FOURTH NATIONAL REPORT

OF THE CZECH REPUBLIC
TO THE CONVENTION ON BIOLOGICAL DIVERSITY

MINISTRY OF THE ENVIRONMENT
OF THE CZECH REPUBLIC

Ministry of the Environment
of the Czech Republic

CBD

REPORTING PARTY

Contracting Party	Czech Republic
NATIONAL FOCAL POINT	
Full name of the institution	MINISTRY OF THE ENVIRONMENT
Name and title of contact officer	Dr. Petr Roth
Mailing address	Vrsovicka 65, 100 10 Prague 10
Telephone	+420 267 122 038
Fax	+420 267 310 328
E-mail	Petr.Roth@mzp.cz
Signature	
CONTACT OFFICER FOR NATIONAL REPORT (IF DIFFERENT FROM ABOVE)	
Full name of the institution	MINISTRY OF THE ENVIRONMENT
Name and title of contact officer	Mr. Vlastimil Zedek
Mailing address	Vrsovicka 65, 100 10 Prague 10
Telephone	+420 267 122 894
Fax	+420 267 126 894
E-mail	Vlastimil.Zedek@mzp.cz
Signature	
SUBMISSION	
Signature of officer responsible for submitting national report	Dr. Frantisek Pelc – Deputy Minister and Director General Directorate of Nature and Landscape Protection 
Date of submission	6 May 2009

TABLE OF CONTENTS

CHAPTER 1

1.1 GENERAL INFORMATION ABOUT THE CZECH REPUBLIC

GEOGRAPHY AND GEOLOGY

The Czech Republic is an inland country lying in the centre of the temperate zone of the northern hemisphere in the central part of Europe. With an area of 78 867 km^2, it is the 22^{nd} in size amongst the countries of Europe; its population of 10 381 130 inhabitants places it in the 12^{th} position and its population density of 132 inhabitants per km^2 is the 8^{th} highest in Europe. CR has state borders of 761.8 km with Poland, 810.3 km with Germany, 466.3 km with Austria and 251.8 km with Slovakia.

The Czech Republic lies along the boundary between two mountain systems, with different age, geological and geomorphologic development. The western and central parts consist of the Czech uplands, formed at the end of the Palaeozoic, mostly with the character of hilly country, and the central mountains (Šumava, Český les, the Krušné Mts., the Krkonoše Mts., the Orlické Mts. and the Jeseníky Mts). The Western Carpathians extend into the eastern part of the country and they acquired their present form in the Tertiary (the Beskydy Mts.). The area between the two mountain systems consists of a valley zone. The soil cover is quite variable in both the grain size and soil types. The most common type is cambisol.

CLIMATE

The weather conditions are formed by oceanic as well as continental forces and are characterized by western-oriented winds with intense cyclonal activity. The weather is greatly affected by the country's altitude and the landscape relief. 67% of the country lies below 500 m above the sea level and 32% between 500 and 1000 m. Only 1% lies higher than 1000 m.

HYDROLOGY

The main European watershed passes through the country and separates the North Sea, the Baltic Sea, and the Black Sea watersheds. The central node is Kralický Sněžník, 1423 m above the sea level. To the main rivers belong the Labe (370 km), the Vltava (433 km), the Morava (245 km), the Dyje (306 km), the Odra (135 km) and the Opava (131 km). There is a total of 24 906 water reservoirs and fishponds in the country, with an estimated volume of 4 176 million m^3 of water. As of 2007, there were 106 large reservoirs, with 3 509 million m^3 of water. The hydrographical network of watercourses consists of 76 000 km of natural or modified riverbeds.

POLITICAL SITUATION

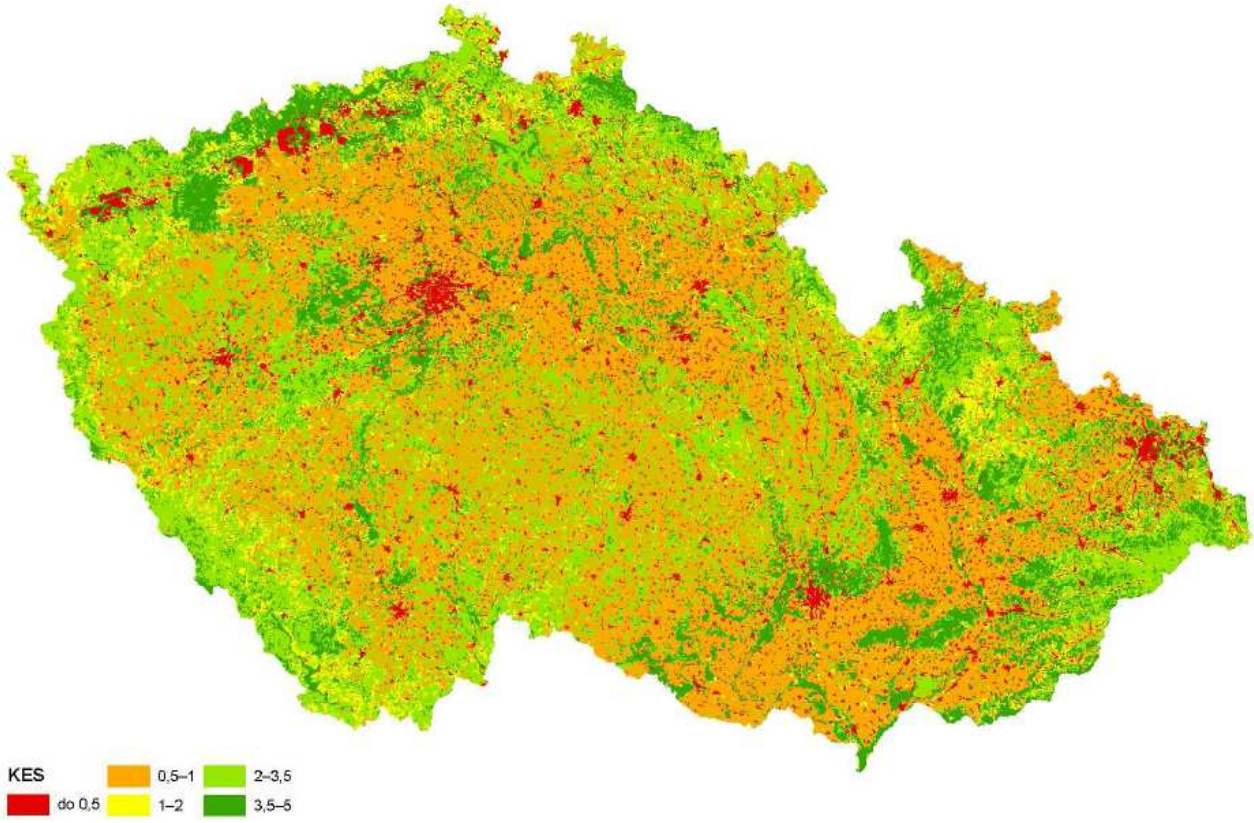
The Czech Republic is a pluralist multi-party parliamentary representative democracy. President Václav Klaus is the current head of state. The Prime Minister is the head of government (currently Mr Mirek Topolánek). The Parliament has two chambers - the Chamber of Deputies and the Senate. The Czech Republic joined NATO in 1999 and the European Union in 2004. It is also a member of the OECD, the Council of Europe and the Visegrád Group. The country currently holds the Presidency of the Council of the European Union from 1 January 2009 till 30 June 2009.

1.2 General Overview of biodiversity status, trends and threats

1.2.1 Structure and use of land

Czech landscape belongs to a significant part of the European cultural and nature heritage due to its diversity of biotic, abiotic, socioeconomic and historic features. The historic development of human settlements and nature predisposition of landscape lead to the development of many specific regional and urban landscape types. The coefficient of ecological stability, which shows the proportion of ecologically stable and unstable landscape parts, is one of the indicators displaying the current state of the landscape stability as well as the level of its development over time.

Figure 1 bellow illustrates the intensity of anthropogenic influence on the landscape in the Czech Republic in 2000, according to the CORINE Land Cover database. The degrees vary from 0.5 (low ecological stability of urban and industrial areas) till 5.0 (natural areas of forests, meadows, wetlands and watercourses):[1]

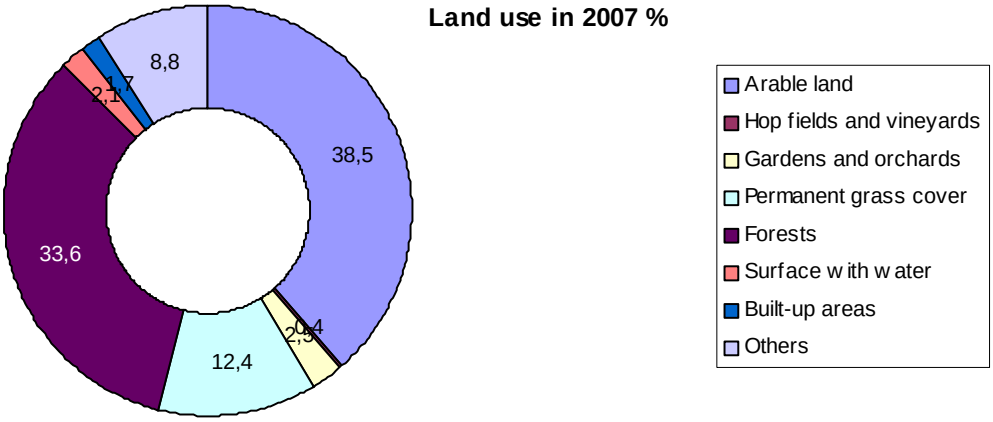


The dynamics in the landscape are characterised by two main types of changes - visible decrease in human anthropogenic activities on one side and moving of economically active people from the remote regions on the other side. These regions are usually not interesting from the agricultural, recreational or industrial point of view. Many areas are highly influenced by human urbanisation activities, intensive agriculture and forest management practices, and creation of new transport infrastructure. Land of the Czech Republic is

[1] *Source: CORINE LC 2000, CENIA, elaborated by Tomáš Chuman, Dušan Ramportl, PřF UK*

characterised by high portion of arable land and forests, each of them constituting approximately one third of the landscape use. Other important categories are permanent grass cover and built-up areas. From the ecological stability point of view arable soils together with built-up urbanised areas are the least favourable types of landscapes due to their altered surface characteristics with limited water retention capacity, usage of agrochemicals, insensitive landscape measures and agricultural practices. The amount of occurrence of these types of unstable landscape types is often used as indicator of anthropogenic influence.

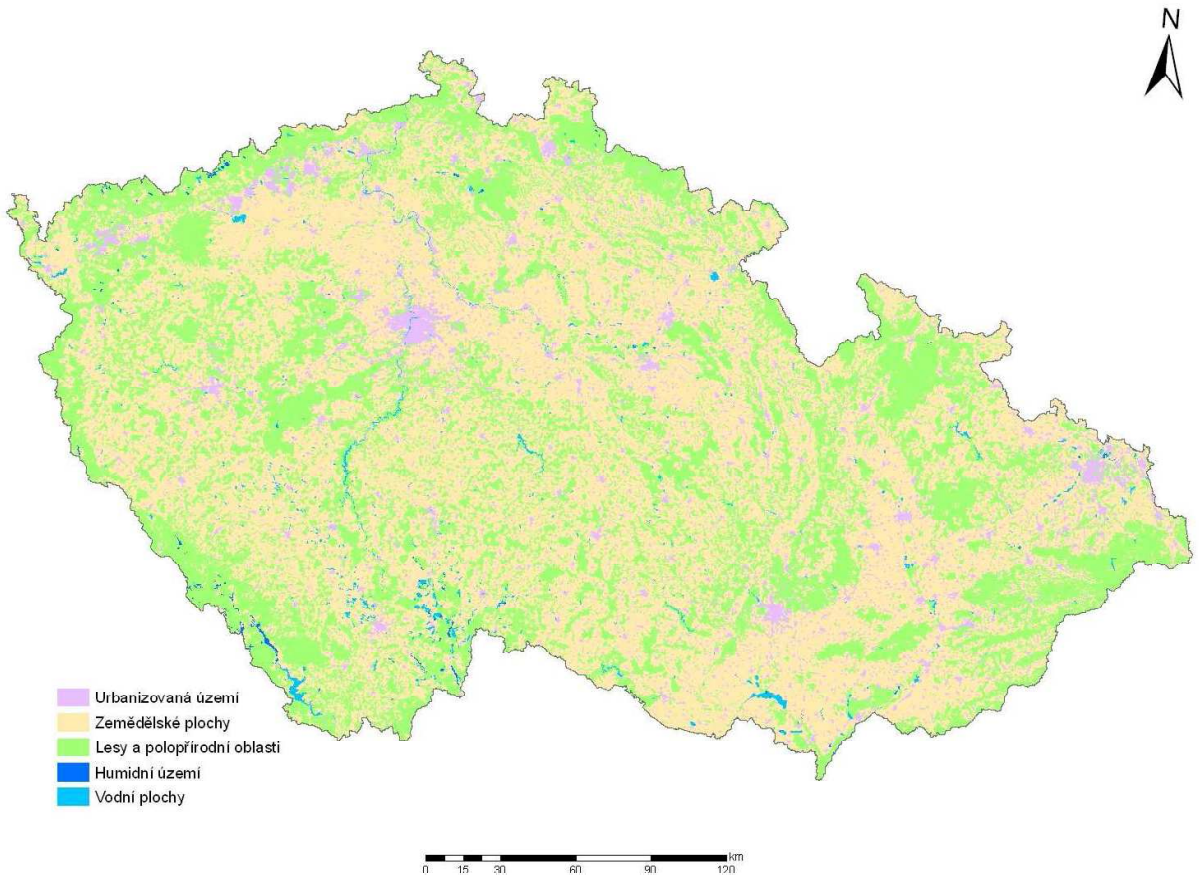
Figure 2 indicates current types of land use [%]:[2]



Since 2000, we have been observing positive trends regarding the area of arable land (decrease in 1,5%) and forested land (increase in 0,5%), permanent grass cover (increase in 1,4%) and areas of surface water (increase in 1,7%). However, at the same time built-up and other areas increased in 1,7%. Even though there is an increasing intention of afforesting extensive or grassed areas with conditions unfavourable for agriculture, the percentage of ploughed land still remains high (up to 38% of the Czech Republic's land). Urban land spread quite significantly in 2000-2005 comparing to the previous decade of 1990-2000. In this context it is notable to say that the arable land receded also due to expanse of industrial zones, housing activities and mining areas. This trend is well documented through the data in CORINE Land Cover database.

Figure 3 shows different types of landscape cover in 2006 (pink colour - urban areas, yellow - agriculture areas, green - forests and semi-natural areas, dark blue - humid areas as wetlands and moor lands, light blue - surface water bodies and watercourses):[3]

[2] Source: Czech Office for Surveying, Mapping and Cadastre (ČÚZK)
[3] Source: Database CLC 2006



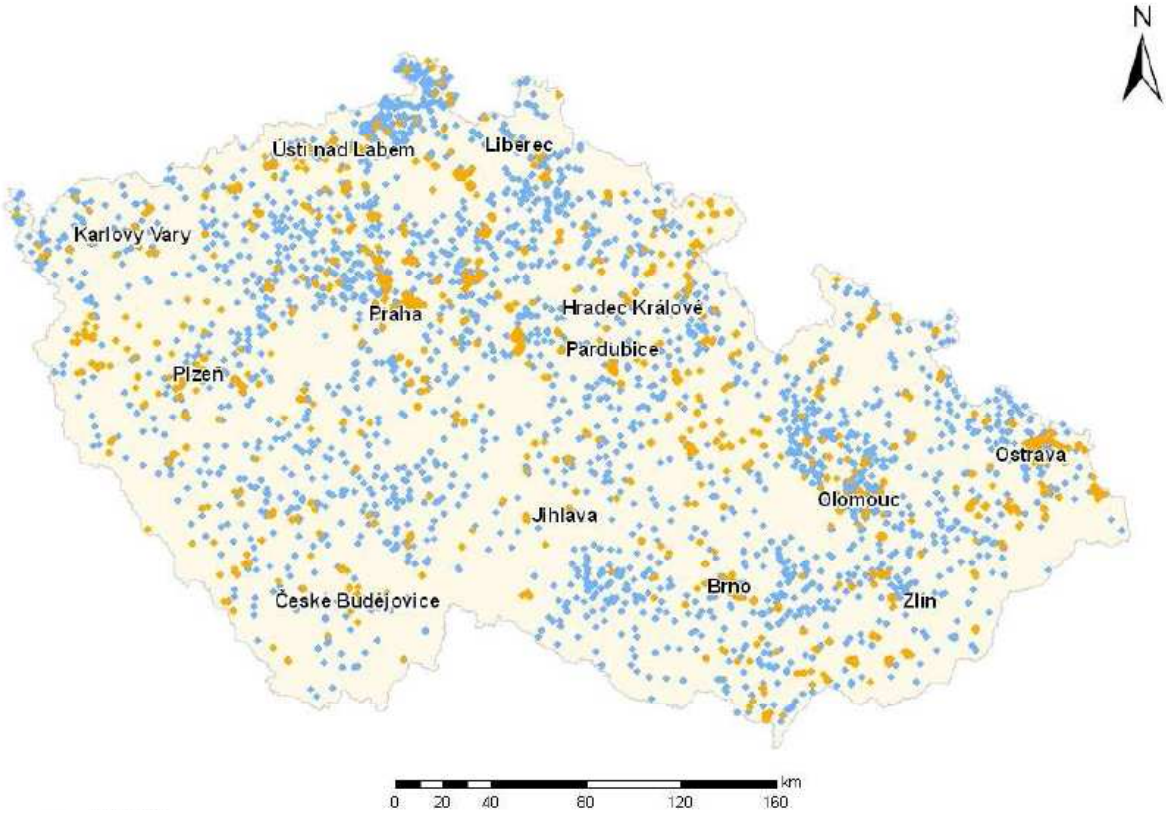
One of the specific problems in the Czech Republic is a great number of "brownfields" - industrial buildings and land intensively used in the past and idle now. The Ministry of the Environment has established financial incentives for the revitalisation and reclamation of such places.

1.3 DRIVERS OF ENVIRONMENTAL CHANGES

1.3.1 OLD ENVIRONMENTAL BURDENS

The continuing extensive occurrence of old environmental burdens (sites of different size contaminated with different pollutants) is one of the remnants of more than sixty years of non-democratic regime (1938–1989) in the Czech Republic. The most important systematic measure currently undertaken by the Ministry of the Environment and the State Environmental Fund is the effort to obtain sufficient funds and implementation of projects aimed at elimination and reclamation of such burdens and sites. The Operational Programme Environment is the current EU financial incentive used in the Czech Republic for the environmental sector. It was approved by the European Commission in December 2007, has been covering the period of 2007–2013 and proved very successful in this regard. Priority Axis 4.2 - Rehabilitation of Old Environmental Burdens - aims at the completion of the list of contaminated sites, and allows submission of projects related to the elimination of serious environmental burdens. According to the current numbers more than 9 400 sites still need to be cleaned.

Figure 4 shows locations of contaminated sites - idle industrial buildings (yellow dots), and landscape environmental burdens (blue dots):[4]



1.3.2 GREENHOUSE GASES

Emissions of greenhouse gases as a result of human industry activities are seen as one of the contributors to the global climate changes. The Czech Republic has already fulfilled its commitments under the Kyoto Protocol for the period of 2008−2012. However, the current trend in greenhouse gas emissions is not favourable. Total emissions (including total released emissions lowered by the LULUCF sector) reached 144.8 Mt of CO_2 eq in 2006, which represents an annual increase of nearly 4%. Preliminary estimates for 2007 confirmed this trend.

Mobile sources seem to be the main reason for the emission increase. For most other monitored categories of sources, emissions have either decreased or stagnated. The mobile sources, and specifically the road transportation, are responsible for greenhouse gas emissions increase from 4.7% in 1990 to 13% in 2006. This makes mobile sources the second most significant source of greenhouse gases after fuel combustion in stationary sources. This is the result of the persistently high proportion of energy intensive production, solid fuel use of electricity and heat generation and low proportion of nuclear power stations and renewable sources of energy. According to preliminary estimates in 2007, the production of the most significant greenhouse gasses has increased. The data put the annual increase at almost 4% (6 Mt of CO_2 in absolute terms). The reason lies mainly in the area of the public energy sector, where an increase of almost 4 Mt of CO_2 was detected, leaving the rest of emissions to transportation and industrial production.

[4] Source: Czech Environmental Information Agency (CENIA)

Table 1 shows emission trend of carbon dioxide and other direct greenhouse gases over years [Mt CO_2 eq]:[5]

Greenhouse gas	1990	1995	2000	2001	2002	2003	2004	2005	2006
	Mt CO_2eq.								
CO^2	159,8	123,5	119,3	120,6	117,0	119,9	120,5	119,4	124,4
of which, CO_2 emissions	163,9	131,1	126,8	128,3	124,6	125,9	126,6	125,9	127,9
of which, CO_2 sinks (LULUCF)	–4,1	–7,6	–7,5	–7,7	–7,6	–5,9	–6,1	–6,5	–3,5
CH_4	18,5	13,7	12,2	12,3	12,1	11,8	11,6	11,7	12,0
N_2O	11,9	8,1	7,7	7,9	7,6	7,2	7,8	7,5	7,4
F gases	0,1	0,1	0,4	0,6	0,5	0,7	0,7	0,7	1,0
Total (including LULUCF)	190,3	145,4	139,6	141,4	137,3	139,7	140,6	139,3	144,8
International air transport	0,6	0,5	0,6	0,6	0,7	0,8	1,0	1,1	1,1

Figure 5 indicates the development of greenhouse gas emissions by different sectors in 1990-2006 [Index (year 1990=100)]:[6]

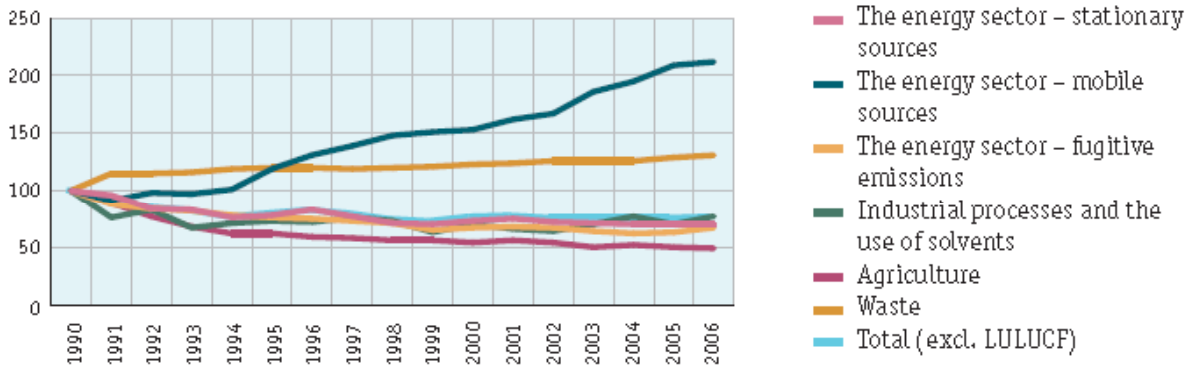
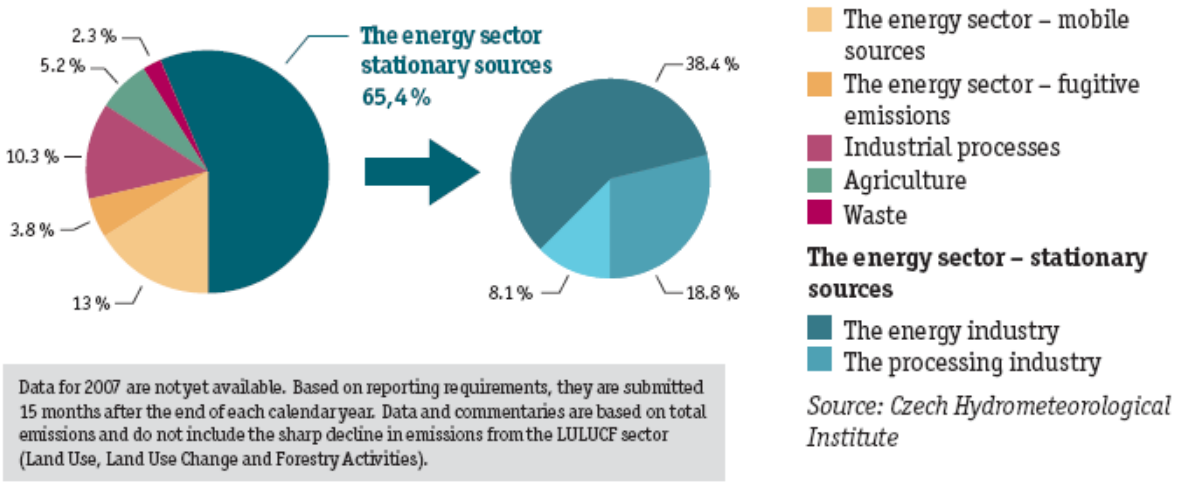


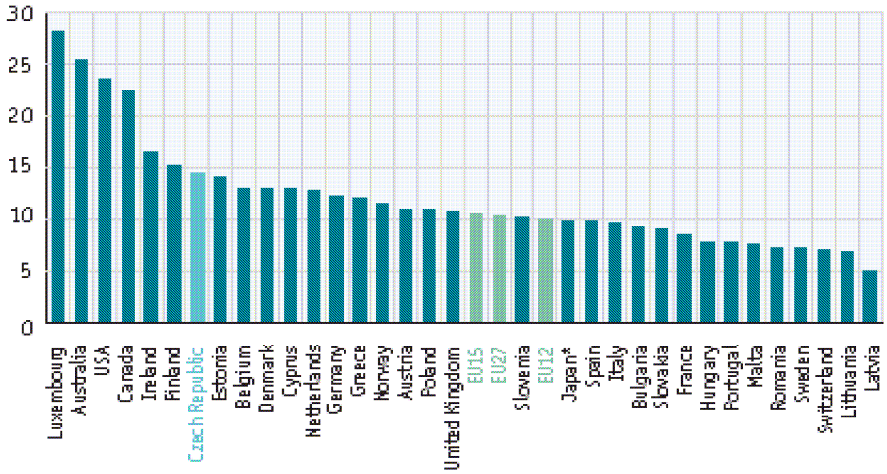
Figure 6 shows the proportion of each sector in total greenhouse gas emissions in 2006 [%]:[7]



Data for 2007 are not yet available. Based on reporting requirements, they are submitted 15 months after the end of each calendar year. Data and commentaries are based on total emissions and do not include the sharp decline in emissions from the LULUCF sector (Land Use, Land Use Change and Forestry Activities).

[5] Source: Czech Hydrometeorological Institute
[6] Source: Czech Hydrometeorological Institute
[7] Source: Czech Hydrometeorological Institute

Figure 7 demonstrates specific CO_2 eq emissions in the EU27 and other countries in 2006 [tones of CO_2 eq per capita]:[8]



1.3.3 AIR POLLUTION AND AIR QUALITY

The air quality is being frequently monitored in the Czech Republic. The data, which have been systematically collected since 1980, were classified into the national emission inventory. This inventory is based on the Register of Emissions and Air Pollution Sources (REAPS). In 2007, air pollution sources were recorded in accordance with the national legislation in these categories – extra large and large, medium-sized, small and mobile emission sources. Limit values, target values, long-term objectives, margins of tolerance and other requirements for the assessment of ambient air quality are set by Government Regulation No. 597/2006 Coll., concerning the limit values and air monitoring, assessment, evaluation and quality management, as amended, which is an implementing regulation of Act No. 86/2002 Coll., on the protection of air, as amended. This regulation transposes the requirements of all subsidiary directives applicable to the air quality in the EU, i.e. Directive 99/30/EC, 2000/69/EC, 2002/3/EC and 2004/107/EC.

No major changes appeared in 2007 evaluation. An increase in SO_2 and CO emissions has been detected. The emissions of other main pollutants (PM, NOx, VOC and NH_3) have rather stagnated. In 2007, limits for human health protection were exceeded in certain areas. While these areas represent 6.3% of the Czech Republic, they house more than 32% of the Czech population. Compared to numbers in 2006, where these areas represented 29 %, positive development was detected. Nevertheless, more favourable meteorological conditions for dispersal of pollution were likely the main cause of the observed positive trend.

The increase in sulphur dioxide emissions has mainly resulted from changes in the intensity of the use of sources for generating electricity. Iron and steel production is linked with the increase of carbon monoxide emissions. The decrease of emissions from household heating (PM, SO_2, CO) has resulted from moderate climatic conditions in 2007.

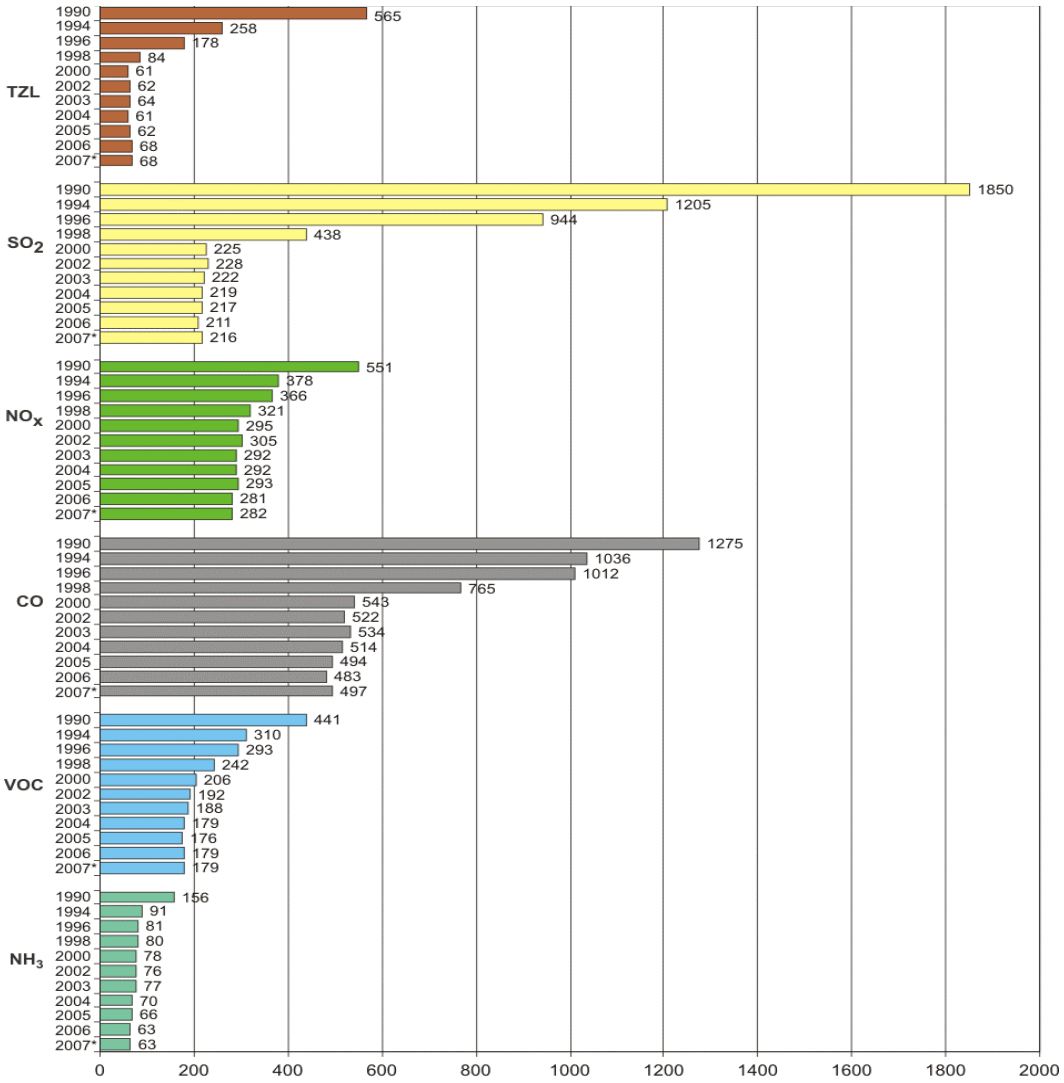
Air pollution with PM10 particles continues to exceed the limits, even though the measured concentrations of this pollutant have markedly decreased in comparison to previous years. In 2007, the limits for 24-hour PM10 concentrations were most significantly exceeded in the Moravian-Silesian Region (the Ostrava area), and to a lesser degree in the Olomouc, Central

[8] Source: EUROSTAT, OECD, UN FCCC, data for 2005

Bohemia, Usti nad Labem and Southern Moravian Regions. The limits for the 24-hour average concentration were exceeded by 6.3% (in 2006 this was 29%); the limit for the annual average concentration was exceeded by 0.7% (in 2006 by 2.3%). The areas where PM10 exceeded limits in 2007 house more than 32% of the population (62% in 2006). In connection with the improved emission situation of PM10, the area with poor air quality for human health decreased from 29% of the Czech Republic in 2006 to 6.3% in 2007.

85% of the Czech population was also exposed to ground-level ozone concentrations exceeding the target values for human health protection. The AOT40 ozone target value for the protection of ecosystems and vegetation continued to be exceeded in the whole country in 2007, with the exception of some areas in the Hradec Kralove and the Pardubice Regions. The target value for benzo[a]pyrene was exceeded by 4.9% in areas housing 51% of the population. The limit values were exceeded mainly at heavily trafficked locations.

Figure 8 shows the total numbers of basic air pollutants in the CR since 1990. The data for 2007 are of preliminary nature [1000 t / annum]:[9]



[9] Source: Czech Hydrometeorological Institute

Figure 9 shows the orientation of 36 highest 24-hour PM10 concentrations in the air in 2007:[10]

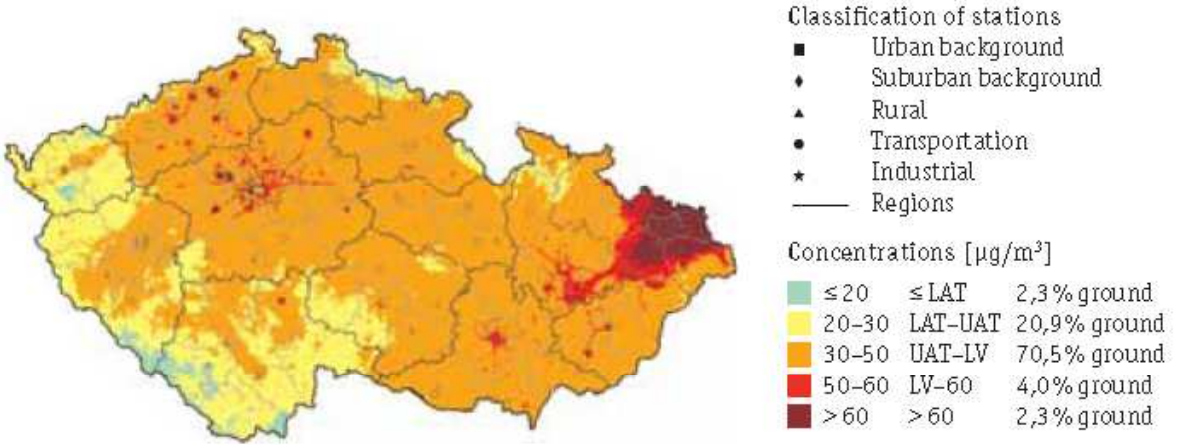
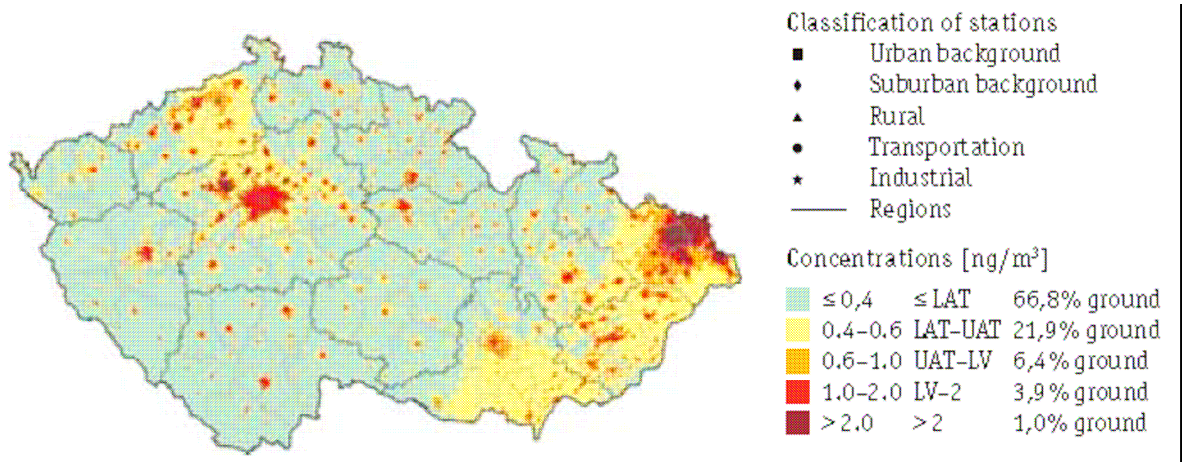


Figure 10 demonstrates the orientation of the annual average benzo[a]pyrene concentrations in the air in 2007:[11]



1.3.4 WATER POLLUTION AND WATER QUALITY

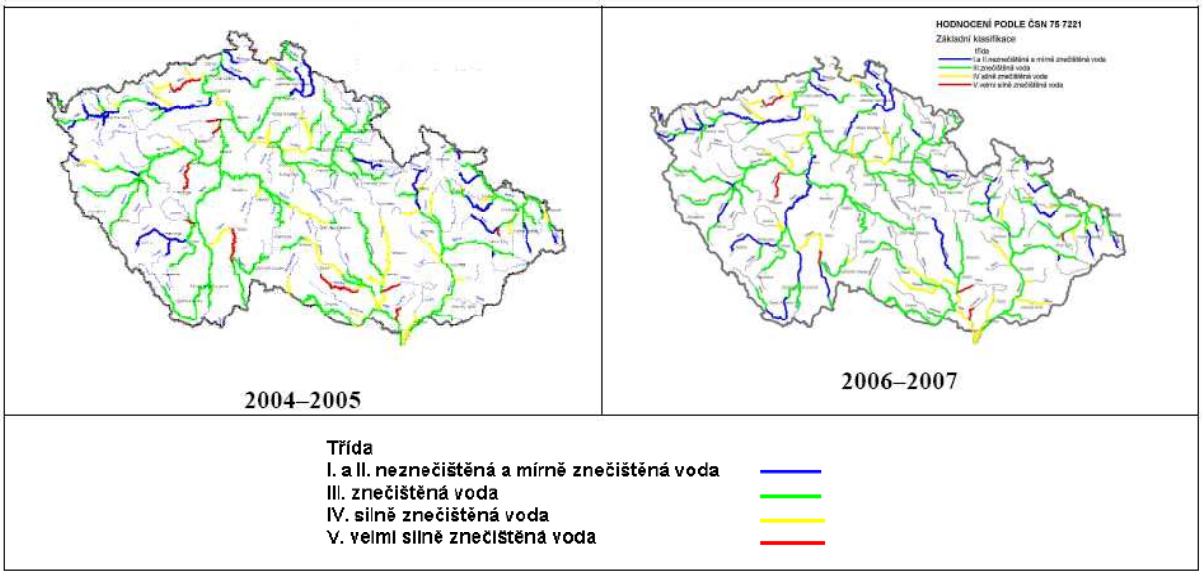
Discharged pollution has decreased in all stated basic indicators and has contributed to the improvement of the quality of surface water. A number of tests of river sediments have approved this trend. While the drinking water supply in the Czech Republic is adequate, water losses within the piping system are, despite some improvements, still relatively high (18.5%). Almost 20% of the population is not connected to sewer systems and 4% of all wastewater from sewer systems is not treated. The construction and modernisation of wastewater treatment plants (WWTPs) has been continuing.

Monitoring of freshwater quality is obligatory according to the Water Framework Directive 200/60/ES and Act No. 254/2001 Coll. on Water**.** Within the former state-run network of the Czech Republic, 297 watercourse profiles and selected border streams are monitored.

[10] Source: Czech Hydrometeorological Institute
[11] Source: Czech Hydrometeorological Institute

Monitoring of the profiles is normally performed 12 times a year and the following indicators are observed: basic physical and chemical parameters (up to 50 indicators), metals and metalloids (up to 25 indicators) and biological and microbiological parameters (up to 10 indicators). A wide range of organic substances is monitored; specifically up to 23 indicators for volatile elements, up to 80 indicators for pesticides, up to 15 indicators for chlorophenols, up to 15 indicators for poly-aromatic hydrocarbons, up to 7 indicators for nitrotoluenes and up to 9 indicators for chlorbenzenes. In addition, anilines and chloroanilines, naphthalene-sulphonates, nitrobenzene, musk substances, surfactants, chelating substances, phthalates are monitored as well. In addition to this network, 84 profiles of radioactive substances are monitored. Surface water quality is expressed in terms of classes pursuant to CS Standard 75 7221 Classification of Surface Water Quality (I – unpolluted water, II – slightly polluted water, III – polluted water, IV – highly polluted water, V – extremely polluted water).

Figure 11 compares the quality of surface water in watercourses in the Czech Republic over years. Watercourses were marked in different colours according to the pollution level described in five classes. I and II (dark blue) indicate unpolluted or slightly polluted water, III (green) shows polluted water, IV (yellow) strongly polluted rivers, and V (red) shows very strongly polluted rivers:



In 2007, discharged pollution corresponded with a reduction of produced pollution in all basic indicators. The 2005−2006 year-to-year increase for CODCr, solid substances and dissolved inorganic salts was not confirmed. With the continuing decline in pollution from point sources, the significance of the influence of area pollution on surface water and groundwater quality is increasing − especially with respect to pollution of nitrates from nitrogen fertilizers. In 2007, the continuing excessive supply of nutrients leeching into surface water yet again led to water eutrophication in many water reservoirs.

The evaluation of running surface water quality in 2007 was influenced by changes in the standard limits and the monitoring system. Most watercourses were polluted or only mildly polluted. The most polluted watercourses are mainly smaller ones with lower annual flow rate and several larger ones, e.g. Bilina and lower Lužnice and Ostravice.

The Czech Republic managed to fulfil the State Environment Policy's objective of ensuring that 91% of the population was supplied with quality drinking water by 2010 as early as 2004; with 92.3% of the Czech Republic's population being connected to water supply systems in 2007. Since 2000, there have been annual declines in drinking water losses within the pipeline network. These have decreased from 24.3% to 18.5%. While the proportion of treated wastewater discharged into sewer systems peaked in 2007 at 95.8%, this share has more or less stagnated at 94−96% since 2000. 2007 saw the completion of 7 new and modernisation of 22 wastewater treatment plants. The long-term increase in the proportion of the population connected to sewer systems has continued. However, 19.2% of the population is still not connected to sewer systems. By international comparison for 2001−2004, the overall proportion of the population whose wastewater is treated failed to reach the EU15 average.

Figure 12 shows amounts of discharged pollution in 2000 - 2007 [Index (year 2000 = 100)]:[12]

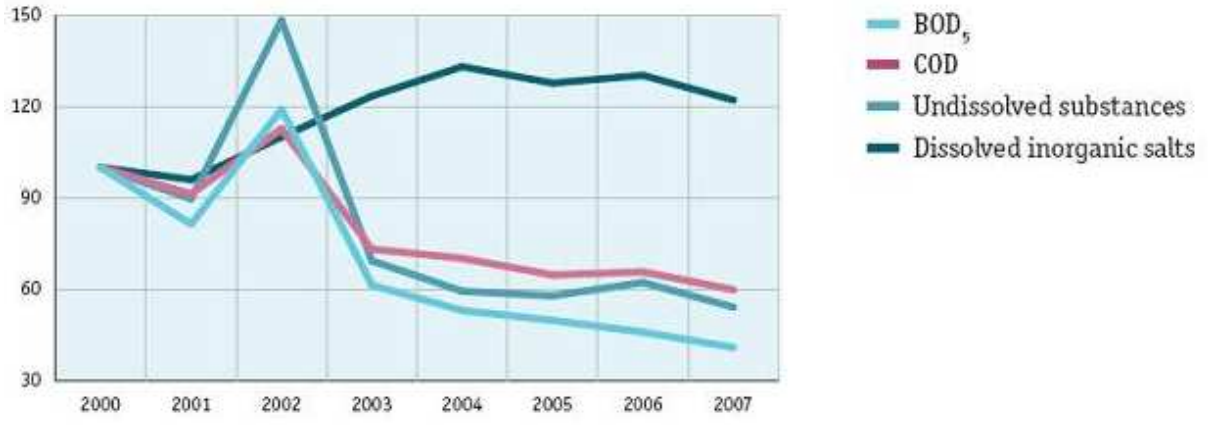
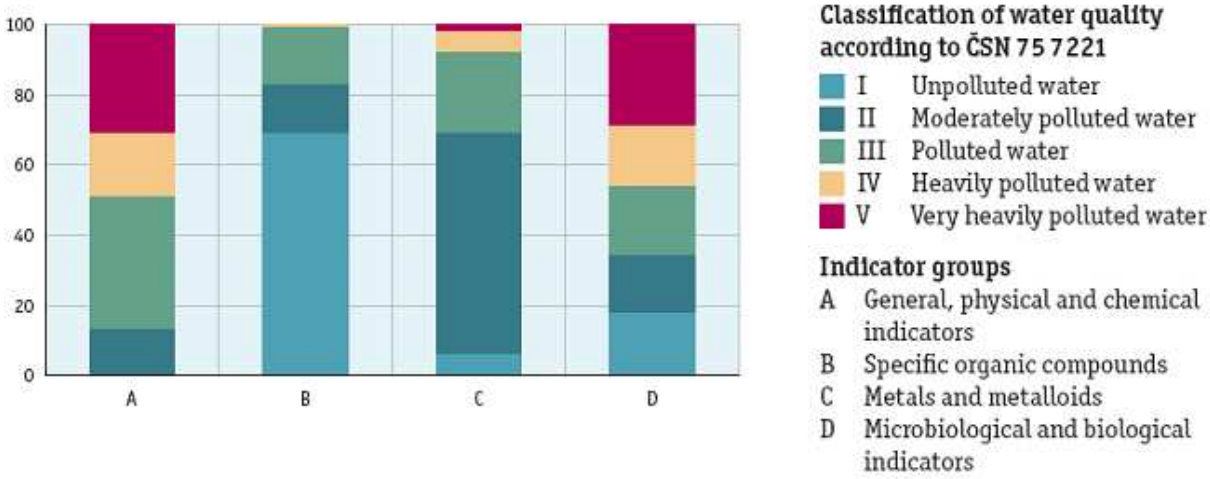


Figure 13 shows proportion of measuring profiles into quality categories according to indicator groups A–D in 2007 [%]:[13]



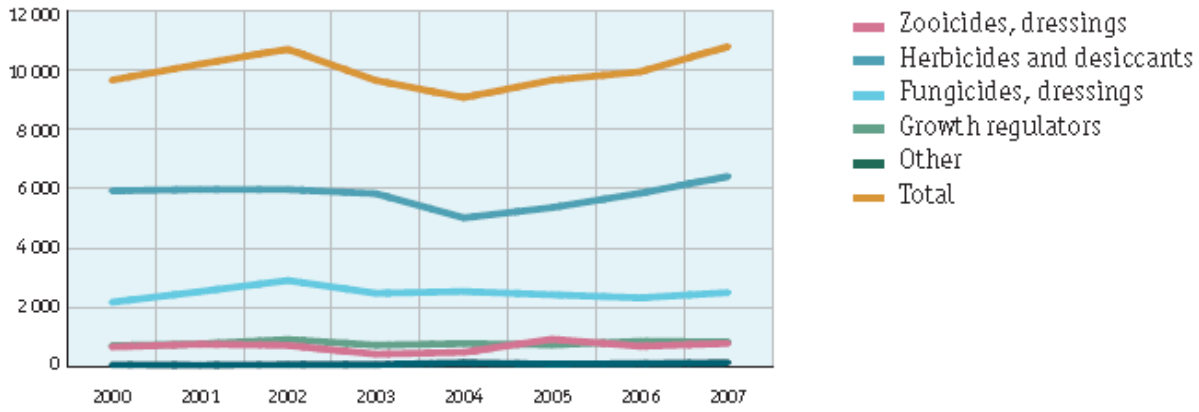
[12] Source: T.G.Masayk Water Research Institute
[13] Source: Czech Hydrometeorological Institute

1.3.5 SOIL QUALITY AND IMPACT OF MINING ACTIVITIES

Quality of soil is monitored mainly for agriculture purposes; nonetheless, it is very important factor for other sectors as well, e.g. forestry and environmental protection. Soil quality is negatively influenced by some anthropogenic activities as utilisation of sludge from wastewater treatment plants, excessive application of fertilizers and biocides, unsuitable management in agriculture, and spreading of urban areas into agricultural land.

The most frequent pollutants in sludge from wastewater treatment plants are higher amount of mercury, nickel, and lead. The constant monitoring of these chemicals is in place and sludge samples are tested before further used in agriculture. Sometimes, natural processes themselves are the cause of soil quality deterioration and degradation, e.g. land slides, floods and long draughts.

Figure 14 indicates the use of substances for plant protection according to categories in 2000–2007 [thousands kg, litres]:[14]



The final effect of all the above-mentioned negative factors is most likely soil erosion, sealing, compaction, degradation, reduction of organic matter, and loss of soil biodiversity. The damage occurs not only in heavy-textured soils but also in light-textured soils, especially in irrigated and intensively used areas. While the soil compaction plays a negative role in water exchange regime and increases the energy input in processing, erosion of all kinds depletes soil nutrients accumulated mostly in the topsoil layer. Loss of soil biodiversity results in further degradation with decreased ability of its renewal.

A number of national legal regulations are in place regarding the soil protection. Act No. 17/1992 Coll., on the environment, as amended, lists soil as one of the environmental components. The most significant special regulations include Act No. 334/1992 Coll., on the protection of agricultural land fund, as amended and Act No. 289/1995 Coll., on forests, as amended, which contains provisions regarding the protection of forested land. The above acts provide for direct protection for the two most significant types of land from the environmental and production point of view.

Mining activities significantly impact the landscape and environment at the local and frequently also at the regional level. The Raw Material Policy of the Czech Republic, adopted by the Government, mandates sustainable development and provides for adequate protection of the domestic raw material base. After 1989, significant structural changes occurred in the

[14] Source: Ministry of Agriculture

economic development of the state. As a consequence, the mining of minerals decreased by more than 38% from 1990–1998 in both physical and financial terms. The market economy led to the termination of extraction of deposits by mining that had previously been possible only with high state subsidies. Mining of baryte and fluorite ores was terminated. There was a significant mining cutback of uranium deposits and some of the coal areas. The environmental burden connected with these activities decreased proportionately.

1.4 BIODIVERSITY AND AGRICULTURE

1.4.1 NATIONAL POLICIES AND STRATEGIES

The Ministry of Agriculture in 2004-2006, in cooperation with the Research Institute of Agricultural Economics and other institutions prepared the National Strategy Plan for Rural Development of the Czech Republic for 2007-2013 and the Rural Development Programme of the Czech Republic for 2007-2013[15]. Both documents are tools to implement the Community as well as national rural development policies.

Government Resolutions No 499/2006 and 948/2006 approved the National Strategy Plan and the Rural Development Programme. The National Strategy Plan for Rural Development continues to be implemented in the period of 2007 – 2013 through the Rural Development Programme.

The National Strategy Plan builds on the EU strategic priorities for 2007 – 2013 stipulated in Council Regulation (EC) No 1698/2005 and focuses on increasing the economic growth, creating new job opportunities and sustainable economic development. It also follows the key elements of Council Regulation (EC) No 1290/2005 on the financing of the common agricultural policy, and Council Decision (EC) No 144/2006 on Community strategic guidelines for rural development.

The Rural Development Programme is based on the following Community legislation:

- Council Regulation (EC) No 1698/2005 on support for rural development by the European Agricultural Fund for Rural Development;
- Council Regulation (EC) No 1290/2005 on the financing of the common agricultural policy;
- Council Decision No 2006/144/EC on Community strategic guidelines for rural development;
- Council Regulation (EC) No 1782/2003 of 23. 9. 2003 establishing common rules for direct support schemes under the common agricultural policy and establishing certain support schemes for farmers, last amended by Council Regulation (EC) No 319/2006;
- Council Regulation (EC) No 1257/1999 on support for rural development from the European Agricultural Guidance and Guarantee Fund (hereinafter referred to as the "EAGGF") – until 1. 1. 2010;
- Commission Regulation (EC) No 1320/2006 laying down rules for the transition to the rural development support provided for in Council Regulation (EC) No 1698/2005;

[15] Rural Development Programme of the Czech Republic for 2007-2013
http://www.mze.cz/UserFiles/File/EAFRD/RDP%20November%202008.pdf

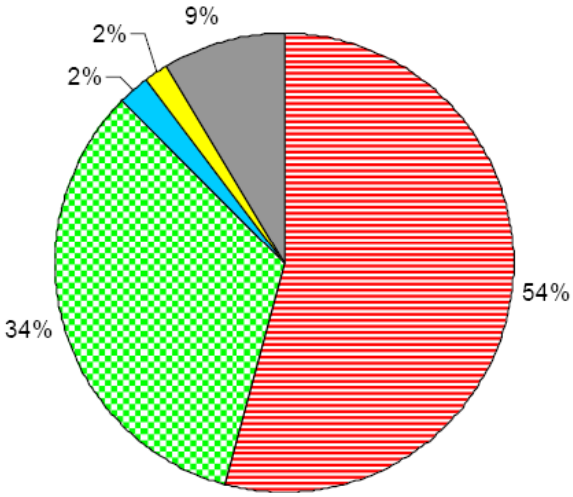
- Commission Regulation (EC) No 1974/2006 laying down detailed rules for the application of Council Regulation (EC) No 1698/2005 on support for rural development by the European Agricultural Fund for Rural Development (EAFRD);
- Commission Regulation (EC) No 1975/2006 laying down detailed rules for the implementation of Council Regulation (EC) No 1698/2005, as regards the implementation of control procedures as well as cross-compliance in respect of rural development support measures;
- Directive 2000/60/EC of the European Parliament and of the Council of 23. 10. 2000 establishing a framework for Community action in the field of water policy, and other legislation.

It also respects the national legislation, namely Act No 252/1997 Coll., on Agriculture, as amended and Act No 256/2000 Coll., on the State Agriculture Intervention Fund.

1.4.2 SPECIES AND TRENDS IN AGRICULTURE AND BIODIVERSITY

The Czech Republic has 42 640 km^2 of agricultural land, which constitutes approximately half (54%) of the state's area. There is on average 0.42 ha of agricultural land per inhabitant, of which 0.3 ha is arable land. This is approximately the European average. More than one third of the Land Fund of the Czech Republic is forest land.

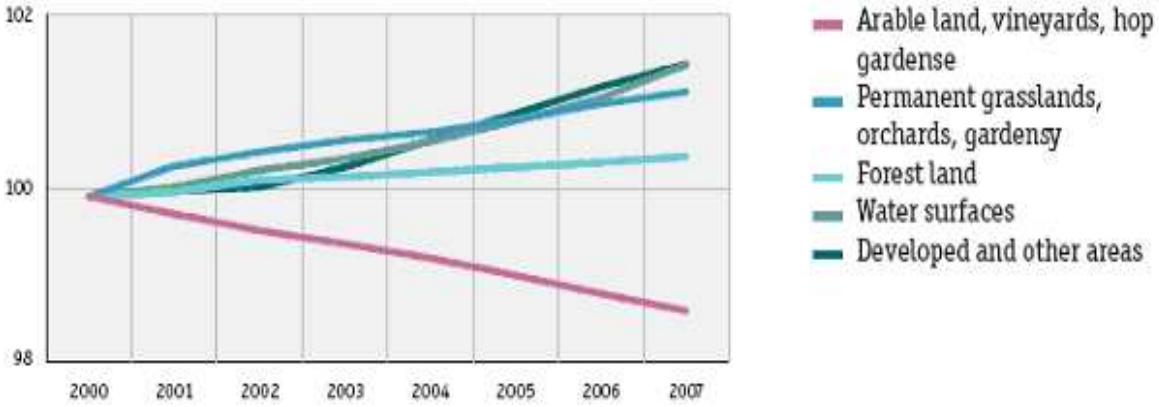
Figure 15 shows the land resource structure (agricultural land 54%, forest land 34%, water surface areas 2%, built-up areas 2%, and other areas 9%):[16]



The Czech Republic features great landscape and habitat diversity and there is no doubt that agriculture practices contributed to its increase over past decades and centuries. However, mainly in the last fifty years, agriculture has also counted as a significant cause of the loss of rural landscape biodiversity. The most significant reduction of species diversity occurred in the agriculturally productive areas with intensive farming and strong disturbances to the original landscape structures. Fields were consolidated into the large blocks with an average field size increasing from 0.23 ha in 1948 to approximately 20 ha at present. The consolidation measures had often very little respect for the original terrain's topography and biodiversity conservation. These practices often caused many changes related to water runoff relations, watercourses pollution and overall soil degradation, affecting natural soil fertility, water retention ability, and biological diversity of species dependant on rich agricultural landscape.

[16] Source: The Annual Statistical Publication of the Land Fund, Czech Office for Surveying, Mapping and Cadastre (COSMC) – data valid 31 December 2005

Figure 16 shows the trends of use of different types of land in the Czech Republic in 2000 - 2007 [Index (year 2000 = 100)]: [17]

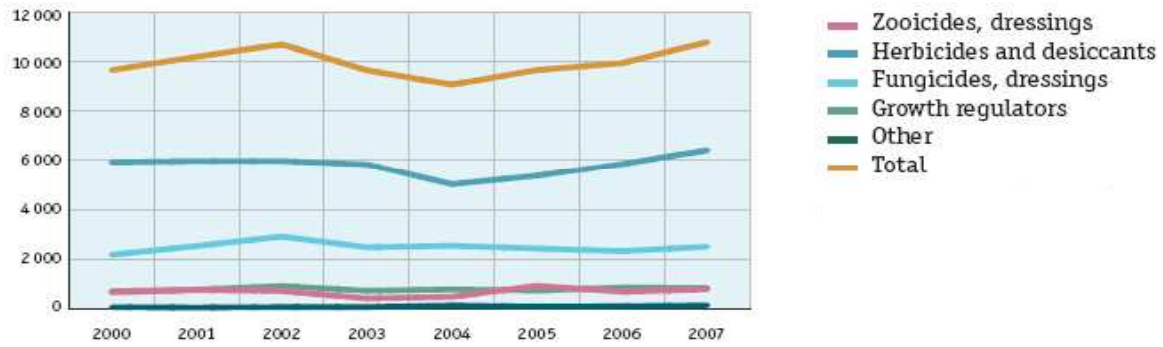


The amount of fertilizers used in farming practices is another important factor affecting the soil biological diversity. Although the application of net nutrients supplied to the soil through mineral fertilizers increased by 10.6 % annually (reaching 109.1 kg/ha), it is now at the EU average level. The application of calcareous materials doubled to 230 thousand tons and the total application of substances used for plant protection grew by 8.6 % to 10.8 million kg/litres (units corresponding to the types of substances). The State Environment Policy's objective to reduce the use of dangerous pesticides and biocides and to replace them with less dangerous substances has failed to be accomplished. Agriculture is the most significant producer of ammonia and is responsible for 95 % of its emissions. In 2007, total NH_3 emissions from agriculture reached 60.14 kilotons.

However, the toxicity of chemical preparations used in agriculture has fallen significantly over the last 20 years. Whilst in 1990 the consumption of chemical substances within the category Other Poisons (OP) was 14.5% and Specially Dangerous Poison (SDP) 0.35% of the total consumption of chemical preparations, in 1999 it was 2.7% for OP and 0.004% for SDP. In addition, after new classification of these chemicals was introduced following Act 356/2003 Coll., (Chemical Substances Act), the proportion of toxic and highly toxic preparations lowered to only 0.5 – 1.0%. It is notable to say that the development in the direction of reducing amounts of toxic and persistent preparations continues.

Figure 17 shows the use of substances for plant protection [thousands kg, liters]: [18]

[17] Source: Czech Office for Surveying, Mapping and Cadastre
[18] Source: Ministry of Agriculture



Distribution of areas with suitable living conditions for wild species of animals and plants is another factor under frequent monitoring. One characteristic example observed is the fall of species dependant on places with hedges, shrubs, field edges and pieces of land under less intense farming. For example, the population of a partridge (*Perdix perdix)* has declined significantly in last years comparing to numbers in 1980s. Lack of food and suitable shelters, and insensitive farming practices resulting in physical destruction of nests or young individuals are the main reasons for species abundance loss.

The unified and a large-scale farming have also a negative effect on a number of grassland biotopes. It is estimated that 40 000 ha of grassland is well preserved as species rich meadows and pastures. However, it is notable that another approximately 300 000 ha are showing certain signs of degradation.

Certain species of wild animals and plants are subject of long-term monitoring often due to their conservation status and relatively simple methods for their research. Birds of open agricultural landscape could be such an example. The Czech Society for Ornithology[19] established the Breeding Bird Monitoring Programme according to which a number of species have been monitored since 1980s. The biodiversity indicator "Abundance and distribution of selected species" has been used in this context to outline abundance of selected species over years. It also allows for a certain prediction and planning by nature conservation authorities. Unfortunately, birds of agricultural land constantly show a long-term decline in last decades. The above-mentioned reasons of unsuitable farming practices and lack of nesting and shelter places cause their reduction. Recently, an additional factor was determined - an increase in using of fertilizers and pesticides.[20] The following species are an example of long-term monitoring activities and frequent evaluation: *Alauda arvensis, Anthus pratensis, Carduelis cannabina, Ciconia ciconia, Corvus frugilegus, Emberiza citrinella, Falco tinnunculus, Hirundo rustica, Lanius collurio, Motacilla flava, Passer montanus, Perdix perdix, Saxicola rubetra, Streptopelia turtur, Sturnus vulgaris, Sylvia communis, Vanellus vanellus*.

Figure 18 indicates declining abundance of *Perdix perdix* [% change]: [21]

[19] www.cso.cz
[20] Data Analysis of the Breeding Bird Monitoring Programme, the Czech Ornithological Society, Prague, October 2007 (in Czech)
[21] Source: http://jpsp.birds.cz/vysledky.php?taxon=4472007

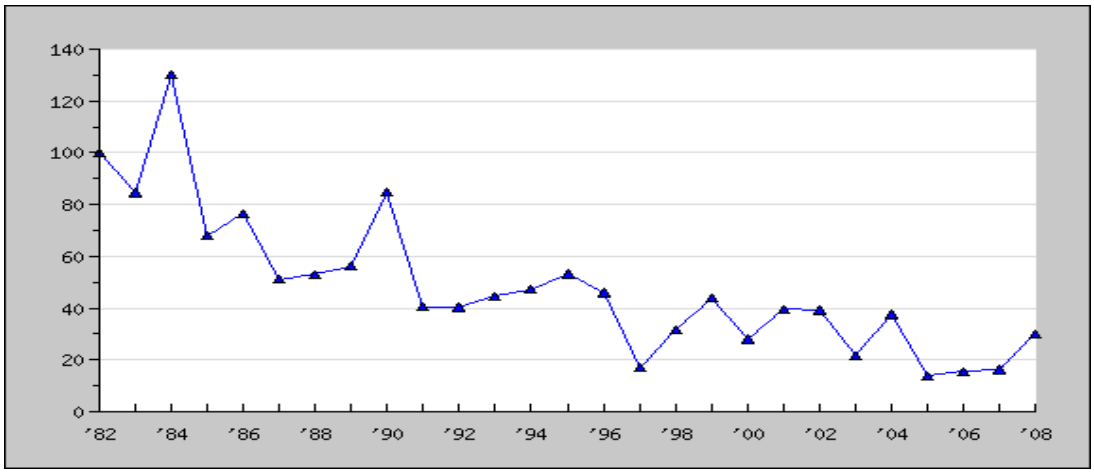


Figure 19 shows declining numbers of *Vanellus vanellus* [% change]: [22]

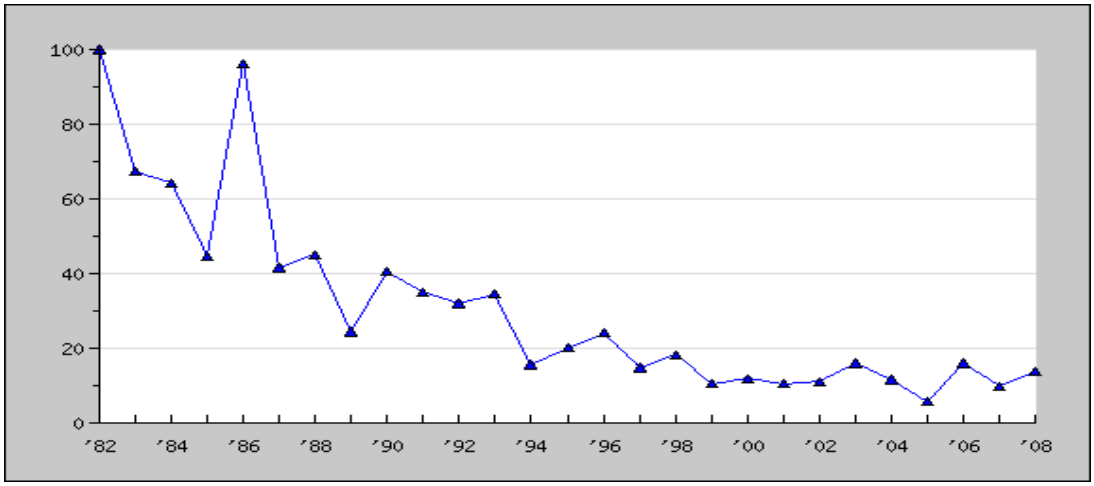
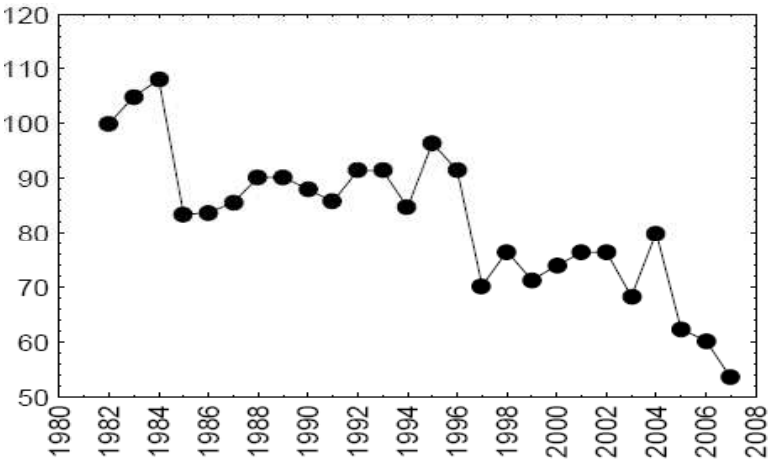


Figure 20 represents the biodiversity indicator of selected bird species dependent on open agriculture land [% change]: [23]

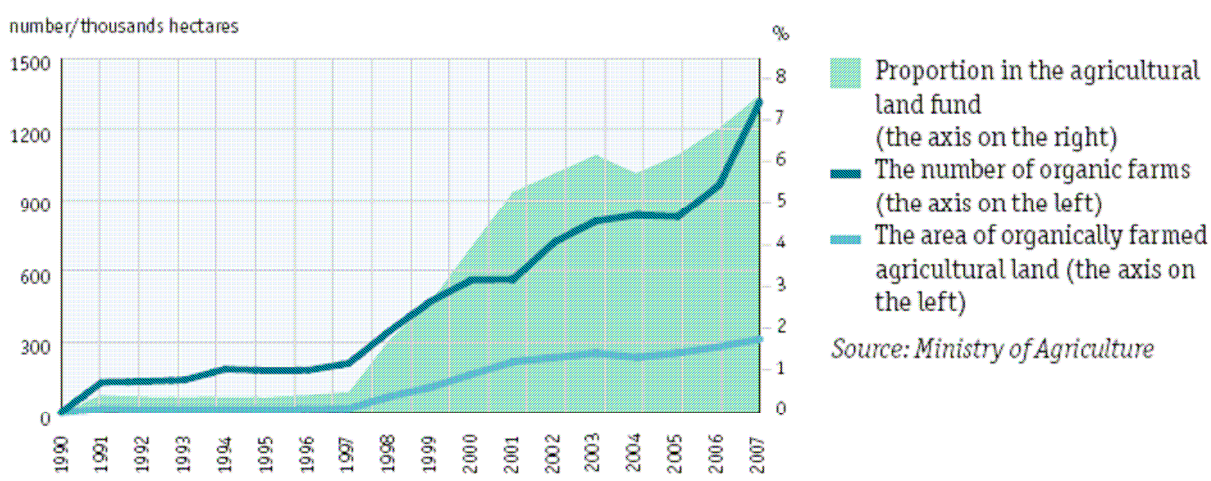


[22] Source: http://jpsp.birds.cz/vysledky.php?taxon=487

[23] Data Analysis of the Breeding Bird Monitoring Programme, the Czech Ornithological Society, Prague, October 2007 (in Czech)

The above figure confirms the overall trend in Europe that the numbers of bird species of open agricultural land decline gradually. On the other hand, some positive figures can also be found regarding the agriculture and biodiversity. The organic agriculture is developing very fast and gains growing support and attention. In March 2004 the Czech government approved the Action Plan for the Development of the Ecological Agriculture till 2010. The portion of arable land farmed organically can be considered as one of the indicators of sustainable development.[24] There were 1318 registered organic farms (an annual increase of 355 farms) and 253 organic food producers (an annual increase of 101 businesses) in 2007. The area of organically farmed land reached 312 890 ha (31355 ha more than in 2006), which represented 7.36% of all agricultural land. The State Environment Policy's objective of increasing the share of agricultural land resources where organic farming is performed to at least 6% by 2005 and to at least 10% by 2010 is therefore being achieved. It should be also noted that the obligation to add a bio-component to fuels has been in place since 1 September 2007, which resulted in a 15.5% annual increase in the area used for rapeseed oil production.

Figure 21 shows the development of organic farming in the Czech Republic in 1990 - 2007:



Agro-environmental measures aimed at farming in High Natural Value areas were financially supported from the programme - Horizontal Rural Development Plan, in the period of 2004 - 2006. These measures were implemented at the local countryside level and were designed to support farming practices, which take into account an environmental dimension. In more specific terms, to these practices belong: ecological agriculture production, integrated production, sustainable grassland management, growing of intercrops, suitable management of mesophilic and hydrophilic meadows, enhancement of ecological connectivity in agriculture land. Apart from projects aimed at practical implementation directly in the landscape, Ministry of Agriculture and Ministry of the Environment support also activities aimed at research, e.g. "Draft plan of use of regional mixture of seeds for the renovation of flowery meadows in selected places of the Czech Republic" or "The impact of grazing on the meadows vegetation in the Krkonose National Park". [25]

[24] Halt of biodiversity loss until 2010: the development of indicators for evaluation of the Strategy of Biological Diversity Conservation, Charles University in Prague, Environmental Center, December 2006 (in Czech).
[25] Vokasová L., The analyzis of implementing of the Programme of Work of the CBD on Biodiversity in Agriculture in the conditions of the Czech Republic, Daphne CR - The Institut of Applied Ecology, Prague, December 2008 (in Czech).

1.4.3 GENETIC DIVERSITY IN AGRICULTURE

The activities in this area are oriented mainly into the field of genetic diversity of organisms important for food and agriculture (plants, animals, and microorganisms), support, broadening and use of genetic diversity in agricultural practice (extension of gene basis and species spectra of plants and animals, use of this diversity in farming systems and providing for non-production functions of agriculture - sustainable use and the landscape protection.

The legal basis for support of genetic resources for food and agriculture are Act No. 154/2000 Coll. - the Breeding Act and Act No. 148/2003 Coll. on Conservation of Plant and microorganism genetic resources for Agriculture.

In general, the conservation measures of biodiversity in agriculture can be divided into *in-situ*, aimed mainly at soil organisms and ensured by farming procedures taking into account environmental aspects, and *ex-situ*, ensured by **the National Programme on Conservation and Utilisation of Plant, Animal and Microbial Genetic Resources for Food and Agriculture** and aimed at conservation of crop genetic resources, farm animals, fish, bees and microorganisms.

The Ministry of Agriculture launched this National Programme in 2006 and its current rules and measures are set up for the time period of 2007-2011. It consists of three separate national programmes dealing accordingly with plant, microorganisms, livestock and other animal genetic resources for food and agriculture. Genetic resources of the main forest tree species are not included in the above-mentioned programme, but are dealt with separately by the Ministry of Agriculture and other institution - the Forestry and Game Management Research Institute (http://www.vulhm.cz). Additionally, the National Biodiversity Strategy of the Czech Republic (2005) includes goals for conservation of genetic resources within the “gene banks” section. It refers to addressing the trends of the current decrease in the diversity of flora, fauna and microorganisms used in food and agriculture industries, and creating conditions for sustainable use and permanent conservation of all genetic resources.

The equal and fair distribution of benefits, raised from the use of genetic resources, including biotechnical procedures, does not belong to the competence of a single sector and it is not mentioned in any strategic governmental document. Mechanism of benefit sharing has not been yet officially defined in the Czech Republic’s national legislation. However, this principle is included in the *Standard Material Transfer Agreement* that deals with contracts between providers and users of plant genetic resources for food and agriculture under the FAO International Treaty. However, benefit-sharing principles are in different forms implemented in target groups of users of genetic resources for food and agriculture. International rules are respected as international cooperation has been relatively well developed. The benefit- sharing is most often based on the mutual agreement or joint projects and non-monetary benefits, often long-term ones, are provided.

The Crop Research Institute (http://www.vurv.cz) serves as the coordinator of one section of the National Programme and is responsible for the plant genetic resources for food and agriculture. It operates quite an extensive gene bank with seed collection for food and agriculture (http://genbank.vurv.cz/genetic/nar_prog/default_a.htm) and also runs an important electronic information system called EVIGEZ providing data on taxonomy, characteristics, and seed samples evaluation (http://genbank.vurv.cz/genetic/resources/). One of the plans for the future development is to add the DNA characteristics of samples of the stored genetic resources into the current system. This institute is also responsible for various

international activities. It cooperates with FAO, Biodiversity International, and European Cooperative Programme for Plant Genetic Resources, and cooperates on project called the European Plant Genetic Resources Information Infrastructure. It also participates in AEGIS project and provides for keeping the International Treaty of Plant Genetic Resources for Food and Agriculture in the conception of the Global Crop Diversity Trust. The Czech National Program implements the FAO Global Plan of Actions and relevant decisions of CBD. The Czech Republic is responsible for FAO ESCORENA (European initiative to enhance sustainable agricultural development and food security by improving the use of information, communication, and associated technologies), participates in preparation of the world monitoring genetic resources, is responsible for international collection of the genera Allium, European database of wheat (EWDB) and database Arrhenatherum, Trisetum and Poa and is also involved in the GENRES programme.

Table 2 represents crop genetic resources and number of their transactions in 2007: [26]

Crop, Group of Crops	Number of genera	Number of species	Status of Accessions					Total Number of Accessions
			Unknown	Wild	Landraces /local cv.	Advanced cv.	Genetic Stock	
Aromatic and medicinal plants	69	145	43	684	40	93	51	911
Beta and other seed root crops	1	1	2	5	4	163	37	211
Cereals	21	165	1306	1442	952	11831	3936	19467
Flowers	104	187	137	23	50	1309	19	1538
Rhododendron, Rosa	2	40	4	0	0	627	0	631
Fruit woody plants	22	59	147	29	484	1777	514	2951
Grasses	53	148	6	587	3	1374	60	2030
Vegetables	33	126	1731	749	758	3566	127	6931
Food legumes	9	52	121	265	233	3700	415	4734
Miscelaneous, spec. of flowering meadows	21	32	104	0	0	0	0	104
Oil plants	9	13	78	19	34	1070	283	1484
Potatoes	1	30	283	126	22	1145	650	2226
Fodder plants	24	93	7	568	13	795	239	1622
Grape	1	12	32	7	10	515	231	795
Ornamental woody plants (leafy)	2	16	0	16	0	39	0	55
Industrial plants	4	9	58	6	561	1385	535	2545
Zea sp. and alternative cereals	12	34	397	6	104	188	619	1314
Number	**388**	**1162**	**4456**	**4532**	**3268**	**29577**	**7716**	**49549**
%			8,99	9,15	6,60	59,69	15,57	100,00

[26] Source: Vokasova L., Analysis of the implementation of the Working Programme of the CBD on agricultural biodiversity in the conditions of the Czech Republic, Daphne CR - the Institute of Applied Ecology, Prague, December 2008 (in Czech).

The Institute of Animal Science (http://www.vuzv.cz) is the coordinator of the part of the National Programme dealing with animal genetic resources and serves as the National Reference Centre for storage and use of animal genetic resources. This National Centre is a member of the European Regional Centre for animal genetic resources and serves as the European Regional Focal Point (ERFP). Information of all activities of the ERFP is accessible on http://www.rfp-europe.org. The institute provides data into the European information system European Farm Animal Biodiversity (EFABIS, http://efabis.tzv.fal.de), into the global system Domestic Animal Diversity Information System (FAO – DADIS, http://dad.fao.org), and into the information system under the CBD (Clearinghouse Mechanism). The Czech Republic participated in several projects in the frame of the ERFP, e.g. "A study on optimizing the implementation of databases on AnGR and the utilization of their content" and "Development of common methodology to evaluate and monitor the population-genetic status of farm animal breeds and derive a common interpretation of the status of endangerment of breeds". Concerning the capacity building, the principles of the conservation of animal genetic resources in the Czech Republic were presented at the international conference "Conservation of animal genetic resources in Poland and Europe" and at the workshop "Animal genetic resources in Estonia and the Czech Republic". Regarding the awareness raising, the genetic resources themselves have been presented in many expositions, books and video films.

This part of the National Program also regulates the living animal breeds and lines, biological material and germplasm collected and kept in kryo gene bank (sperm, embryos, body tissues), aquaculture important species and lines of freshwater fish and one special line of bee. The National Programme also integrates nationally important breeds and poultry lines in in-situ conditions (34 breeds and 20 lines of national poultry hybridisation programmes).

The subprogram of National program on conservation of genetic resources of microorganisms is coordinated by the Crop Research Institute (http://www.vurv.cz). The program conserves microorganisms, including some viruses and higher fungi important for agriculture, food processing and production. Collections contain thousands of species, strains, patovars and isolated viruses, fytoplasm, bacteria, rhisobia, lower fungi, higher fungi, algae, and yeasts. In addition to microorganisms, genetic resources of insects, worms, mites etc. of economical importance for agriculture are included into this subprogram. Very important part of the program is an identification of samples by standard methods and by ELISA tests or DNA detection for excluding of duplicates and effectively of their utilization. Very important part of this Program is also evaluation, characterisation and documentation of individual samples.

The Institute of Animal Science also provides various services to users of genetic resources and provides database of collections of microorganisms. Most collections are included into European Culture Collections Organization (ECCO) and World Federation for Culture Collection (WFCC). The transactions of these genetic resources run under the relevant quarantine regulations and are monitored by the World Health Organization (WHO) and European and Mediterranean Plant Protection Organization (EPPO). The research, evidence and diagnostics use of harmful and quarantine organisms follow Roma Agreement (1951) and respect undertakings of Budapest Convention on recognizing of microorganisms depositions for the reason of patent processing.

1.4.4 MAIN DRIVERS OF CHANGES IN AGRICULTURAL BIODIVERSITY [27]

Farming is one of the most significant factors influencing biodiversity in agricultural ecosystems. Agriculturally managed ecosystems contain important elements of biological diversity essential for food production and ecosystem functioning. The principle of sustainable use is the precondition for maintaining biodiversity in agricultural ecosystems.

Unsuitable technological procedures and intensive use are the primary causes of soils degradation. From the agricultural standpoint soil degradation is understood to be the loss of the production functions. From the environmental point of view soil degradation is understood to be the loss of its ability to meet its natural functions. Both views need to be considered as equally important and inseparable. In usual conditions six basic types of degradation of agricultural and forestry land use can be observed - water and wind erosion, debasification and acidification, physical degradation (degradation of the soil structure, compaction) degradation through pollution and contamination, loss of organic matter and biological degradation. The problem is that individual causes of degradation often combine at the same time.

By far the most serious is water erosion. In the Czech Republic more than half of the agricultural land is potentially threatened by water erosion. The extent of this problem cannot be determined precisely, however experts from the Research Institute of Ameliorations and Soil Conservation Prague (VÚMOP, http://www.vumop.cz/) estimate that roughly 1.4 million ha of agricultural land is damaged. Erosion damages are primarily caused by storm rainfalls, which are showing a faintly increasing trend and a slight shift to the autumn months whilst the overall annual precipitation remains the same, even though it cannot be stated that this is a permanent trend.

Wind erosion in the Czech Republic potentially threatens 7.5 % of the agricultural land. Marked damages are annually recorded in the drier and warmer climatic areas on light soils (the Polabi area and Southern Moravia). Likewise heavy clay soils are also threatened. They suffer a breakdown of their structure after the winter freeze and during the spring drying winds, when the soil's protection by vegetation is at a minimum.

Debasification and acidification is not presently a fundamental problem, even though, with regards to the restrictions on soil liming, it is looming on the horizon. The quantity of organic matter, biological degradation and vulnerability of soils by compaction are usually caused by unsuitable management (not adhering to sowing procedures, using heavy machinery). These types of degradation are slowly increasing.

The most common cause of degradation in grassland communities is the overall eutrophication due to increased usage of fertilisers. Another cause is the repeated mowing of grasslands over the same vegetation period, which leads to meadow communities being continuously impoverished of those herb species with a later flowering date. With regard to the strong dependence of invertebrate species on plants, this component of the ecosystem is also displaying a trend towards degradation. Thus meadow biodiversity gradually falls. Species that can tolerate intensive and uniform farming methods are gradually starting to predominate in these communities.

[27] Rural Development Programme of the Czech Republic for 2007 - 2013, Ministry of Agriculture, Prague, November 2008

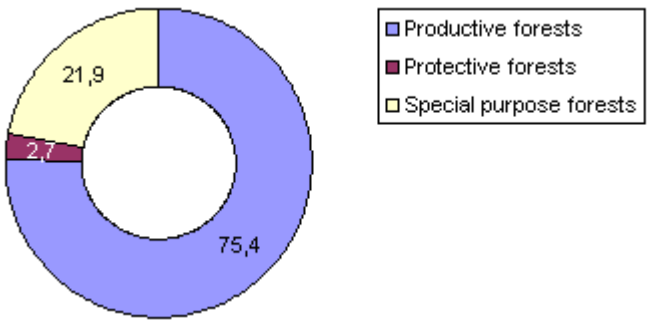
A specific part of the biotopes is being damaged by a converse trend – the reduction of specific management of pasture activities and grazing. Such grassland communities subsequently succumb to the growth of woody species, the expansion of invasive species or are afforested. This concerns such valuable biotopes as waterlogged meadows, steppes and mountain species rich grasslands. All ecosystems mentioned are distinguished by very high biodiversity when extensively farmed. Despite the highly negative trends mentioned here there has been a partial reduction in the intensity of disturbances to natural resources in the last decade. The considerable fall in using fertilisers and plant protection preparations in the 1990s has meant lesser pressure on the environment. The opposite side of this tendency is a fall in the competitiveness of a number of farmers, particularly in the disadvantageous areas. For this reason almost 7% of the agricultural land is threatened by abandonment and the associated processes of degradation in the species rich parts of the agricultural ecosystem. Also for this reason, the Czech Republic grants support for natural and other handicaps, with the payments designed to ensure adequate levels of income leading to a stabilisation of rural population so that land is not abandoned due to less favourable conditions for farming in these areas.

1.5 BIODIVERSITY IN FORESTS

1.5.1 NATIONAL POLICIES AND STRATEGIES

A "forest**"** is understood to consist of forest stands and their environment and land designated to fulfil the function according to the Act No. 289/1995 Coll. on forests as amended. The forest functions are divided into **productive** (production of wood, decorative brush, seeds and fruits) and **non-productive** (all environmental functions). According to the above mentioned act, there are three main forest categories distinguished in the Czech Republic: **Protective forests** - located at extraordinarily unfavourable sites, high-mountain forests at the highest levels of tree vegetation, forests on exposed ridges. **Special-purpose forests** - located in the first class hygiene protection zones of water sources, in the protective zones of natural medicinal and mineral table waters, and in the territory of national parks and national nature reserves. Special-purpose forests also include forests in which public interest in the improvement of the state of the environment or another qualified interest in the non-wood-producing purpose of the forest is superior to the productive function. These include the forests in the first protective zones of protected landscape areas and nature reserves, forests in spas and metropolitan areas, forests with increased recreational function, forests for forest research and training, forests with increased function in soil protection, water protection, climate formation or landscape creation. **Productive forests** are those that are not included in the category of protective or special-purpose forests. The main function is timber production.

Figure 22 shows percentage of forest categories used in the Czech Republic:



The basic environmental aspects concerning forest regeneration are included in national legislation. The minimal share of ameliorating species for the stand regeneration stems from Forest law and it is the mandatory indicator of the forest management plans. The public notice sets this share depending on forest category and management type, which stems from the typology and management method (Notice No 83/1996 Coll.). This minimal share of ameliorating species is designated for the protective forests up to 95%, for management forests between 5-70 %. The incentive programmes in place aim at further increasing of ameliorating species. The already achieved result of this policy is the permanent grow of broadleaved species composition - from 12% in 1950 to 24% in 2006.

Table 3 tree species composition trends in the Czech Republic from 1950 to 2006 [ha, %]: [28]

Dřevina *Tree species*	Rok *Year*														Střední věk v r. 2006 *Mean age in 2006*
	1950[1)]		1970		1980		1990		2000		2005		2006		
	plocha porostní půdy ha/% *area of forest stands: ha/%*														v letech *years*
	ha	%	ha	%	ha	%	ha	%	ha	%	ha	%	ha	%	
Smrk *Spruce*	1 353 203	60,0	1 427 735	55,6	1 437 499	55,7	1 413 893	54,7	1 397 011	54,0	1 376 387	53,1	1 373 628	53,0	62
Jedle *Fir*	64 692	2,9	53 325	2,1	44 786	1,7	27 708	1,1	23 138	0,9	23 918	0.9	23 962	0,9	72
Borovice *Pine*	477 627	21,2	491 501	19,2	469 403	18,3	460 481	17,8	453 159	17,6	445 273	17,2	443 589	17,1	71
Modřín *Larch*	33 529	1,5	57 410	2,2	68 266	2,7	81 762	3,2	97 170	3,8	99 784	3.9	99 887	3,9	58
Ostatní jehličnaté *Other coniferous*	4 719	0,2	14 885	0,6	19 275	0,8	21 446	0,8	4 587	0,2	5 674	0,2	5 764	0,2	52
Dub *Oak*	81 016	3,6	139 761	5,5	145 817	5,7	155 269	6,0	163 761	6,3	169 768	6,6	171 720	6,6	70
Buk *Beech*	102 243	4,5	139 761	5,5	145 817	5,7	155 269	6,0	154 791	6,0	172 047	6,6	174 858	6,7	71
Bříza *Birch*	-	-	66 926	2,6	65 027	2,5	74 167	2,9	74 560	2,9	74 074	2,9	73 932	2,9	45
Ostatní listnaté *Other deciduous*	99 778	4,4	167 980	6,5	166 209	6,5	167 959	6,5	183 696	7,1	197 663	7,6	199 710	7,7	59
Jehličnaté *Coniferous*	1 933 770	85,8	2 044 856	79,7	2 039 229	79,2	2 005 290	77,6	1 975 065	76,5	1 951 036	75,3	1 946 831	75,1	64
Listnaté *Deciduous*	283 037	12,4	503 825	19,6	513 041	20,0	536 928	20,8	576 808	22,3	613 552	23,7	620 215	23,9	63
Celkem bez holiny *Total without temporary unstocked areas*	2 216 807	98,3	2 548 681	99,3	2 552 270	99,2	2 542 218	98,4	2 551 873	98,8	2 564 588	99,0	2 567 045	99,0	64

National Forest Programme (NFP) in the Czech Republic was approved on 1 October 2008 by the Czech government and will be in place until 2013. NFP is a concept of exercise of sustainable forest management by the long-term improvement of competitive ability of forest management. NFP is a part of state forest policy and also an application of Forest strategy of the European Union. Forest management is a part of the rural development programme. It determines the economic, ecological and social functions of forests and thus enables the implementation of the principles of sustainable development. The differential access to forests according to categories, size and ownership is expected in the frame of NFP. This access is divided into two groups: sustainable management and close-to-nature silviculture. The sustainable management is defined as a management and utilization of forests and forest land by the means, which conserve their biodiversity, product ability and regeneration capacity, vitality and ability to fill at present and in the future the appropriate ecological, economic and social functions at local, national and global level. Close-to-nature forest management coheres with the exercising of „selection principles“.

[28] Source: The Forest Management Institute

Afforestation and deforestation operations are subject to several legal acts. The primary focus is not the assessment of biological diversity, but these regulations include provisions regarding the impact of such activities on the environment. Act No. 114/1992 Coll., on the Protection of Nature and the Landscape requires the binding opinion of the relevant Nature conservancy authority for the approval of forest management plans and forest management guidelines, for afforestation and deforestation of land exceeding 0.5 ha, for building of forest roads and aisles, and for forest drainage systems. It also sets out general and binding conditions for felling trees. Act No. 289/1995 Coll., on Forests states that only seeds and transplants of forest tree species of the same or corresponding natural forest area and altitude may be used for afforestation and reforestation purposes. It also states that legal entities and individuals cutting trees are obliged to do such work in a way to avoid the damage to the surrounding land and forest stand to a minimum. If any damage occurs, all necessary measures need to be taken to improve the stage without delay. Forest management and harvesting in particular may only be carried out in accordance with forest management plans and forest management guidelines approved by the relevant state forest administration authority. Act No. 183/2006 Coll., on Town and Country Planning and Building Code also includes special provisions regarding afforestation and deforestation activities, mainly in connection with the town and country planning. Tools such as GIS, guidance documents and biological diversity surveys are used very often. SEA and/or EIA procedures are applied under certain conditions for deforestation operations.

One of the most effective market instruments supporting the principles of sustainable management in forests is forest certification. The area of certified forests in the Czech Republic is currently 1 874 305 ha (i.e. 70.7 % of forests) according to the Pan European Forest Certification (PEFC) system and 16 951 ha (i.e. 0.64 % of forests) according to the Forest Stewardship Council (FSC) system, which is in line with the State Environment Policy's objective of supporting the certification process within the PEFC system. The Pan European Forest Certification Council (PEFCC) is a certification system verifying that forests are managed in accordance with sustainable management principles.

The state authorities provide financial support to projects aimed at flood control measures carried out on both forested land and in small forest streams and rivers. They also compensate the costs of specific forest management activities, costs associated with developing forest management plans and guidelines, and some costs associated with planting of specific tree species improving the ecological quality of the stand. Subsidies are also provided from the state and regional budgets to forest owners for renewals of forests damaged by air pollution, forest cultivation measures, maintaining associations of small-sized forest owners, specific environmental-friendly technologies, selected hunting management activities, costs associated with preparing digital forest management plans, activities aimed at preserving and reproducing forest genetic resources, and lastly also for the breeding and training of hunting dogs and birds of prey.

1.5.2 TRENDS IN FOREST ECOSYSTEMS

The area of forested land is slowly increasing annually by 0.07%, reaching 2 651 thousand ha in 2007, i.e. 33.7% of the country's total area. Within species composition there has been a gradual increase in the proportion of deciduous woody species and vegetation becomes increasingly mixed. Spruce and pine are declining and there are increasing numbers of beeches, oaks, ashes and maples. Conifers make up 74.8% of all vegetation, deciduous trees 24.2% and clearings 1%. The area of restored forest has been decreasing approximately by 300 ha annually. The proportion of natural renewal has moderately declined to 2 953 ha due

to higher share of renewal of areas created as a result of incidental felling after several strong storms. Artificial renewal totalled 18 304 ha.

Figure 23 shows the current composition of tree species in the Czech Republic [%]: [29]

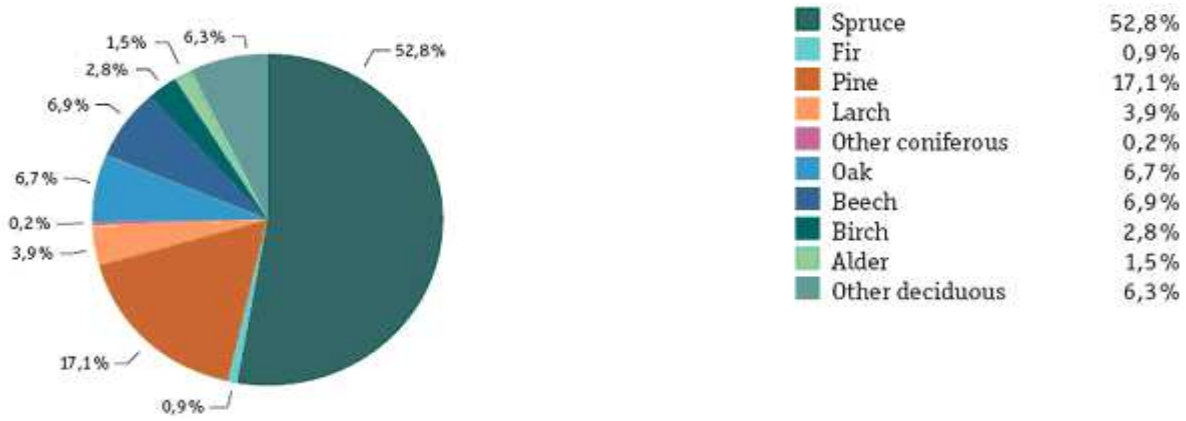


Figure 24 indicates the amount of logged woof in 2000-2007 [mil m^3]: [30]

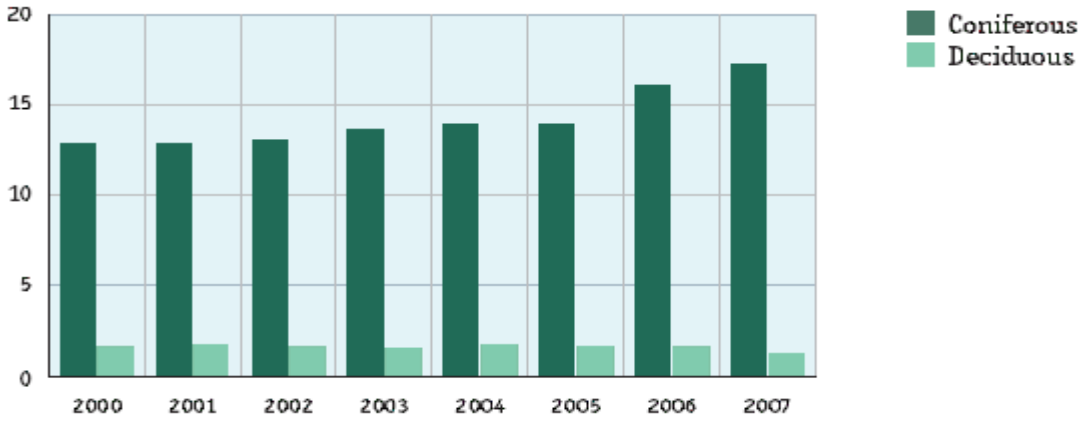
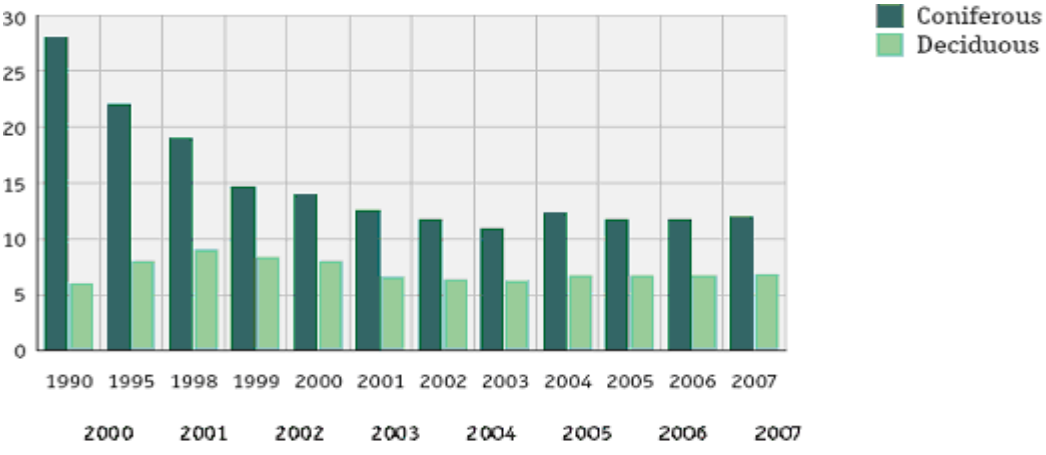


Figure 25 illustrates the trend of the renewal of coniferous and deciduous woody plants in 1990-2007 [mil. m^3]: [31]



[29] Source: The Forest Management Institute
[30] Source: The Czech Statistical Office
[31] Source: The Czech Statistical Office

There are several typical plant species occurring in the forests in the central-european broadleaved forests (for example *Oxalis acetosella, Senecio ovatus, Rubus idaeus*, and at eutrophic sites in particular *Asperula odorata, Melica uniflora, Melica nutans*), which populations have been monitored for a long time and thus allow for an evaluation and future prediction by nature conservation authorities. These species have had approximately the same abundance for last 50 years. But species, which are typical for open forests in the lower altitude, have decreasing abundance, e.g. species of family *Orchidacea*.

The biodiversity indicator of forest bird species is a result of particular indexes of changes in population abundance of 24 selected forest bird species. Regarding the species of birds dependent on forest environment, the evaluation shows that only one species declined significantly (*Aegythalos caudatus)*, populations of 4 other species declined, populations of 3 species show a stable trend, abundance of 5 other species increased, and populations of other 6 species increased significantly. The trend of 5 species was evaluated as unknown. The overall trend illustrates the positive increase in 18,7% in 2001 compared to 1982.[32]

Figure 26 shows the indicator of forest bird species in the Czech Republic in 1982 - 2003 [Geometric average of particular species indexes]: [33]

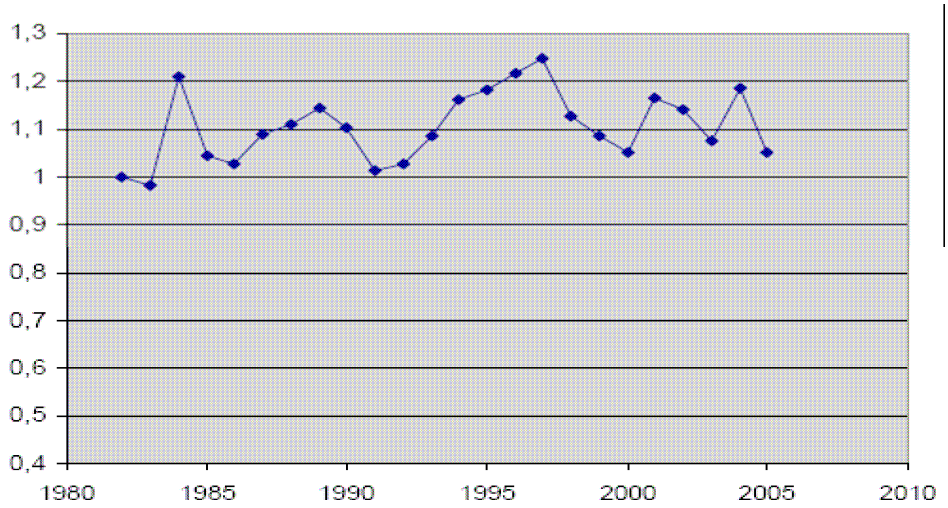


Figure 27 shows positive changes in abundance of species Dryocopus martius [% change]: [34]

[32] Halt of biodiversity loss until 2010: the development of indicators for evaluation of the Strategy of Biological Diversity Conservation, Charles University in Prague, Environmental Center, December 2006 (in Czech).
[33] Source: The Czech Ornithological Society
[34] Source: http://jpsp.birds.cz/vysledky.php?taxon=666

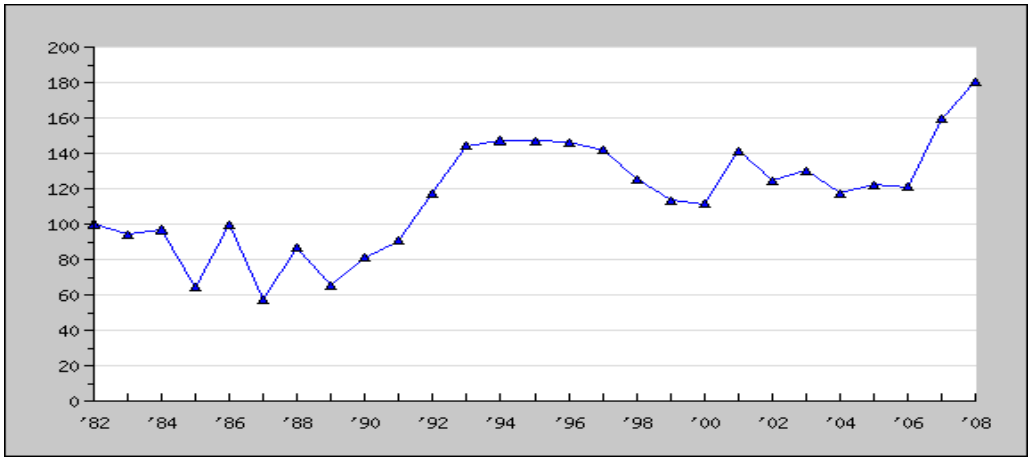
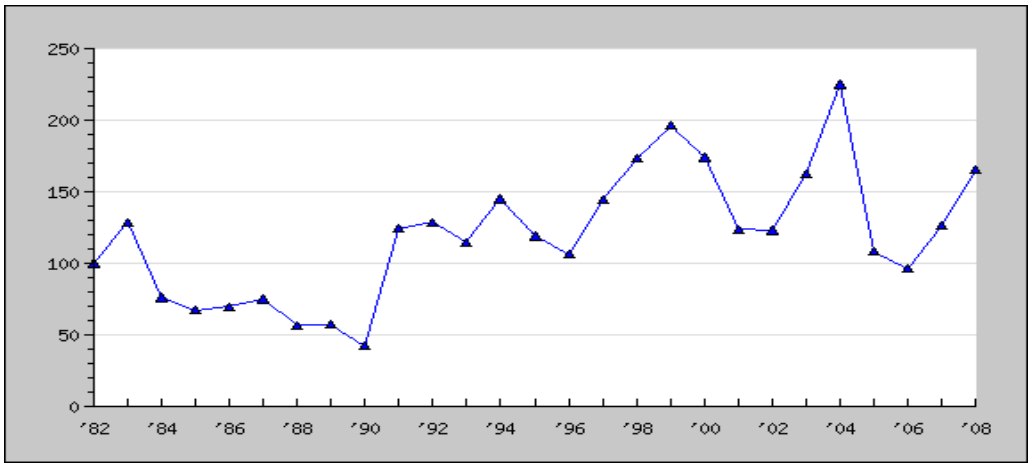


Figure 28 shows changes in abundance of species Columba oenas [% change]: [35]



1.5.3 MAJOR FACTORS DISTURBING FOREST ECOSYSTEMS

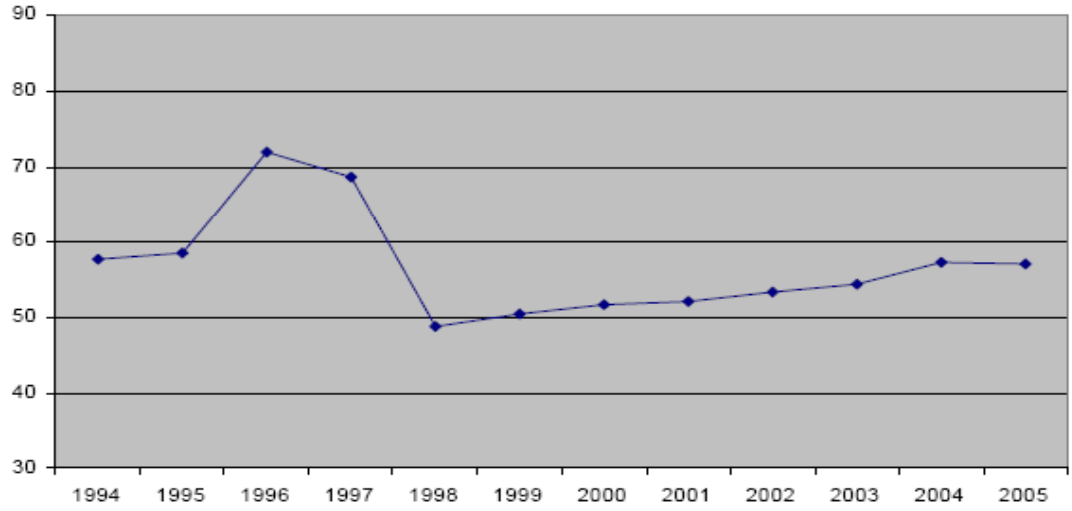
With respect to forest protection, 2007 was one of the least favourable years in recent time. Due to the extensive damage caused by hurricane Kyrill, logging reached its historical maximum of 18 508 thousand m^3 of raw wood, which translated in a two-fold increase in salvage and incidental felling and reached 15 million m^3. The extent of damage caused by Kyrill amounted to almost 11 million m3 of wind-damaged wood. In most of the Czech Republic, bark beetle incidences increased, in some places to the point of calamity. About 2.2 million m^3 of wood was damaged by biotic factors, of which the volume of spruce infested by bark beetle was 1.8 million m^3.

As a reaction of growing damage to forest ecosystems, mainly due to acid rains, the monitoring system of forest health - the International Co-operative Programme on Assessment and Monitoring of Air Pollution Effects on Forests operating under the UNECE Convention on Long-range Transboundary Air Pollution, known as ICP Forest was developed in European countries in 1985. One of the main parameters used for a systematic evaluation of health and vitality of forest ecosystems was the defoliation rate. It is defined as a loss of needles or leaves of the evaluated tree compared to the evaluation of the reference healthy tree. In 2005, more than 6000 areas were assessed in 30 European countries and 23,2 % of trees were affected by more than 25 % loss of foliation and were classified as severely damaged. According to the ICP Forest

[35] Source: http://jpsp.birds.cz/vysledky.php?taxon=602

survey, the Czech Republic belongs, to countries with the strongest defoliation damage in forest stands. In 2005 more than 57% of evaluated forests were put into categories with higher degree of damage. This is the highest number comparing to other European countries.

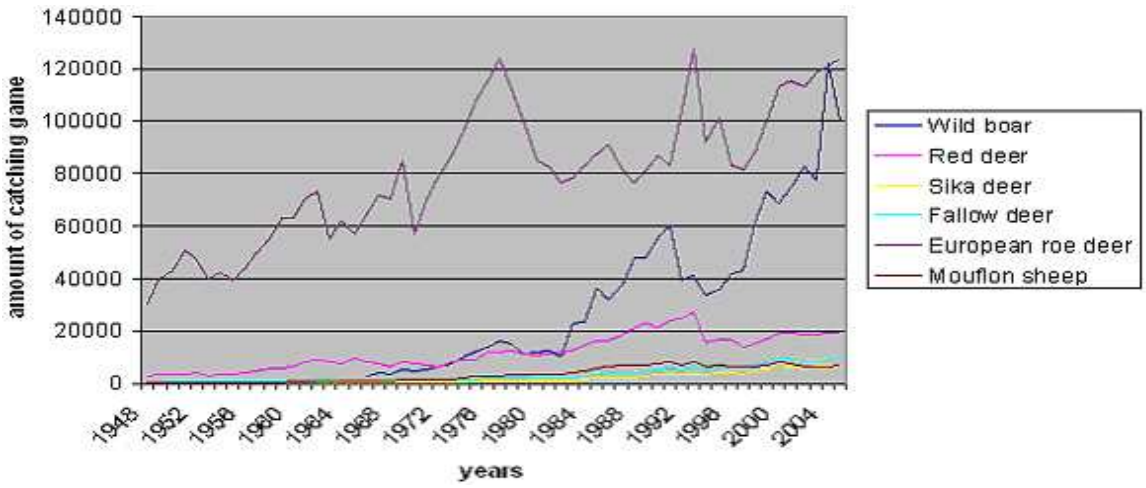
Figure 29 shows the development of defoliation in the Czech Republic in defoliation classes 2-4 [%] [36]



Regarding the air pollutants, the most significant stressing factor for forest ecosystems is ground-level ozone, whose concentrations considerably exceeded the target values in most areas. Damage on forests caused by pollutant emissions amounted to 39 thousand m^3 in 2007.

From other factors affecting the forest health and its natural renewal is the abundance of hoofed game and size of their local populations. The influence by browsing the broadleaves and Fir (*Abies alba*) is quite large, however, the tree species most damaged by bark browsing is the Norway spruce. According to the National inventory (2001 - 2004), 11.4 % of trees and almost 30% of natural renewal and forest plantation were damaged. The abundance of hoofed game increased since the end of Second World War in hundreds % and it is still increasing.

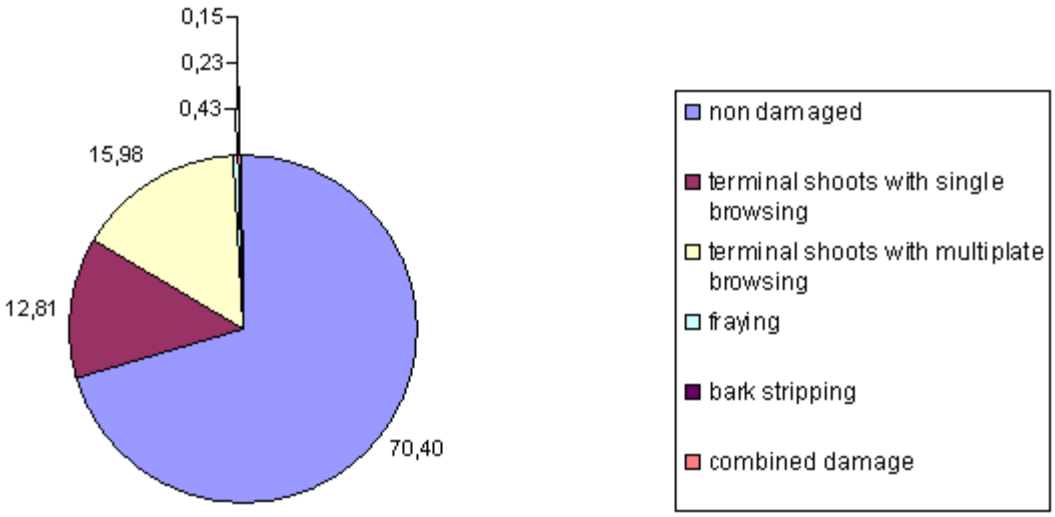
Figure 30 shows the amount of catch of wildlife game in the Czech Republic: [37]



[36] Source: ICP Forest
[37] Source: The Forest Management Institute

Figure 31 shows the damage by bark stripping of ungulate game according to the age classes and the National forest inventory 2001 - 2004 in the Czech Republic: [38]

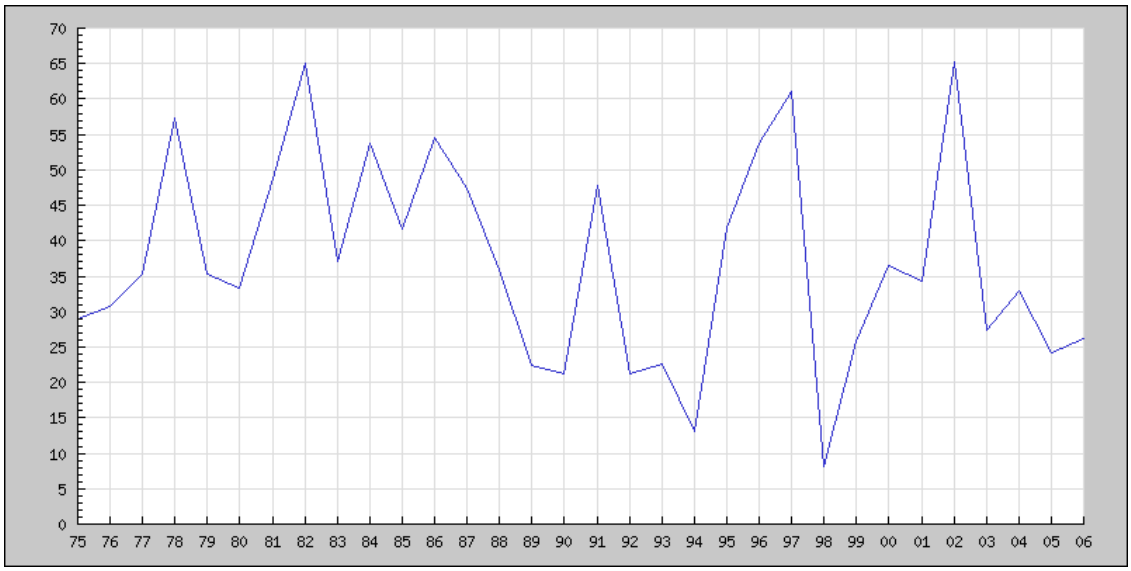
Figure 32 illustrates the damage on forest regeneration and young plantation caused by wildlife game according to National forest inventory 2001 -. 2004 in the Czech Republic: [39]



It is notable to say that disproportionate number of hoofed game makes the natural reforestation more difficult. It influences the tree species composition and natural health of forests.

Figure 33 shows the damage of forests by hoofed game expressed in financial terms [mil. Czech crowns/year]: [40]

[38] Source: The Forest Management Institute
[39] Source: The Forest Management Institute
[40] Source: http://issar.cenia.cz/issar/page.php?id=220



1.6 BIODIVERSITY IN FRESH WATERS

1.6.1 NATIONAL POLICIES AND STRATEGIES

There are following instruments, national policies and strategies concerning the biodiversity in fresh water issues in the Czech Republic:

- **Water Act No. 254/2001 Coll.**, together with several implementing decrees and government orders. They set up basic rules for the fresh water management, e.g. for usage of surface and ground water, building water management constructions, discharging wastewaters, planning in water management, protection of the water regime and water resources, protection of water quality, protection against floods, and other issues.
- **The Water Framework Directive 2000/60/EC** (WFD). It includes the preparation of the River Basin District Report, the River Basin Analysis Report and the Monitoring Network Report. Furthermore.
- **Act No. 99/2004 Coll.,** on Fisheries.
- **Convention on Wetlands of International Importance especially as Waterfowl Habitats** (the Ramsar Convention). This convention obliges the member countries to delimit at least one internationally important wetland in its territory and to provide for its effective protection, as well as to provide for sound management of all wetlands.[41] In concordance with the text of the Convention the Czech Republic registered in total 12 wetland sites to the List of Wetlands of International Importance and provides their effective protection. They constitute an overall area of 58 537 ha, from which 22 709 ha are peat bogs, 11 753 ha are ponds, and 24 078 ha are river flood plains.[42] All designated sites are protected and lay within one of the national parks or protected landscape areas. In some cases, the sites themselves enjoy the status of national nature reserve or nature reserve. Wetlands of international importance that are endangered by changes of their

[41] The National Biodiversity Strategy of the Czech Republic, Ministry of the Environment of the Czech Republic, 2005

[42] CHYTIL J. & HAKROVÁ P. & VLASÁKOVÁ L. (2nd eds.) 2006: Wetlands of the Czech Republic - the list of wetland sites of the Czech Republic. - *Czech Ramsar Committee, Prague*

ecological character are included in the so-called *Montreux Record*. Currently, there are four sites included - Litovelské Pomoraví, designated 02/11/93; Mokřady dolního Podyjí (floodplain of lower Dyje River), designated 02/11/93; Poodří, designated 02/11/93; Treboňské rybníky (two Trebon fishponds), designated 02/07/90. In addition, the Czech Ramsar Committee in cooperation with other specialists elaborated the National Wetland Inventory comprising of a complete list of wetlands and inland water ecosystems of the country, including all wetlands of international, regional and local importance.[43]

- **The Strategic plan (SP) of implementation of the Ramsar Convention in the Czech Republic for the period 2004-2008**. The Czech Ramsar Committee had prepared the SP in accordance with the Strategic plan of Ramsar Convention (Res. VIII.25)[44] and the SP had been implemented during the period 2004-2008.
- **The Strategic plan of implementation of the Ramsar Convention in the Czech Republic for the period 2009-2015** according to the SP of the Ramsar Convention for the same period (Resolution X.1).
- **The State Nature Conservation and Landscape Protection Programme of the Czech Republic (SNCLPP).** The Programme will upon its approval by the Czech government serve as and substitute the action plan, strategic plan, and the national wetland policy for the implementation of the Ramsar Convention in the Czech Republic for period 2009 - 2014. The SNCLPP is due to be finished in 2009.
- **The Programme for Revitalisation of River Systems.** The program is generally aimed at the increase of and conservation of biodiversity with a particular consideration of measures aimed at watercourses, reservoirs and their watersheds, and leads to the stabilisation of the water regime in the landscape and creation/renewal of particular elements of the system of ecological stability. The financial support for the implementation of the programme is provided by the Ministry of Environment This programme is to be finished in 2010 and will be replaced by two incentive measures - the Operational Programme of the Environment and the Restoration of Ecological Functions of the Landscape Programme.

1.6.2 FRESHWATER ECOSYSTEMS, THEIR SPECIES AND TRENDS

The territory of the Czech Republic creates the European watershed of three river systems of the Elbe, the Danube and the Odra River. Their water content is highly dependent on precipitation. Spring areas, dead and unused arms and alluvial flood areas are an integral part of river systems. Five glacial lakes are located in the Šumava Mountains. Several minor peat bog lakes are located in other mountain areas. Also given the presence of karst areas and territories with lack of water in the Czech Republic, specific aquatic habitats can be found, such as underground karst rivers, periodical surface rivers and other temporary aquatic habitats. There are only a negligible number of natural aquatic ecosystems with still water, which functions are partially replaced by a number of fishponds currently exceeding 21 000. Artificial or highly modified ecosystems also include flooded quarries, sand pits and gravel pits, abandoned peat deposits, channels, millraces and amelioration ditches. Dam lakes are elements of discontinuity in river systems and constitute a special transitional body between still and flowing water. The ecological state of water and wetland ecosystems is substantially determined by the character and condition of terrestrial ecosystems in their river basin.

[43] CHYTIL J., HAKROVÁ P., HUDEC K., HUSÁK Š., JANDOVÁ J., & PELLANTOVÁ J. (1999), eds.: Mokřady České republiky - přehled vodních a mokřadních lokalit ČR. Český ramsarský výbor, Mikulov, 327 pp. (In Czech).

[44] National report on the implementation of the Ramsar Convention on Wetlands, National Reports to be submitted to the 10th Meeting of the Conference of the Contracting Parties, Republic of Korea, 28 October – 4 November, 2008.

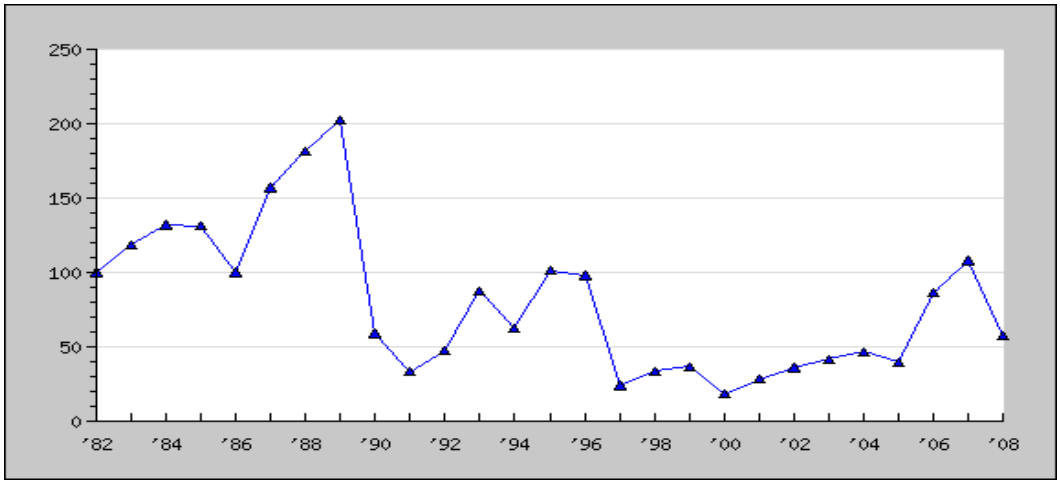
After 1989, the volumes of industrial and agricultural pollution substantially decreased and a number of wastewater treatment plants were built resulting in fast and radical improvement of water quality. However, point and diffuse pollution sources have not been fully eliminated yet and the effects of the eutrophication processes still remain, mostly as inflow of nutrients from agricultural lands. In spite of substantial reduction of emissions, the impact of acidification on biodiversity is still clear, particularly in oligotrophic mountain ecosystems.

Monitoring of biodiversity in inland water is realised in the Czech Republic on a regular basis. It includes:

- Monitoring of waterbirds (since 1973). Since 1973 bird numbers have been monitored using regular censuses in one-month intervals. The study summarising the results of a long-term monitoring of waterbirds at the most important fishpond system in the Czech Republic was completed in 2008.[45]
- International Waterbirds Census (since 1967).
- Winter Birds Census in the Central Bohemia (since 2003).
- United Programme of the Birds Census in the Czech Republic (since 1983) – census of all birds breeding in the Czech Republic.
- Monitoring of species according to EU Directives (Bird Directive and Habitat Directive).
- Monitoring of the ecological state of the Ramsar Sites.

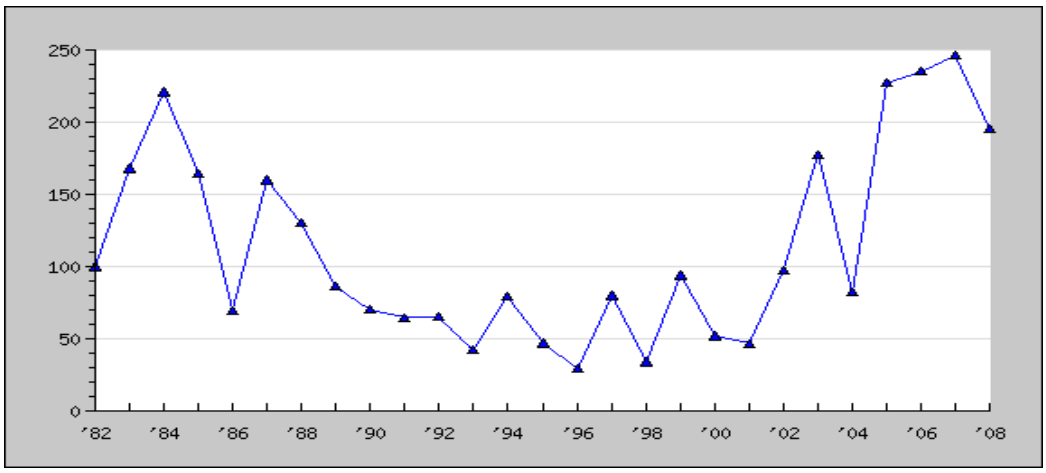
Certain species of aquatic fauna, such as the specific crayfish species *Austropotamobius torrentium* and *Astacus astacus*, or a freshwater pearl mussel *Margaritifera margaritifera* have already disappeared from a majority of original localities. Several species enjoy the recovery programmes being established by the Ministry of the Environment. See chapter 1.9 for more detailed information on these programmes.

Figure 34 indicates the trend of waterbird species *Podiceps cristatus* in the Czech Republic [% change]: [46]



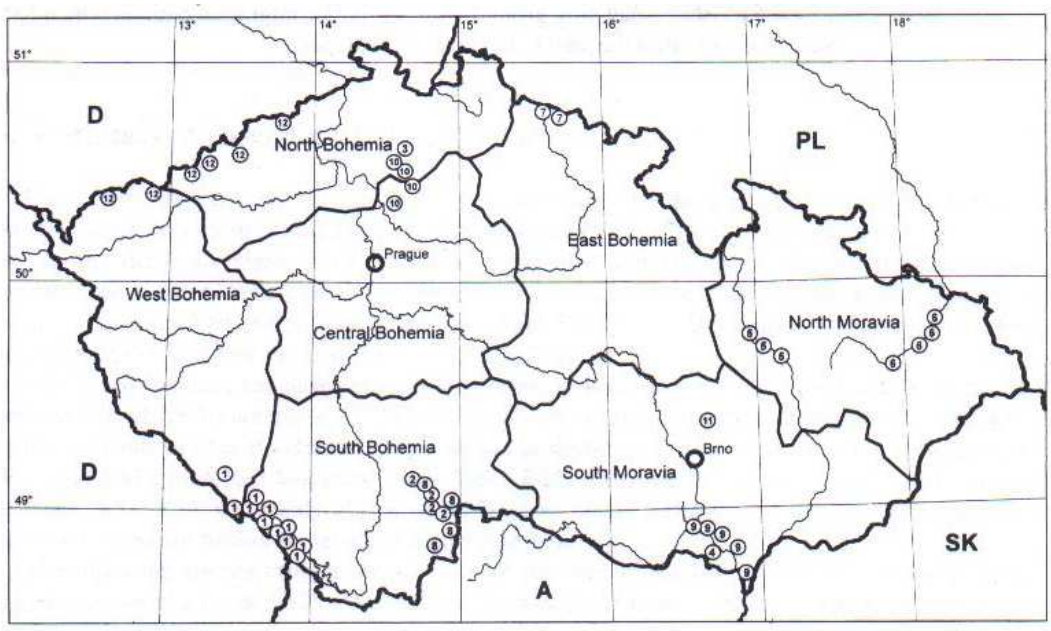
[45] Macháček P., Pykal J., Ševčík J., Chobotská H. 2008: Results of long-term monitoring of waterbirds in southern Moravia and southern Bohemia (Czech Republic).
[46] http://jpsp.birds.cz/vysledky.php?taxon=267

Figure 35 indicates the trend of waterbird species *Aythya ferina* in the Czech Republic [% change]: [47]



As it is stated above, the Czech Republic has designated 12 Ramsar sites - wetlands of international importance. These wetlands contain representative, rare, or unique example of natural or near-natural wetland types according to criteria set by the Ramsar Convention. The sites are: RS1 - Šumava peatlands, RS2 - Třeboň fishponds, RS3 - Novozámecký and Břehyňský fishponds, RS4 - Lednice fishponds, RS5 - Litovelské Pomoraví, RS6 - Poodří, RS7 - Krkonoše Mountains mires, RS8 - Třeboň peatlands, RS9 - Floodplain of lower Dyje River, RS10 - Liběchovka and Pšovka Brook, RS11 - Punkva subterranean stream, and RS12 - Krušnohorské Mountains mires.

Figure 36 shows the locations of the designated Ramsar sites throughout the territory of the Czech Republic: [48]



[47] Source: http://jpsp.birds.cz/vysledky.php?taxon=357

[48] Source: CHYTIL J. & HAKROVÁ P. & VLASÁKOVÁ L. (2nd eds.) 2006: Wetlands of the Czech Republic - the list of wetland sites of the Czech Republic. - *Czech Ramsar Committee, Prague*

As an example, find here the description of the most recently designated Ramsar site - Krušnohorská mountains mires: it is a system of mires with the conservation status of nature reserves. It comprises of about 30 mire islands of representative patterned mires and raised bogs, with neighbouring natural and artificial watercourses, fishponds and reservoir shores in the north-western part of the country near the border with Germany. The biological diversity comprises of huge mosaics of highly alkaline fens with scattered tree patches, preferred by grouse birds - *Tetrao tetrix*, *Tetrao urogallus*, *Tetrastes bonasia*, and of bog expanses occupied by stands of *Pinus* x *pseudopumilio* and Central European endemic tree *Pinus rotundata.* It also supports a high number of endangered plant species, such as *Hamatocaulis vernicosus*, *Carex chordorrhiza* and *Drosera anglica*. Ore mining had a long tradition in the mountain area and influenced the disappearance of alluvial fens mainly in 16 century. Subsequently, as mining activities retreated, many bogs were affected by peat extraction and agricultural overexploitation. Presently, the site is mainly used for game keeping and forestry (in a few localities, peat mining is being brought to an end and remains a critical conservation issue). A direct impact on the biota within mires is also caused by the high concentration of deer, which cause eutrophication of ombrotrophic sites and trampling disturbance of mire surface. [49]

1.6.3 MAIN DRIVERS OF ENVIRONMENTAL CHANGES IN FRESHWATER ECOSYSTEMS

The main direct drivers of environmental changes in freshwater ecosystems in the Czech Republic are considered as the following:

- Change of water regime due to intensive management in agriculture and forestry
- Water pollution and eutrophication due to the leaching of nutrients from fields
- Intensive fishpond management (extremely high stock of carp and destruction of littoral vegetation with the aim of maximising the area used for intensive fish production
- Construction and deepening of water channels and construction of power stations
- Habitat conversion
- Over use of water
- Unsuitable influence of water level
- Tourism (especially canoeing)
- Invasive alien species
- Extraction industry

1.7 MOUNTAIN BIODIVERSITY

1.7.1 STATUS AND TRENDS[50]

The Czech Republic is not rich on areas typically considered as mountainous. However, a ridge of several mountains and their saddles in the Krkonošský National Park with an altitude around 1500 m above the sea level (with the highest peak of Snežka - 1602 m above the sea level) are considered as mountainous.

The Krkonoše ridges belong to the cold climatic zone characterised by long, very cold and damp winters with long-term snow cover, a cool spring, a very short, moist summer and a cool autumn. Temperatures, which range from mean annual temperature of 0.2 °C on Sněžka to 4 – 5 °C at the mountain level. Annual precipitation totals vary from 700 mm in the

[49] http://ramsar.wetlands.org/Database/Searchforsites/tabid/765/Default.aspx

[50] Patzelt Z. et al., Nature Conservation and Landscape Protection of the Czech Republic, Agency for Nature Conservation and the Landscape Protection of the Czech Republic, DVD, 2008

foothills to 1400 mm in mountain valleys, where more atmospheric moisture falls than on Mt. Sněžka (1230 mm). The alpine and sub-alpine levels seem like islands above the extensive lowland areas around them. The nearest mountains, which are as high or higher, are several hundred kilometres distant (the Alps, the Carpathians), or even thousands of kilometres away (Scottish or Scandinavian ranges or the Urals). The high mountain characteristics of the nature of the Krkonoše ridges are formed and enhanced by the harsh climate with its very cold north or north–west winds, low average temperatures and high precipitation.

The 'island' position of the Krkonoše Mountains determined that they reflect the development of central European nature during and after the Ice Ages. During several advances of the ice sheet, Arctic tundra was pushed to the south and at the same time mountain tundra communities moved to lower altitudes. In some places, both cryophilous elements met and after the retreat of the ice sheets they moved high into the mountains and to other suitable environments such as peatbogs. Other Arctic elements receded to the north with the melting glaciers. This helps to explain the high proportion of Arctic species (glacial relicts) among Krkonoše's plant and animal communities. About 10,000 years have passed since the end of the last Ice Age, and some organisms have lived an isolated life on the Krkonoše ridges for just as long. Even during such a relatively short time period, some plant groups have developed sub-species here or are endemic species to Krkonoše.

In spite of its small area, Krkonoše has an extremely rich flora and, within the context of the other Hercynian mountain ranges, it has a very significant position. More than 1250 taxons of vascular plants grow here, which is more than half of the (native species) total for the Czech Republic. Many times more species of lower plants such as mosses, lichens, algae, fungi, cyanobacteria and myxomycetes can also be found on the territory, not all of which have been recorded or studied yet. The richness of Krkonoše's vegetation is a reflection of the biogeographical position of the mountains, the contacts with arctic tundra and alpine grasslands here during the Ice Ages and the relief and altitude of the range, with peaks well above the alpine treeline (at 1250–1350 m elevation). This is shown by the number of glacial relicts such as cloudberry (*Rubus chamaemorus*), Sudetic lousewort (*Pedicularis sudetica*), Arctic saxifrage (*Saxifraga nivalis*), quillwort (*Isoetes lacustris*), Lindberg´s bog moss (*Sphagnum lindbergii*) and others that still grow in the mountains today. In the post glacial period, isolated islands of high-mountain plant and animal life formed on many of the higher Krkonoše ridges, surrounded by the forest environments of central Europe. Complicated genetic processes led to the development of new species, subspecies and varieties of plants - the Krkonoše endemic species. These include Sudetic rowan (*Sorbus sudetica*), Bohemian bellflower (*Campanula bohemica*), basalt musky saxifrage (*Saxifraga moschata*), the endemic sub-species rock burnet saxifrage (*Pimpinella saxifraga ssp. rupestris*) and more than 20 species and sub-species of hawkweeds of the order Hieracium.

The high level of species diversity in plant communities in Krkonoše and the presence of altitudinal vegetative levels from sub-montane to alpine also determine the composition of Krkonoše's fauna. The remarkable animal communities began to form in the last Ice Age and especially in the Holocene. At the foot of the mountains we can find a typical sample of Euro-Siberian fauna from the deciduous forests belt. At altitudes above 800 m, Krkonoše belongs to the zoogeographic province of the Varian Mountains (Taiga belt) and as we move higher, the proportion of high-mountain species increases. The mountain ridge areas offer suitable conditions for the existence of many cryophilous Arctic species. These glacial relicts still survive as far south as Krkonoše thanks to its location and the local conditions when most of Europe was under the ice sheets. Compared to the other central European mountain ranges,

Krkonoše has a much higher proportion of glacial relicts in its fauna. Among invertebrates we can find the whorl snail *Vertigo arctica*, the spider *Acantholycosa norvegica sudetica*, the dragonflies *Somatochlora alpestris* and *Aeschna coerulea*, the mayfly *Ameletus inopinatus*, and the ground beetles *Nebria gyllenhali* and *Amara erratica*. We can also find some butterflies (*Lepidoptera*), beetles (*Coleoptera*), two-winged flies (*Diptera*) or aquatic mites (*Acarina*). Glacial relicts among vertebrates include ring ouzel (*Turdus torquatus*), redpoll (*Carduelis flammea*), dotterel (*Charadrius morinellus*) or the short-tailed vole (*Microtus agrestis*).

1.7.2 MAIN DRIVERS OF BIODIVERSITY CHANGES AND THEIR CONSEQUENCES[51]

The following information applies mainly to the previously described Krkonoše National Park; however, it does not need to be limited only to this mountainous area.

The condition of Krkonoše's nature today is fundamentally influenced by two negative factors: the ecological effects of air emissions and the intensive burden of tourism, which have affected the whole area, as well as local problems stemming from the economic use of secondary forest-free localities.

The effects of emissions began to be visible at the end of the 1970s, but their influence had earlier origins connected with the increasing power generation by burning fossil fuels in Poland and former East Germany. These power plants produced 900,000 tonnes of SO_2 per year at the end of the 1980s, but emissions from the Czech basin are also partly to blame for damaging or destroying forest stands in Krkonoše. Other negative influences on the Krkonoše forests include the harsh climate, unsuitable species, age and spatial compositions of the forests, changes in the soil composition and lower resistance against diseases and pests. In fact, emissions became the trigger for the renewal of the Krkonoše forests. Up to 1994, 7000 ha of forest was felled as part of the 'Emission Logging Programme'. Since 1991, the emissions situation has improved rapidly but the acidification of the soil and leaching of nutrients as a result of it, and weakening of the symbiosis between fungi and trees, does not lead to high hopes for rapid forest regeneration.

Large-scale felling of emission-damaged forests needed the use of heavy machinery, the building of wider logging roads, large-scale use of pesticides and in some places led to irreversible damage to the mountain environment. Intensive deforestation also affected the composition of fauna in the territory. Forest species of insectivorous birds and also ground beetles have disappeared, and only replaced by a few species adapted to open spaces. Emissions also caused intensive acidification of streams and water courses, resulting in native fish species such as the brown trout (*Salmo trutta*) and bullhead (*Cottus gobio*) populations dying out. We can also attribute the extinction of spring anemone (*Pulsatila vernalis* ssp. *alpestris*) on its only locality in Krkonoše to emission damage.

Tourism is one of the main sources of income for the local people in the Krkonoše region, but on the other hand, it represents the second most serious negative factor influencing nature and wildlife in the mountains. Visitors to Krkonoše influence the nature by destroying vegetation, widening paths causing increased water erosion, and by bringing non-native and also invasive species into the area (one third of vascular plant species in Krkonoše are not native to the area). Some of these alien species have hybridized with related mountain species and degraded the genetic potential of the area (genetic corrosion). Indirect effects of increased

[51] Patzelt Z. et al., Nature Conservation and Landscape Protection of the Czech Republic, DVD, Agency for Nature Conservation and the Landscape Protection of the Czech Republic, 2008

visitor numbers also include a growth in waste production, sewage effluent and increased water consumption, leading to more areas affected by eutrophication (e.g. due to nitrates, causing a spreading of nitrophilous vegetation).

The secondary meadows, on which agriculture in Krkonoše is dependant, were formed and developed over several centuries, but especially during the period of mountain chalet grazing in the 17th to 19th centuries. A long-term human influence on the meadow stands, including fertilising and draining of boggy meadows created flower-rich meadows with rare, geographically significant or even endemic plant species. After the Second World War, use of the meadows changed and as a result of overfertilising, overgrazing and drainage works they were gradually degraded causing a great loss of botanically valuable communities. The situation improved during the 1970s and 1980s as a result of 'enforced' grazing and hay cutting on these high mountain meadows, but the general degradation was made worse by emission damage and the disappearance of some biogenic elements, as well as eutrophication by nitrates. One more negative effect was the transfer of ownership of agricultural lands to the State Land Fund in the early 1990s, which then made no attempt to care for such lands. In recent years the subsidy programmes of the Agriculture and Environment Ministries have begun a new trend in improving the condition of the Krkonoše meadows. The Management Plan allows for a gradual return to agricultural use of the meadows, to complement the revenues from tourism.

1.8 BIODIVERSITY AND CLIMATE CHANGE

1.8.1 STRATEGIES AND POLICIES

The Czech Republic has incorporated objectives of increasing the resilience of biodiversity to climate change into its "**National Programme to Abate the Climate Change Impacts in the Czech Republic**". The Programme presents the national climate protection strategy and has been developed in accordance with the requirements of Council Decision 99/296/EC and approved by Czech Government Resolution no. 187 of 3 March 2004. The Programme was reviewed in 2007 with respect to the effect and economic potential of the adopted measures, including a comparison with the previous state and the emission reduction achieved since the adoption of the Programme. The Czech Government approved the review on 16 April 2008.

As political negotiations both domestically and globally (within the European Union and at UNFCCC and Kyoto Protocol Conferences of Parties) have evolved since the introduction of the Programme in 2004, a new **Climate Protection Policy of the Czech Republic** will be introduced by the end of July 2009, including the current climate protection strategy and proposed measures for effective greenhouse gas emission reduction and adaptation to climate change.[52]

Measures to abate climate change and its impacts are also reflected in other key documents dealing with the landscape management, such as the **National Forest Programme**. Chapter 6 - Objectives, Key Actions and Measures clearly states the need to reduce the impacts of global climate change and of extreme meteorological events by supporting of: species and ecotypes of tree species that tolerate better the changes in climate, financial subsidies aimed at

[52] http://www.mzp.cz/en/national_program_to_abate_the_climate_change_impact

adaptation measures, and reduction of silviculture rotation of tree species most vulnerable to climate changes.[53]

Additional programmes focus on identification of carbon sequestration, monitoring of climate regulation and ecological services provided by agricultural biodiversity:

- The above-mentioned National program to abate the climate change impacts in the Czech republic recommends implementation of certain mitigation and adaptation measures regarding agriculture[54];
- Horizontal Rural Development Plan of the Czech Republic lists principles of good farming practice and commitments under agri-environmental measures[55];
- Operational Programme - Rural development and multifunctional agriculture[56].

National Biodiversity Strategy of the Czech Republic[57], approved by the Resolution of the Czech Government No. 620 in May 2005, deals in the chapter "Climate Change and Biodiversity" with the current situation, defines problematic issues, and specifies objectives, which need to addressed in order to protect and use biodiversity in a sustainable way taking into account the climate change:

- Support research of impact of the climate change and increased climate variability on biodiversity and the response of ecosystems to the climate change;
- estimate the potential for conservation and sustainable use of biodiversity within adaptation measures prepared for mitigating the impact of the climate change;
- encourage gradual introduction of suitable adaptation measures particularly in the selected sectors and estimates of economic costs;
- estimate the potential impact of measures to increase sinks of greenhouse gases;
- ensure more intensive use of biomass as fuel (planting of plantations of fast-growing tree species), and encourage construction of minor water power plants (changes in local flow rates in small water courses) on biodiversity;
- draw up and unify or modify, as appropriate, a set of adaptation measures responding to the climate change for the purpose of minimizing the unfavourable impact on biodiversity;
- increase the importance of Specially Protected Areas and ecological networks;
- strengthen the mutual interaction of the UN Framework Convention on Climate Change and the Convention on Biological Diversity in the context of sustainable development, both on the scale of international cooperation and particularly on the national and regional scale.

For more information about the Strategy, see the website (link 57).

1.8.2 SPECIES AND THEIR TRENDS, IMPACT OF CLIMATE CHANGE

A number of research projects financed through the Departmental Research Programme of the Ministry of Environment are underway to identify habitats and species at risk from climate change and to indicate suitable adaptation measures. The Ministry of the Environment granted financial support to the following projects having expected the final results in 2010 or 2011:

[53] National Forest Programme for period until 2013, issued by the Forest Management Institute upon the commission of the Ministry of Agriculture, Prague, 2008 (in Czech).
[54] http://www.env.cz/AIS/web-pub-en.nsf/$pid/MZPOBFKFL7JL
[55] http://www.mze.cz/attachments/Prilohy_k_definitivni_verzi_HRDP_-_anglicky.aktualizovana_verze.9.1.2006.pdf
[56] http://ec.europa.eu/agriculture/rurdev/index_en.htm
[57] http://chm.nature.cz/cooperation/fol362718/Strategie_ochrany_fin.pdf

- **The impact of forest management type on biodiversity of forest ecosystems in the context of global climate change**. The main objective is to appraise importance of selected impacts of forest management (changes in species and age structure) on the biodiversity of indicator groups of organisms in relation to the stand condition on the basis of gathered already existing and newly made sets of data[58];
- **The dynamics of spreading of invasive plant species in the Czech Republic taking into account different scenarios of global climate change**. The objective is to select suitable predictive systems for The Czech Republic region; to create variant maps of potential distribution for invasive species in individual global change scenarios; to create points of interest maps (identification of places for monitoring, centres of biodiversity endangered by invasions, identification of places for effective early intervention); to sum up potential economic consequences based on invasive plants management; to form proposal of strategy for plant invasion management[59];
- **Specification of current estimations of impacts of climate change in the sectors of water management, agriculture and forestry management, and adaptation measures proposals.** The main objective is to provide specification and update of climate change scenarios for the Czech Republic up to 2050, specify expected impacts of climate change in hydrology, water management, agriculture and forestry sectors, propose relevant adaptation options and support meeting of the National Climate Change Programme in the Czech Republic[60];
- **Long-term changes in abundance and distribution of waterbirds in the Czech Republic in relation to climate and environmental change**. The main objective is to diminish the decrease in biodiversity, to investigate the quality and amount of information in field of nature protection[61]. This project has its first outcome in the form of book summarizing the actual results of waterbird monitoring programmes[62].

Results of the research projects still need to be gained and analysed, however, impacts of climate change in the Czech Republic can be estimated from many sources of information at the European or global level. As far as the water regime and water management are concerned, decreases in snow cover and water reserves from winter snowfall and increased evaporation in summer are anticipated as a consequence of higher temperatures. Warming water and lower water flows due to increased evaporation pose a higher risk of the eutrophication of watercourses. In relation to weather extremes, there will be a higher risk of floods and inundationa nd drought periods. Major parts of the most productive agricultural areas are much more endangered by drought. On the other hand, the anticipated increase in precipitation can cause soil erosion and 10% increase of erosion endangered soil. The temperature and water stresses will negatively impact the health conditions of forests. Forests with an impaired health condition will be more prone to the activity of both biotic and abiotic factors. The climate change will affect biodiversity at all levels - from the individual genes to the whole ecosystems. The most vulnerable parts of the Czech Republic are the mountain and grass ecosystems[63].

[58] http://aplikace.isvav.cvut.cz/projectDetail.do?rowId=SP%2F2D1%2F146%2F08
[59] http://aplikace.isvav.cvut.cz/projectDetail.do?rowId=SPII2D1%2F37%2F07
[60] http://aplikace.isvav.cvut.cz/projectDetail.do?rowId=SP%2F1A6%2F108%2F07
[61] http://aplikace.isvav.cvut.cz/projectDetail.do?rowId=SP%2F2D3%2F109%2F07
[62] Musil P., Musilová Z., Strnad M. (Eds.), Monitoring of waterbirds in the Czech Republic, Aythya 1, Department of Zoology, Faculty of Science, Charles University, Prague, Czech Republic, 2008 (in Czech).
[63] Climate Change, The Environment of the Czech Republic, 2008, CENIA, the Czech Environmental Information Agency

1.9. PROTECTED AREAS, SPECIES, AND NATURA 2000 NETWORK

1.9.1 SPECIES AND TERRITORIAL PROTECTION

General Territorial Protection
General protection of nature and the landscape provides legal protection for the entire territory of the Czech Republic, using a number of instruments – territorial systems of ecological stability, important landscape features, character of landscape, natural parks, and provisionally protected areas.

General Protection of Fauna and Flora
According to Act No. 114/1992 Sb., on the Protection of Nature and the Landscape all species of fauna and flora are protected against destruction, harm, collection or capture - that means activities, which might endanger their existence or cause their degeneration, disrupt the reproductive ability, and bring about the species' population extinction or the ecosystem destruction. The most important instruments for general species legal protection include the protection of wild birds and species of trees growing outside forests.

Special Territorial Protection
The most important instruments for nature and landscape protection include territorial protection, ensured by established Specially Protected Areas. These are declared in accordance with Act No. 114/1992 Sb., on the Protection of Nature and the Landscape. In most cases, these include localities with unique or representative biodiversity, i.e. at the species, populations and communities' levels, areas with unique geological structure, areas representing the characteristic features of the character of the cultural landscape and areas significant for scientific research. The Act on the Protection of Nature and the Landscape specifies six categories of Specially Protected Areas - National Parks (NP), Protected Landscape Areas (PLA), National Nature Reserves (NNR), Nature Reserves (NR), National Nature Monuments (NNM) and Nature Monuments (NM).

- **National Parks**
  The National Parks (NPs) are extensive areas that are unique on a national or international level, a considerable part of which consist of ecosystems that are natural or little affected by human activities, in which plants, animal and abiotic parts of ecosystems are of extraordinary scientific and educational importance. All uses of NPs should aim at maintaining and improving their natural conditions and must be in agreement with scientific and educational aims for which they have been established. The text of the Act No. 114/1992 Coll., as amended deals with National Parks. NPs, their aims and detailed protection conditions are declared by Law. The Act also presents a list of activities which are prohibited in the area of NP and for which a special exception /permission is needed. Usually, NPs are divided into three protection zones, delimited according to natural values of the appropriate areas. In addition, a buffer zone can be established. The zones are generally declared by a Law and delimited by the Ministry of the Environment after consultations with local authorities. The administrations of NPs issue Set of rules for visitors. The first zone is a no-entry area for visitors and has to be marked in the field. There is the NP Council - an advisory body advising on division of the NP in zones, management plans, set of rules for visitors, forest management, *etc.* Fishing and hunting can be limited or prohibited in NP. Forest management in NPs is carried out by NP authorities. Each National Park is a legal entity with its own budget. The Director of the National Park is appointed by the Minister of the Environment. A NP is managed by the administration according to its Management Plan carried out for a period of 10 years. The

administration of the NP is supervised by the Ministry of the Environment. There are currently 4 National Parks in the Czech Republic, all of which are transboundary. For more details see www.nature.cz or www.npsumava.cz, http://ceskosaske-svycarsko.eu , www.krnap.cz, www.nppodyji.cz.

- **Protected Landscape Areas**
  Protected Landscape Areas (PLAs) are extensive areas with harmonic landscape, characteristically developed relief, significant portion of forest and grassland natural ecosystems, with a high proportion of tree species outside forests, and sometimes with preserved historical settlements. Economic use of these areas is carried out on the basis of zoning so that natural conditions are maintained and improved and the optimal environmental function of the area is preserved and formed. Recreational use is permissible provided that it is not detrimental to the natural values in the protected landscape area. The reference texts for the PLAs are in the Articles 25 – 27 of the Act No. 114/1992 Coll., as amended. PLAs, their aims and detailed protection conditions are declared by the Government Regulation. The Act also presents a list of activities, which are prohibited and for which a special permission is needed. As NPs, PLAs are also divided into three or four protection zones. The PLA administrations are the state administration authorities in nature conservation and landscape protection within their territories. They also manage National Nature Reserves and National Nature Monuments outside their territories, according to the special delimitation. Each Protected Landscape Area has its own budget. The Head of the Protected Landscape Area is appointed by the Director of the Agency for Nature Conservation and Landscape Protection of the Czech Republic, which himself is appointed by the Minister of the Environment. A PLA is managed by the administration according to its Management Plan carried out for a period of 10 years. There are 25 PLAs in the Czech Republic varying in size from 4 000 ha (PLA Blanik) to 116 000 ha (PLA Beskydy). Statistic information can be found at the Central Register on nature conservation http://drusop.nature.cz/ost/chrobjekty/zchru/index.php?frame&KATEGORIE=CHKO, basic information about each of the PLA can be found at: http://www.ochranaprirody.cz/?lang=en&cmd=page&type=102.

- **National Nature Reserves**
  National Nature Reserves (NNRs) are areas with extraordinary natural values, where unique ecosystems that are significant from a national or international point of view are bound to the natural relief. All uses of NNRs should aim at maintaining and improving their natural conditions. Legal texts: Articles 28 – 32 of the Act No. 114/1992 Coll., as amended. NNRs, their aims and protection conditions are declared by a Decree of the Ministry of the Environment. There is also a list of activities prohibited in NNRs where special permission is needed. The NNRs are established by the Ministry of the Environment and managed by the NP or PLA administrations, if they are located within their territories, or by the nearest PLA authority. There are currently 111 National Nature Reserves in the Czech Republic; some of them are situated within National Parks or Protected Landscape Areas. More information including GIS layers, other info, and maps at http://drusop.nature.cz/ost/chrobjekty/zchru/index.php?frame&KATEGORIE=NPR.

- **National Nature Monuments**
  National Nature Monuments (NNMs) are areas where the protection is extended to only single component of nature - geological or geomorphological phenomena, mineralogical or paleontological localities, sites of occurrence of rare species or sites of unusual

aesthetic value. They can be influenced by human activities. Changes or devastation of NNMs as well as their economic use if it damages them is prohibited. Legal texts: Article 35 of the Act No. 114/1992 Coll., as amended. NNMs, their aims and protection conditions are declared by the Ministry of the Environment Decree. The NNMs are established by the Ministry of the Environment and managed by the NP or PLA authorities, if located within the territories of NPs or PLAs, or by the nearest PLA authority. There are currently 104 National Nature Monuments in the Czech Republic; some of them situated within National Parks or Protected Landscape Areas –see the chart above.
http://drusop.nature.cz/ost/chrobjekty/zchru/index.php?frame&KATEGORIE=NPP.

- **Nature Reserves**
  Natural reserves (NRs) have a similar character of protection as National Nature Reserves, but are of regional or local significance. Changes or devastation of NRs as well as their economic use if it damages them is prohibited. Act No. 114/1992 Coll., as amended deals with the NRs in the articles 33 and 34. The Act lists activities which are prohibited in NRs and for which a special permission is needed. NRs, their aims and protection conditions are declared by regional authorities. The NRs are established and managed by regional authorities, unless they are located within National Parks or Protected Landscape Areas. There are currently 773 Nature Reserves in the Czech Republic http://drusop.nature.cz/ost/chrobjekty/zchru/index.php?frame&KATEGORIE=PR

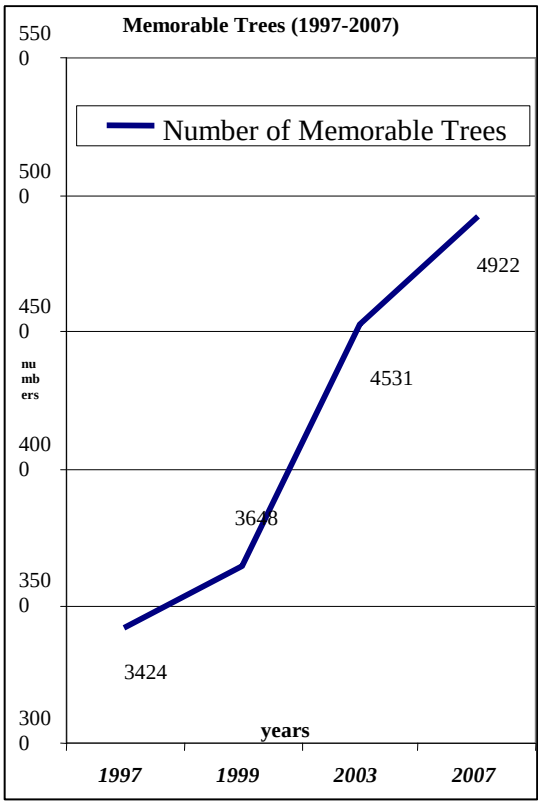
- **Nature Monuments**
  Natural Monuments (NMs) have a similar character of protection as National Nature Monuments, but are of regional or local significance. Changes or devastation of NMs as well as their economic use if it damages them is prohibited. The Act No. 114/1992 Coll., as amended later deals with the NMs in the article 36. NMs, their aims and protection conditions are declared by regional authorities. The NMs are established and managed by regional authorities, unless they are situated within National Parks or Protected Landscape Areas. There are currently 1,189 Nature Monuments in the Czech Republic. http://drusop.nature.cz/ost/chrobjekty/zchru/index.php?frame&KATEGORIE=PP

In addition, there are two more categories declared under the above Act, which are not Specially Protected Areas, but which are transposed from the European Community legislation. More information is provided under the chapter delaing with Natura 2000 Network.

According to Act 114/1992 Coll., there is a conservation status for important monumental trees. They are important trees, exceptional for their age, natural value or cultural link. In addition groups of trees and avenues of trees may be also proclaimed as tree monuments, through a decision of local nature protection authorities. It is prohibited to damage, destroy, and disturb the natural development of tree monuments. Their tending shall be carried out with an approval of the authority that proclaimed the protection.

Table 4 indicates a number of memorable trees of selected species and their increase over years 1997-2007 [64]

species	1997 number of trees	1999 number of trees	2003 number of trees	2007 number of trees
Tilia	1716	1827	2243	2668
Quercus	874	981	1222	1234
Fagus	208	227	299	348
Acer	200	193	253	115
Fraxinus	124	138	161	147
Ulmus	71	80	84	113
Taxus	57	67	77	92
Abies	54	10	23	23
Picea	46	44	75	77
Pyrus	46	49	56	68
Ginkgo	28	32	38	37
Total	3424	3648	4531	4922



Special Protection of Fauna and Flora

Despite its relatively small area, the Czech Republic has extremely diverse fauna and flora. This is due to its location at the border of several biogeographical regions, the considerable geological and geomorphologic diversity of its territory, and also due to its historical and cultural development. The species that have been documented in our country include a total of 6 180 - 15 000 sianophoras and algae species, 30 000 of fungi species, from which 4 000 species of higher fungi, 886 bryophyte species, 1 497 lichen species, 3 501 higher plant species, 24 000 insect species, 5 800 - 8 000 other multicellular invertebrates species, 711 vertebrate species.[65] The Red List of Threatened Species in the Czech Republic[66], shows that from 395 vertebrate taxa assessed the level of endangered species is as follows: 45,8% of cyclostomata and fish species; 59,1% of amphibian species; 61,5% of reptile species; 52,4% of bird species; and 18,7% of mammalian species.

For the biodiversity conservation at the species level, it is necessary to ensure effective conservation of both fauna and flora, including the protection of their habitats. Act No. 114/1992 Coll., on the Protection of Nature and the Landscape, as amended, and its implementing regulations, ensure the legal basis. The Act on the Protection of Nature and the Landscape specifies the general protection of all fauna and flora species, separate protection of wild birds and the special protection of selected, rare or scientifically or culturally significant fauna and flora species. Based on the level of endangerment, specially protected species are divided into three categories of protection: critically endangered, highly

[64] http://drusop.nature.cz
[65] source of the data: Agency for Nature Conservation and Landscape Protection of the CR (AOPK ČR)
[66] PLESNÍK J, HANZAL V. & BREJŠKOVÁ L [eds.] (2003): Red List of Threatened Species in the Czech Republic, Vertebrates

endangered and endangered species. The list of specially protected fauna and flora species including their division into the categories of protection is specified in Annex II (plants) and Annex III (animals) to Decree No. 395/1992 Coll.

Natura 2000 network

In addition, upon the accession to the EU on 1 May 2004, the Czech Republic adopted commitments in the area of territorial nature protection, i.e. to create a network of protected areas of European importance that correspond to areas similar throughout the EU - Natura 2000 network. This network has existed within the EU countries since 1981 pursuant to two directives – Bird Directive 79/409/EEC and Habitat Directive 92/43/EEC. These directives were transposed into Czech law through Act No. 218/2004 Coll., amending the Act No. 114/1992 Coll. on the Protection of Nature and the Landscape. The Natura 2000 network consists of two types of sites – the **Special Protection Areas** – Bird Areas (SPA-BA) and the **Sites of Community Importance** (SCI). The directives specify the lists of European important species and types of habitats for which it is necessary to propose and officially declare SPA-BAs and SCIs. The European important species and types of habitats in the Czech Republic are listed in Decree No. 166/2005 Coll., and in Government Regulation No. 51/2005 Coll.

SPA-BAs are established for bird species listed in Annex 1 to Council Directive 79/409/EEC (Article 4.1) and migratory species regularly present in EU Member States (Article 4.2). 41 Important Bird Areas for 47 species were proposed in the Czech Republic. So far, 39 of the proposed bird areas have been declared. Under Act no. 114/1992 Coll. on Protection of Nature and the Landscape, SPA-BAs enjoy the regime of general protection. It means that the SPA-BAs are not a category of a specially protected area and the law sets no specific protection conditions for them. The SPA-BAs are declared through the **Government Regulations**, where activities that shall be subject to prior approval from nature protection authorities may be also defined. In this case, the nature protection authority carries out a formal administrative procedure in order to define specific conditions that have to be observed and followed by the stakeholders to prevent negative impacts on species under protection, specifically, conditions for the protection of bird biotopes, nesting periods, summer and autumn gatherings, and wintering places. In 2004 and 2005, 38 SPA-BAs were designated, covering 8.8% of the territory of the Czech Republic. 39th bird area - "Heřmanský stav – Odra – Poolší" was designated by Government Regulation No. 608/2007 of 4 June 2007 and came into force in June 2008.

As far as pSCIs (proposed Sites of Community Importance), 863 sites were proposed and subsequently included in the Czech National List (approved by the Government Regulation No. 132/2005 Coll.).

On 1 December 2007, Government Regulation No. 301/2007 Coll. came into force amending Government Regulation No. 132/2005 Coll. The Regulation was amended at the suggestion of the European Commission, which presented its requirements at the biogeographic seminar in 2005, where the sufficiency of the Czech, Slovak and Hungarian National Lists regarding the quality and number of pSCIs were assessed. This Government Regulation expanded the national list by another 17 pSCIs in **the Panonnian Biogeographic Region** (about 4% of the Czech Republic). The total number of pSCIs in the Czech National List grew to 879.

In 2006 the European Commission required the Czech Republic to expand the Czech National List regarding the results of another biogeographic seminar where the sufficiency of the

Czech, Polish and Slovenian National List was evaluated in association with the number and quality of pSCIs. Through preliminary negotiations with the landowners, municipal authorities, and selected ministries, another process for amending the Czech National List was set in motion in October 2007 and finished in summer 2008, concerning **the Continental Biogeographic Region** (about 96% of the Czech Republic). Now, final proposal of 245 new pSCIs and changes of 176 SCI is evaluated in official legislative process before approving process by the Czech Government.

The European List of Sites of Community Importance was updated by European Commission Resolution on 13 November 2007, including the Czech pSCIs for the Pannonian and Continental Biogeographic Regions. This resolution was the official EU approval of the majority of the pSCIs included in 132/2005 Coll. This information was published in the Official Journal of the EU on 15 January 2008 and the Czech Ministry of the Environment consequently published the Communication of the Collection of Laws on 5 March 2008. The legitimate period for securing protection of these SCIs was thus commenced. The last changes in the Pannonian Biogeografic Region by Government Regulation No. 301/2007 Coll. were reflected in European Commission Resolution on 12 December 2008, which was published in the Official Journal of the EU on 13 February 2009 and in the Czech Collection of Laws on 26 February 2009.

Table 5 shows the current numbers of different types of protected areas in the Czech Republic, their total area in hectares, and their percentage of the Czech territory. However, note that the Specially Protected Areas cannot be simply counted up with the Natura 2000 sites, as Natura 2000 sites mostly overlap other protected areas thus adding up only approximately 3% of the territory: [67]

Categories	Number	Area (ha)	Area of the CR %
National Parks	4	119489.00	1.51
Protected Landscape Areas	25	1086737.30	13.77
National Nature Monuments	106	3116.6003	0.03
National Nature Reserves	112	28486.0263	0.36
Nature Monuments	1199	20226.2692	0.25
Natural Reserves	789	37907.1342	0.48
Specially protected areas (total)	2235	1248879.6508	15.81
SPA	39	693870.33	8.79
pSCI	879	725422.3281	9.19

The estimate percentage of all protected areas in the Czech Republic is approximately 18% of the territory.

[67] Source: http://drusop.nature.cz

Figure 37 pictures Large-scale specially protected areas in the Czech Republic as of 31 December 2007:

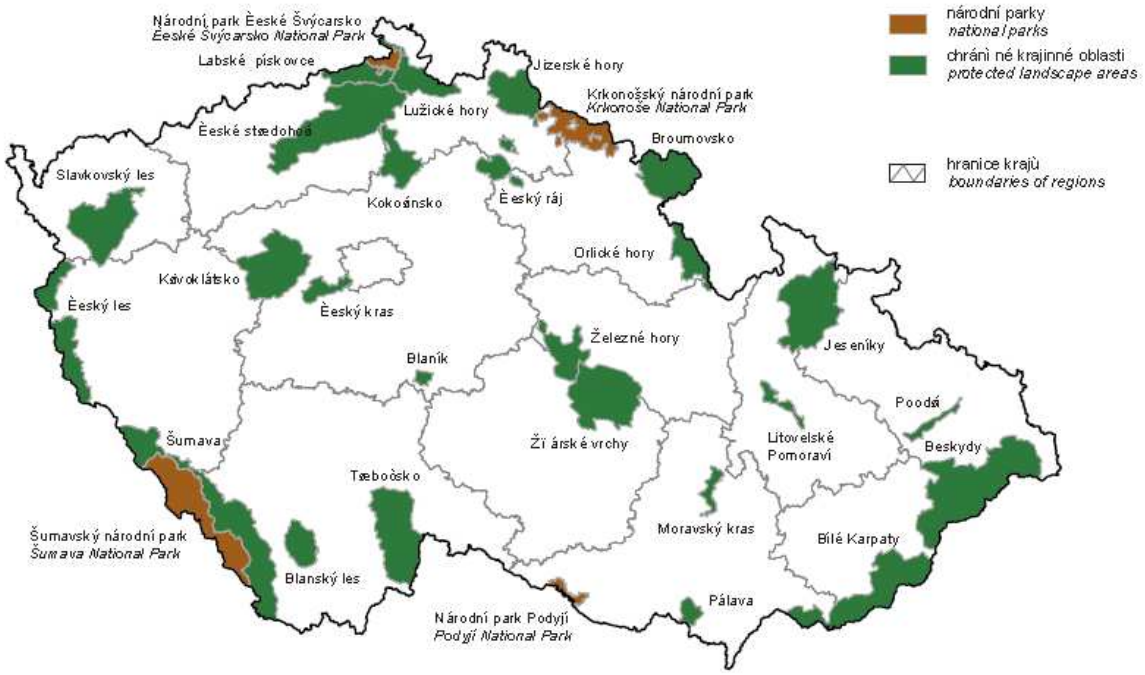


Figure 38 pictures Small-scale specially protected areas in the Czech Republic as of 31 December 2007:

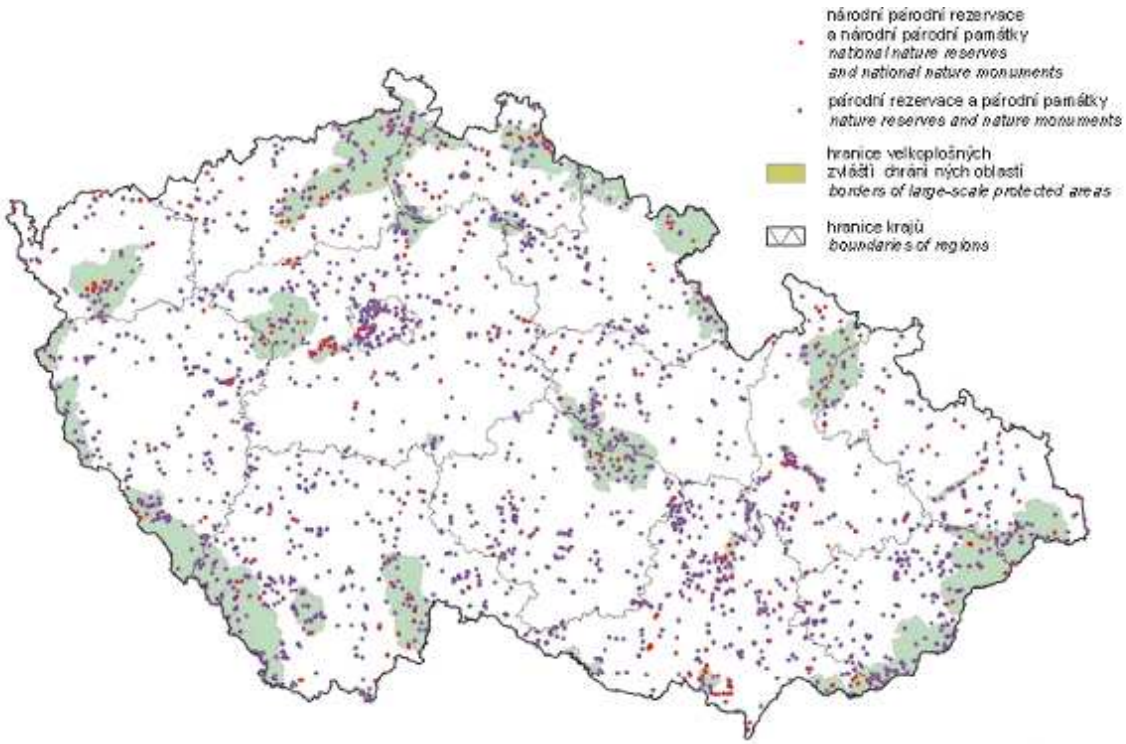


Figure 39 shows Natura 2000 Sites in the Czech Republic – Proposed Sites of Community Importance, pSCI as of 31 December 2007:

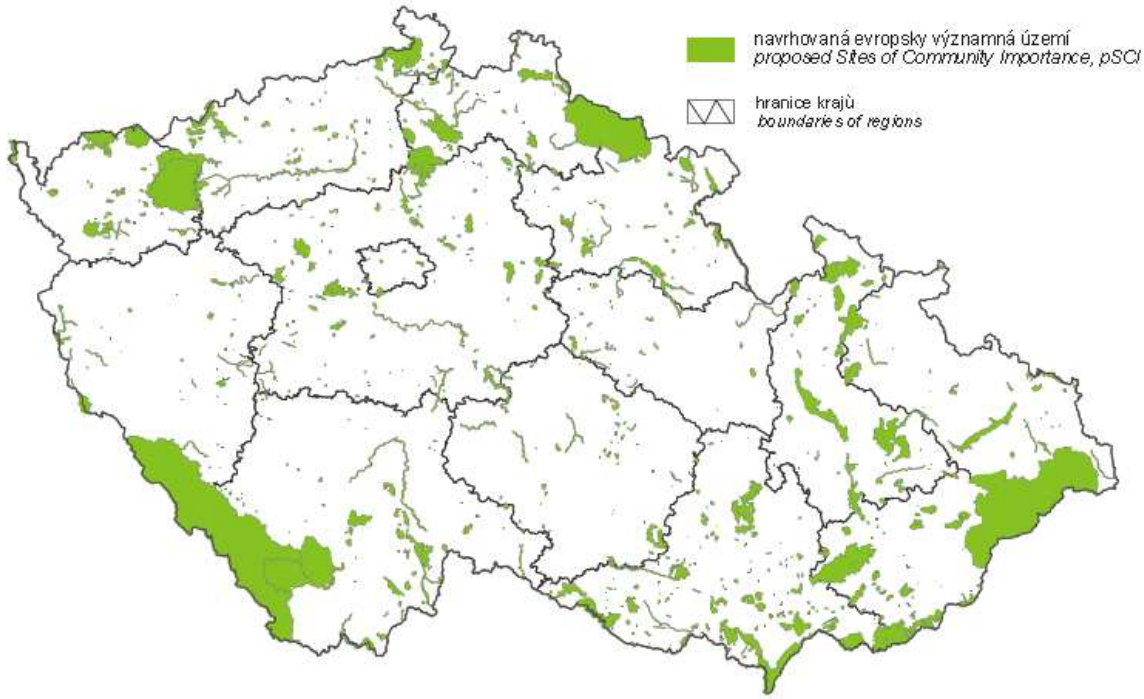
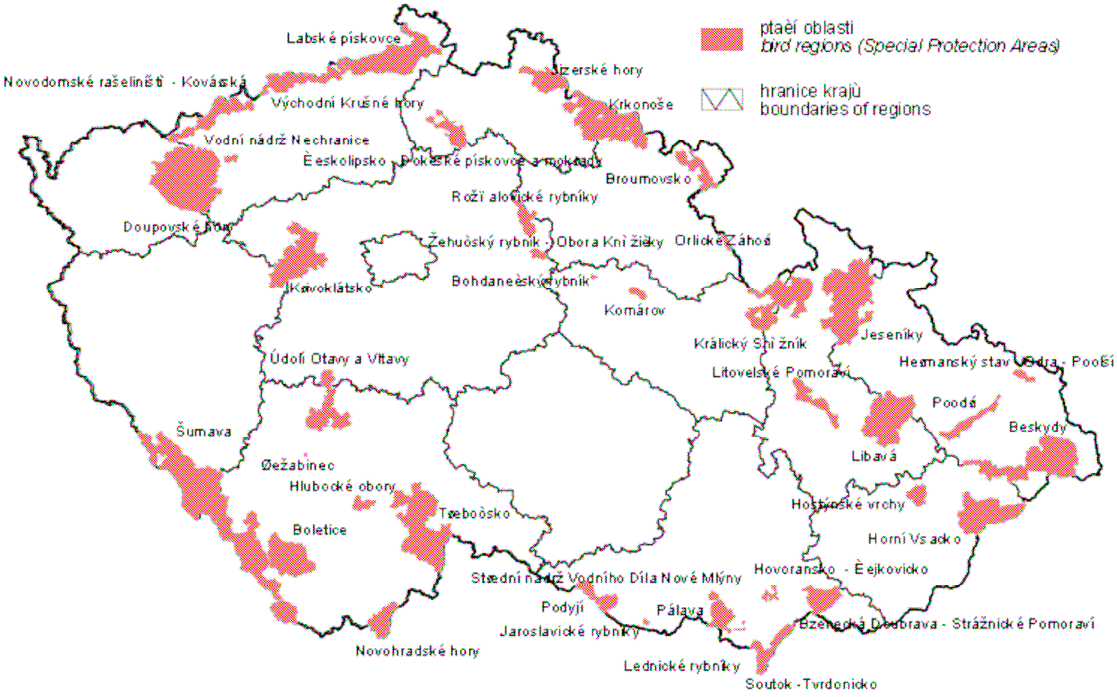


Figure 40 shows Natura 2000 Sites in the Czech Republic – Special Protection Areas, SPA as of 31 December 2007:



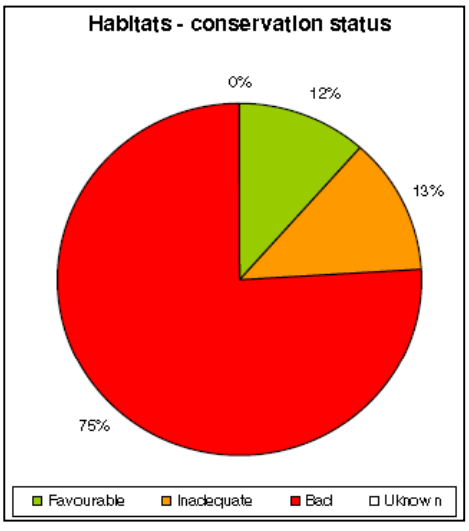
Tables 6 and 7 show the number of specially protected species of plants and animals according to the Decree No. 395/1992 Coll. of the Ministry of the Environment of 11 June 1992, implementing selected provisions of Act No. 114/1992 Coll. on the protection of the environment and the natural landscape:

Plants and fungi	Vascular plants	Fungi
Critically endangered	247	27
Highly endangered species	150	13
Endangered species	93	6

Fauna	Invertebrates	Fish and cyclostomata	Amphibians	Reptiles	Birds	Mammals
Critically endangered	38	6	6	6	35	12
Highly endangered species	42	4	12	4	58	11
Endangered species	36	10	1	1	30	3

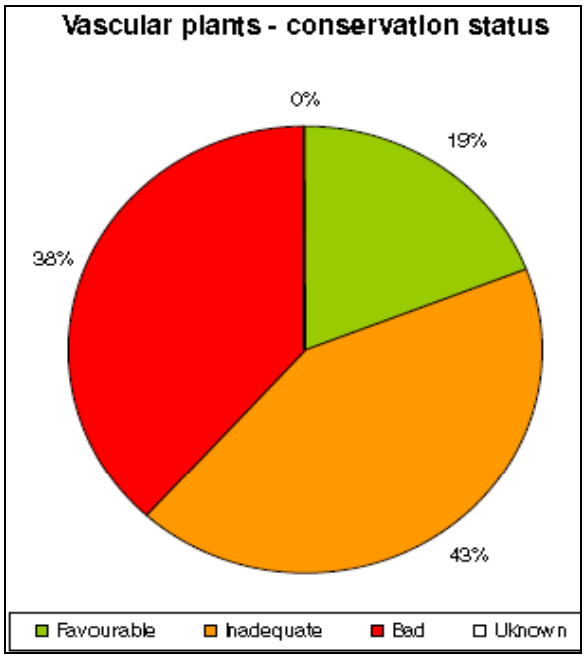
Biodiversity Indicators - The conservation status of key habitats and species of European interest[68]

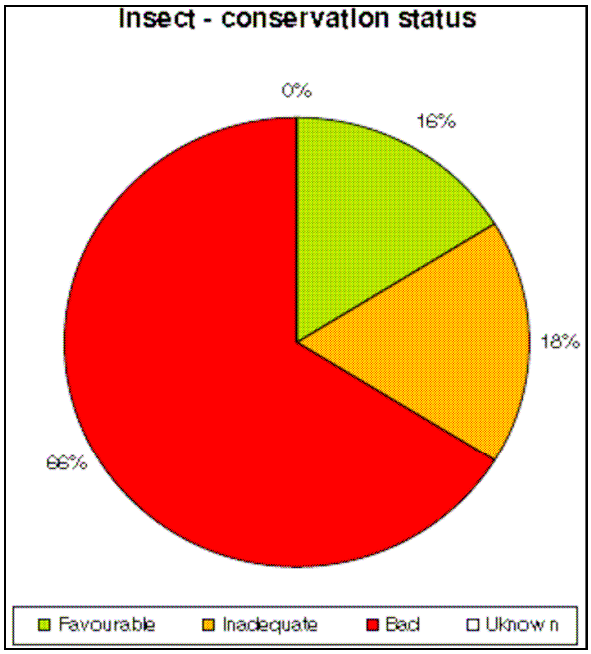
The European Union Member states shall draw up every six years the report on the implementation of the measures taken under Directive 92/43/EEC, Article 17, paragraph 1. This report shall include in particular information concerning the conservation measures referred to in Article 6 (1) as well as evaluation of the impact of those measures on the conservation status of the natural habitat types of Annex I and the species in Annex II and the main results of the surveillance referred to in Article 11. The report, in accordance with the format established by the committee, shall be forwarded to the Commission and made accessible to the public. Assessment has been carried out of 4 parameters: for habitats - range, extent, structure and function, and future prospects; for species - range, population, habitats for the species, and future prospects. Total assessment of favourable conservation status is divided into four categories:

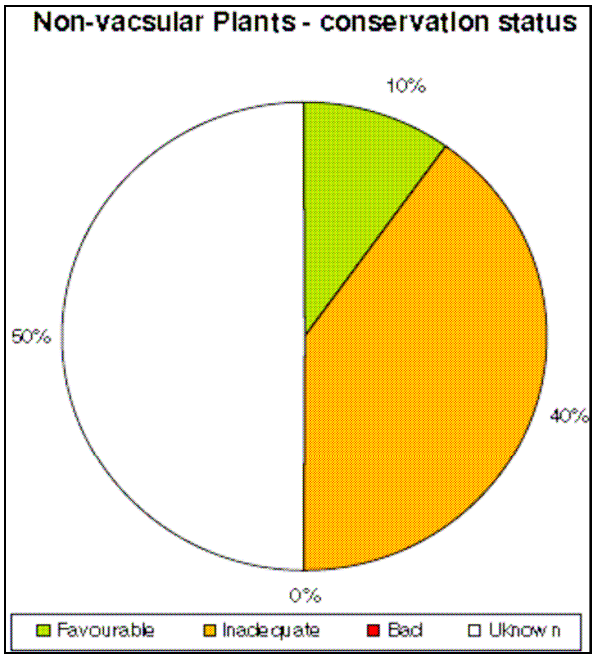


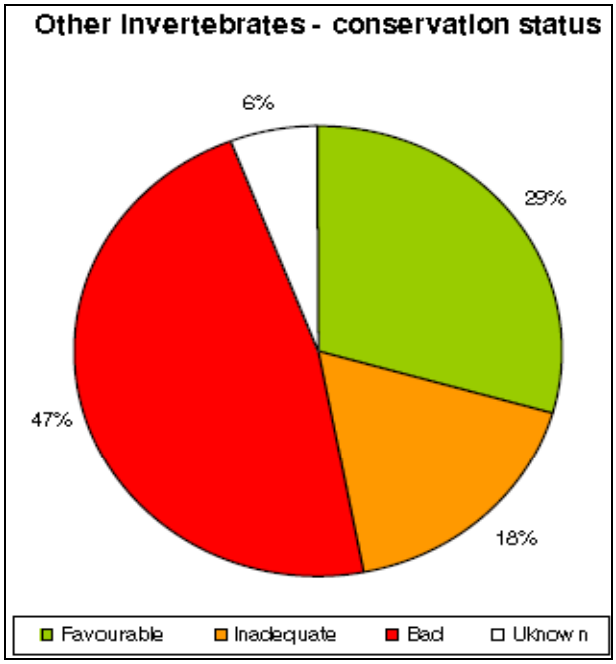
- **Favourable** - all parameters favourable or with one unknown;
- **Unfavourable (inadequate)** - one or more parameter unfavourable (inadequate) but no unfavourable (bad);
- **Unfavourable (bad)** - one or more unfavourable (bad);
- Unknown - all unknown or unknown combined with one favourable

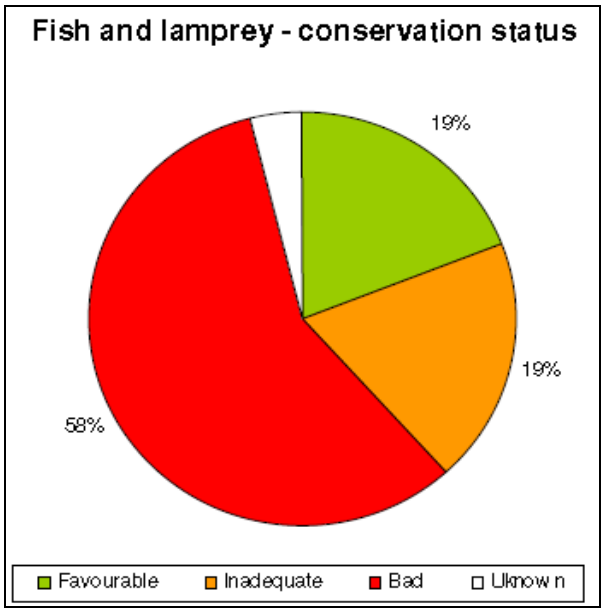
[68] Data source: Michael.Hosek@nature.cz (Presentation at the CBD Committee of the Czech Republic, 7/November 2007), More info at: http://www.jncc.gov.uk/pdf/comm07N02.pdf , www.biomonitoring.cz

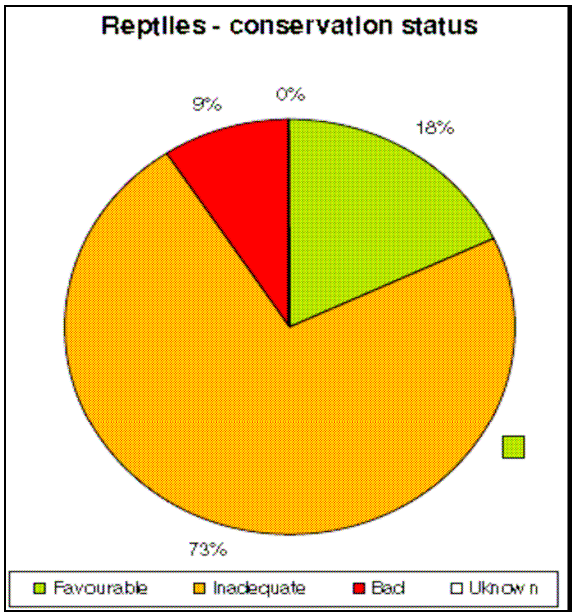

Vascular plants - conservation status
0%
19%
38%
43%
Favourable
Inadequate
Bad
Uknown

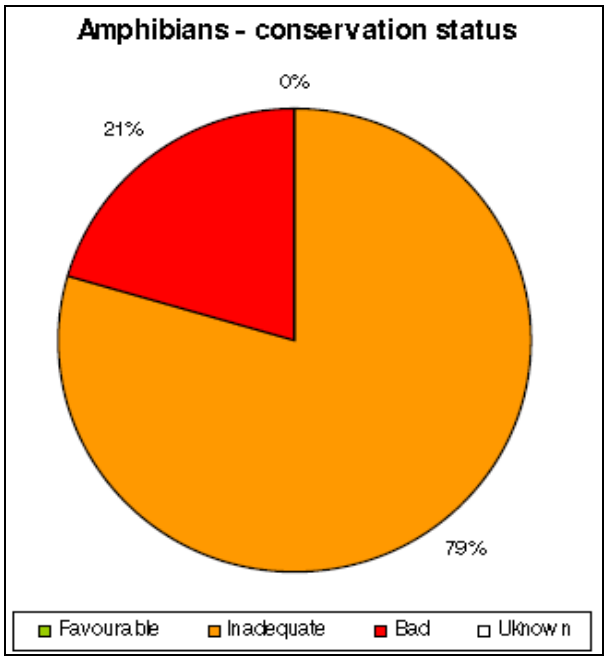

Insect - conservation status
0%
16%
18%
66%
Favourable
Inadequate
Bad
Uknown

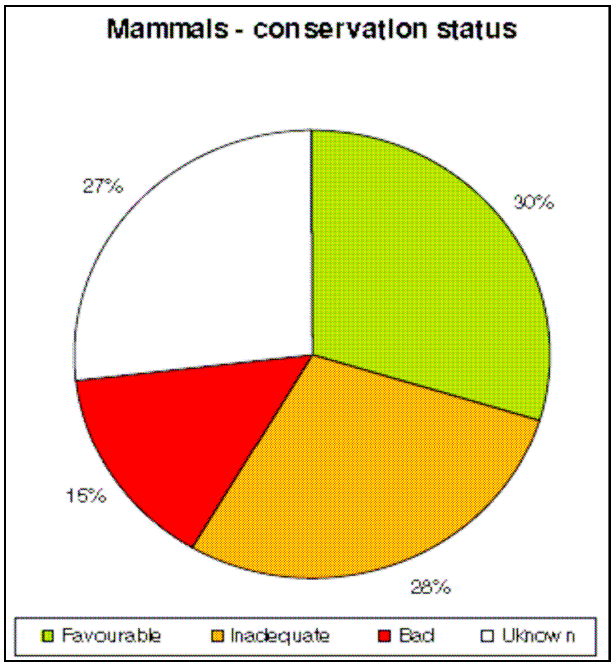

Non-vacsular Plants - conservation status
10%
50%
40%
0%
Favourable
Inadequate
Bad
Uknown


Other Invertebrates - conservation status
6%
29%
47%
18%
Favourable
Inadequate
Bad
Uknown


Fish and lamprey - conservation status
19%
19%
58%
Favourable
Inadequate
Bad
Uknown


Reptiles - conservation status
9%
0%
18%
73%
Favourable
Inadequate
Bad
Uknown


Amphibians - conservation status
0%
21%
79%
Favourable
Inadequate
Bad
Uknown


Mammals - conservation status
27%
30%
15%
28%
Favourable
Inadequate
Bad
Uknown

1.9.2 PRESERVATION PROGRAMMES AND EX-SITU CONSERVATION

Preservation programmes

Species preservation programmes for specially protected species of flora and fauna attempt to establish conditions permitting management of their populations leading towards reducing the risk of their endangerement. They mostly consist of active management measures for *in-situ* species conservation, sometimes supplemented by *ex-situ* measures. There are actually two types of programmes in place - *the Preservation Programmes* themselves and "*Management Plans*". Preservation programmes are designed for species threatened by extinction, while management plans are assigned just for animal species that are not in an immediate danger of extinction, but belong to so called "conflict species". Nevertheless, both types are being prepared in a similar way and also their logistics is similar. They differ mainly in the kind of proposed measures.

Selection of species for preservation programmes and management plans is based on given criteria. Programmes/plans are written along a binding outline, the purpose of which is to ensure its uniform and thorough elaboration. In addition, at least two independent experts review all prepared programmes/plans.

As far as logistics, Ministry of the Environment (MoE) guarantees according to Act no 114/1992 preservation programmes and management plans for critically endangered and endangered species. It practically means that the MoE has to approve the list of suitable species, binding outlines and the programmes/plans themselves. The Agency for Nature Conservation and Landscape Protection of the Czech Republic (ANCLP) was authorized to prepare and coordinate the programmes/plans. All related tasks are shared by employees of the directorate of this organization and employees of its regional offices and Protected Landscape Area authorities. Preparation of new programmes/plans and their implementation is guaranteed by experts for the given species under the coordination of the directorate of ANCLP, while employees of regional offices of ANCLP and regional authorities also participate. They administre the implementation measures, usually carried out by specialized companies, non-governmental organizations or individuals. An advisory board is appointed for each programme/plan and meet at least once a year to consider and discuss the progress of the plan´s implementation.

As far as plant species, Preservation Programmes were approved by MoE for **Marsh Angelica** *(Angelica palustris)*, **Long-stalked Pondweed** *(Potamogeton praelongus)*, **Bohemian Sand Pink** *(Dianthus arenarius* **subsp.** *bohemicus)*, and **Spring Gentian** *(Gentiana verna* **subsp.** *verna)***.** Plant Preservation Programmes in preparation are for the species of **Fringed Water-lily** *(Nymphoides peltata)*, **Toothed Orchid** *(Orchis tridentata)*, and **Bohemian Early Gentian** *(Gentianella praecox* **subsp.** *bohemica).*

As far as animal species Preservation Programmes were approved by for **Freshwater Pearlmussel** *(Margaritifera margaritifera)*, **European Ground Squirrel** *(Spermophilus citellus)*, and **Aesculapian Snake** *(Zamenis longissimus)*. Animal Preservation Programme in preparation is for **Marsh Fritillary** *(Euphydryas aurinia)*. One Management Plan is being prepared for **Eurasian Otter** *(Lutra lutra).*

Recently, independent experts assessed effectiveness of various project, supporting threatened wild animal species and subspecies, carried out by the State Nature Conservancy authorities and NGOs.[69]

Visit the website http://www.zachranneprogramy.cz/index.php?docId=6204 to find more detiled information about the preservation programmes and protected species they cover.

Ex-situ conseravtion measures

The Czech Republic has a number of ex-situ conservation programmes in place. They include zoological gardens, botanical gardens and arboreta and several species survival and recovery programmes.

Zoological and botanical gardens are multi-purpose facilities the primary purpose of which is to contribute to the preservation of biological diversity through the keeping of animals and growing of plants, scientific and research work, and environmental education and awareness raising for the general public.

At present, there are 19 zoological gardens licensed by the Ministry of the Environment in the Czech Republic, 15 of which are members of the Union of Czech and Slovak Zoological Gardens (for more information see http://www.zoo.cz/anglicky/index.htm). There are over 50 botanical gardens; 26 of them are members of the Union of Botanical Gardens of the Czech Republic (for more information on the union see http://ubzcr.cz/). The MoE website also includes links to the website of both the unions as well as individual facilities, containing abundant interesting information about their activities, professional profiles, and involvement in projects to save endangered animal and plant species. The Zoological Gardens section includes links to international zoological garden unions and other sources of information.

The Union of Czech and Slovak Zoos (UCSZ) was established in 1990 to coordinate activities and cooperation. The Union is a member of the European Association of Zoos and Aquaria (EAZA), World Association of Zoos and Aquariums (WAZA), and the World Conservation Union (IUCN). Conditions for the operation of the gardens are determined in Act No. 162/2003 Coll., on zoological gardens. This Act also implements Council Directive 99/22/EC related to keeping wild animals in the zoos.

The species survival and recovery programmes for particularly protected species of flora and fauna are provided for by the State Nature Conservancy authorities in accordance with Act No. 114/1992 Coll., on the Protection of Nature and the Landscape, and are composed of *in-situ* and *ex-situ* measures like rescue breeding, introduction, reintroduction, rescue transfers etc.

In addition there is a number of wild animal rescue centres run by several non-governmental organisations. As an example, the Czech Union for Nature Conservation runs the National Network of Rescue Centers - program that coordinates the activity of 24 centers providing care to injured or otherwise handicapped wild animals. The animals are cured with the objective of releasing them back to nature. Each center is responsible for a given region in which it provides complex care to handicapped animals (transfer, first aid, veterinary treatment, rehabilitation, preparation for release and actual release back to nature). Each year

[69] KUMSTATOVÁ T., NOVÁ P. & MARHOUL P. (2005): *Assessment of the projects actively supporting threatened animals in the Czech Republic.* Agency for Nature Conservation and Landscape Protection of the Czech Republic Prague, 432 pp. (In Czech).

the stations take in about 10 thousand animals, more than half of them birds. Over 50% are released after treatment back to nature.[70]

1.9.3 PROTECTION OF SPECIES ENDANGERED BY TRADE

The Convention on International Trade of Endangered Species of Wild Fauna and Flora (CITES) was negotiated in 1973, in Washington. Currently, it has 173 signatories from all over the world. The Czech Republic has been a party to the treaty since 1993. Since joining the European Union, the Czech Republic has been fulfilling the much stricter European Community rules related to the protection of species endangered by trade, because all member countries are parties to the treaty. The main binding norms regulating this area are Council Regulation (EC) No. 338/97 and Act No. 100/2004 Coll. (on the trade in endangered species), as well as others. The main CITES Management Authority of the Czech Republic is the Ministry of the Environment, which is responsible for issuing import, export and re-export permits for the trade in endangered species of animals and plants in and from third countries (countries outside the EU) and for issuing permits for the movement of animals threatened with extinction within the EU. In 2007, fines imposed for the illegal import of CITES species into the Czech Republic amounted to CZK 137 600.

In order to control the international trade in endangered species, all imports, exports and re-exports of specimens covered by the CITES Convention have to be authorized through a licensing system by Member States. In the Czech Republic, the following number of permits was issued the in the period of 2005-2007:

Year/Type of permit	Import	Export	Re-export
2005	414	292	26
2006	378	161	14
2007	463	163	17

In addition, approximately 15 300 intra EU-certificates by Regional Czech CITES Management authorities were issued in the years 2005-2007.

According to the Czech CITES Biennial Report, 100 seizures were registered in the years 2005 – 2006, comparing to 64 seizures registered in 2003 - 2004.

Capacity building for the national implementation of CITES focused on hiring more staff, developing implementation tools, improvement of national networks, purchase of technical equipment, and computerisation. Advice/guidance was provided to staff of the Management and Scientific Authorities and the enforcement authorities as well as to traders and the public. Staff of the Management and Scientific Authorities and the enforcement authorities also received training. Financial assistance was provided to other parties/international meetings. The Czech Republic has paid the annual contribution of USD 8,931 to the CITES Trust Funds.

[70] http://www.csop.cz/index.php?cis_menu=3&m1_id=1568&m_id_old=1257

1.10 INVASIVE SPECIES

1.10.1 POLICIES AND STRATEGIES

Several acts are dealing with the IAS issue at the national level – divided mainly according to the different sectors. However, the variability of acts and their provisions sometimes complicates the whole issue.

Act No. **114/1992** Coll. on the Protection of Nature and the Landscape as amended includes preventive measures to avoid the spread of non-native species; states that intentional introduction of geographically non-native wild plant and animal species in the landscape is possible only with permission of the Nature Conservancy authorities; however, the Act does not impose any sanctions for failure to comply with its provisions.

Act No. **449/2001** Coll. on Hunting and Game-keeping prohibits the introduction of non-native game species.

Act No. **326/2004** Coll. on Phytosanitary Measures mentions IAS laying down the obligations of the phytosanitary administration to monitor, among others, the occurrence of harmful organisms non-native to a particular area. The Decree No. **330/2004** Coll., to Act No. **326/2004** Coll. on Phytosanitary Measures gives a list of plants intended for cultivation that are subject to subsequent phytosanitary checking following the import.

Act No. **99/2004** Coll. on Fisheries defines the terms non-native fish and non-native aquatic organism in terms of a time period of occurrence of less than three subsequent generations in a particular fishing ground. Thus defined taxa may be introduced only with a permit of the Nature Conservancy authority.

Act No. **254/**2001 Coll. on Water prohibits releasing fish and other aquatic fauna of other than indigenous species, of genetically improper or unverified populations of nature species into watercourses and water reservoirs without an approval of the respective water authority.

Act No. **289/1995** Coll. on Forests the owner of the forest is obliged to take measures so as to prevent the effect of harmful factors on the forest, in particular identify and record the occurrence and extent of harmful factors and caused damage and is also required to notify relevant state forest administration body without delay in case of increased occurrence of harmful factors.

Act No. **17/1992** Coll. on the Environment imposes penalties for the damages of the environment and defines ecological damage as a loss or impairment of the natural functions of ecosystems, caused by damaging their components or disturbing their natural relations and processes as a result of a human activity. This could be applicable also to the unapproved intentional import of non-native species or failure of its regulation.

In addirion, **the National IAS strategy** is planned to be developed by 2010 and will be based on the amendment of No. 114/1992 Coll. Act on the Protection of Nature and the Landscape and also on the European Strategy on Invasive Alien Species. Objectives related to IAS are

also included in the State Environmental Policy of the Czech Republic 2004 – 2010 and the National Biodiversity Strategy of the Czech Republic[71].

In the State Environmental Policy of the Czech Republic 2004 – 2010 are, among others, stated these goals and objectives related to invasive alien species:

- Prepare a set of measures to reduce spreading of invasive alien species of flora and fauna;
- Prevent the introduction of geographically non-indigenous species into the open landscape of natural ecosystems;
- Prefer populations of indigenous species of fish in fishing management on water courses;
- Limit the spreading of invasive species of flora and fauna in the import of goods.

The National Biodiversity Strategy of the Czech Republic (NBS) states that provision for full and effective implementation of the Article 8 (h) of the Convention on Biological Diversity and preparation and subsequent implementation of national binding rules in relation to IAS on the basis of assessment of risks, effects and trends in non-native species that threaten ecosystems, habitats, and species are of the top priority. Procedures in management and handling with these organisms should be unified. The strategy than sets out these objectives:

- A binding list of species whose introduction or spread can be considered a risk from the standpoint of potential impacts in natural ecosystems (black list) should be published.
- In relation to the potential for the complete eradication of the individual species under the conditions of a Central European country, priority species and areas, where steps will be taken for invasive species control and eradication should be laid down.
- Educational programmes should be prepared and the general public should be informed of the risks represented by invasive alien species. Last but not least, NGOs, self-governing authorities, and owners should be involved in certain projects leading to reduction of biological invasions in trhe country.

1.10.2 INVASIVE SPECIES, THEIR TRENDS AND RESEARCH ACTIVITIES

Recently, special attention has been paid to invasive alien species that threat other species, habitats or even the whole ecosystems. At the present, 1,378 plant species (of them, 184 are hybrids or hybridogenic taxa) are considered to be non-native in the Czech Republic which is one third of the whole flora of the country: 90 of them have been classified as invasive alien species that often irreversibly damage the communities into which they penetrate: up to date, 817 of them have been temporarily introduced, while 444 have become naturalized, i.e. they have established viable populations in the wild and reproduce without human assistance there. The most important invasive alien plant species include the Giant Hogweed (*Heracleum mantegazzianum*), Knotweed (*Reynoutria* spp., 3 species), Himalayan Balsam (*Impatiens glandulifera*), and North American aster species (*Astra* spp.). Among invasive alien animal species, the American Mink (*Mustela vison*), Stone Maroko (*Pseudophora parva*), Signal Crayfish (*Pacifastacus leniusculus*) and the Horse-chesnut Leaf Miner (*Cameraria ohridella*) should be mentioned. The patterns of biological invasions, in particular in plants, have been studied not only in Specially Protected Areas, but also in the non-protected, non-reserved landscape.

Research and monitoring of the alien species, in particular plant invasive species, has had a long tradition. In 2004 – 2006, the comprehensive project No. VaV/SM/6/37/04 entitled *Non-*

[71] www.env.cz/AIS/web-pub.nsf/$pid/MZPKHF75RUFX/$FILE/OS_spzp_en_20041101.pdf, http://chm.nature.cz/cooperation/fol362718

native fauna and flora species in the Czech republic: Status assessment, future development with special attention to the possible risks possessed by long-term affects for biodiversity, research and setting-up management strategies (in Specially Protected Areas, the Natura 2000 network and in the non-protected landscape) was implemented by the largest nature conservation and environmental protection NGO in the country, the Czech Union for Nature Conservation (CSOP). The project was funded by the Council of the Government of the Czech Republic for Research and Development through the Ministry of the Environment and its technical supervisor was the National Museum Prague. It has three main goals:

- unification of the terminology used in Czech;
- review of current knowledge of non-naive species in the Czech Republic;
- assessing non-native species affects on nature incl. proposed general provisions.

The Institute of Botany of the Academy of Sciences of the Czech Republic has been involved in some research projects funded from the 6th Framework Programme of the European Community for research, technological development and demonstration activities, contributing to the creation of the European Research Area and to innovation, *e.g.* ALARM (Assessing Large-scale Environmental Risks for biodiversity with tested Methods, 2004 – 2009, http://wwww.alarmproject.net) or DAISIE (Delivering Alien Invasive Species Inventories for Europe, 2004 – 2007, http:/www.europe-aliens.org). The Institute of Botany, Academy of Sciences of the Czech Republic has been operating a research school on invasive alien plant species assesing the risks of IAS to the ecosystems and invasibility of different habitats.[72] However, no integrative assessment of the risks caused by the alien species at the national scale is in place.

In the framework of the Convention on the Conservation of European Wildlife and Natural Habitats (Bern Convention), the European Strategy on Invasive Alien Species was adopted. In this context, the State Nature Conservancy authorities have been recently seeking for collaboration with neighbouring countries in distribution inventories and ways of eradication of the American Mink (*Mustela vison*), an efficient predator that is posing a significant threat to other animal populations, including critically endangered species, *e.g.* native crayfish species. Close co-operation on IAS prevention, early detection, control, management and eradication is carried out within protected areas, in particular bilateral ones (e.g., České Švýcarsko/Bohemian Switzerland and Saxonian Switzerland National Parks have collaborated in control of the invasive North American conifer *Pinus strobus*).

Further information about the Czech Republic is at the GISP.[73] There are 24 records in the GISP Interactive Map database for the country. Other information on IAS can be also found in the Third National Report of the Czech Republic to the CBD. In addition, the extensive book covering the occurrence of all alien plant and animal species in the territory of the Czech Republic has been published. [74] Some of the recent projects of the Botany Institute, Academy of Science of the Czech Republic concerning the invasive species are listed below:

- Chytrý M., Maskell L., Pino J., Pyšek P., Vila M., Font X. & Smart S. (2008): Habitat invasions by alien plants: a quantitative comparison between Mediterranean, subcontinental and oceanic regions of Europe. Journal of Applied Ecology, doi: 10.1111/j.1365-2664.2007.01398.x (in press)

[72] http://www.ibot.cas.cz/invaze/druhy/index.html
[73] http://www.gisp.org/worldmap/countrybackground.asp?worldmap=country&country=Czech%20Republic
[74] Mlíkovský J. & Stýblo P., eds., 2006: Alien species of fauna and flora in the Czech Republic. Prague: ČSOP, 496 pp (in Czech)

- Hulme P. E., Bacher S., Kenis M., Klotz S., Kühn I., Minchin D., Nentwig W., Olenin S., Panov V., Pergl J., Pyšek P., Roque A., Sol D., Solarz W. & Vila M. (2008): Grasping at the routes of biological invasions: a framework for integrating pathways into policy. – Journal of Applied Ecology, doi: 10.1111/j.1365-2664.2007.01442.x (in press)
- Pyšek P., V. Jarošík, J. Müllerová, J. Pergl & J. Wild (2008): Comparing the rate of invasion by Heracleum mantegazzianum at continental, regional, and local scales. – Diversity & Distributions 14: 355-363.
- Nehrbass N., E. Winkler, J. Müllerová, J. Pergl, P. Pyšek & I. Perglová (2007): A simulation model of plant invasion: long-distance dispersal determines the pattern of invasion. - Biological Invasions 9: 383–395.
- Pyšek P., J. Müllerová & V. Jarošík (2007): Historical dynamics of *Heracleum mantegazzianum* invasion at regional and local scales. In: Pyšek P., Cock M.J.W., Nentwig W. & Ravn H.P. (eds.), Ecology and Management of Giant Hogweed (*Heracleum mantegazzianum*), CAB International, pp 42-54.

In addition to the check-list of invasive plant species[75], a catalogue of those among wild animal taxa occurring on the territory of the Czech Republic was also published.[76] In 2007, the Agency for Nature Conservation and Landscape Protection of the Czech Republic started to develop background for the first draft of the National Strategy of the Czech Republic on Invasive Alien Species. In the course of the preparation of the new *State Nature Conservation and Landscape Protection Programme of the Czech Republic*, the issue of invasive alien species has been included among its priorities.

The figures below show the distribution range of the most invasive plant and animal species in the Czech Republic. Data are taken from the extensive book on IAS (see reference to footnote 74).

Figure 42 shows the distribution of plant invasive alien species *Reynoutria japonica* Houtt. var. *japonica*, 1777

[75] PYŠEK P., SÁDLO J. & MANDÁK B. (2002): *Catalogue of alien plants of the Czech Republic*. Preslia 74: 97–186.
[76] ŠEFROVÁ H. & LAŠTŮVKA Z. (2005): *Catalogue of alien animal species in the Czech Republic*. Bull. Org. Eur. Medit. Prot. Plants 53: 1451 -170

Figure 43 shows the distribution of plant invasive alien species *Heracleum mantegazzianum* Sommier et Levier, 1895:

Figure 44 shows the distribution of another plant invasive alien species *Impatiens glandulifera* Royle, 1835:

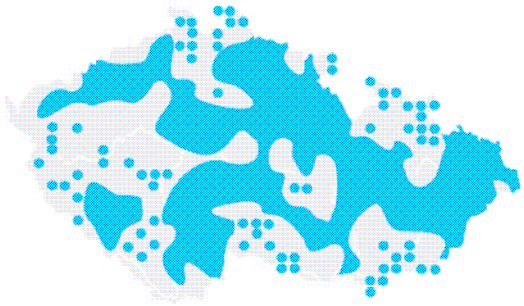


Figure 45 shows the distribution of invertebrate invasive alien species *Varroa destructor* Anderson & Trueman, 2000

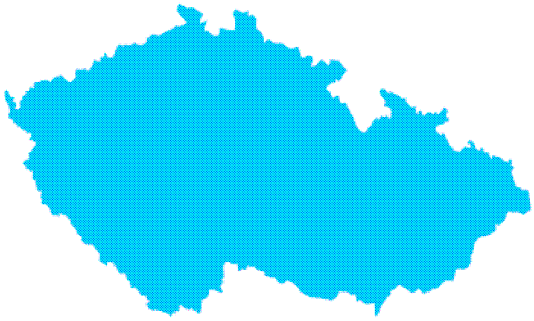


Figure 46 shows the distribution of crustacean invasive alien species *Pacifastacus leniusculus* (Dana, 1852):

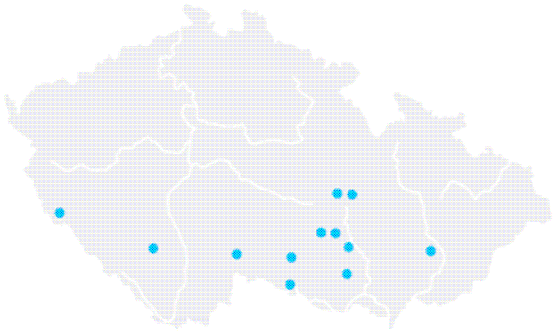


Figure 47 shows the distribution of another crustacean invasive alien species *Orconectes limosus* (Rafi nesque, 1817):

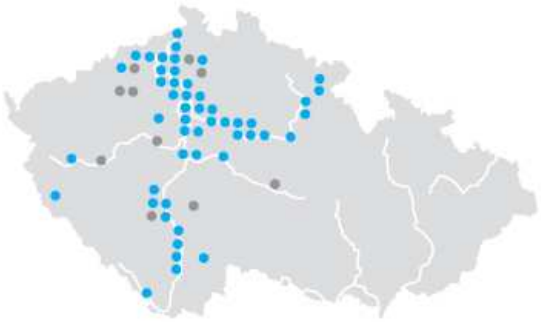


Figure 48 shows the assumed distribution area of fish invasive alien species *Pseudorasbora parva* (Temminck & Schlegel, 1846):

Figure 49 shows the distribution area of mammal invasive alien species *Mustela vison* (Schreber, 1777):

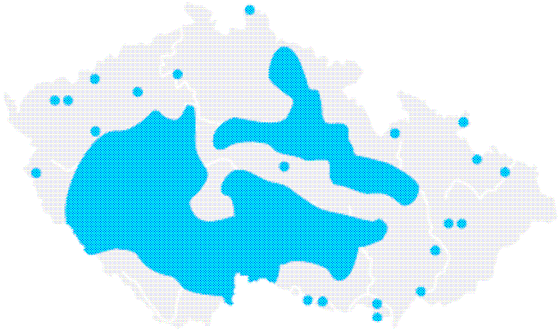


Figure 50 shows the distribution area of mammal invasive species *Cervus nippon* Temminck, 1838:

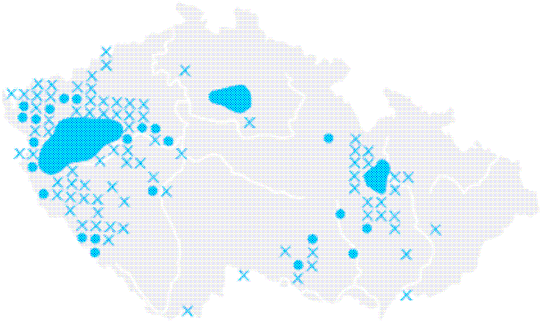


Figure 51 shows the distribution area of another mammal invasive species *Nyctereutes procyonoides* (Gray, 1834)

The above figures show that the monitoring of invasive alien species is well established. The results are frequently used by nature conservation authorities for planning, decision making and implementation of practical control and eradication measures directly in the field.

CHAPTER 2

2.1 CURRENT STATUS OF NATIONAL BIODIVERSITY STRATEGIES AND ACTION PLANS

a) A brief description of the NBSAP, identifying the main or priority activities

National Biodiversity Strategy of the Czech Republic was approved by the Government Resolution No. 620/2005 and adopted on 25 May 2005. The English translation was done in November 2005, the whole strategy was published in March 2006 and then distributed. There is also a DVD version available.

The leading institution has been the Ministry of the Environment of the Czech Republic (MoE), the Department for the International Conservation of Biodiversity in cooperation with the Ministry of Agriculture. There were no printed guidelines for the Strategy development. We took the European Community Biodiversity Strategy as the guidebook and also all the CBD Thematic Programmes and Cross-Cutting Issues and tried to include everything in the document – divided according to the programmes and cross-cutting issues.

All departments of the MoE were asked to send comments to all 4 drafts of this Strategy. Universities, Scientific institutions, Research Institutions, NGOs and other Ministries were involved either in the process of writing or in the process of revising and comments.
Departments involved in the MoE were the following: Department of Public Relations, Department of Environmental Economics, Department of Environmental Hazards, Department of Financial Tools in Nature and Landscape Protection, Department of Specially Protected Areas, Department of International Conservation of Biodiversity, Department of Landscape and Forest Ecology, Department of Water Protection, Department of Geology, Department of Ecology of Settlements and Inhabitants, Department of Global Relations, Department of Strategies, and Department of Climate Change.

The Ministry of Agriculture (MoA) of the Czech Republic was the main partner mainly in the field of agriculture, genetic resources and forestry. The document was submitted for the Government approval in cooperation with them. **The Institute of Botany of the Czech Academy of Science** – its experts were in the team of authors or co-authors or consultants as well as the **Institute of Biology of Vertebrates of the Academy of Science of the Czech Republic** and the **Faculty of Science of the Czech Republic**. **The Institute of Animal Science** prepared the chapter dealing with the ABS and animal genetic resources and **the Crop Research Institute** provided data about the plant genetic resources. **The Agency for Nature Conservation and Landscape Protection of the Czech Republic (ANCLP CR)** was the main partner for this project. Many experts in the nature conservation became "authors, co-authors or consultants". **The Czech Committee for the CBD,** as an advisory Committee for implementation of the CBD in the Czech Republic, was informed about the process of preparation of the Strategy and was invited to comment the Strategy in many phases. Members of the Committee contributed to the development of the NBSAP through individual consultations or as co-authors of different chapters. **Non-governmental organizations** – there were two meetings with NGOs to consult the Strategy during its preparation.

Financing was carried out from the special fund at the MoE for the support of implementation of the MEAs. The funds were spent mainly on honoraria for authors, co-authors, or consultants and for printing and publication of the NBSAP.

The whole process of the NBSAP has started in February 2004 with the first round of discussion and approved the document after a very complicated inter-ministerial discussion with other interested ministries and other stakeholders in May 2005 (the discussion and negotiations took almost 2 months). The very last draft- within the Ministry - was ready already in November 2004. Since that time, very complicated discussions had started with other ministerial departments and later with other ministries.

- 5 February 2004 first kick-off meeting
- March 2004 1st drafts
- 3 May 2004 2nd drafts
- May 2004 first meeting with NGO
- June 2004 comments from the CBD Committee and NGO
- July 2004 3rd drafts
- August 2004 detailed meeting of MoE with all authors clarifying issues
- September 2004 4th - final drafts
- 8 October 2004 second NGO meeting (public consultation)
- November 2004 internal ministerial commenting procedure
- January 2005 changes, comments
- February 2005 last changes, final comments
- March 2005 cross-ministerial commenting procedure
- April 2005 acceptances of comments from 17 ministries
- May 2005 preparation of the material for Government approval
- 28 May 2005 Government meeting, Strategy approved

In the voluntary report sent in 2007, there was also a list of authors attached that we are not going to include in this document. The Czech version is available at the CHM website: http://chm.nature.cz/cooperation/fol362718, The English version at the same website: http://chm.nature.cz/cooperation/fol362718 (change languages from Czech to English)

b) An indication of whether and where targets and indicators (both global and national) adopted under the Convention have been incorporated into NBSAPs;

All targets are in line with those adopted under the CBD. All goals and targets are directed towards achieving the 2010 Target as agreed by representatives of individual countries; they are fully in line with this target. In spite of this, most of them go beyond this milestone. The target on the protected areas under Chapter I. of the Strategy is connected to the Target 1 of 2010 Targets as well as to Target 8. The species survival/recovery programmes as programmes for most endangered species approved and financed by the MoE is linked to Target 2. Measures currently undertaken regarding the issue of access and benefit-sharing, conservation and use of plant and animal genetic resources and microorganisms are implementing the Target No. 3. How the Target No. 4 is implemented can be found in the CZ response to the Notification No. 130-2008, which was sent to the Secretariat of the CBD at the beginning of January 2009. There is a special mechanism for securing the connectivity of landscape as the implementation of Target No. 5. More information can be found in the attached document on the connectivity. Target No. 6 on the issue of invasive alien species (IAS) is being implemented but efforts will be strengthen more during 2009 where the issue will be taken on board within the EU negotiations.

Under the Part IV of this Report, you will find the analysis of capacities and data for assessing the progress towards 2010 target at a national level. Information regarding the indicators were derived from the list of 26 SEBI 2010 indicators – *http://biodiversity-chm.eea.europa.eu/information/indicator/F1090245995/fol591978/SEBI_2010_indicators__from_EEA_Tech_Report_11_2007_.pdf*
The indicators cover the CBD focal areas and proposed indicators. It covers all NBSAP's Chapters – those chapters following the CBD topics.

c) Information on how activities under the NBSAP contribute to the implementation of the articles of the Convention and the thematic programmes and cross-cutting issues adopted under the Convention;

The NBSAP covers most of the CBD Thematic Programmes and Cross-Cutting Issues and there are also activities and targets directly taken from the COP Decisions – with quotations, but not the following, due to reasons expressed:

- Island biodiversity – the Czech Republic is an inland country – it is not a priority for us
- Marine and coastal biodiversity – as we do not have a sea and therefore there are no marine and coastal ecosystems
- Global Strategy for Plant Conservation – the topic is mentioned but not as the main one – it is not as a chapter; other topics are as chapters
- Impact assessment – see GSPC
- Liability and redress – see GSPC
- Traditional knowledge, innovations and practices – there are no indigenous peoples in the Czech Republic in the sense of the CBD, there are some "local people"- as people living in the region for a very long time- is covered by the "mountain biodiversity" chapter.

There were two studies carried out this year on how do we implement the Programme of Work on Agriculture and Forests Biodiversity. The results are very interesting. There is always something what is being carried out under each Target and Activity of such PoW. There are only limited areas where any implementation or progress does not exist. Some difficulties are in communication where there is a lack of information on what should be carried out. Another obstacle is the CBD language hampering the implementation as people

do not understand the complicated language. It is also true that the guidelines of how the PoW should be implemented are missing in the Czech Republic. The reason is the lack of capacities and human resources. The opportunity of improving the implementation of Programmes of Work is only through enhanced communication between ministries – as the Ministry of Agriculture should be responsible for the implementation of both above-mentioned Programmes of Work. Another opportunity is to commission research projects together with the PoW targets and activities.

d) An overview of progress made in implementation of priority activities or actions, focusing on concrete results achieved;

There was a very detailed assessment carried out last year (2007) in which we sent the table to fill to all involved ministries in the Czech Republic and wanted to know how specific targets – focused on their particular competence – were implemented within their ministry. In the same year, two university students took the results and made a PowerPoint presentation for their classmates – truly reflecting if the target was or was not implemented – using answers provided the ministries. The questionnaire can be found at *http://chm.nature.cz*. The following implementation of the NBSAP's targets was observed:

Ministry of transport
- improve quality of transport infrastructure in relation to the environment
- choosing the best available technologies while developing the transport infrastructure
- minimize and monitor the noise

Ministry of Informatics (currently under the Ministry of Interior)
- public information and participation in the relation to nature conservation
- public information in relation to administrative activities

Ministry of industry and Trade
- approval of investments to renewable use of brownfields
- decrease of greenhouse gas emissions more then the Kyoto Protocol requires
- increase of the energy production from renewable energy sources (almost 5%)

Ministry of Education, Youth and Sports
- information campaigns for students concerning the nature conservation during lessons

Ministry of agriculture
- preservation and development of forests and agriculture systems with a high biological diversity
- the genetic diversity preservation well running – the plants, animals, microorganism for food and agriculture (see our response to notification 130-2008)
- organic farming practices
- decrease of negative impacts of intensive farming and forestry
- supports and subsidies of management in Less Favoured Areas (national parks, protected landscape areas, etc.) (notification response 130-2008)
- seeking solutions for the issue of wind and water erosion (notification response 130-2008)

Ministry of foreign affairs
- there is not a big progress, nonetheless there is the Conceptual framework of Official Development Assistance (ODA). On the other hand there are not many biodiversity priorities in the text, although we have tried many times to include them in the updated version

Ministry of the Environment
- the lack of financing for most of activities limit their implementation
- conservation of mountain ecosystems is carried out mainly through the strict protection of national parks and protected areas

- the Nature Conservancy Central Register, managed by ANCLP CR, collecting documents on establishment and other technical documentation for Specially Protected Areas, Bird Areas and monument trees, *http://drusop.nature.cz*. .
- monitoring of natural phenomena at the whole CZ territory
- Common Bird Index monitoring – running and funded from the MoA and MoE
- Concrete and successful measures for the endangered species are the preservation programmes. See more detailed information under the Chapter 1.9.2 - Preservation programmes and ex-situ conservation.

A lot of actions were also implemented thanks to concrete and legal measures which call for environmentally friendly technologies and best available practices.

e) An indication of domestic and/or international funding dedicated to priority activities;

We have not included anything what should call for more finances from the state budget; we have reiterated things which should be done according to the national law but not yet fully in place. International funding – the Norwegian funds – help us to fund the preservation programmes for endangered species. The NBSAP was also used as a background document when designing the Operational Program Environment. This program enables under Axis 6 the financing of nature protection activities and supports protection and improvement of environment, conservation of biodiversity, endangered species protection, ecological stability and creation of new and current landscape components. Axis 6 shares about 12 % of total financial aid of this Programme. The priority sub-programs under Axis 6 are from the biodiversity protection point of view sub-programs: 6.1- Implementation and management of sites of Natura 2000 network, 6.2 - Support of biodiversity, 6.3- Restoration of landscape structures, 6.4- Optimization of water regime in the landscape, and 6.5 - Support of revitalization of urban landscape. Total allocation of the whole Priority Axis 6 is 599.4 mil. EUR for the programming period of 2007 - 2013.

Another example of funding (used in the biodiversity and nature conservation) is the LIFE+ Programme (under the EU). It is a limited but focused funding instrument providing specific support for the development and implementation of Community environmental policy and legislation, in particular the objectives of the 6th EAP (Decision 1600/2002/EC) and resulting thematic strategies. It comprises three components – Nature and Biodiversity, Environmental Policy and Governance and Information and Communication. It mostly focuses on the Natura 2000 sites and the biodiversity conservation mainly in those areas.

Ministry of the Environment of the Czech Republic (MoE) provides financial means from its budget in the following biodiversity aimed programs: Landscape management programme (191 mil. CZK in 2008), Urban areas care program (2.7 mil. CZK), Natura 2000 sites (20 mil. CZK), Contribution for managing National parks forests (2.1 mil. CZK), Life+ (6 mil. CZK), Restoration of natural landscape functions (110 mil. CZK), Improvement of landscape and nature state, former Programme “Revitalization of river systems” (14.6 mil. CZK).

The Ministry of Agriculture manages the Rural Development Operational Programme (for more information see the notification 130-2008 response).

f) A review of successes and obstacles encountered in implementation and lessons learned;

The NBSAP is very complex and covers many issues. The first intention was to have very concrete and detailed targets and actions for later implementation. We have noticed that this process was not accepted for other ministries and therefore there are only general targets. On the other hand they are sometimes very sharp and call for actions – these should be included in the more detailed action plans and other materials. Lessons learned – I think, we did the best and made a very good document in such a very short period of time, a document which is very often being quoted and whose targets are often transposed to other documents of other ministries.

g) An analysis of the effectiveness of NBSAPs, focusing on:

(i) Whether observed changes in status and trends in biodiversity (as described in Chapter I) are a result of measures taken to implement NBSAPs and the Convention;

As some activities were incorporated in documents of other ministries, we can give a positive answer, but only partially. The second part of implementation happened due to EU established measures that needed to be implemented.

(ii) Whether the current NBSAP is adequate to address the threats to biodiversity identified in Chapter I;

From the part called "Threats and Obstacles" in every chapter it is clear that threats identified in Chapter I were fully addressed.

(iii) How implementation of NBSAPs may be improved, where necessary, including suggestions of possible ways and means to overcome identified obstacles.

There should be one person at every ministry who would deal with the NBSAP implementation and would secure that the NBSAP's goals and targets are incorporated into other documents (as the Governmental Decree stipulates). There should be a person at the MoE who would deal only with the NBSAP and do the implementation assessment and will be fully involved in the action plans development such as seeking for money for implementation of actions. The reality is that there is a person at the MoE but it deals with the implementation of 3 international conventions and has also other agenda. Therefore, it has a very limited time for the implementation of the NBSAP itself. He/she would explain to other ministries that the biodiversity conservation is not only the MoE exclusive competence but that a close cooperation is needed among ministries and other institutions.

CHAPTER 3

SECTORAL AND CROSS-SECTORAL INTEGRATION OR MAINSTREAMING OF BIODIVERSITY CONSIDERATIONS

3.1 NATIONAL POLICIES AND STRATEGIES

There is a number of national strategie and plans concerning the issue of biodiversity. Many of them are already mentioned throughout the text in Chapter 1. They can be summarized in the following list:

- **State Environmental Policy for 2004 - 2010** is conceived so as to define a consensual framework for long-term and medium-term directing of the development of the environmental dimension of sustainable development in the Czech Republic. The Third National Report of the Czech Republic to the CBD includes more detailed information; the text of the SEP itself can be found on http://www.mzp.cz/en/sep_cz.
- **Strategy for Sustainable Development** - the Government of the Czech Republic adopted the SSD by its decision No. 1242 of 8th December 2004. The Strategy should become a consensual framework for the processing of additional documents of a conceptual nature (sectoral policies or action programmes). It should serve as an important basis for the strategic decision-making of individual ministries and for inter-ministerial co-operation and co-operation with major groups. To see the text of this strategy, go to http://www.mzp.cz/en/czech_republic_strategy_sd .
- **State Nature Conservation and Landscape protection Programme of the Czech Republic** (SNCLPP) - the Government of the Czech Republic adopted the SNCLPP by its decision No. 415 of 17 June 1998. Adopting the document, the Czech Republic joined more than 80 countries all over the world which according tothe United Nations Environment Programme have passed similar strategies aimed at nature conservation and sustainable use of natural resources. Because of the old date of approval, there is a project for new SNCLPP currently running.
- **National Biodiversity Strategy of the Czech Republic,** as an effective implementation of Article 6, the basic strategy for the biodiversity conservation and fulfilling the CBD objectives. See more information under Chapter 2.
- **National Strategy Plan for Rural Development of the Czech Republic for 2007-2013** and the **Rural Development Programme of the Czech Republic for 2007-2013** - the guarantor and coordinator of these documents is the Ministry of Agriculture. The existence and the realisation of the Rural Development Programme of the Czech Republic assists in achieving the goals set by the National Strategic Rural Development Plan, i.e. the development of the rural areas of the Czech Republic according to the principals of sustainable development, environmental protection and reducing the negative impact of intensive agriculture. The programme will further create conditions for the competitiveness of the Czech Republic in basic food commodities. The Programme will also support and expand the diversification of economic activities in the countryside, with the goal of developing entrepreneurship, creating new jobs, lowering the unemployment rate in the countryside and strengthening the cohesion of the rural population. Go to http://www.mze.cz/UserFiles/File/EAFRD/RDP%20November%202008.pdf to see the text of this programme.

- **National Programme on Conservation and Utilisation of Plant, Animal and Microbial Genetic Resources for Food and Agriculture** - for more information see Chapter 1.3.
- **National Forest Programme** - for more information see Chapter 1.4.
- **The Strategic plan of implementation of the Ramsar Convention in the Czech Republic for the period 2009-2015** - for more information see Chapter 1.5.
- **The Programme for Revitalisation of River Systems** - for more information see Chapter 1.6.
- **National Programme to Abate the Climate Change Impacts in the Czech Republic** - for more information see Chapter 1.8.
- **Climate Protection Policy of the Czech Republic** - for more information see Chapter 1.8.
- **State Tourism Policy Concept for the Years 2007-2013** - for more information see Chapter 3.3.
- **State Programme of Environmental Education and Public Awareness** - for more information see Chapter 3.4.

The planning and developing of policies and strategies is not limited only to the central level. At the regional level, the relevant authorities have also elaborated and approved their plans of nature conservation and landscape protection. For example the Central Bohemia Region authoritiy approved the **Conception of nature and landscape protection of the Central Bohemia Region for 2006 - 2016**. In the area of town and country planning, regional and local authorities have developed and approved the development plans of their relevant territorial units taking into account the principles of nature canservation and landscape protection, and are fully responsible also for their implementation.

3.2 ENVIRONMENTAL IMPACT ASSESSMENT

The Environmental Impact Assessment (EIA) process was implemented into the Czech Republic's legal system on 1 July 1992, upon the entry into force of Czech National Council Act No. 244/1992 Coll., on environmental impact assessment. The process constituted both an important element in the system of preventive environmental protection instruments and, simultaneously, a significant component of environmental policy.

As of 1 January 2002, Czech National Council Act No. 244/1992 Coll., namely its section pertaining to impact assessment of projects, was superseded by Act No. 100/2001 Coll., on environmental impact assessment and amending some related regulations.

On 1 May 2004, Act No. 100/2001 Coll. was amended by Act No. 93/2004 Coll., which regulates, in accordance with the laws of the European Communities, the assessment of environmental impacts and impacts on public health and the procedures to be adhered to by individuals, legal entities, administrative authorities and self-governed territorial units (municipalities and regions) in the course of such assessments. In addition to that, the Act also newly regulated the assessment of environmental impacts of concepts and abolished the valid Czech National Council Act No. 244/1992 Coll., on the assessment of environmental impacts of development concepts and programmes. Concurrently, the transitional provisions of the Act (Section 24) stipulated that assessments which had been started prior to the effective date of the Act shall be completed pursuant to Act No. 244/1992 Coll. In view of the individual cases on which work had already been in progress to a considerable extent, several concepts

and projects were being assessed pursuant to the original Act No. 244/1992 Coll. as late as 2006.
As of 27 April 2006, Act No. 100/2001 Coll., as amended by Act No. 93/2004 Coll., was amended by Act No. 163/2006 Coll. Among other things, the Act also took into account the so-called 'below-limit projects', which was reflected in the statistics for the relevant year, namely as an increase in the number of submitted notifications under Section 6 of the Act. As of 22 August 2007, Act No. 100/2001 Coll. was amended by Act No. 216/2007 Coll., which regulates impact assessment of below-limit projects and this step reduced the administrative strenuousness.

The objects of compulsory assessment consist of plans (projects) for construction, activities and technologies listed in Annex No. 1 of Act No. 100/2001 Coll., as amended by Act No. 93/2004 Coll., Act No. 163/2006 Coll., Act No. 186/2006 Coll., Act No. 216/2007 Coll., and their amendments pursuant to Section 4.1. The Ministry of the Environment, in accordance with the provisions of Article 21 and the regional authority in accord with the provisions of Section 22 of this Act, provide for assessment of these plans (projects). The results of the process are employed as a professional basis for subsequent decision-making processes on the issuance of a permit for the plans (projects).

Objects of compulsory assessment also include plans (strategies) listed in Section 10(a) of the above Act and Land-Use Planning Documentation, the assessment of which is carried out in accordance with the provision of Section 10(i) of the Building Act. The process of strategic environmental impact assessment (SEA) is based on the systematic examination and assessment of the potential environmental impact. The purpose of this is to determine, describe and carry out comprehensive evaluation of the expected impacts of prepared plans (strategies) on the environment and public health in all decisive contexts. The EIA/SEA process is intended to reduce the detrimental environmental impacts of the evaluated projects and plans.

Information on assessed projects and concepts, processes, authorised subjects and other facts are available at www.cenia.cz/eia and www.cenia.cz/sea. The lists of authorised subjects are also regularly published in the Journal of the Ministry of the Environment (annotations refer to documents in the Czech language).
Other importants legislation documents include: Council Directive 97/11/EC of 3 March 1997 amending Directive 85/337/EEC on the assessment of the effects of certain public and private projects on the environment; Council Directive 97/11/EC of 3 March 1997 amending Directive 85/337/EEC on the assessment of the effects of certain public and private projects on the environment; Directive 2001/42/EC of the EP and of the Council on the assessment of the effects of certain plans and programmes on the environment; and Directive 2001/42/EC of the European Parliament and of the Council of 27 June 2001 on the assessment of the effects of certain plans and programmes on the environment.

3.3 ECOLOGICAL SUSTAINABLE TOURISM

The principles of ecological sustainable tourism are included in state policies and strategies only partly. There are no official programmes in place for tourism operators at the moment. Some projects for eco-guide services in protected areas are now under development. However, increasing number of people are employed as guides in National Parks and Protected Landscape Areas. This development is very important as these people are trained to

forward the principles of nature conservation and sustainable development to others and thus can directly influence in a positive way a lot of other people.

Here are some of the most important national level plans/strategies where the principles of the ecologically sustainable tourism are incorporated: **State Tourism Policy Concept for the Years 2007-2013**, which defines measures leading to the implementation of basic objectives of the government's tourism policy. These objectives can be generally summarized as improvement of the competitiveness and economic benefits of tourism in the Czech Republic, reduction of unemployment, development of regions, growth of small and medium enterprises, and also protection of the environment. More information is at: www.mmr.cz.

State environmental Policy of the Czech Republic for the Years 2004 - 2010. The main goals stated in the document are listed below. Implementation of some of them are under preparation, some of them are already in place:

- Prepare a proposal and ensure systematic territorial, temporal and thematic monitoring of tourism development impacts on the environment and local development.
- Promote the development of sound, environmentally acceptable forms of tourism and/or attempt to increase the share of this type of tourism in the total volume of tourism.
- Create a network of regional centres of environmentally sound tourism coordinated by a national centre for the purpose of greening regional tourism, methodical and practical support.
- Promote the creation of a National System of Certification of Environmentally Sound Tourism Services (accommodation and catering services, tour operators and entire destinations); promote the introduction of environmental management systems in tourism sector and achievement of the label as criteria for possible subsidy titles.
- In specially protected areas, provide for implementation of the principles of the “European Charter for Sustainable Tourism in Protected Areas” and take into consideration the introduction of the NATURA 2000 network.
- Extend tourism and hiking by including less attractive areas using European structural funds.
- Introduce environmental certification and promotion of tourist destinations that respect the principles of protection of the living environment.
- Landscape management through the development of rural tourism, eco-tourism and eco-agro-tourism; utilise this tourism form for education of visitors and, indirectly, also the local population to build a relationship and thus also a responsible approach to the creation, evaluation and protection of the environment.
- Promote the development of environmentally sound transport systems in all tourism areas; support public mass transport, especially in Protected Landscape Areas, National Parks and historical cities, and thus reduce the individual automobile transport in these areas.
- Provide conditions for pedestrian or cyclist accessibility of the landscape through reconstruction and establishing of field and forest roads in connection with carrying out land-use planning, as an instrument of implementation of the landscape care.

The National Biodiversity Strategy of the Czech Republic has a specific chapter dealing with the current conditions, problem issues and sprovides a set of objectives for improvement. For further information on this issue, reach the strategy on this weblink: http://chm.nature.cz/cooperation/fol362718/Strategie_ochrany_ENG_finalni.pdf

State Nature Conservation and Landscape Protection Programme of the Czech Republic (SNCLPP) states among its objectives the support of development of sustainable tourism and

ecotourism in particular, which should lead people towards better recognition and greater knowledge and understanding of nature.

3.4 ENVIRONMENTAL EDUCATION

Starting in 1960s, environmental education and public awareness (EEPA) has had a long tradition in the country. The overall aim has always been to disseminate information on the importance of the conservation of biological diversity, sustainable use of its components, principles of sustainable development, and also on responsibility for our own actions. Today, EEPA has developed into a programme being taken very seriously at the national and sub-national levels with many mutual agreements, strategies and collaboration projects.

In 2007, **the State Programme of Environmental Education and Public Awareness** and its Action Plan have been updated and approved by the Czech Government. EEPA is also defined in **the State Environmental Policy 2004-2010** as one of the implementation tools of the environmental policy and several concrete implementation measures are stated here – take into account the targets of the State Programme of Environmental Education and Public Awareness in the CR in the related legislation – Act No. 123/1998 Coll., on free access to information on the environment, and other. It also includes a system of environmental education and public awareness for officials of administrative authorities and employees of the public administration. Environmental education is being increasingly included in the teaching programs of pre-schools, elementary and secondary schools, and universities. However, it is highlighted here that the role of EEPA should be increased and emphasis should be placed on children and youths.

The implementation step has also been taken when the Ministry of Environment has concluded an intersectoral agreement with the Ministry of Education, Youth, and Sports on environmental education issues. Building of new environmental education centres of all kinds and reconstruction of existing ones is financially supported through subsidies and programmes of the State Environmental Fund of the Czech Republic, including the Operational Programme Environment.

Many institutions and bodies like primary and secondary schools, universities, museums, zoological and botanical gardens, local and regional governments, state nature conservation authorities, as well as numerous non-governmental organisations develop their own activities in the sphere of environmental education and raising public awareness. Since 2001, a specialized nationwide grant programme the National Network of Centres for Environmental Education has been provided to support EE activities of NGOs. All these entities usually provide information by, advertising, publishing leaflets, brochures, and books, making films, video and television programmes, arranging exhibitions, giving public lectures and providing information through the Internet.

3.5 FINANCIAL SUPPORT MECHANISMS

3.5.1 SUBSIDY SCHEMES IN NATURE PROTECTION IN THE CZECH REPUBLIC

This section contains a synoptic summary of the sources of funding for nature and landscape protection, i.e., schemes that applicants can draw funds from if meeting certain criteria, or apply for specific projects. The section is divided into European Programmes – providing

information on programmes funded from the EU Funds – and National Programmes, paid by the Ministry of the Environment budget. The possibilities for drawing funds for nature and landscape protection have been extended substantially after the EU accession. The Ministry of the Environment now administers and implements the Operational Programme Environment which draws financial help from the EU sources. The Programme´s axis 6 – Improving the State of Nature and the Landscape, has the following defined goals: implementation of the Nature 2000 network, renewal and protection and natural and semi-natural biotopes and threatened plant and animal species, restoration of ecological stability of landscape, optimisation of the hydrological regimes, regeneration of urbanised landscape, prevention of landslides and rock collapses. The MoE also administers several important domestic subsidies programmes financed from the budget of the Ministry of the Environement. They include landscape management programmes which aim is to support measures preserving the landscape's cultural status, contributing to species diversity maintenance, improving natural processes in the landscape, strengthening the functions of significant landscape elements and components of the territorial system of ecological stability, and also some ex-situ conservation measures (Landscape management programme, River systems restoration programme, recently finished Programme for the stabilization of the forests in the Jizerske hory Mts. and on Ještěd, Programme of Subsidies for Zoological gardens). The State Environmental Fund also finances from the MoE budget one programme aimed at land purchasing in specially protected areas.

Projects focused on nature and landscape protection can also be applied for using the EEA and Norwegian Financial Mechanisms, the Swiss Financial Assistance will be available in future.

The Ministry of Agriculture is responsible for drawing funds under the Second Pillar of the Common Agricultural Policy, focused, among other things, on environmental protection and rural development: it administers the Rural Development Programme for 2007-2013. Measures aimed at nature and landscape protection are included chiefly in axis 2 of the Programme, particularly these are agro-environmental measures, payments within Natura 2000 on farmland and forest, and environmental forestry payments.

Within the EU Fisheries Policy, the European Fisheries Fund supports the Operating Programme for Fisheries 2007-2013, also under the Ministry of Agriculture. Measures aimed at the protection of aquatic environments include environmentally friendly pond management, focused primarily on areas of high natural value.

For the detailed situation of all financial expenditure in the environment protection in the Czech Republic see the Annex "**Environmental Expenditures in the Czech Republic**".

3.5.2 DEVELOPMENT ASSISTANCE TO OTHER COUNTRIES

The Czech Republic began providing international development cooperation in the form of specific development projects in 1996, with the primary framework objective to contribute, in compliance with the efforts of the international community, to poverty alleviation in the less advanced/developed countries of the world by way of sustainable development. In this respect, the Czech Republic lends full support to the Millennium Development Goals (MDGs), derived from UN international conferences and ratified by the UN Millennium Summit in 2000. The principal objective is to reduce the number of people living in absolute poverty to one half by 2015. Between 1997 and 2008 the Ministry of the Environment

coordinated the implementation of 95 development projects in 36 developing countries. Development projects are mostly implemented over several years and consist of study work and work in the field, investment measures, technical cooperation (provision of know-how, teaching and training courses, seminars) and provision of advanced technologies. The projects are concerned primarily with: compliance with multilateral environmental agreements (protection of the ozone layer of the Earth, combating desertification, protection of biodiversity, climate change, etc.), sustainable use of natural resources, water protection, environmental aspects of industrial activities (cleaner production, environmental management systems), environmental geology (hydrogeology, natural risks assessment), waste management; clean up of contaminated sites; and remediation of old environmental liabilities.

Priority countries for the Ministry of Environment are Serbia, Mongolia, Vietnam and Moldova. Generally, to the priority regions should be invested approx. 75 % of the financial volume for bilateral and multilateral development projects. Up to now, implemented projects are of a great importance for the recipient state and Czech international development assistance is generally highly evaluated

For more detailed information on Official Development Assistance see the Anex "**Development Cooperation of the Czech Republic in 2006**".

CHAPTER 4

CONCLUSIONS - PROGRESS TOWARDS THE 2010 TARGET AND IMPLEMENTATION OF THE STRATEGIC PLAN

4.1 PROGRESS TOWARDS 2010 BIODIVERSITY TARGET

4.1.1 EEA INDICATORS BASED ON THE CBD FOCAL AREAS AND THEIR IMPLEMENTATION

Streamlining the European Biodiversity Indicators (SEBI 2010) is the European framework for developing biodiversity indicators. The European Commission uses the SEBI 2010 indicators as part of the 2008 mid-term evaluation of progress towards the 2010 targets http://biodiversity-chm.eea.europa.eu/information/indicator/F1090245995/fol591978.

Here is the list of biodiversity indicators with the information of how they are used in the Czech Republic to assess progress towards 2010 target at a national level (numbering and indicator headlines were derived from the list of 26 SEBI 2010 indicators - http://biodiversity-chm.eea.europa.eu/information/indicator/F1090245995/fol591978/SEBI_2010_indicators__from_EEA_Tech_Report_11_2007_.pdf. The usual practice is that the organisation/agency responsible for a particular indicator gradually collects data and then provides the outcomes to the EUROSTAT, EEA, European Commission and others. In case where the indicator is required by any of the European Directives, more effort to develop such an indicator and provide data is visible. In this case it is also easier to obtain relevant funding. In other cases it is sometimes very hard to seek for money, support, coordination.

1) **Abundance and distribution of selected species** – a) Birds: this indicator is used- mainly the Common Bird Index (http://www.birdlife.cz/); the data have been collected and evaluated by Czech Society for Ornithology since 1982. b) Butterflies – there are some data collected and evaluated in the Entomological Institute of the Czech Academy of Science, the project fully depends on voluntary contributions form donors. Related to SEBI 2010 it is necessary to strengthen the efforts.
2) **Red List Index for European Species** – suitable data are available currently for birds only and the indicator shows trends in the overall threat status of species of birds at a European level. Therefore, this indicator is not used as such at the national level.
3) **Species of European interest** – this indicator is used; the data - results are available at www.biomonitoring.cz. The obligation of monitoring of the favourable conservation status of species of European interest is carried out according to Article 17 of the EU Habitats Directive (92/43/EEC). The Ministry of the Environment has entrusted the Agency for Nature Conservation and Landscape Protection of the Czech Republic (ANCLP) with this task. The report was sent on 20/6/07 to the European Commission. The monitoring will continue, the ANCLP has developed a data bank that will start to be used by local authorities during their decision- making processes.
4) **Ecosystem coverage** – the data are available at the national level within the Corine land cover database (http://terrestrial.eionet.europa.eu/CLC2000/countries/cz/full). It includes land cover classes (aggregated into ecosystem types) and changes in land cover over the period of time. However, this indicator has not yet been further assessed and used in relation to 2010 target.
5) **Habitats of European interest** - this indicator is used; the data are available at www.biomonitoring.cz. The obligation of monitoring of the conservation status of species of European interest is provided according to Article 17 of the EU Habitats Directive (92/43/EEC). The Ministry of the Environment has entrusted the ANCLP with this task. The report was sent on 20/60/7 to the European Commission. The monitoring will continue, the ANCLP has developed a data bank that will be used by local authorities during their decision- making.
6) **Livestock genetic diversity** – the data are available at the national level. The institution responsible for the data collection and assessment is the Institute for Animal Science (http://www.cittadella.cz/vuzv/index.php). As part of international agreements the Czech Republic regularly provides data to global information system FAO-DADIS, and the European system EFABIS - http://dad.fao.org/, http://efabis.tzv.fal.de/. The Institute is also a European Regional Focal Point for Farm Animal Genetic Resources, ERFP.
7) **Nationally designated protected areas** – the data are available at the national level and the ANCLP is obliged, under the No. 114/1992 Coll., Act on the Protection on Nature and the Landscape, to collect and administer these data (http://drusop.nature.cz).
8) **Sites designated under the EU Habitats and Birds Directive** - this indicator is used; the data are available at www.biomonitoring.cz. The ANCLP is responsible for monitoring of the status of implementation of the EU Habitats (92/43/EEC) and Birds (79/409/EEC) Directives.
9) **Critical load exceedance for nitrogen** – the data are available; the Czech Geological Survey carried out the evaluation of critical loads of nitrogen for three forest ecosystem types in the Czech Republic - more information is available on http://www.mnp.nl/cce/publ/PR2007.jsp, http://www.geology.cz/extranet
10) **Invasive alien species in Europe** – the data are available from the nation-wide mapping of biotopes carried out due to establishment of Natura 2000 network and can be processed and published. The data for plants have been collected since 1980 mostly by researches

working in Academy of Science of the Czech Republic. Sufficient data are also available for animals.

11) **Occurrence of temperature-sensitive species** – thermo-sensitive species do not live in the Czech Republic. This indicator has not been used at the national level.
12) **Marine Trophic Index of European seas** – this indicator is not applicable in the Czech Republic
13) **Fragmentation of natural and semi-natural areas** – the indicator developed; the data are available at the national level within the Corine land cover database - http://terrestrial.eionet.europa.eu/CLC2000/countries/cz/full. It includes land cover classes and changes in land cover over the period of time.
14) **Fragmentation of river systems** – the data are available at www.vuv.cz.
15) **Nutrients in transitional, coastal and marine waters** - this indicator is not applicable in the Czech Republic
16) **Freshwater quality** – the data are available at http://www.cenia.cz/web/www/web-pub2.nsf/$pid/CENMSFMVTMNS/$FILE/kap_b2.pdf. A total of 330 profiles of state water quality monitoring network are located within the territory of the Czech Republic along important watercourses. 12 times a year, physical-chemical, heavy metals, biological and microbiological and other analysis are carried out. The monitoring of freshwater quality is obligatory according to the Water Framework Directive.
17) **Forest: growing stock, increment and fellings** - the annually updated forest inventory data are available at http://www.uhul.cz/zelenazprava/2006/ZZ_2006.pdf.
18) **Forest: deadwood** – the data are available from the project carried out by the Forest Management Institute in years 2000 – 2004. The results, taking into account the volume of deadwood, can be found at: http://www.uhul.cz/il/vysledky/republika/b/seznam.php
19) **Agriculture: nitrogen balance** – the data are available; reporting of the data sets concerning the total amount inputs and outputs of different types of fertilizers is obligatory under the CAP. Specific data and trends can be found at: http://81.0.228.70/attachments/Zem_2006.pdf, http://www.eea.europa.eu/themes//agriculture.
20) **Agriculture: area under management practices potentially supporting biodiversity** – the data about agri-environmental measures are monitored by the Ministry of Agriculture of the Czech Republic and are available in annual so called" Green Reports" http://www.mze.cz/Index.aspx?ch=73&typ=1&val=38251&ids=0.
21) **Fisheries: European commercial fish stocks** – indicator not applicable in the Czech Republic
22) **Aquaculture: effluent water quality from fishing farms** – indicator has not been developed in the Czech Republic
23) **Ecological Footprint of European countries** – the data are available. This issue is followed by a number of non-governmental organisations in the Czech Republic. One of them, Zeleny kruh, analysed the statistical data at the national level and published brochure that is available at http://www.zelenykruh.cz/dokumenty/ceska-stopa.pdf. Other data at national and international levels are available at http://www.footprintnetwork.org.
24) **Patent applications based on genetic resources** – the indicator is not developed in the Czech Republic. The Industrial Property Office http://isdvapl.upv.cz/servlet/page?_pageid=82,110&_dad=portal30&_schema=PORTAL30 normally registers patent applications but does not anyhow differ those based on genetic resources for food and agriculture.
25) **Financing biodiversity management** – the indicator has not been developed yet at the national level.

26) **Public awareness** – the Eurobarometer quantitative questionnaire-based surveys regarding biodiversity issues have not been carried out in the Czech Republic yet.

4.1.2 - SPECIFIC GOALS, TARGETS AND INDICATORS TO ASSESS PROGRESS TOWARDS THE 2010 BIODIVERSITY TARGET

Goal 1. Promote the conservation of the biological diversity of ecosystems, habitats and biomes

The Czech Republic has established a system of protected areas of particular importance to biodiversity according to **Target 1.1** and **1.2**.

According to the *Czech National Council Act No. 114/1992 Coll., on the Protection of Nature and the Landscape*, as amended later, most of nature valuable areas are protected by the special conditions.

Detailed information about the small-scale and large-scale protected areas has been provided in Chapter 1.9.See this chapter.

Goal 2. Promote the conservation of species diversity

Under this Goal we have developed measures to restore, maintain or reduce the decline of populations of species of selected taxonomy groups as requested in **Target 2.1**.

The Act No. 114/1992 Coll., as amended, includes ways of protecting special wildlife species (individuals or whole populations) as well as of protecting and managing their habitats. It is also recognised in the legislative instrument that habitat protection and ecologically sound management of ecosystems is the most cost-effective approach to preserve the diversity of species in a given territory. The measures taken both by the state Nature conservancy authorities and NGOs are described in the details below. Under this Act, all wild animals and plants are generally protected at all stages of their development, with the exception of species important from the point of view of the economy and those associated with diseases ("pests"). Special attention is also paid to geographically non-native species since invasive alien species, which threaten ecosystems, habitats and other species are considered to be one of the most significant risks for biological diversity, including in central Europe. All wild bird species have a specific conservation regime as a consequence of the European Community Birds Directive implementation.

To fulfill **Target 2.2**, we have developed specific measures to improve the status of threatened species. There is the obligation to prepare and to carry out such recovery programmes/action plans for Specially Protected Species is enacted by the Act No. 114/1992 Coll., on the Protection of Nature and the Landscape. Under the Act, state nature conservancy authorities implement the recovery programmes/action plans. Each of them has to be adopted by the Ministry of the Environment of the Czech Republic.

Find more detailed information on species diversity conservatin under Chapter 1.9 of this document.

Goal 3. Promote the conservation of genetic diversity, Target 3.1.

There are measures to conserve genetic diversity of crops, livestock, harvested species of trees, fish, wildlife and other valuable species in the Czech Republic.

Since September 19, 2003, the first National Programme for the Conservation and Use of Genetic Resources of Plants, Animals and Micro-organisms Important for Nutrition, Agriculture and Forest Management has been a fundamental mechanism in genetic resource conservation. The updated National Programme was launched by the Ministry of Agriculture for the period 2007-2011 and is divided into the following subprograms:

- The National Programme for the conservation and utilization of gene pools of flora and agricultural biodiversity (**National Plant Programme**)
- The National Programme for the conservation and utilization of genetic pools of micro-organisms and minor organisms of economic importance (**National Micro-organism Programme**)
- The National Program for the conservation and utilization of genetic pools of farm animals, fish, honey bees and farmed game animals in farm breeding (**National Animal Programme**). However, conservation of farm animals genetic resources has been supported during a specific program already since 1996.

Genetic resources of forest tree species constitute sets of reproduction material of all species of trees, stored in situ – genetic bases, tree stands recognized for harvesting seeds and the selected trees, or ex situ – reproductive (seed) stands, seedlings, maternal trees, clone archives and collections of reproductive material (banks of forest seeds and banks/archives of forest tree species explants). Genetic resources of wild fauna, flora and micro-organisms, which are not used in agriculture, the food industry or other industry, are not systematically monitored and collected in the Czech Republic.

Fore more information on genetic resources and diversity look at Chapter 1.4 of this document.

Goal 4. Promote sustainable use and consumption.

The situation in implementation of sustainable use and consumption has improved. Forest certification schemes ca be good examples. The Czech Forest Certification Scheme (CFC) is based on the Pan-European Forest Certification (PEFC), which is the most widely used for that purpose worldwide. The CFCS has two components: (1) sustainable forest management (2) consequent user chain certifications (Chain-of-Custody for the timber from the certificated forests). The scheme has been in place since 2002.

In addition, approaches for sustainable use of aquatic ecosystems, especially fishponds, have been in preparation and tested. Within the GEF/World Bank project *Biodiversity Conservation*, a methodology for sustainable use of biological and, in general, natural resources in the three UNESCO Biosphere Reserves (Pálava, Šumava/Bohemian Forest a Krkonoše/Giant Mts.) have also been elaborated.

Financial subsidies have quite a significant impact to the sustainable management of resources. After 2004, when the Czech Republic entered the European Union, we became fully integrated into the EU Common Agricultural Policy. There are also other European

programmes like Operational Program Environment, Operational Program Fishery or LIFE+. These programs and measures bring financial resources into sustainable management and contribute to the goal of halting the loss of biodiversity.

Please find more information about the sustainable development in different places under Chapters 1.4 and 1.5.

Implementing the **Target 4.2** relates to the previous question but as in many countries, the process is rather slow. The Sustainable Development Strategy of the Czech Republic was approved by the Government of the Czech Republic on December 8, 2004 (Resolution No. 1242/04). Its general objective is to provide for the highest quality of life for the citizens and simultaneously to establish favourable conditions for the quality of life of future generations. The comprehensive Second Report on the Implementation of the Sustainable Development Strategy of the Czech Republic, based on the limited set of indicators, was submitted to the Government of the Czech Republic for approval in December 2006. Experts from various sectors have been preparing the updated Sustainable Development Strategy of the Czech Republic, which is being now debated by various stakeholders (http://wwww.udrzitelny-rozvoj.cz).

Chapter 1.9.3 is dealing with the issue of minimizing negative impacts of international trade of species of wild flora and fauna - **Target 4.3.** The Czech Republic is a Party to the Convention on International trade in Endangered Species of Fauna and Flora (CITES).

Find more information in Chapter 1.9 of this document.

Goal 5. Pressures from habitat loss, land use change and degradation, and unsustainable water use, reduced.

Measures to decrease the rate of loss and degradation of natural habitats (Target 5.1) are carried out on the legal basis - Act. No. 114/1992 Coll., on the Protection of Nature and the Landscape, as amended, sets up provisions for protection of natural habitats. It is through (i) Specially Protected Areas, SPAs and pSCIs, see above (ii) Generally Protected Areas, i.e. through (a) Natural Parks, (b) Important Landscape Features, (c) Territorial System of Ecological Stability of the Landscape (TSES), (iii) landscape scenery/character and (iv) Temporarily Protected Plots/Areas.

Find more detailed information under Chapter 1.9 of this document.

In addition, all wild plant and animal species are generally protected against destruction, degradation, collection, harvest or capturing, which would result to the fact that they become threatened or to destruction of ecosystem they are part of. For Specially Protected Species, their habitat has been also protected under above Act. However, habitat fragmentation, degradation and loss have been considered to be the main driver for biodiversity loss in the Czech Republic.

E.g. there was an animal migration study when building the Highway “D47” which includes sets of proposals of provisions for the assurance of the permeability of the construction for big mammals. This study was prepared as a basis of assessment of the nature conservation conditions for the constructions of D47 for the Ministry of the Environment of the Czech

Republic in July 2003. Authors: V. Hlaváč, O. Volf (Agency for Nature Conservation and Landscape Protection of the Czech Republic).

These are good examples where the nature conservation won, there are also situations where the highway is already (was already) and we have only to solve problems with constructions on different "ecoducts" for species. There is undoubltely the EIA process as well as the Natura 2000 assessments.

More information can be also found in the Third National Report.

References:

BROŽOVÁ J. ed. (2004): *Biological diversity in the Czech Republic: current state and trends.* Ministry of the Environment of the Czech Republic Prague, 58 pp. (In Czech).

MACKOVČIN P., PETŘÍČEK V. & PLESNÍK J. (2005): *Ecological networks in the Czech Republic.* Commissioner General Office for the Participation of the Czech Republic at the World Exposition EXPO 2005 (Aichi, Japan) Prague, 46 pp.

Goal 6 - Control threats from invasive alien apecies

Target 6.1. - Pathways for major potential alien invasive species are controlled. What is missing is the more systematic approach for solving the issue of IAS, when there are several acts and strategies which contains different definitions and regulates the process of mitigation differently.

It has not been dealt with terminology, and organizationally and financially comprehensive approach is needed. Consequently, there is no generally accepted methodology for their monitoring and total eradication. There is a lack of funds for research, monitoring and/or potential interventions. Criteria have not been established for assessing applications for permits from the prohibition of invasive alien introduction. There is no legal punishment for negligence in invasive alien species introduction. There are many actions done individually by different NPs, PLAs and other protected areas. In relation to the rest of the area, the situation is much more complicated.

For the implementation of the **Target 6.2.**, there are management plans for major alien species that threaten ecosystems, habitats or species, but they are done regionally or even within the specific national parks or protected landscape areas. The overall managemen plan for major alien species is still missing.

Find more detailed information under Chapter 1.9 of this document.

Goal 7: Address challenges to biodiversity from climate change, and pollution

Target 7. 1 - measures to maintain and enhance resilience of the components of biodiversity to adapt to climate change. It has not been yet explicitly for biodiversity. As a part of the National Climate Programme, scenarios of the climate change in the Czech Republic were developed for hydrological regime, economically used and managed ecosystems (agriecosystems, forest ecosystems) and human health in 2002 (www.chmi.cz/nkp/nkp.html).

Research on various aspects of climate change incl. impacts of increase in atmospheric CO_2 level on biota has been carried out by institutes of the Academy of Sciences of the Czech Republic and universities has been supported by projects funded by the Council of the Government of the Czech Republic for Research and Technological Development through the Ministry of the Environment (sub-programme *SP1 Climate Change, Contamination and Risk Reduction*).

More information can be found under Chapter 1.8. and in our submission to the CBD notification on 101/2007, 102/2007 which was sent to the Secretariat in the package of the EU submission.

To implement the **Target 7.2** – to reduce pollution and its impacts on biodiversity – measures are mostly in place. In relation to adaptation measures and their impacts on biodiversity – we have to pay a special attention to this issue. There has been a comprehensive set of legal tools to reduce air, water, soil and biota pollution by contaminants and to protect human health and biological diversity at all its three main levels. Status, changes and trends in agrochemical contaminants levels are regularly published by Ministry of Agriculture.

For more information see Chapter 1.2 - 1.3.

Goal 8. - Maintain goods and services from biodiversity to support human well-being

Implementation of **Target 8.1** - Maintain capacity of ecosystems to deliver goods and services and support livelihoods - has been described chapters above dealing with agriculture, forest, fresh water ecosystems, as well as water, air and soil quality.

Goal 9. Maintain socio cultural diversity of indigenous and local communities

This issue is not relevant for the Czech Republic.

Goal 10. Ensure the fair and equitable sharing of benefits arising out of the use of genetic resources

Target 10.1 - All access to genetic resources is in line with the CBD and its relevant provisions. Regarding the access and benefit-sharing of genetic resources, the Czech Republic has developed legislation on plant genetic resources for food and agriculture in accordance with obligations under the FAO International Treaty on Plant Genetic Resources for Food and Agriculture. There is no ABS legislation in place regarding wild flora and fauna which could eventualy be of commercial importance for the pharmaceutical, cosmetic, and other biotechnology industries.

Reference:

TOŠOVSKÁ E. (2005): *Biodiversity conservation, patent protection and damage liability and redress.* Ministry of the Environment of the Czech Republic, Prague, 66 pp. (In Czech, with English summary).

Target 10.2 - Benefits arising from the commercial and other utilization of genetic resources shared in a fair and equitable way with the countries púroviding such resources in line with the CBD and its relkevant provisions. The issue of equal and fair distribution of benefits, raised from the use of genetic resources, including biotechnical procedures, has not been under the competence of any single sector in the Czech Republic, nor is it mentioned in any strategic governmental document. Mechanism of benefit-sharing has not been officially defined in the Czech Republic's national legislation yet, except for Material Transfer Agreement dealing plant genetic resources for food and agriculture. Model MTAs for farm animal genetic material collected in genebanks is being applied since 2007 and was already submitted to the CBD Secretariat.

For more information see the Chapter 1.4 of this document.

Goal 11. Ensure provision of adequate resources

Target 11.1 - Parties have improved financial, human, scientific, technical and technological capacity to implement the Convention. The Czech Republic is providing resource to developing countries but not ever specifically focused on the protected areas and the Convention implementation explicitly. In the framework of the Czech Republic´s Official Development (ODA), most environmental projects aim at geological survey, mining or water management. Therefore, more attention shall be paid to biodiversity conservation and sustainable use of its components including technology transfer, both hardware and software incl. know-how. The Transfer of technologies under **Target 11.2**. is being done mainly in the field of water purity, geology, and best available technologies.

More information is available under Chapter 3.5.2.

4.2 - PROGRESS TOWARDS THE GOALS AND OBJECTIVES OF THE STRATEGIC PLAN OF THE CONVENTION

Goal 1: The Convention is fulfilling its leadership role in international biodiversity issues.

From our point of view, yes the Convention is fulfilling its leadership role. It might be the reason why the agenda of CBD is getting much bigger and becoming harder to reach consensus among all Parties.

1.1 The Convention is setting the global biodiversity agenda.

We fully agree and we see a lot of actions

1.2 The Convention is promoting cooperation between all relevant international instruments and processes to enhance policy coherence.

We see progress also here, there are many Memorandas of Understanding signed. We would like to pay a special attention also to the fact that there is a need to somehow monitor if these MoU are implemented. Relating to the cooperation and policy coherence – there is a big improvement that other conventions and processes are aware of the CBD existence and that also at regional level the NFPs are cooperating more.

1.3 Other international processes are actively supporting implementation of the Convention, in a manner consistent with their respective frameworks.
We think yes, this is true.

1.4 The Cartagena Protocol on Biosafety is widely implemented.
In the EU countries this is happening also due to the fact that the EU legislation is in place. See the First National Report on the implementation of the Cartagena Protocol on http://www.mzp.cz/www/webdav_biosafety.nsf/biosafety/index.html

1.5 Biodiversity concerns are being integrated into relevant sectoral or cross-sectoral plans, programmes and policies at the regional and global levels.
To fulfill this goal the National Biodiversity Strategy was developed in 2005 and approved by the Government. The Strategy is based on the CBD text; it includes the thematic programmes and the cross-cutting issues. The main aim of the Strategy is to be comprehensive and cross-sectoral document that covers issues which are not directly implemented only by the Ministry of the Environment but also by other ministries. This aim to invite other ministries to include "nature issues" to their policies and strategies is not always easy and not always successful. The EU legislation requires also environmental aspect to be included in other sectoral legislation. The mechanism is in place, the question is that environmental issues are not always a priority of all ministries.

1.6 Parties are collaborating at the regional and subregional levels to implement the Convention.
If we talk about regional level such as the regions in the country – then the MoE is still trying to involve more people to deal with the Convention. The problem is that the language the CBD speaks is sometimes very hard to understand. We are cooperating with the Agency for Nature Conservation and Landscape Protection of the Czech Republic that has also regional offices but the communication is more on the personal basis. Also the Sumava National Park representatives attended one regional workshop (Vilm, 2007), which as they said was very useful but very complicated as they had not followed the issue before. It is not only a fault of our ministry but the problem is the regional authorities are overloaded with their agenda and have almost zero capacities for additional activities.

Talking about regional cooperation among world regions – I do think that this has also improved and that many regional workshops took place and that was very important. From our perspective it is necessary to attract more people for the Convention implementation – so that not only CBD NFP and SBSTTA NFP would follow all the issues.

Goal 2: Parties have improved financial, human, scientific, technical, and technological capacity to implement the Convention.

We were trying to answer this question above. Even at the MoE there are currently 3 people dealing with the CBD – but not full time – they have other agenda – to sum up – 1 full person to deal with the whole CBD is at the ministry of the environment. Regarding to the local authorities – there is this a question of money – they do not have always capacities to finance the business trips, they are overloaded with their everyday work – in case they help us with the agenda (nonetheless this is part of many strategic documents) they are doing it only because they want. The Ministry of Agriculture is also directly responsible for the CBD

implementation – mainly in the field of ABS. It deals with this issue also above their everyday workload.

2.1 All Parties have adequate capacity for implementation of priority actions in national biodiversity strategy and action plans.
They will never be adequate. Once the priority action is somehow transposed to a legal act than getting money to implement the action is easier. There is a special fund at the Ministry of the Environment for the implementation of the international conventions. There are 8 millions CZK (490797$) for all conventions - not only the environmental ones which supports the implementation – every NFP of that convention specify actions which he/she see important to be implemented and carry out in the next year (we did the public awaraness, trying to run our CHM website from that money, some action in the water protection). Money for the protected area management comes directly from the State Budget such as many others, the ODA money comes from the Ministry of Foreign Affairs budget. We are thinking of asking this question in the second phase of our monitoring of implementation of the NBSAP.
2.2 Developing country Parties, in particular the least developed and the small island developing States amongst them, and other Parties with economies in transition, have sufficient resources available to implement the three objectives of the Convention.
Not applicable.

2.3 Developing country Parties, in particular the least developed and the small island developing States amongst them, and other Parties with economies in transition, have increased resources and technology transfer available to implement the Cartagena Protocol on Biosafety.
Not applicable

2.4 All Parties have adequate capacity to implement the Cartagena Protocol on Biosafety.
The Czech Republic has adequate personal and technical capacities to implement the CPB.

2.5 Technical and scientific cooperation is making a significant contribution to building capacity.
Yes, we fully agree. The ANCLP CZ provides us support in the field of nature protection. As a good example of how the cooperation is running – e.g. in the field of monitoring – the CBD focal areas/26 EEA indicators. There are other organizations which have data and are able to provide them for reporting. Getting the information from other organizations which do not directly belong to the MoE is sometimes complicated and costs money.

Goal 3: National biodiversity strategies and action plans and the integration of biodiversity concerns into relevant sectors serve as an effective framework for the implementation of the objectives of the Convention.

3.1 Every Party has effective national strategies, plans and programmes in place to provide a national framework for implementing the three objectives of the Convention and to set clear national priorities.
Yes, please see the NBSAP http://chm.nature.cz/cooperation/fol362718. Other information can be found in the Voluntary Report on the NBSAP which we already sent to the CBD Secretariat – in that report you can find the obstacles as well.

3.2 Every Party to the Cartagena Protocol on Biosafety has a regulatory framework in place and functioning to implement the Protocol.

Yes, contact the CP NFP

3.3 Biodiversity concerns are being integrated into relevant national sectoral and cross-sectoral plans, programmes and policies.
Yes – the degree of how different ministries integrated biodiversity into their relevant strategies, plans and politics is provided above under Chapter 3..

3.4 The priorities in national biodiversity strategies and action plans are being actively implemented, as a means to achieve national implementation of the Convention, and as a significant contribution towards the global biodiversity agenda.
Yes, moreover we are currently developing the Action Plan that will be approved by the government and we specify our goals in more detailed targets.

Goal 4: There is a better understanding of the importance of biodiversity and of the Convention, and this has led to broader engagement across society in implementation.

Look into the European Barometer survey: Eighty-two percent of the inhabitants of the Czech Republic see the reduction of animal and plant species, and the decline of natural ecosystems, as a serious problem. These findings were from the survey Eurobarometer, the results of which were released last week by the European Commission. One third (34%) of Czech respondents of the pan-European survey actually described the loss of biodiversity even as a very serious problem. For more information go the MoE website under this link: http://www.env.cz/AIS/web-news-en.nsf/9ab6596b5dac8075c1256662002b0723/af71f6afec4b69ebc12573db004321a7?OpenDocument

4.1 All Parties are implementing a communication, education, and public awareness strategy and promoting public participation in support of the Convention.
There is the CHM website specifically informing about the NBSAP and the Convention itselfs. http://www.chm.nature.cz/. There is now the development of the big Action Plan to the NBSAP, after the internal round at the Ministry do develop a final draft, the document will be published at the http://chm.nature.cz/forum/tpc565137 - the internet forum will be open - so every person from the Czech Republic will have a access and occasion to comment our document and all the comments will be taken on board.
There are leaflets about most of international conventions in the nature protection of which the Czech Republic is a party to. There are leaflets for the CBD, CHM, Biosafety Protocol. There was a wide distribution, people are aware, the website is well working.

4.2 Every Party to the Cartagena Protocol on Biosafety is promoting and facilitating public awareness, education and participation in support of the Protocol.
The Czech Republic fulfills this statement. Contact CP NFP

4.3 Indigenous and local communities are effectively involved in implementation and in the processes of the Convention, at national, regional and international levels.
Not applicable for the CZ.

4.4 Key actors and stakeholders, including the private sector, are engaged in partnership to implement the Convention and are integrating biodiversity concerns into their relevant sectoral and cross-sectoral plans, programmes and policies.

There is no direct involvement in the field of the CBD partnership, but when somebody from the private sector asks us, we provide him/here an answer. There are actions carry out in other areas – the consumption and production, the environmental education – please see the NBSAP 68-76 pages. http://chm.nature.cz/cooperation/fol362718/Strategie_ochrany_ENG_finalni.pdf

4.3. CONCLUSIONS

(1) In this final sub-section, Parties may wish to provide:

(a) An overall assessment of whether the implementation of the Convention has had an impact on improving conservation and sustainable use of biodiversity, and the fair and equitable sharing of benefits arising out of the utilization of genetic resources, in their country (If yes, how so? If not, why not?);

Yes, regarding to ABS – the situation is good. Iit is because the same people who are dealing with the issue of genetic resources under FAO are dealing with this issues also under this convention. It is our plan to describe exactlythe competences under each Ministry and further the cooperation in other areas of the CBD as well.

(b) An analysis of lessons learned regarding implementation, highlighting examples of successful and less successful actions taken;

See in all our notifications and other reports we already sent (or sent under the EU response) to the CBD secretariat. We are not going to repeat them here again.

(c) A summary of future priorities and capacity-building needs for further national-level implementation of the Convention;

There is a need to have more people involved in the CBD implementation – have to have all actions translated into Czech language and to adapt the CBD language in the every daily life. We are currently having a study of how and where, in which strategic documents, law the PoWs are well implemented where not

(d) Suggestions for actions that need to be taken at the regional and global levels to further enhance implementation of the Convention at the national level, including: refining existing programmes of work or developing new ones to address emerging issues; suggesting goals and objectives that may be included in the future Strategic Plan of the Convention; and identifying mechanisms that need to be established at various levels.

The answer can be found in the NBSAP. But shortly – more people, more money, more time, Convention language better to understand, better understanding of all people that everything is related to the nature and that if we damage it.

CHAPTER 5

5.1 ADDITIONAL SOURCES OF INFORMATION

- Statistical Environmental Yearbook of the Czech Republic 2007 http://www.cenia.cz/web/www/web-pub2.nsf/$pid/CENMSFMVTMNS/$FILE/rocenka07.htm

- Statistical Environmental Yearbook of the Czech Republic 2008 http://www.env.cz/cz/statisticka_rocenka_zivotniho_prostredi

- State of the Environment Report 2007 http://www.env.cz/cz/zprava_zp_cr_07

5.2 LIST OF ABBREVIATIONS

AEGIS - Project of integration of European gene banks
ALARM - Assessing Large-scale Environmental Risks for biodiversity with tested Methods
ANCLP - The Agency for Nature Conservation and Landscape protection of the Czech Republic
AnGR - animal genetic resources
AOT40 - Accumulated Dose over a Treshold of 40 ppb
AP – Action Plan
AS – Academy of Science
BOD - Biological Oxygen Demand
CBD – Convention on Biological Diversity
CEE – Central and Eastern European
CENIA - Czech Environmental Information Agency
CGIAR (The Consultative Group on International Agricultural Research),
CGS Czech Geological Survey– Geofond
CITES - Convention on International Trade of Endangered Species of Wild Fauna and Flora
CLC - CORINE Land Cover
CR – Czech Republic
CSOP - Czech Union for Nature Conservation
CZ – Czech Republic
CZK - Czech Crowns
ČHMÚ –Czech Hydrometeorological Institute
ČÚZK - Czech Office for Surveying, Mapping and Cadastre
DADIS - Domestic Animal Diversity Information Systém
DAISIE - Delivering Alien Invasive Species Inventories for Europe
EAFRD - European Agricultural Fund for Rural Development
EAP – European Action Plan
EAZA - European Association of Zoos and Aquaria
EC - European Commission
EEA - European Environmental Agency
EEC - European Economic Community
EEPA - Environmental Education and Public Awareness
EFABIS - European Farm Animal Biodiversity Information Systém
EIA - Environmental Impact Assessment

ELISA - Enzyme-Linked Immunosorbent Assay - serological test used for antibody detection
ENBI - European Network for Biodiversity Information
EPPO - European and Mediterranean Plant Protection Organization
ERFP - European Regional Focal Point
ESCORENA - European initiative to enhance sustainable agricultural development and food security
EU – European Union
EUROSTAT - the statistical office of the European Commission
EVIGEZ - Czech Information System on Plant Genetic Resources
EWDB - European Wheat Database
FAO - Food and Agriculture Organisation
FGMRI - The Forestry and Game Management Research Institute
FMI - The Forest Management Institute
FSC - Forest Stewardship Council
GEF - Global Environment Facility
GENRES - Programme of international cooperation under the Crope Research Institute
GIS - Geographic Information System
GISP - Global Invasive Species Programme
GPA - Global Plan for Action
GR – Genetic Resources
CHM – Clearing House Mechanism
CHMI - Czech Hydrometeorological Institute
IAS - Invasive Alien Species
IAS – Invasive Alien Species
ICP - International cooperation programmes
IOPI - International Organization for Plant Information
IPPC - Integrated Pollution and Prevention Control
ISB - Institute of Soil Biology
ITPGR - International Treaty on Plant Genetic Resources
IUCN - World Conservation Union
LAT - Lower Assessment Treshold
LULUCF - Land Use, Land-use Change and Forestry
LV - Limit Value
MDG - Millennium Development Goals
MEA – Multilateral Environmental Agreement
MoA – Ministry of Agriculture
MoE – Ministry of the Environment
MTA- Material Transfer Agreement
MTA- Material Transfer Agreement
Mts. - Mountains
NBS - The National Biodiversity Strategy of the Czech Republic
NFC - National Focal Centre
NFP – National Forest Programme
NGO – Non-governmental organisation
NIL - National Forest Inventory
NM - Nature Monuments
NNM - National Nature Monument
NNR - National Nature Reserve
NP – National Park
NR - Nature Reserve

ODA – Official Development Assistance
OECD - Organisation of Economic Cooperation and Development
PA – Protected Area
PEFC - Pan European Forest Certification
PEFCC - Pan European Forest Certification Council
PES - Primary Energy Sources
PLA – Protected Landscape Area
PM - Particulate Matters
PoW – Programme of Work
pSCI - Proposed Sites of Community Importance
REAPS - Register of Emissions and Air Pollution Sources
RES - renewable energy resources
REZZO – REAPS Register of Emissions and Air Pollution Sources
RIAP - The Resource Institute of Animal Production
RS - Ramsar Site
SAC- Special Areas of Conservation
SCI - Sites of Community Importance
SCP- Sustainable Consumption and Production
SDS CR - Czech Republic Strategy for Sustainable Development
SEA - Strategic Environmental Assessment
SEBI 2010 - Streamlining European 2010 Biodiversity Indicators
SEP – State Environmental Policy
SNCLPP - State Nature Conservation and Landscape protection Programme of the Czech Republic
SNCLPP - The State Nature Conservation and Landscape Protection Programme of the Czech Republic
SP - Strategic Plan
SPA - Special Protected Areas
SPP - Species Plantarum Programme
SPP - Species Plantarum Programme
TSES - Territorial System of Ecological Stability
TSP - Total suspended particulates
TZL - Particulate Matters
UAT - Upper Assessment Treshold
UCSZ - Union of Czech and Slovak Zoos
UN - United Nations
UN FCCC - United Nations framework Convention on Climate Change
UPOV - The International Union for the Protection of New Varieties of Plants Convention
VOC - Volatile Organic Compounds
VUMOP - Research Institute of Ameliorations and Soil Conservation Prague
WAZA - World Association of Zoos and Aquariums
WFCC - World Federation for Culture Collection
WFD - The Water Framework Directive
WHO - World Health Organization

5.3 ANNEXES

Annex 1: Environmental expenditures in the Czech Republic (individual document)[77]
Annex 2: Czech Official Development Assistance in 2006 (individual document) [78]
Annex 3: National Parks leaflet (individual document)
Annex 4: Protected landscape areas leaflet (individual document)

[77] Source: CENIA, Czech Environmental Information Agency, (ed), Statistical Environmental Yearbook of the Czech Republic 2008, http://www.cenia.cz/web/www/web-pub2.nsf/$pid/CENMSFT2346T
[78] Source: Ministry of Foreign Affairs, http://www.mzv.cz/aid