoted by providing state subsidies, tax allowances, and a credit-system enhancing an environmentally friendly economy.

In the case of nature conservation prohibition or further agricultural and forest management restrictions the damage to the owner is to be compensated.
Additional tasks facing environmental policy involve the following: the elaboration of the economic regulation system for nature conservation, introduction of the practice of compensation as well as the exploration of the possible means and sources for funding initiatives and a consistent guarantee for their operation.

5. COLLABORATION AND PARTNERSHIP IN THE IMPLEMENTATION OF THE CBD (CBD Art. 5, 10, 13)

5.1. Ensuring the involvement and acceptance of all sectors and organizations in the implementation of biodiversity objectives into national planning and development

The real *involvement and acceptance of all sectors* in the implementation of the CBD is a long-term process. This is particularly the case in countries with economies in transition to the market economy. It is primarily because of two factors, firstly, the main priority is the improvement of the economy and secondly the activity of people willing or able to take part in planning and development actions is still low. However, since the UNO Conference on the Environment and Development (1992) the acceptance of the objectives of environmental issues, including problems and objectives of maintaining biodiversity, is a process getting steadily stronger.
On the highest level of decision making these issues received priority, which is reflected not only by the number of relevant acts (see Section 3.) but several moratoriums to delay disadvantageous processes and resolutions on national or regional programmes to also promote among others the implementation of biodiversity objectives that have been passed by the Hungarian Parliament. The various governmental sectors are compelled to implement the objectives within their area of responsibility, as a consequence. This process is also driven by the need to harmonize principles, requirements, legislation etc. to that of the European Union.

The participation of the Hungarian population in civil groups is now cca. 20 % and includes various activities. Only a few organizations existed before 1990 which were interested in environmental issues, the Hungarian Ornithological and Nature Conservation Society (MME) being one of the earliest and even now the largest with some 4,000 members. Nevertheless, the number of environmental social groups (NGOs) has proliferated since 1989/1990 and has now reached more than two thousand. Most of them are small local groups and foundations dealing with town-planning and local programmes. However, biodiversity is also a key term when organizing their activity and some of them implement significant projects e.g. on the revival and presentation of traditional methods and rural development which is compatible with maintaining biodiversity. There are also biodiversity programmes initiated and implemented by local and regional groups, such as in county *Zala*, green corridor in county *Somogy*, a model for sustainable village in *Gömörszõlõs*. The NGOs are quite active participants, both at local and national level and some of them even at international level. Their role in exercising influence on various sectors and local governments, as well as in raising public awareness is really important. Their representatives also participate in advisory committees e.g. in the HCSD and the National Commission on Environmental Protection and as observers in the Parliamentary Commission of Environmental Protection.

5.2. Collaboration with international organisations and national organisations from other countries

Hungary is a party to most of the related international conventions, such as the *Ramsar Convention*(19 sites, with some 149,000 ha), the CITES, the *Bonn Convention,* the *World Heritage Convention (see* Section 2.3). The UNESCO MAB Programme accepted 5 Hungarian Biosphere Reserves.
Hungarian cultural and natural values have also been accepted by the World Heritage Committee on to the World Heritage List. Important among these is the "Caves of *Aggtelek* Karst and the Slovakian Karst" which is a bordering area listed together with parts in the Slovak Republic and which include unique elements of biodiversity as well.
Hungary ratified the *Bern Convention* on the Conservation of European Wildlife and Natural Habitats in 1989 and took part in the preparation of the *Pan-European Biological and Landscape Diversity Strategy,* accepting this strategy in 1995.
In the *collaboration* of Hungarian *research and educational institutions* with other countries the biodiversity issues have played a significant role since the adoption of the CBD.
Similarly,- relations of NGOs multiply with various international organisations and those from other countries, and receive significant support from certain European organisations. The *Central and East European Workshop for the Enhancement of Biodiversity* (CEEWEB) should be mentioned as a good example of that type of co-operation.

Hungary highly appreciates the relevant intergovernmental and other international organisations and takes part in their activities. Biodiversity issues are priorities in the activity of the *Central European Bureaux* of ECNC, IUCN, WWF and the Regional Environmental Centre functioning in Hungary.
Bilateral agreements and declarations of intention on co-operation with all of the adjoining and several other countries, help the solution of environmental problems including the implementation of the CBD. Within the most recent *'Agreement between the Governments of the Hungarian Republic and the Romanian Republic on co-operation of environment protection"* (1997) the maintenance of biodiversity has special significance.

5.3. Progress in raising public awareness of the importance and benefits of biodiversity.

As demonstrated above, the environment and biodiversity is not a key concern within the daily „struggle for life" of the Hungarian public. The total sum of support allocated by the citizens from their income-tax (see Section 6.2.) for various organizations can be regarded as a good indicator of this. From the cca. 2 thousand million HUF given to around 16,000 organizations only cca. 10 million HUF (0.5 %) was received by environmental NGOs, the biggest share (5 million HUF) allotted to the Hungarian Ornithological and Nature Conservation Society (MME).
The situation is similar when the media are examined. There are few editors with appropriate expertise and knowledge. When environmental problems including

biodiversity are written about, focus is typically on incidents and is often coloured. In addition, there are some misunderstandings in terms of environmentally sound technologies, integrated management, maintaining biodiversity, sustainable use of biological resources and sustainable development. This creates an uneasy situation for journalism and for all forms of media in Hungary. It is not easy to truly indicate the situation.
Regarding telecommunication, which is the most effective media, environmental issues were always moderately represented in programmes of the two Hungarian and in the 1990s three channels, and mainly in the form of documentary films on wildlife. There were many changes during the 1990s, that is some of the biodiversity related programmes ceased and new ones started, partly initiated and supported by the MERP. Only one channel increased its biodiversity related work. Finally, however, it can not be stated that the biodiversity related activity of the public service television channels has been enhanced. Recently, after privatisation and the establishment of new channels, there is more programme time altogether and certain channels broadcast many more documentary films on wildlife and also a number of series.
Likewise, the situation is no better, when we consider the role of the radio, including new private broadcasting companies. However, certain well known quality series continue and two new series were established in the 1990's.

Some of the daily newspapers established columns for environmental or related problems. They give regular information on incidents and opinions.
The situation is probably better illustrated by comparing the major statistical characteristics of the publications on environmental subjects, as is shown by the National Information of Hungary to the UN CSD (Eds. Faragó, T. and Cs. Nemes, 1997). The number of relevant articles which were published in two journals with partly similar profiles are compared, namely articles from „The Economist" and the Hungarian „World Economy Weekly" (HVG). A statistical analysis for 1992 and 1994 revealed that the two magazines dealt with environmental issues in approximately the same proportion. For example, the number of articles on environment, including biodiversity and nature conservation, was as follows: 97 (1992) and 44 (1994) in The Economist and 73 (1992) and 72 (1993) in the HVG. The total number of articles with a direct or indirect environmental aspect was (The Economists): 243 (5.6 %) of all articles in 1992 and 120 (2.8 %) in 1994, and (the HVG): 231 (8.0%) in 1992 and 139 (4.7 %) in 1994, respectively. Thus, in 1992, in the year of UNCED, many more articles were published. The dimensions, however, differ greatly in several respects. The changes in proportion are noticeable with in the subjects of environmental economy and the Danube River hydroelectric power project.
The environmental consciousness and awareness of biodiversity problems has definitely increased in the fields of education and science and in that part of the public interested or participating in ,,green groups". The number and quality of educational scientific magazines and articles on biodiversity related issues proliferates, including the newsletters of national, regional and local NGOs. Supplementary Volume No.2 in 1996 of the „*Természet Világa*" („World of Nature") should be mentioned as an example, dealing only as it did with the CBD and problems of biodiversity.

The organization of the environmental education system and the preparation of the curriculum is the responsibility of The MERP and the Ministry of Culture and Public Education (MCPE). In order to improve environmental awareness the two ministries reached an agreement in 1992. The following contribute the most to their mission: close co-operation of the two organizations, activity of scientific and educational institutions, NGOs and professional organizations (Union of Environmentalist and Conservationist Teachers, Environmental Educational Union, National Professional Training Institute, Scientific Educational Society), postgraduate education of teachers, manager training, co-operation with foreign environmental educational institutes, training centres and professional organizations (the Austrian ARGE Umwelterziehung, German Public Higher Educational Union, the English Field Studies Council).

Institutional education begins in nursery schools. The MERP initiated a competition for the creation of original stories and poems to establish and improve the environmental approach and emotions of nursery children. The contest was also for the creation of toys and other materials which are useful in the environmental education of 3-7 year old children.

For secondary schools the training packet entitled ,,People and their Environment" produced by the MERP and the National Professional Training Institute, provides a good opportunity to integrate environmental training into the overall curriculum. The packet contains a school book, curriculum, manual for teachers, problems manual, field practice and series of slides. The subject entitled „People and their Environment" is now being taught in 185 secondary schools.

In the higher educational system there are several new activities. Postgraduate courses on environment protection and nature conservation are announced by various universities and colleges, such as: conservation ecologist, environmental engineering and environmental teaching courses, environmental courses related to agricultural, to professional economic and to technical training, courses on game management and conservation. The National Environmental Scientific Student Congress is organised every two years by the two ministries. The success of these congresses is indicated by the number of applicants. Almost 200 studies were received for the last congress in 1996. The studies included the fields of ecology, environmental education, environmental protection, environmental economics, environmental technology, environment-friendly use of wildlife, nature conservation and various impacts on wildlife.

6. RESOURCE AVAILABILITY - CBD Art. 11

One of the most important aspects of the NBSAP will be the assessment of available financial resources and the assessment of funds needed for the actions scheduled. The existing major resources are state funds established in the 1990s, such as the Central Environmental Protection Fund (KKA), Regional Development Fund and Water Management Fund. Incomes of these are based upon product charges, various fines and a share from the state budget. Tax allowances and, in certain cases, reduction of customs can also be interpreted as financial resources. It remains also to be decided when a certain type of activity, listed in the legislation on the use of these resources can be considered as direct and indirect implementation of the CBD.

6.1. Financial resources for Environmental Protection

Within the increasing number of financial mechanisms and funds dedicated entirely or at least partially to, assisting the implementation of objectives of sustainable development, the specific national financial institutions working towards these goals are considered by us of outstanding importance. At this stage of economic transition, the country is not in the position to offer substantial resources for other nations; moreover, some foreign assistance is provided for us in promoting the solution of certain social, economic modernisation or environmental problems during this transition period. It is felt that the financial resources established by special national level mechanisms for the mitigation of environmental problems, promotion of development, adaptation and application of environmentally sound technologies are of outstanding significance. At the same time, the funds whose sources are linked with the use of environmentally adverse technologies or products, moderate or prevent the further maintenance or propagation of unsustainable production or consumption patterns. For these reasons, this chapter is devoted to the brief characterisation of such recently introduced mechanisms in Hungary.

Fines

At present the imposition of fines is the most frequent measure although, according to the experience gained in practice, the efficiency of this instrument is rather limited. The reason for this is twofold:

- the low level of fines (when the sum of a fine imposed is lower than the marginal cost of an environmental investment indispensable for the prevention of the damage penalised, the violator will be more interested to pay the fine rather than to carry out the appropriate investment), and
- the doubtfulness of verifying (through measurement of technical estimation or qualification) the fact that the set limits were really exceeding the magnitude harmful to the environment, the criterion for imposing a fine. Furthermore, due to their inherent nature, fines are unable either to enforce or to stimulate the violator to reduce or - if possible - to terminate its emission.

The land protection fine is intended to ensure the balanced land use and the protection of cropland. Payment of a land protection fine will be obligatory for anyone who refrains from utilising the cropland through their negligence, fails to maintain it in a fertile condition, fails to comply with the instructions of soil conservation, causes pollution to the soil by the use of harmful substances, withdraws cropland from cultivation without licence, or fails to observe the provisions of such a licence.

The sewer fine is to protect the qualitative state of public sewers and sewerage systems against the mechanical and/or chemical impairing impact of polluting materials. Payment of a sewer fine will be obligatory for anyone who discharges prohibited harmful substances into a public sewerage system and/or causes the exceeding of emission limits set for toxic substances in legal instruments.
Payment of *the environmental fine* will be obligatory for anyone who proposes an activity in violation of the provisions of legal instruments and official regulations, or fails to fulfil his obligations specified therein. So it is not a new kind of fine but a combined term for all the environmental fines. In 1992; 30 percent of the sum of *air pollution fines, waste pollution fines, hazardous waste fines and noise and vibration fines* was the legal due of the local government having the territorial jurisdiction.

Air pollution fines may be imposed on any polluter emitting polluting substances in excess of the permitted levels. A distinction is made between air pollution from point sources and mobile sources. In the former case the fact and magnitude of harmful air pollution can be verified on the basis of an examination needed for issuing any decision associated with air pollution control, or of an annual report. In the case of mobile sources the level of emission can be checked primarily through measurements.

The owner or operator of any plant contaminating, harmfully polluting or endangering recipient natural water bodies is compelled to pay a *water pollution fine*. The magnitude of this fine depends on the quantity and quality of the substances discharged, the location of pollution within a regional system of water pollution control (through a so-called regional multiplying factor), the magnitude of exceedance over the limit, and a so-called modifying factor which is a combination of a norm number, depending on the system of waste-water outlet (this number is compared to the ratio of dilution), a regional factor and a multiplication factor. The water pollution fine is intended to increase the income of the Central Environmental Fund (and also local governments).

In the case of producers of hazardous wastes, they may be compelled by the environmental authority to pay *hazardous waste fines.*

Noise and vibration fines may be imposed on any company having a legal personality and failing to observe the set noise emission limit or vibration load level given in Order No. 4/1984.(I.23) EM. This fine may be imposed once a year and is, transferred to the Central Environmental Fund (and the budget of local governments).

Article 20 of Law-decree No. 4 of 1982 has established a new legal institution, the *nature conservation fine*. Accordingly, a fine may be imposed on any legal entities or other organizations without legal personality which, in a protected natural area, undertakes to pursue any activity incompatible with the purpose of protection, to destroy, impair, illegally collect and keep in possession any individual of a protected plant or animal species, or to disturb them in their vital activities at a significant level.

Product charges

As compared to fines, a more successful category of economic instruments is represented by the product charge which, to date in Hungary, exists in the form of a charge to be paid on certain products e.g. fuels and tyres. The product fee goes to the Central Environmental Protection Fund (KKA) in order to be granted from it - upon application - financing for some activities of environmental protection, above all the reduction of environmental damage caused by the traffic of motor vehicles. Besides this, the fund serves for a wide range of support in the field of integrated environmental protection.
In 1993 the estimated total sum collected from the product fee on fuels actually available amounted to 1.5 thousand million HSJF (Gazette of Environmental Protection and Building Affairs, No. 4/1993). The revenues from product charges have increased approximately tenfold for recent years due to the extension of charges to other products. Today the scope of the term "product charge" regulated by the legal framework covers: fuels, batteries, tyres, packing materials, refrigerators and refrigerants. Further extension of the range of products with a charge is examined, e.g. in the case of mineral fertilisers, lubricants and luminous bodies.

Utilisation contribution

The user of the environment or certain natural resources shall pay a utilisation contribution as prescribed by the Act LIII. of 1995 on Environmental Protection. At present two types of this contribution are operative: the contribution for the use of water resources and the contribution on mines, the latter is shared by the central budget and the KKA.
The water resources contribution has to be paid for the water volume used. The water resources contribution goes to the Water Management Fund from where support may be granted upon application (see also Section 6.2 subsection Water Management Fund).

Tax allowances

The tax allowances aimed at encouraging environmental investments and activities can also be interpreted as financial support since the monetary resources left behind at a company after the payment of a reduced tax will facilitate the start of additional investment.

Value-added-tax. Since the validation of Act No. LXX of 1993, a section of some product and series is burdened with a (preferential) value-added-tax of 10 percent while for another part the rate is 25 percent. The scale changed recently and at present products and services preferred from the environmental point of view are also put into the lower (12 %) tax category.

The land tax allowances which might formerly be requested in the case of applying certain environment friendly technologies was specified in Order No. 17/1992/FM issued by the Minister of Agriculture. By virtue of Annex 1. of the Order certain types of activities were regarded as environmentally friendly and hence favourable for biodiversity:

environmentally friendly control of nutrient supply
environmentally friendly plant protection in the
cultivation of orchards and vineyards,
biocultivation.

The Order was operative for three years. It should be reformulated in the framework of the legal harmonization process to the legislation of the European Union.

Excise duty. Allowance is provided on cars equipped with a catalytic converter and which use unleaded petrol. There are consumer subsidies on public transport.

Corporate tax. Allowances are provided in the case of environmentally sound activities, such as: accelerated depreciation allowance on gifts or undertakings provided to a foundation, which deal with environmental protection, allowance for foundations which are dedicated to environmental protection, allowance on loans with environmental protection purposes.
The following can be regarded as a ***special case of tax-allowance*** *possibility* for the citizens. They can decide on the allocation of 1 % of their income-tax for the benefit of non-profit organizations, including NGOs interested in conservation and the sustainable use of biodiversity. The first year for this possibility was 1997.

6.2. Financing opportunities

A common feature of the financial sources available for financing purposes in competent ministries or budgetary agencies is that, as compared with other credit or loan packages accessible in the monetary market, they, due primarily to lower interest rates, can be borrowed under more favourable conditions. In this respect a special group is formed by the addressed, purpose-oriented and normative assistance as they don't have to be repaid.

Central Environmental Protection Fund (KKA)

The Central Environmental Protection Fund (KKA) is a separate public fund which promotes the prevention, reduction and elimination of environmental harm, and the establishment of an environmentally friendly economic structure (Act LXXXIII of 1992). The Fund is administered by the Ministry for

Environment and Regional Policy (MERP).
The most important sources of the Fund's income are those collected from legally valid environmental fines, the environmental product charges, and a share from the state budget. The sphere of utilisation can be ranked into three main categories.

(i) 65 per cent of the financial resources available in the fund may be granted as support or loan guarantee for the implementation of investments directly promoting the protection of the environment and of measures intended to spread and strengthen environmental attitudes. The so-called investments directly promoting the protection of the environment include those serving the following goals:

- conservation of protected natural values and natural areas;
- control of noise and vibration;
- establishment and development of the industrial background of environmental protection; and
- programmes serving the integrated protection of the environment through support, co-operation and loans and the implementation of international conventions and programmes on environmental protection and nature conservation,
- protection of waters,
- protection of air purity,
- reduction of harmful effects of wastes and the utilisation and neutralisation thereof, as well as the introduction of low-waste technologies and products.

(ii) For intervention directed towards the elimination of environmental damage requiring immediate action. This financing may be provisional (when the polluter is known) or final. The utilisation of this possibility is occasionally licensed, upon demand, by the Minister of Environment and Regional Policy.

(iii) Contribution to financing environmental projects of public interest. Projects ranked by the Act into this category are for example as follows:

- Improvement of environmental measurement and monitoring networks and the environmental information system;
- Conservation of protected natural values of national importance; and the
- Preparation of studies for the foundation of the selection and introduction of environmental measures, and studies in relation to the feasibility of environmental programmes.

The *maintenance of biological diversity* as a target area is on the list of the Order No. 6/1997 (I.3 1) KTM.

Water Management Fund

The purpose of the Water Management Fund is to promote the performance of those tasks of the water management sector which are determined by law and are of public interest, among them particularly the economical use of water and the protection of water management have been authorised for the Fund's administration.
The main sources of this Fund are the payments for water resources, as contributions. The competent regional water authority is entitled to check both the calculation and the payment of the contribution and to compel - by means of a decision - the delinquent party to pay on time.

Regional Development Fund

The purpose of the Regional Development Fund is to promote balancing the differences in the developmental levels of the country's different regions, and to stimulate the implementation of regional development programmes approved by Parliament. The Fund is now decentralised and under the command of the County Councils for Regional Development. The main sources of the Fund's income are support from the state budget, international grants and loans serving the purpose of regional development, and contributions from privatisation income, in a sum fixed by Parliament in the annually published Guidelines of Wealth Management Policy. Support may be 'granted for the following preferential areas:

- regions underdeveloped in terms of social and economic issues; and
- districts where unemployment is much higher than the national average.
- When evaluating the applications, priority will be given to regions meeting both of the aforementioned criteria. In the framework of a competitive system support may be granted for the following purposes:
- investments creating new jobs;
- development of the productive infrastructure associated with the development of the economy, and promoting ventures and undertakings, that is primarily the development of regionally important systems of energy, transport, telecommunication, water supply and waste-water disposal;
- investments promoting the structural transformation of agro-economy; and the
- implementation of the regional and small-region programmes of regional development.

PHARE Programme

Since 1990 the support package offered to Eastern Europe by the most developed industrial countries has been co-ordinated in the framework of the PHARE Programme. Within this programme the support given to Hungary was about ECU 100 million per year. From this sum the share of support for environmental protection from 1990 to 1994 in the sequence of years was ECU 22, 10, 10 and 0 million. In the initial stage of this programme the highest priority was attached to

Table 8: Resources for environment protection developments (Million HUF)

Item		1996's yearly receipts expectable	1997's yearly receipts recommended
1.	Water management	35.390	42.676
1.1.	Central and local governmental budget	23.390	26.276
1.2.	Enterprise source	no data	no data
1.3.	Direct expenses of citizenry(including budgetary supports)	8.000	10.000
1.4.	Separate state funds	3.000	3.500
1.5.	Credit	1.000	2.500
2.	Country planning, country rehabilitation	1.700	1.900
2.1.	Central and local government budget	900	300
2.2.	Separate state funds	800	1.600
3.	Traffic	1.350	1.810
3.1.	Central budget	1.350	1.810
4.	Agriculture	4.112	6.723
4.1.	Central budget	4.112	6.723
5.	Enterprise sphere	12.650	16.600
5.1.	Own resources (estimate)	8.000	10.000
5.2.	Separate state funds	4.650	6.600
6.	Direct environmental expenses of public health	-	121
6.1.	Expenses of central budget		
7.	Local government developments	11.000	13.500
7.1.	Central and local government budget	11.000	13.500
7.2.	Own (enterprise) resources	no data	no data
7.1.	Public contribution	no data	no data
8.	Irrevertible costs of compensation	1.550	2.230
8.1.	Privatisation incomes	1.000	1.360
8.2.	Separate state funds	550	870
9.	Nature conservation and other developments	1.320	2.259
9.1.	Central budget	1.320	1.946
9.2.	Separate state funds		313
Total:		69.072	87.819

Table 9: Income **by legal** title (million HUF)

Incomes	Year 1995	Year 1996	Year 1996	Year 1997
	previous realisation	original quota	expectable realisation	recommended t a
Defined part of incomes by legal title				
Environmental and nature conservation fines	657,1	610,0	833,9	737,0
Product fees for environment protection	4.655,4	11.880.0	10.101,8	9.990,0
Fees for use and load of environment				
Contribution because of making use of environmental elements				
Allowance for the protection of monuments				
Fines pertaining to building affairs				600,0
Incomes from the marketing and use of state owned monuments				100,0
Weight taxes levied to foreign vehicles				
Mining contribution	774,8	840,0	1.071,9	
Other incomes				
Budget support				
International supports provided for environment protection	687,2			
Voluntary deposits and supports in the favour of the Funds				
Repayment of supports received from the Funds	201,2	355,2	755,2	1.670,0
Expenses of damage prevention and compensations refunded in the favour of the Funds	1,4			20,0

Source of income for the prevention of environmental damages and risks		1.000,0	1.000,0	1.000,0
Income from interest on deposit	1.901,9			
Other floatina incomes	-21.7		3.0	
Current incomes	8.857,3	14.685,2	13.765,8	14.117,0
Cashing of shares Credit	46.296,5			
Total income	55.153,8	14.685,2	13.765,8	14.117,0
Current income	8.857,3	14.685,2	13.765,8	14.117,0
Current expenses	3.343,5	10.550,8	14.130,7	18117,0
GFS balance	5.513,8	4.134,4	-364,9	-4.000,0

Table 10: The breakdown of expenses by legal title (million HUF)

Expenses	Year 1995	Year 1996	Year 1996	Year 1997
	previous realisation	original quota	expectable realisation	recommended quota
Developmental supports directly promoting environmental conservation	2.331,0	8.284,0	11.355,3	12.187,0
Environmental conservation tasks of public purpose	720,4	960,0	1.100,0	3.480,0
Expenses of preventing damages and risks to the environment	99,8	550,0	700,0	870,0
Expenses associated with handling, operation, incomes' cashing and supervision	94,8	646,0	854,7	1.500,0
Operation costs				
Other (ÁFA) expenses	9,4	30,8	40,7	
Interest payment	87,6	80,0	80,0	80,0
Floating expenses	0,5			
Current expenses	3.343.5	10.550.8	14.130.7	18.117.0
Purchase of shares	40.506,7	134,4	135,1	
Credit repayment to other Funds	67,5			
	135,1			
Total expenses	43.917,7	10.685,2	14.265,8	18.252,1

the establishment of a market economy. Later financial support for infrastructure and environmental protection and the development of undeveloped regions have come to the foreground.
From 1996 a new PHARE Strategy has been introduced attributing priority to the law and policy harmonisation of Associated Countries to those of the European Union. The implementation of the programme is examined annually by auditors.

6.3. **Direct financial resources of environment- and nature conservation**

In Hungary the environmental protection expenses shared in the GDP at a level of 1 .O % and 1.03 % in 1995 and 1996, respectively. The 1997 budgetary credit reckoned on a share of 1.1 %, amounting to a total cost of 87-88 thousand million HUF. The National Environmental Protection Programme (NEP) planned a share of 1.4 % for environmental expenses in GDP during the first three years then predicted a share of 1,7 % in the period through 2000-2002. Taking a certain proportion of developments of non-direct environmental protection purpose, this increase may approximate to 1.7 % and 2.2 % in the corresponding period. According to the economic predictions the real increment of GDP may amount to 4.5 % of the annual average, already in the first half period of the Programme. On favourable terms even a higher growth rate may be expected after the turn of the millennium. The acceleration of the economic growth may probably be associated with the increase in expenses allotted to the implementation of environmental goals.
The analysis of the structure of developments for environmental protection reveals that the majority of the cost items may merely have an indirect influence and some help only accidentally the maintenance of biological diversity or the improvement of its state. Not more than 2 % of environmental protection expenses can directly be related to these.
The analysis of the budget as a whole shows that many such programmes are involved in other sectors, that may impair the chances for the maintenance and sustainable use of biological diversity. One such example are the costs related to water, building and highway construction, that may surpass the sums invested for improvement by several orders of magnitude.

Paragraph 69 (2) of the Act on Nature Conservation prescribes that ,,the financing necessary for the implementation of the goals of nature conservation should primarily be ensured from the central budget and separate state and financial funds, serving also for nature conservation, especially from the Central Environmental Protection Fund" (KKA).
Within the KKA the magnitude of sums allotted for nature conservation investments and other nature conservation purposes should be denoted in a pre-fixed percentage of the total sum provided for environmental protection tasks for public purpose.

Thus, KKA is increasingly disposed to share in the financial resources of environmental protection. The 1997's expectable yearly receipts of the Fund may approximate to 18,000 million HUF. Of this sum 20 % serves for public purposes, of which 10 % is to be expended for the maintenance of protected natural areas and biological diversity.

7. MONITORING AND EVALUATION - CBD Art. 7 (a), (b)

A project funded in the framework of the PHARE Programme on the National Biodiversity Monitoring Planning (NBMP) was accomplished in 1996. Based on this a Biodiversity Monitoring Service (Service) should be organised within the MERP, Authority of Nature Conservation. The objective is to follow, through a biodiversity monitoring network, the changes of biodiversity under the influence of human impact and the effects of decisions and actions taken to implement the CBD.
A Manual on "National Biodiversity Monitoring System" is now also published as a result of the NBMP. The Service will have to establish connections to other significant data sources and to gather further specific information on processes having an effect on biodiversity.

7.1. Identification and Monitoring of important elements and **processes of Biodiversity**

If the necessary funding is allowed, the *National Biodiversity Monitoring Programme* will provide data indicating the status and trends in certain biological resources of the country, with particular emphasis on species and habitats in accordance with **Annex I of the CBD,** on species and habitats which are rare or threatened on a national, European or a global scale. The programme identifies a series of sub-components which build upon the existing technical skills and areas of experience of personnel and institutions within Hungary, with a focus on key taxa which are considered useful indicators of environmental conditions in areas of high biodiversity value. Each sub-component contributes towards: the establishment of an improved data recording system for biological information in Hungary; a sampling framework for biological (and other) information based *on* broad and readily identified habitat and vegetation units; a clearly defined, repeatable methodology for monitoring specific parameters (including abundance and distribution) of key taxa; the establishment of a network of trained specialists capable of contributing information to a nation-wide biodiversity monitoring programme; a manual on biodiversity monitoring methodology for Hungary.

We present briefly below the basic fields of activities for the development of the NBMP system.

- *Biological data recording system and network for Hungary*: the development of a national biological records system suitable for linking with a GIS system and taking into account current developments for database recording systems;
- *General survey and inventory of main habitat types in Hungary:* derivation of a national classification system for 'habitat/vegetation types' of Hungary; the system is to be hierarchical and based on readily identifiable units which can be mapped (from aerial/satellite images) and identified in the field and should, at the higher levels of the hierarchy, (broad habitat types) be user-friendly to non-specialists;
- *Monitoring specific taxa*: as a general rule, the programme should focus on

taxonomic units which are indicative for habitats typical in Hungary (e.g. Molinia coerulea, Succisa pratensis, Citellus citellus); which are still widespread but declining in number (e.g. frogs and toads, bats); which are widespread but threatened because of various human activities (e.g. Helix pomatia) or because of the expansion of alien species; which are the key species as defined in the Red Data Book of Hungarian Fauna and Flora (1989) and those species from the UN-ECE European Red List of Fauna and Flora which also occur in Hungary; other taxa - either individual species or aggregations of species (especially those where taxonomic problems make separation difficult) - may also be selected for monitoring, but the reasons for their selection must be clearly set out.

7.2. **Monitoring of certain background conditions and processes**

Air

Air pollution poses the most serious environmental problem that may negatively affect biodiversity, indirectly or directly. In Hungary the air-quality situation is still unfavourable in several localities. Altogether 3.9 % (3590 km^2) of the territory of the country is rated as “polluted”, 9.3 % (8674 km^2) is “moderately polluted”.

Analysing the main trends of the past decades it can be stated that the air quality of the country is predominantly determined by the economic processes, even today. The measuring records over the last two decades truly reflected those positive and negative tendencies which have taken place due to the economic changes and environmental measures. During the years following the change of regime, such changes were the decay in the industrial production, disintegration of the large-scale manufacturing plants and the progression of the public road traffic with changes in its composition.

In Hungary the most dangerous polluting source is the traffic sector, contributing 50 % in the total emission, concerning carbon-monoxide, nitrogen-oxides and hydrocarbons, in 1994. The second main polluting factor in the order is industry, followed by household-emissions. For the measurement of gas emissions and the analysis of their effects to biodiversity several monitoring systems have come into existence:

The off-line monitoring network has been operating since 1974. In the framework of this system 450 and 650 stations established for gas and dust measurement, respectively, operate in 90 settlements of 11 regions in the country, covering the whole territory of the country with a network.

In 1990 the on-line monitoring system was introduced already comprising 30 stations, of which 8 units have been operating in the capital (Budapest) since 1991.

The implementation plan of the national air pollution monitoring system at a European level, elaborated according to the approved developmental conception of the Ministry for Environment (MERP), was completed in 1995.

At present the Air Protection Reference Laboratory manages the co-ordination of the measuring tasks within the network of Inspectorates for Environment Protection (IEP). During the measures taken so far 44 monitoring stations have

been established at 28 different settlements in the framework of the settlement air pollution monitoring system, Investment for an additional network, comprising 5 stations is also in progress in settlements strongly exposed to industrial pollution. Besides the established stations the network is being completed with 8 mobile measuring units.
In the framework of the rural monitoring system 6 background stations are presently operating. Furthermore the establishment of two other stations is in progress, of which one will be operated in the locality of a sensitive ecosystem. One measuring station is involved in the international monitoring program (EMEP). Another station provides data for the WHO. The air polluting sources, fixed to the ground and under duty of registration, are supervised by the Environment Protection Authorities.

Waters

Owing to the basin-like natural situation of Hungary the average quantity of water flowing through the country (120 thousand million m^3 per year) is one of the highest per capita in Central Europe, compared to all the countries of the World. -- The country is in a transit situation, regarding the surface waters, since 95 % of its surface water supply (the most part of which is concentrated in water courses) comes from the neighbouring countries. Consequently, our water supplies, in quantity and quality as well, depend predominantly upon the interference with water carried out in the neighbouring countries.
Among the sources of sewage-water, the quantity of the settlement sewage-water is the highest, since only circa 55 % of homes involved in the public drinking-water supply are connected to the public sewage system. A considerable proportion of the settlement sewage-water is released to the sewage-recipient without any purification or only after mechanical filtering. Approximately only 45 % of sewage-water collected undergoes thorough biological purification. The quality of surface waters is also considerably deteriorated by the point pollutants (chemicals, manure) washed into waters.
In Hungary the monitoring of the waters' quality began in the 1950s. This network-system is still operating and it was completed using a computer-aided system already by 1968. The quality parameters-in surface waters are measured by the appropriate Regional EIPs. The relevant Standard (MSZ 12749) specifies the method for the determination of the quality of surface waters, the sites and frequency of samplings in the framework of the national main network covering 150 measuring points. The samples are assigned into five categories according to the threshold values for the water quality parameters, appropriate to the IS0 Standard and thereby conform to the EU.
Besides the national main network the EIAs also conduct tests at 91 regional sampling points. The data, received from the EIAs are integrated into databases in the Institute of Environment Management. Besides the national main network and the regional network additional monitoring systems belonging to several national sectors and areas operate. In co-operation with the Inspectorates on Environmental Protection 20 laboratories of the State Public Health and Medical Officer's Service (ÁNTSZ) perform water quality tests on the basis of suitability for consumption. A system is operated in the framework of the Plant Protection network to measure the pesticide contamination of waters and the active

ingredients thereof.
A separate monitoring system operates along the Danube of the Szigetköz region, on the Slovak frontier and in the Balaton region.
An additional network is operated by the environmental protection authorities along the potentially polluting areas (in the neighbourhood of mines, nearby waste depots and at sites of water management activity).
Hungary is a signatory of the International Danube Convention (1994. Sofia), by the terms of which the country is in charge of the establishment of an observing, reporting, signalling and warning system, among others.
The water quality parameters of the sub-surface waters are obtained from wells, established in the regional water-supply system for water supply, and which are classified according to the treatment requirements. From a total of 1560 ground-water detecting wells, 380 layered water detecting wells and 300 Karstwater wells operate, but their network is not dense enough to suitably cover the country evenly.

Soils

Soil provides several different functions besides fertility, which are of great importance in respect of cropping and environmental conservation. In the event of impairment of these functions or in the absence of these functions the soil cannot satisfy the different criteria . It may even become unusable for the living beings thereby making impossible the maintenance of biological diversity. It is important therefore to obtain recent information on the state of soil at any time.
This leads on to the elaboration, in 1991, of the Information and Monitoring System of Soil Conservation (TIM) whose role was to continuously detect the state and contamination of soils. The actual monitoring began in 1992 and includes three monitoring types: the national basic monitoring network (comprising 1200 points), the monitoring system for special areas, and the measuring sites in the forests.

8. STATUS OF THE CLEARING HOUSE MECHANISM (CHM)
CBD Art. 16 and 17

An Add-on Component to the NBSAP was approved in November 1997 to support the establishment of the CHM on biodiversity (BD) in Hungary. The main task is to ensure the technical facilities exist in order to help the establishment of appropriate co-operation between organisations registering national information relevant to the implementation of the CBD, data processing and to generate new information for decision making.

The CHM Regional Workshop for Central and Eastern Europe was hosted by Hungary (27-29 October, 1997) in accordance with Decision III/4 of the COP. The Workshop helped greatly to understand the role of the CHM and to set up appropriate objectives.

The Ministry for Environment and Regional Development (MERP) is the responsible government institution for the implementation of the Convention on Biological Diversity (CBD) and the focal point on CHM. Two major sets of data are managed by the MERP through its regional directorates and by two centres:

1. Detailed and meta data on the environment and on activities that influence the state of the environment, and

2. Detailed and meta data on the threatened elements of biodiversity, including existing natural- and semi-natural areas and the protected values.

An important step was the opening, in 1997, of the 12th Center of the UNEP Global Resource Information Database (GRID) in Budapest. The GRID has to provide meta data on the state of the Environment (Figure 12). Information is also available on the INTERNET **(http://www.gridbp.meh.hu.)**

The planned Biodiversity Monitoring Service (see Section 7) will have to consider information from other significant data sources (see: Table 10 and also Section 7.2) and to gather further specific data on the state of biodiversity and on processes that have effects on biological diversity.

Table 11: *Information on further institutions on data sets and data processing significant in terms of biodiversity management:*

data on	detailed	meta
Central Statistical Office:		
economy, social and	+	+
economic devlp.,land use,		+
state of various sectors		+
Hungarian Patent Office		
new technologies and intellectual properties	+	+
National Land Register Office:		
land use	+	+
Institutions of the Ministry of Agriculture		
use of pesticides and fertilisers	+	+
forests and forestry	+	+
game species and hunting	+	+
fish species and fishery	+	+
Hungarian Natural History Museum		
flora and fauna species	+	+
Institute of Ecology and Botany (HAS)		
habitats (e.g. CORINE)	+	+

Research Institute on Soil(HAS)		
soil monitoring network	+	+
Research Institute on Forestry		
forest structures	+	+
Various University Institutes		
certain groups of species e.g. KLT Univ. Debrecen Chironomidae	+	+
Various NGOs and private groups e.g. Hungarian Ornithological and Nature Conservation Society -MME)		
birds	+	+
a private expert group		
Odonata	+	+

Ministry for Environment and Regional Policy

UNEP

GRID-Budapest

Welcome to GRID-Budapest

GRID network | GRID Budapest | State of the Environment in Hungary | Links

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Establish of the GRID-Budapest was supported by

Norwegian government | European Community Phare | Informatikai Tárcaközi Bizottság

The operation is supported by

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