

JOHANNESBURG SUMMIT 2002

CZECH REPUBLIC



COUNTRY PROFILE



UNITED NATIONS

INTRODUCTION - 2002 COUNTRY PROFILES SERIES

Agenda 21, adopted at the United Nations Conference on Environment and Development (UNCED) in Rio de Janeiro in 1992, underscored the important role that States play in the implementation of the Agenda at the national level. It recommended that States consider preparing national reports and communicating the information therein to the Commission on Sustainable Development (CSD) including, activities they undertake to implement Agenda 21, the obstacles and challenges they confront, and other environment and development issues they find relevant.

As a result, in 1993 governments began preparing national reports for submission to the CSD. After two years of following this practice, the CSD decided that a summarized version of national reports submitted thus far would be useful. Subsequently, the CSD Secretariat published the first Country Profiles series in 1997 on the occasion of the five-year review of the Earth Summit (Rio + 5). The series summarized, on a country-by-country basis, all the national reports submitted between 1994 and 1996. Each Profile covered the status of all Agenda 21 chapters.

The purpose of Country Profiles is to:

- Help countries monitor their own progress;
- Share experiences and information with others; and,
- Serve as institutional memory to track and record national actions undertaken to implement Agenda 21.

A second series of Country Profiles is being published on the occasion of the World Summit on Sustainable Development being held in Johannesburg from August 26 to September 4, 2002. Each profile covers all 40 chapters of Agenda 21, as well as those issues that have been separately addressed by the CSD since 1997, including trade, energy, transport, sustainable tourism and industry.

The 2002 Country Profiles series provides the most comprehensive overview to date of the status of implementation of Agenda 21 at the national level. Each Country Profile is based on information updated from that contained in the national reports submitted annually by governments.

Preparing national reports is often a challenging exercise. It can also be a productive and rewarding one in terms of taking stock of what has been achieved and by increasing communication, coordination and cooperation among a range of national agencies, institutions and groups. Hopefully, the information contained in this series of Country Profiles will serve as a useful tool for learning from the experience and knowledge gained by each country in its pursuit of sustainable development.

NOTE TO READERS

The 2002 Country Profiles Series provides information on the implementation of Agenda 21 on a country-by-country and chapter-by-chapter basis (with the exception of chapters 1 and 23, which are preambles). Since Rio 1992, the Commission on Sustainable Development has specifically addressed other topics not included as separate chapters in Agenda 21. These issues of trade, industry, energy, transport and sustainable tourism are, therefore, treated as distinct sections in the Country Profiles. In instances where several Agenda 21 chapters are closely related, for example, chapters 20 to 22 which cover environmentally sound management of hazardous, solid and radioactive wastes, and chapters 24 to 32 which refer to strengthening of major groups, the information appears under a single heading in the Country Profile Series. Lastly, chapters 16 and 34, which deal with environmentally sound management of biotechnology, and transfer of environmentally sound technology, cooperation, capacity-building respectively, are presented together under one heading in those Country Profiles where information is relatively scarce.

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LIST OF COMMONLY USED ACRONYMS

ACS	Association of Caribbean States
AMCEN	Africa Ministerial Conference on the Environment
AMU	Arab Maghreb Union
APEC	Asia-Pacific Economic Cooperation
ASEAN	Association of Southeast Asian Nations
CARICOM	The Caribbean Community and Common Market
CBD	Convention on Biological Diversity
CIS	Commonwealth of Independent States
CGIAR	Consultative Group on International Agricultural Research
CILSS	Permanent Inter-State Committee for Drought Control in the Sahel
CITES	Convention on International Trade in Endangered Species of Wild Fauna and Flora
COMESA	Common Market for Eastern and Southern Africa
CSD	Commission on Sustainable Development of the United Nations
DESA	Department for Economic and Social Affairs
ECA	Economic Commission for Africa
ECCAS	Economic Community for Central African States
ECE	Economic Commission for Europe
ECLAC	Economic Commission for Latin America and the Caribbean
ECOWAS	Economic Community of West African States
EEZ	Exclusive Economic Zone
EIA	Environmental Impact Assessment
ESCAP	Economic and Social Commission for Asia and the Pacific
ESCWA	Economic and Social Commission for Western Asia
EU	European Union
FAO	Food and Agriculture Organization of the United Nations
FIDA	Foundation for International Development Assistance
GATT	General Agreement on Tariffs and Trade
GAW	Global Atmosphere Watch (WMO)
GEF	Global Environment Facility
GEMS	Global Environmental Monitoring System (UNEP)
GESAMP	Joint Group of Experts on the Scientific Aspects of Marine Environmental Protection
GHG	Greenhouse Gas
GIS	Geographical Information Systems
GLOBE	Global Legislators Organisation for a Balanced Environment
GOS	Global Observing System (WMO/WWW)
GRID	Global Resource Information Database
HIV/AIDS	Human Immunodeficiency Virus/Acquired Immunodeficiency Syndrome
IAEA	International Atomic Energy Agency
ICSC	International Civil Service Commission
ICSU	International Council of Scientific Unions
ICT	Information and Communication Technology
ICTSD	International Centre for Trade and Sustainable Development

IEEA	Integrated Environmental and Economic Accounting
IFAD	International Fund for Agricultural Development
IFCS	Intergovernmental Forum on Chemical Safety
IGADD	Intergovernmental Authority on Drought and Development
ILO	International Labour Organisation
IMF	International Monetary Fund
IMO	International Maritime Organization
IOC	Intergovernmental Oceanographic Commission
IPCC	Intergovernmental Panel on Climate Change
IPCS	International Programme on Chemical Safety
IPM	Integrated Pest Management
IRPTC	International Register of Potentially Toxic Chemicals
ISDR	International Strategy for Disaster Reduction
ISO	International Organization for Standardization
ITTO	International Tropical Timber Organization
IUCN	International Union for Conservation of Nature and Natural Resources
LA21	Local Agenda 21
LDCs	Least Developed Countries
MARPOL	International Convention for the Prevention of Pollution from Ships
MEAs	Multilateral Environmental Agreements
NEAP	National Environmental Action Plan
NEPAD	New Partnership for Africa's Development
NGOs	Non-Governmental Organizations
NSDS	National Sustainable Development Strategies
OAS	Organization of American States
OAU	Organization for African Unity
ODA	Official Development Assistance/Overseas Development Assistance
OECD	Organisation for Economic Co-operation and Development
PPP	Public-Private Partnership
PRSP	Poverty Reduction Strategy Papers
SACEP	South Asian Cooperative Environment Programme
SADC	Southern African Development Community
SARD	Sustainable Agriculture and Rural Development
SIDS	Small Island Developing States
SPREP	South Pacific Regional Environment Programme
UN	United Nations
UNAIDS	United Nations Programme on HIV/AIDS
UNCED	United Nations Conference on Environment and Development
UNCCD	United Nations Convention to Combat Desertification
UNCHS	United Nations Centre for Human Settlements (Habitat)
UNCLOS	United Nations Convention on the Law of the Sea
UNCTAD	United Nations Conference on Trade and Development
UNDP	United Nations Development Programme
UNDRO	Office of the United Nations Disaster Relief Coordinator
UNEP	United Nations Environment Programme

UNESCO	United Nations Educational, Scientific and Cultural Organization
UNFCCC	United Nations Framework Convention on Climate Change
UNFF	United Nations Forum on Forests
UNFPA	United Nations Population Fund
UNHCR	United Nations High Commissioner for Refugees
UNICEF	United Nations Children's Fund
UNIDO	United Nations Industrial Development Organization
UNIFEM	United Nations Development Fund for Women
UNU	United Nations University
WFC	World Food Council
WHO	World Health Organization
WMO	World Meteorological Organization
WSSD	World Summit on Sustainable Development
WTO	World Trade Organization
WWF	World Wildlife Fund
WWW	World Weather Watch (WMO)

CHAPTER 2: INTERNATIONAL COOPERATION TO ACCELERATE SUSTAINABLE DEVELOPMENT IN DEVELOPING COUNTRIES AND RELATED DOMESTIC POLICIES

Decision-Making: The Ministry of Foreign Affairs (MFA) is responsible for decision-making in the field of international cooperation. MFA annually prepares an official development assistance (ODA) plan in cooperation with the line Ministries. No ministry or agency has special officially given responsibility for the decision-making process of sustainable development. But the Ministry of the Environment is generally considered as guarantee of sustainable development. This task is going from genesis of theme of sustainable development in the Czech Republic, when ecologically oriented NGOs and public together with the Ministry of the Environment played the main part in enforcement of ideas of sustainable development into the Czech society during the last ten years. The actual role of the Ministry of the Environment is the successful finalisation of the most important document regarding to sustainable development, the finalisation of National Strategy of Sustainable Development of the Czech Republic, now. The Council on Sustainable Development, founded by the Ministry of the Environment (MoE) in July 2000, is a consultative body to the MoE that aims at linking economic and social spheres with environmental issues and promoting cooperation between various social groups and public participation in plans and implementation of sustainable development in local areas and society as a whole.

There are no laws, regulations or directives concerning cooperation for sustainable development at sub-regional, regional, or international levels. However the “Foreign Policy Concept of the Czech Republic” and the “State Environmental Policy” both stress that environmental protection and provision for sustainable development require joint efforts and strategies at national and global levels. Local authorities and NGOs prepare projects supervised by the central government and their participation contribute to changing some of the conservative ways of the decision making process.

In cooperation with GEF (Global Environmental Facility) the following objectives were set up: reduction of global concentrations of green house gases and minimizing the adverse impact of climate change; phasing-out ozone depleting substances and introducing 3R scheme (Refrigerant Recovery and Recycling) in compliance with the Montreal Protocol ; protecting and strengthening representative ecosystem biodiversity and preparing the National Biodiversity strategy and action plan. The Czech Republic is now in the process of preparing a new development assistance strategy where focus on specific countries/regions and targeted areas (e.g. energy, environmental protection, health, etc.) will be formulated.

Programmes and Projects: See under **Capacity-Building, Education, Training and Awareness-Raising and Cooperation.**

Status: The issues of Agenda 21 that require the most immediate attention for bilateral or multilateral cooperation include conservation and management of resources for development, means of implementation, changing consumption patterns and promoting human health.

Capacity-Building, Education, Training and Awareness-Raising: The Czech Environmental Institute (CEI) organizes workshops and seminars for central and local administrators concerning the implementation of Agenda 21. NGOs and environmental consulting centres in cooperation with the Ministry of Environment (MoE) organize countrywide and regional enlightenment projects (competitions, workshops, etc.).

In the sphere of legislation, the Act No. 123/98 Coll. on public access to environmental information, was approved and came into force. The CEI prepares and distributes the Newsletter “Local Agenda 21 in the Czech Republic” which includes information about sustainable development, implementation of Agenda 21 and international cooperation. It is distributed by electronic mail to all regional branches of the MoE, NGOs, high schools, universities and to members of networks working in the field of sustainable development.

The weakness of this area is cooperation with the media. However, in the year 2000 the Institute for Environmental Policy in cooperation with Via Foundation Czech Republic and Westminster Foundation for Democracy carried out the project “Support of Media Interest in Local Agenda 21 and NGOs activities in this field.”

In 1997-1999 the CEI carried out the project “Cooperation with British lecturers in implementing the principles of Agenda 21 under conditions prevalent in the Czech Republic.” The CEI is also involved with the IUCN project

“Effective Communication for Biodiversity Conservation” which focuses on capacity building of experts. The UNDP project “Towards Sustainable Development of the Czech Republic: Building National Capacities” has finished in December 2001. Finale of this project has been organized under the auspice of UNDP, the Charles University environmental centre and NGO Green Circle as representative meeting for many experts interesting in sustainable development problems. The next National Conference on Sustainable development has been preparing now under the auspice of the Minister of the Environment Mr. Miloš Kužvar and it will be held preliminary in March 2002.

Information: The Ministry of Environment and civic organizations concerned with environmental enlightenment issue a number of newsletters, magazines, publications through the internet and mass media among others. Some Internet addresses are: www.env.cz (Ministry of the Environment), www.ceu.cz (Czech Environmental Institute), www.cizp.cz (Czech Environmental Inspectorate), www.ecn.cz (Econnect : includes information and references to the web pages of NGOs).

Research and Technologies: See under **Cooperation**.

Financing: See under **Cooperation**.

Cooperation: There is a memorandum between the Ministries of Environment of the Czech Republic, Poland and Germany on exchange of data from the Black Triangle and small investments projects to improve the state of the environment at the joint borders. In 1991, the Czech Republic initiated the creation of the long-term programme “An Environment for Europe” (Dobříš Assessment), which has since become the main forum for pan European conceptual discussions in the area of environmental policy. The Czech Republic plays an important role in international preparation for the implementation of the Aarhus Convention. The Czech Republic realizes its responsibility towards poverty alleviation and supports the economic, social and environmental growth in less developed countries. Since 1995 when the Czech Republic became a member of the OECD, it has been providing official development assistance to developing countries and countries in transition. The Czech Republic is in a transition period from the recipient to the donor country. The annual budget provided for the ODA amounts approximately to 9 million USD annually which is less than 1% of GDP (1996: 356.5 mil. CZK, 1997: 365.4 mil. CZK, 1998: 326.0 mil. CZK, 1999: 326.0 mil. CZK, 2000: 345.0 mil. CZK, 2001: 350.0 mil. CZK, 2002: 200.0 mil. CZK). The governmental strategy is to increase the assistance considerably in next years, based on economic situation in the Czech Republic, so that it reaches gradually the level of assistance provided by the advanced donor countries.

The ODA provision is coordinated by the Ministry of Foreign Affairs; relevant line ministries are responsible for management of individual development projects. Based on analysis of experience gained in provision of development assistance in 1996 - 2000, the Ministry of Foreign Affairs prepared a new development assistance policy that reflects the current trends in development practice in the EU and OECD countries. The policy (re)defines the targets, principles and priorities of Czech Official Development Assistance, establishes the territorial and sectoral priorities and delimits the institutional, organisational, financial and information framework for its provision. The new policy was approved by the Decision No. 91 of January 23, 2002.

Sustainable development is perceived in the Czech development assistance as increasingly important. The government of the Czech Republic realizes the interconnection between the poverty and environmental degradation, which tend to be often mutually reinforcing. This aspect is mirrored in the composition of the assistance plan where the environmental component is gradually growing (1998: 6.99%, 1999: 8.87%, 2000: 8.84%, 2001: 10.60%, 2001: 14.18%). The major coordinating body in the field of sustainable development assistance is the Ministry of the Environment however also other relevant ministries coordinate projects in the field of sustainable industrial development, sustainable agriculture or health.

Sustainable development assistance provided by the Czech Republic is focused on many different aspects and is rather diverse. Some projects are implemented in the field of the UN Convention to Combat Desertification and support countries in hydrogeological survey and hydrogeological prospecting of ground water resources or survey

of new energy sources, which would prevent deforestation. Recipient countries of several projects are assisted to phase out ozone depleting substances and fulfil their obligations to the Montreal Protocol on Substances that Deplete the Ozone Layer.

Development assistance is provided also in the field of sustainable agriculture and is focused on implementation of the biological plant protection system in vegetable growing which will prevent overuse of obsolete pesticides and adverse health effects. Several projects are implemented in the field of environmentally sound industrial Management (e.g. application of cleaner production, implementation of the environmental management systems, and transfer of environmentally sound technologies).

Bilateral cooperation is based on agreements that were concluded in the past. Cooperation with Western countries (e.g. Germany, Austria, Denmark and France) primarily took the form of technical, consulting and investment assistance. Cooperation with Germany evolved not only at the official state level, but also at a more local level. A draft Agreement between the Czech Republic and Poland on cooperation in environmental protection has been prepared, and is expected to be signed in the first quarter of 1998. Very important cooperation has been running between the Czech Republic and the other candidate countries of the central Europe (Poland, Slovakia and Hungary) Visegrad group since 1992. The last meeting of the ministers of the Environment was held in Olomouc, the Czech Republic, on 30-31. August, 2001. The main sense of this cooperation is common action in an enforcement of Visegrad groups interested into the action programme of European Union. A change in regulations of the programme ISPA has been achieved due to common action of countries of Visegrad group. The regional and transboundary cooperation among these four countries has been deepening because of the solution of common environmental problems.

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CHAPTER 2: INTERNATIONAL COOPERATION TO ACCELERATE SUSTAINABLE DEVELOPMENT IN DEVELOPING COUNTRIES AND RELATED DOMESTIC POLICIES - TRADE

Decision-Making: No information available.

Programmes and Projects: No information available.

Status: No information available.

Capacity-Building, Education, Training and Awareness-Raising: No information available.

Information: No information available.

Research and Technologies: No information available.

Financing: No information available.

Cooperation: No information available.

* * *

CHAPTER 3: COMBATING POVERTY

Decision-Making: No information available.

Programmes and Projects: See Chapter 2 of this Profile and also under **Status**.

Status: Enlightened rulers in our history have substantially developed general access to education and made it compulsory for each boy and girl in the country. Education became a matter of prestige and a successful instrument of progress. Thus, also the economic potential of the country was reinforced and education also became a suitable basis for further social development.

It has taken a long and difficult path to gradually strengthen the important role of women in society and to achieve their free decision-making concerning all-important steps in their lives. A high degree of women's emancipation has been successfully accomplished in the last four decades and is going to be further promoted.

The cultural and social development, economic and health security, as well as the impact of our citizen's free thinking quite naturally resulted in meeting one of major parameters of sustainable development, i.e., a stabilized population.

The economic development of our country has been the result of a hard work of our citizens, often at the cost of considerable sacrifice. Hardworking conditions, former periods of hunger and misery due to incurable diseases this all also lies at our roots, in our culture and awareness.

There is an opportunity to predominantly promote education with the utilization of new information technologies, by means of devoting both our attention and funds to this area. Education is also the most efficient weapon to combat poverty, and an excellent prevention of violence. A good basis can be created by cooperation in promoting education in the area of natural and technical sciences, where the laws of nature are of global validity, and their discovery is the common heritage of all nations of the world.

Education, upbringing and knowledge lead, also thanks to the goodwill of citizens, to the right mobilization of economic, financial and private resources, as well as funds of the financial institutions. Thus motivated citizens support their governments in sustainable development efforts based upon political decisions that result in the identification of appropriate resources.

Even if in the past half-century considerable achievements were reached in poverty alleviation and many success stories in human development can be presented, there are still considerable amount of inhabitants on the Earth facing lack of basic freedoms as access to health care and education or clean environment. Growing gap between the rich and poor is alarming.

Capacity-Building, Education, Training and Awareness-Raising: See under **Status**.

Information: No information available.

Research and Technologies: No information available.

Financing: See under **Status**.

Cooperation: As the world is interconnected and steadily more integrated through globalisation, the Czech Republic realizes its responsibility not only towards its citizens but it also wishes to support the economic, social and environmental growth in less developed countries. The Czech Republic is in a transition period from the recipient to the donor country. Since 1995 when the Czech Republic became a member of the OECD, it has been providing development assistance to support development and poverty alleviation in many poor countries of the world. Even if the Czech assistance comparing to the experienced donor countries is marginal, the Czech Republic provides its limited resources efficiently using the Czech expertise in the fields where it is advanced.

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CHAPTER 4: CHANGING CONSUMPTION PATTERNS

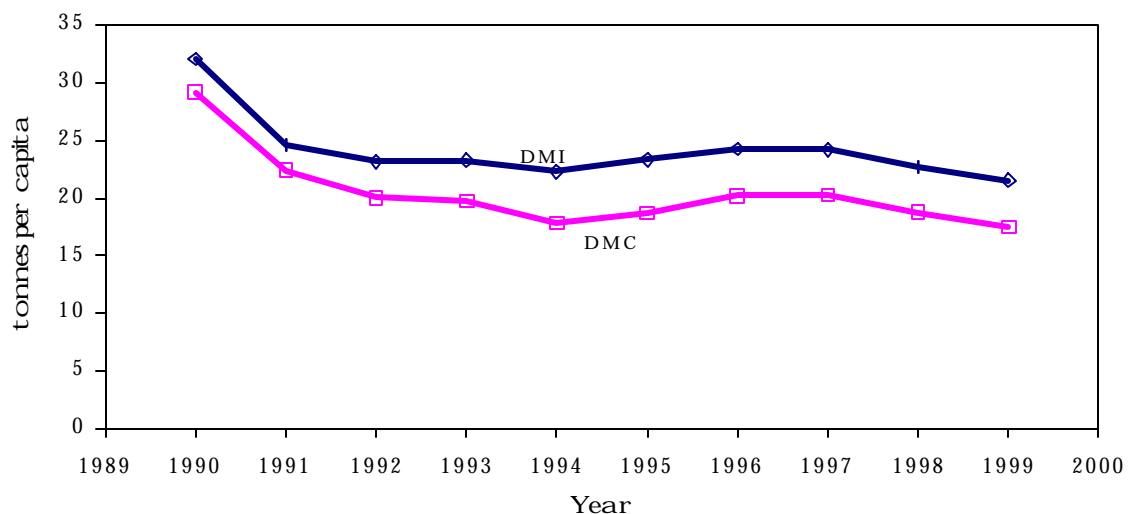
Decision-Making: After 1989, the transition to a market-oriented system in the Czech Republic was connected to the emulation of traditional consumption patterns of liberal market economics; that is why the Governmental environmental authorities support friendly goods that are beneficial to the environment and combat those that are harmful. The Government considers the application of economic instruments an extremely important means to change production and consumption patterns, and is exerting constant efforts for their broader implementation. In addition to economic remedies, an effective instrument has been the negotiation on voluntary agreements between the state administration and pollution producers. An institutional framework for the Environmental Management System for enterprises was established in 1996.

Programmes and Projects: In 1995, 90 products had been granted the right to use an eco-label, and several of the responsible companies reported a significant increase in the sales of these products. In the near future, the Czech Republic's eco-labelling programme will be harmonized with that of the Member States of the European Union.

Status: This chapter of Agenda 21 represents a very wide theme going through the all society. We have defined the main parts of this chapter and have divided them into three major groups like: Material consumption, Transport consumption and Energy consumption. The two topics, Energy and Transport consumption are described in two proper subgroups of this chapter. Thus this part of the Chapter 4 of this Profile applies mainly to Material consumption and to Consumption patterns of the Czech population but only at marginal level.

The observed indicators of this area of sustainable development as Direct Material Input (DMI) and Direct Material Consumption (DMC) show material costingness of the Czech producing sectors. The development of these indicators can be considered as positive, concretely the values of direct domestic input and of direct domestic consumption have been continually decreasing by 33% (DMI), respectively since 1990 (See Fig. 4.1).

Fig. 4.1: Direct Material Input and Direct Material Consumption

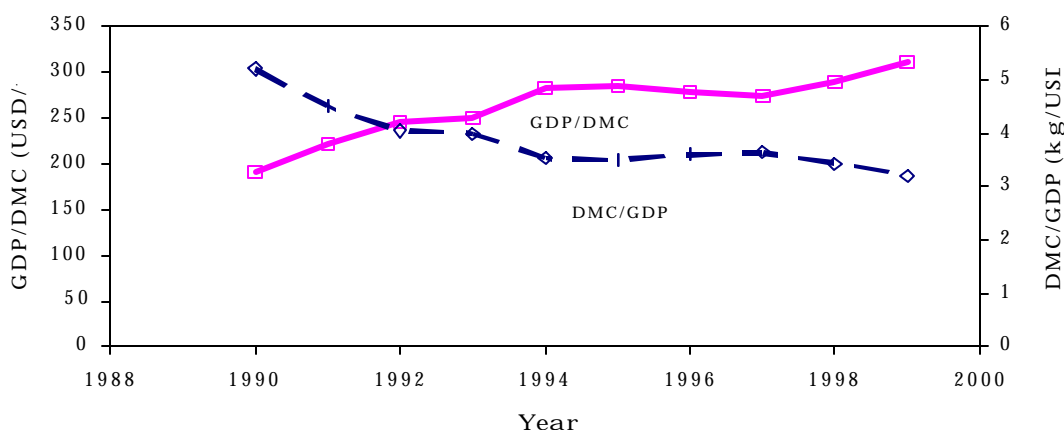


Source: *Summary report of assessment of the state and prediction of the environment using MoE material flow Assessment method, 2000*

We can discuss about the sufficiency of reached rate of the decrease with respect to sustainable development. But we must take into account that positive trend was attained due to low-cost actions in the regulation of material consumption in production as damage material constraint in technological processes during last ten years. The further reduction in material consumption and on the other hand increase in intensity of material utilization (See Fig. 4.2.) will be allowed by introduction of new technologies with the low material costingness as the more expensive solution. The Czech Republic has proposed the new Act on IPPC (integrated production and prevention control) which is in approving procedure now and which transposes the EU Directive 96/61/EC on IPPC. The

material costingness of used technologies will be one from substantial binding conditions defined in integrated permit of operation. Thus there is the great opportunity for our country decrease general material consumption.

Fig. 4.2: Intensity of Material Consumption



Source: *Summary report of assessment of the state and prediction of the environment using MoE material flow Assessment method, 2000*

Capacity- Building, Education, Training and Awareness-Raising: The Act on IPPC is the first one in the Czech environmental legislation which takes into account the material costingness of individual technologies criticized in integrated permitting procedure. There is a special IPPC unit operating at the Ministry of the Environment in the Czech Republic. This unit guarantees the transposition and implementation of IPPC Directive 96/61/EC together with other departments of the Ministry of the Environment. The Ministry of the Environment (MoE) should establish the new department at the already existing organization falling under management of MoE, so called Agency, after the Act will be approved and published in Collection. This Agency will have responsibility in expert appreciation of the application form from the point of view of BAT.

It must elaborate the references to the application form for integrated permit, which will help the regulators in the decision-making in integrated permitting procedure. The IPPC Unit at the MoE arranges many workshops for civil services taking part in integrated permitting procedure. The complex Education and Training programmes for participants of integrated permitting procedure will be organized intra PHARE 2000, which concerns the implementation structures for IPPC (institutional buildings). The bottom of integrated register of pollution will be given in the frame of this PHARE project.

Information: No information available.

Research and Technologies: Industries are encouraged to develop and introduce low-waste, low-emission, low-power and resource-saving technologies as well as closed production cycles and to manufacture environmentally friendly products. In addition, the manufacturers' responsibility for the life-cycle of their products will be gradually implemented.

Financing: There are different forms of support given by the governmental environmental authorities, e.g. eco-labelling, taxing environmentally beneficial goods at a lower rate of VAT, and other tax levying. On the other hand, environmentally harmful productions are penalized by emission charges and other economic instruments, like tax differentiation.

Cooperation: The country hosted the Commission on Sustainable Development (CSD) International Symposium on Economic Instruments for Sustainable Development in 1995.

* * *

CHAPTER 4: CHANGING CONSUMPTION PATTERNS - ENERGY

Decision-Making: Through the use of economic instruments, attention is paid not only to the big polluters but also to households. Current legislation encourages industry to take remedial measures and to invest in environmental improvements. Emission limits have also been established by law.

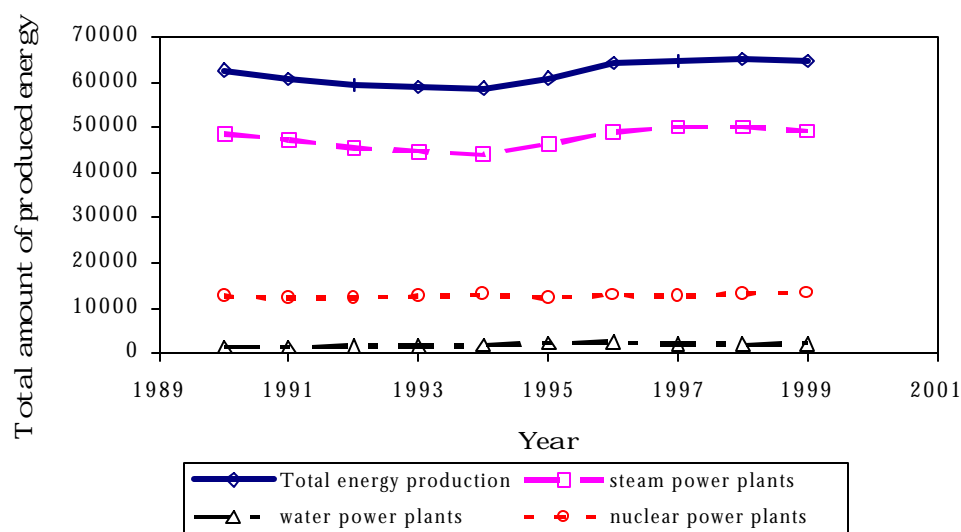
Programmes and Projects: Through the use of economic instruments, attention is paid not only to the big polluters but also to households. Households are often located in urban areas with higher health risks of air pollution. Households have been subsidized to switch from (brown) coal to natural gas or another kind of cleaner fuel (electricity). The aim to switch from utilization of non-renewable sources to renewable ones is very meritorious. Consequently, the energy industry decreased the relative production of emissions. Air pollution was considered to be the number one environmental problem in the country after 1989. Therefore, an Air Recovery Programme was adopted and measures to reduce emissions are being implemented in most large coal-burning power stations.

The “end of pipe” technologies introduced into technological processes of energy production based on the use of brown coal have caused significant improvement in emission situation, like the SO₂ and dust emissions. The results of the installation of these “end of pipe” technologies has brought decrease of SO₂ emission more than 86%, NO_x emissions more than 72% and dust emissions about 89%. Very significant favourable development has been put down in CO₂ emissions, where decrease about 25% has been observed (for more information, see Chapter 9 of this Profile.) Some units have been shut down. Gas projects in municipalities are proceeding rapidly.

Status: The restructuring of the industrial sector, namely outdated plants, has resulted in reduction of emissions. Since 1986, the consumption of ozone depleting substances has decreased by 88%. The 1998 deadline for compliance with prescribed emission limits is projected to be met by approximately 75% of polluters. Incentives to encourage energy saving and to apply modern energy efficiency technology are insufficient.

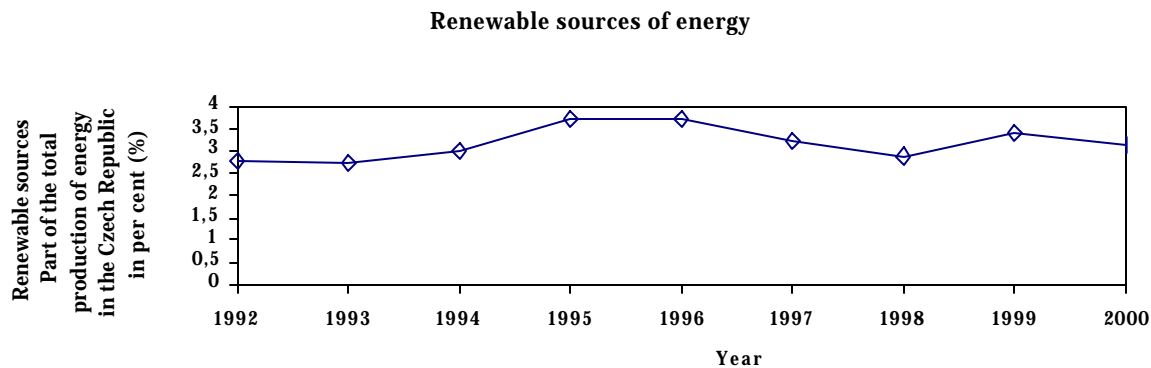
The current stage in the utilization of renewable resources in energy production is about 3% (including only the water power stations) from the total energy production. The level of the use of renewable sources is still very low and no progress has been observed during last ten years (See Figs. 4.1Ea. and 4.1Eb.), even though the increase of the portion of renewable resources is proposed to 6-8% within 10 respectively 20 years. Slow progress in this area during last ten years indicates large financial and technical difficulties in introducing of renewable resources into energy production. In accordance with the previous statement the use of non-renewable sources (fossil fuels) in energy production is still very high and progress in decrease has not been achieved during last ten years. So the prognosis in this area is not very encouraging.

Fig. 4.1Ea: Electric Energy Production in the Czech Republic



Source: *Statistical Yearbook 2001*, Czech Statistical Office

Fig. 4.1Eb: The Part of Renewable Sources in Total Energy Reduction

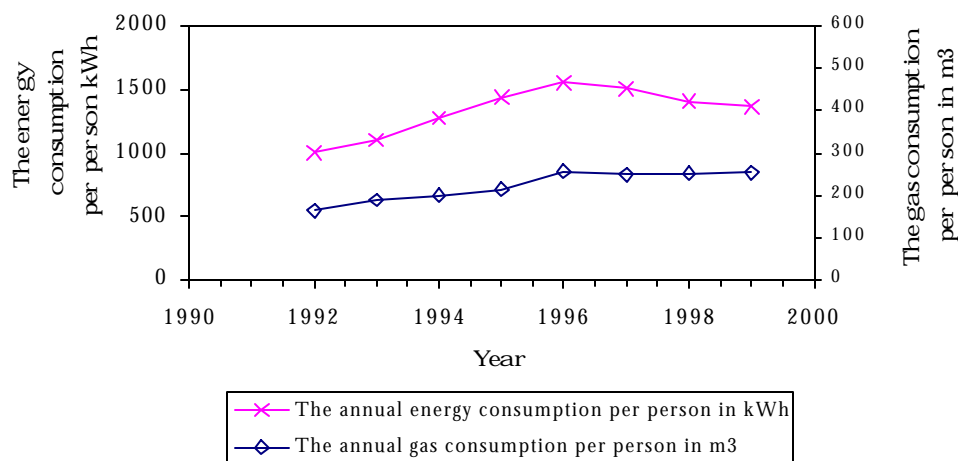


Source: *Statistical Yearbook 2001*, Czech Statistical Office

Very important indicator of sustainable energy production is the annual consumption of energy per person. The development of this indicator in last 10 years is illustrated on Fig. 4.2E.

The annual energy consumption per person has increased continually during mentioned time period about 50%. The dependence of the annual energy consumption on the time is smooth curve with one peak in the year 1996. The low decrease in this indicator has been observed since 1996. These values are in contrast to the decreasing value of energy costingness of industrial production (The overall decrease is about 23 %). The increasing value of the annual energy consumption per person at stable Czech population indicates higher energy consumption of households due to more intensive utilization of electronic household equipment.

Fig. 4.2E: The Annual Energy Consumption per Person



Source: *Statistical Yearbook 2001*, Czech Statistical Office

Capacity-Building, Education, Training and Awareness-Raising: No information available.

Information: Sources of described information are: The Czech Statistical Yearbook 2000, 2001 (The Czech Statistical Office); The Czech environmental statistical yearbook 1992, 1996, 1997, 2000; the medium-term document of the Czech Governmental Council of economic and social Strategy.

Research and Technologies: No information available.

Financing: The overall investment into air and climate pollution control total to about 95 milliard CZK (2.975 milliard €) from 1994 to 1998 and the state contribution was about 42 milliard CZK (1.315 milliard €). The total sum seems to be reasonable but it should be significantly higher than was previous expenditures cause. The estimation of investment is about 242 milliard CZK (7.579 milliard €). This expectation comes from the estimation of the Ministry of Industry and Trade. This sum should be used for introduction of new technologies in order to achieve about 8% of renewable resources utilization at present.

The potential of the amount of 1 250 milliard CZK (39.148 milliard €) is required in order to reach the 30 % energy saving potential. The Czech Republic must invest higher financial sum than it has been expended. Very important rule should so play the utilization of international support. Fore more information about the investment into the air protection, see Chapter 33 of this Profile.

Cooperation: No information available.

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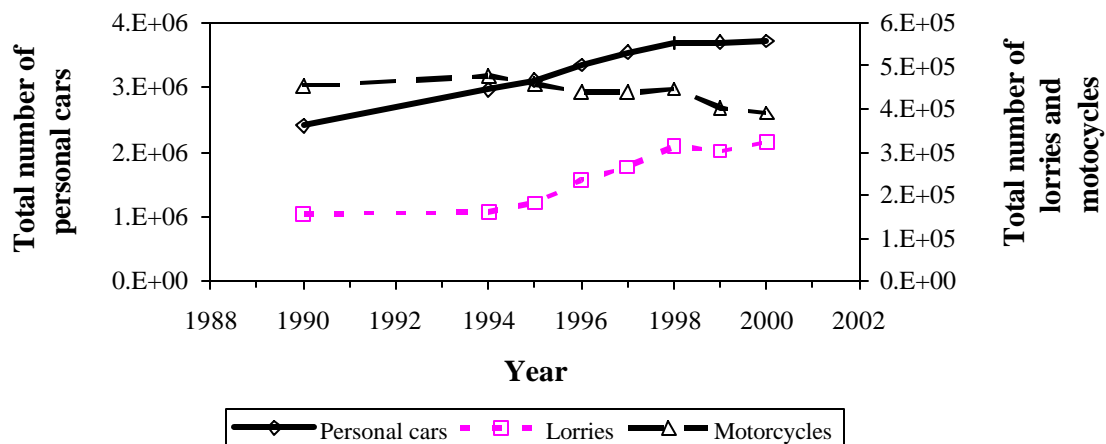
CHAPTER 4: CHANGING CONSUMPTION AND PRODUCTION PATTERNS - TRANSPORT

Decision-Making: The responsible body for transport management is the Ministry of the Transport and Communications. Its decisions should be made with accordance with the environmental aspects of individual types of transport and with accordance with principles of sustainable development of transport stated in the State Environmental Policy 2001 and in the Medium-term Strategy of Transport elaborated by experts from the Ministry of the Transport and Communications and their co-workers from expert area.

Programmes and projects: Goals according to government decision No.480/99 are as follows: introduction of economic instruments (including internalisation of external costs) aimed at introducing a transportation systems and means of transportation that are economically acceptable and decreasing the environmental burden through measures that reduce the atmospheric pollution; the preference of public passenger transportation, introduction of an integrated transportation systems and development of its infrastructures; use of alternative fuels in transport. The Czech Ministry of the Environment is also endorsing the use of compressed natural gas especially in public passenger and municipal freight transport (i.e. city buses and municipal lorries).

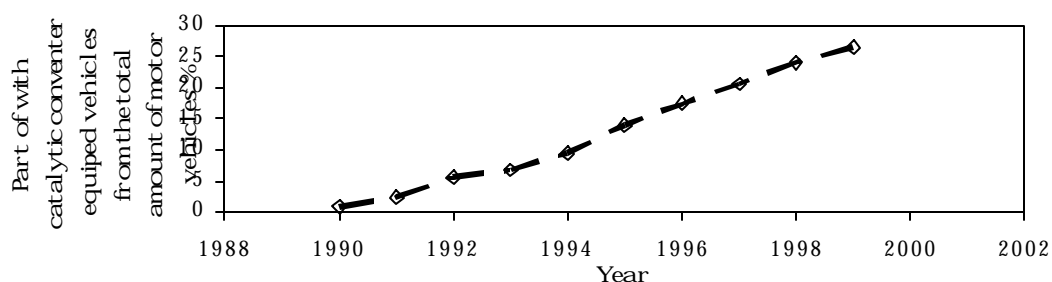
Status: The continually increasing tonnage of transported goods, the total number of passengers and mainly the unsustainable expansion of passenger automobile transport represent a substantial problem for our environment pollution and protection. In the transport sector, the number of motor vehicles has been dramatically increasing (by 75% since 1990), and domestic and international transport has increased. The most increasing total number of cars represents the rapidly growing part of total motor vehicle number (See Fig. 4.1T.) The number of lorries has been increasing more slowly than the number of cars and the total motorcycles number has been a little decreasing since 1990. This very negative trend in uncontrolled expansion of passenger car transport has been a little de-escalated by increasing total number of cars equipped with catalytic converters (See. Fig.4.2 T.).

Fig. 4. 1T: Total Number of Vehicles



Source: *Statistical Yearbook 2001*, Czech Statistical Office

Fig. 4. 2T: Motor Vehicles with Catalytic Converters

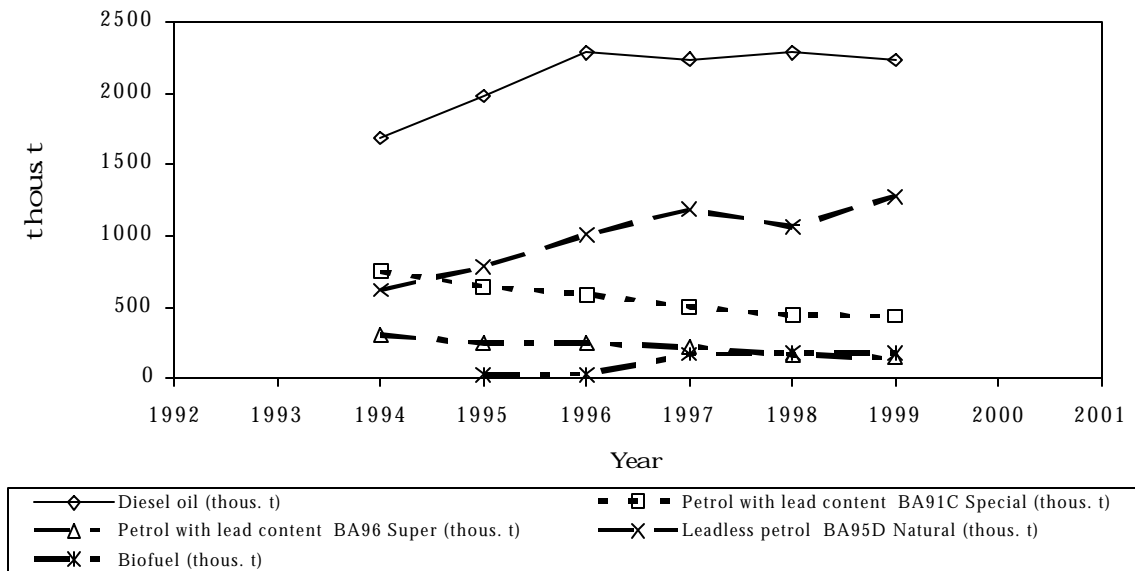


Source: *Statistical Environmental Yearbook of the Czech Republic 2000*

Although the total number of cars equipped with catalytic converter has been continually increasing from zero to 28% since 1990, these cars represent only the smaller part of all cars at present. The Czech government tries to increase this part of cars now, for example by regulation of import of used cars. The main aim of that effort is prohibition on imported used cars older than 5 years. This conception is in conflict with very strong lobby of importers of used cars, so the Czech government has been unsuccessful in this area since 1990.

The next favourable trend in sale of different fuels has been recorded in the decreased amount of sold leaded petrol and on the opposite side in the increased amount of sold leadless petrol and biofuel. (See Fig. 4. 3T.)

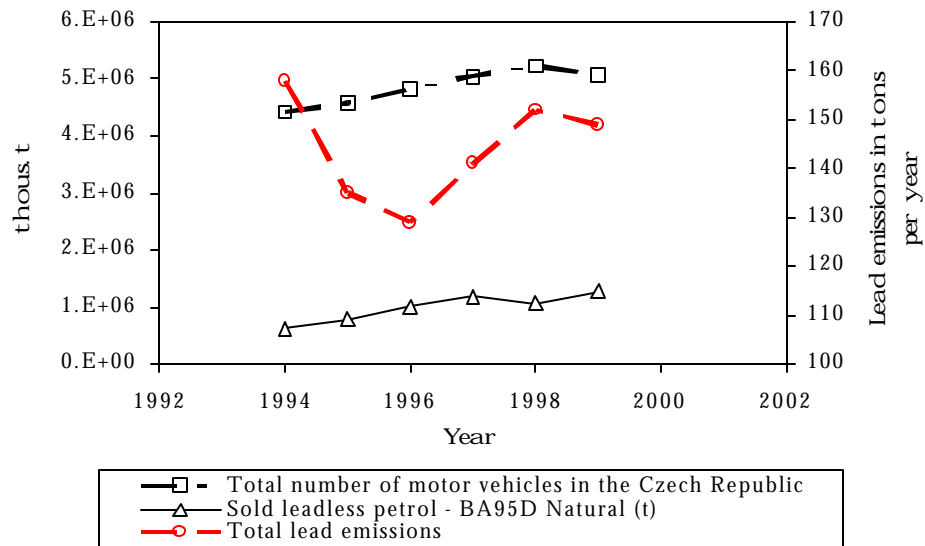
Fig. 4. 3T: The Sale of Fuelling



Source: *Statistical Environmental Yearbook of the Czech Republic 2000*

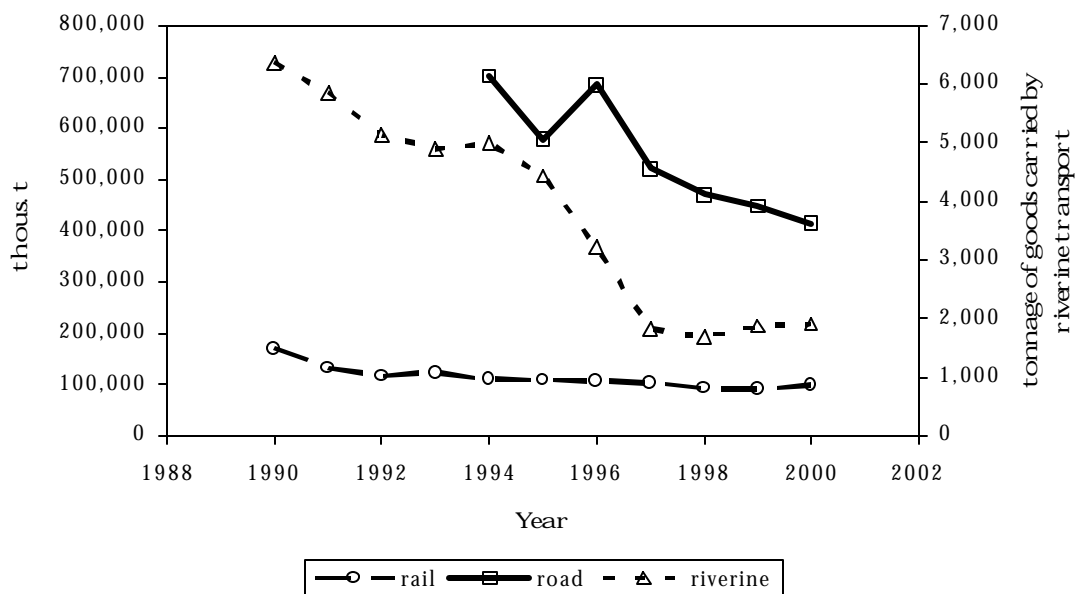
So we can observe the downfall of lead (Pb) emissions from transport which is in good correlation with the increased amount of sold unleaded petrol. On the Fig. 4.4T we can see that although we have been observing the rapid growth of total number of cars since 1990 the average amount of Pb emissions stays constant during last six years. Negative trend in development tonnage of goods carried by various means of transport (See Fig. 4.5T.) is caused by more then double tonnage of transport of goods. Although the road transport of goods has been fluently falling down it prevails still over the rail and riverine transport of goods.

Fig. 4. 4T: Correlation among Number of Motor Vehicles, Sold Leadless Petrol and Lead Emissions from Transport



Source: *Statistical Environmental Yearbook of the Czech Republic 2000*

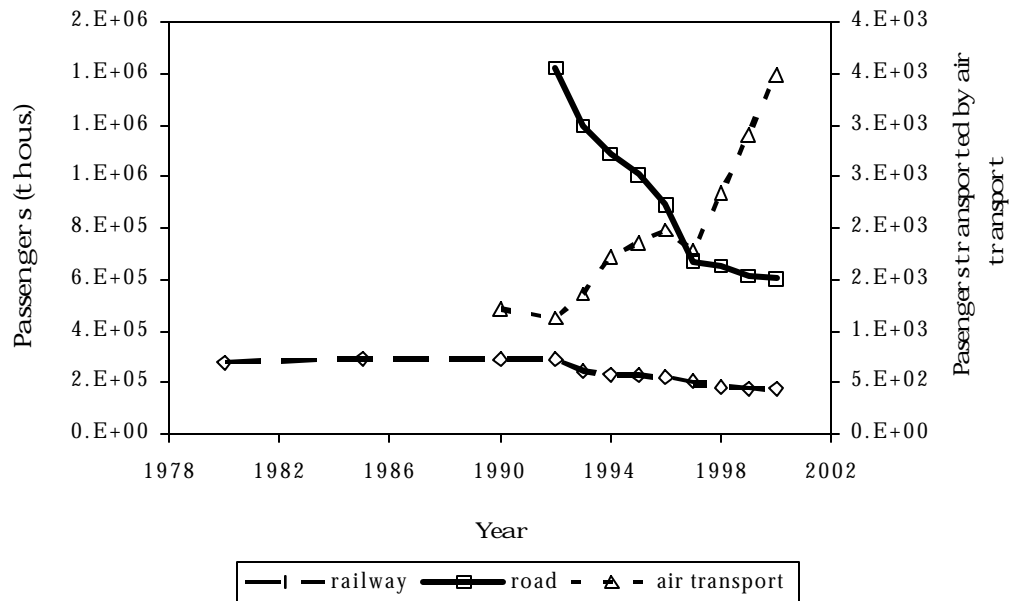
Fig. 4. 5T: Tonnage of Goods Carried and Performance of Transport by Type



Source: *Statistical Environmental Yearbook of the Czech Republic 2000*

The same situation can be observed in public passenger transport (See Fig. 4.6T.) where the overall decrease of total number of passenger has fallen down by 59 % since 1992. The Czech Republic should stop the slow but constant decrease of total number of passengers taking the train as transport means from the point of sustainable development.

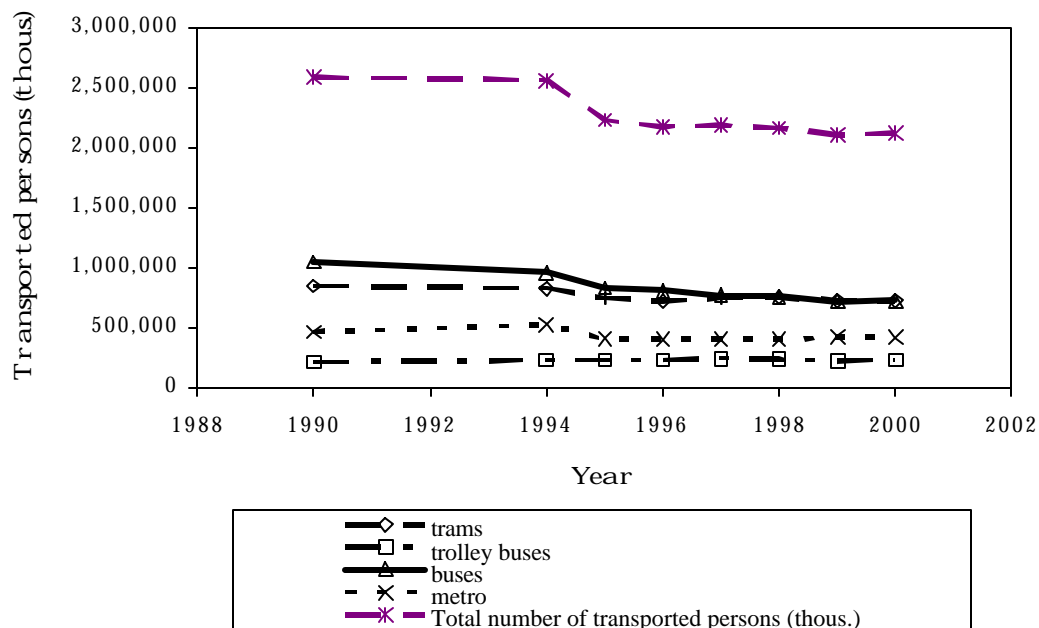
Fig. 4. 6T: Public Passenger Transport



Source: *Statistical Environmental Yearbook of the Czech Republic 2000*

The Czech Republic has very sophisticated system of public transport in cities and towns. In spite of this fact the total number of transported passengers by public transport has been continually decreasing since 1990 (See Fig. 4.7T) because of unregulated expansion of passenger car transport. The still increasing uncontrolled expansion of passenger transport results in very dense traffic and in the increase of pollution of environment in cities.

Fig. 4. 7T: Public Transport in Czech Cities



Source: *Statistical Yearbook 2001*, Czech Statistical Office

The Czech Republic will have to find tools to avoid the very undesirable progress as presented by statistical data about transport. The fact that the road transport becomes less expensive for people than the transport by rail brings very important problem. The same problem exists in transport of goods, where the haulage predominates. This

situation is caused by exclusion of internalization of transport external cost like determination of costs following from emissions of pollutant from transport, number of accidents and their results, increasing land occupation and fragmentalization etc. which are the highest for road transport.

It will be necessary to enlarge the part of sustainable types of transport such as the cycling transport and walking transport. These both types of transport have many advantages: no requirements on the financial support of infrastructure construction for cyclic and foot passenger transport; no emissions of harmful substances; Sound physical exercise in the clean environment.

Capacity- Building, Education, Training and Awareness-Raising: There are six technical schools, one Higher school and two faculties with specialization on the transport in the Czech Republic.

Information: The data resources were: The Czech Statistical Yearbook (The Czech Statistical Office), The Environmental Statistical Yearbook (The Czech Statistical Office and The Ministry of the Environment), Different materials as The Transport in the Czech Republic 2000, The possibilities of transport development in the Czech Republic from the point of view of sustainable development (a discussion material) and Transport and the Environment in the Czech Republic published by the Ministry of Transport and Communications of the Czech Republic.

Research and Technologies: No information available.

Financing: Enumeration of financial resources for transport is the following: the state and regional budgets are used for investment and modernizing of transport infrastructure; the state and community assurance for advance payment used for transport services; the state commissions in the Czech transport industry; the accelerated amortization of permanent devices; the organization of public activities; and, the State Fund of Transport Infrastructure.

Cooperation: No information available.

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CHAPTER 5: DEMOGRAPHIC DYNAMICS AND SUSTAINABILITY

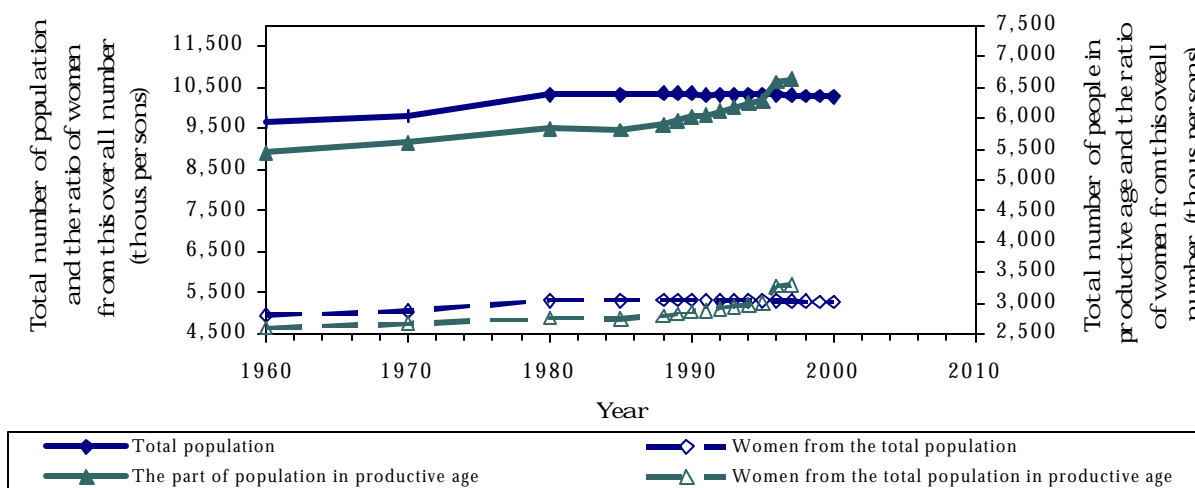
Decision-Making: No information available.

Programmes and Projects: Government programmes are nowadays oriented more towards the care for older generation and increasing the esteem for older generation, taking into account the sustainable development indicative figure of the environmental footprint for the Czech Republic in order to ensure a high quality of life and good relation with the environment and world biodiversity the area of the Czech Republic should be inhabited by only one third of the current population.

Status: The Czech Republic belongs to countries with relatively high population density of 130 persons/km². The development of the population has not shown any increase during last ten years, but the population density has shown a slight decrease in otherwise high figure in the same period. The length of life has been increasing due to a good health care and the improving environmental and working conditions. The overall required end of high population growth in the whole world is positively fulfilled in the Czech Republic in accordance with the conclusion of Cairo conference. The light decrease of population represents some psychological problem and misunderstanding of old generation, because old people were educated in expansive style of life. During last two years the older demographic theory-experts are creating artificial tensions for a new population increase. Their reasoning comes from the current low birth rate, which is just shifted to the older age parents, who can better care about the family. The increase of individual responsibilities is related to the transformation of the society after 1989. The concern about the insufficiency of the working force is not legitimate when there is a long-term high unemployment and the effort of older generation to work longer even in the retirement.

The Czech Republic has a population of 10.3 million. This level of total population has been stable from 1960 to 1975. The following total number of Czech population has first stagnated and then to very slowly decreased. Women have been representing with more than 50% of population (See Fig. 5.1) since 1960. The continuous and not very significant increase has been recorded in a part of population representing the population in productive age (from 15 years to 65 years) since 1960 with acceleration of this trend after 1990. Some 13.3% of the population is more than 64 years old, and 18.3% is under the age of 15 (1996). An average life expectancy at birth in the Czech Republic has been rising continuously since 1960 when observations began.

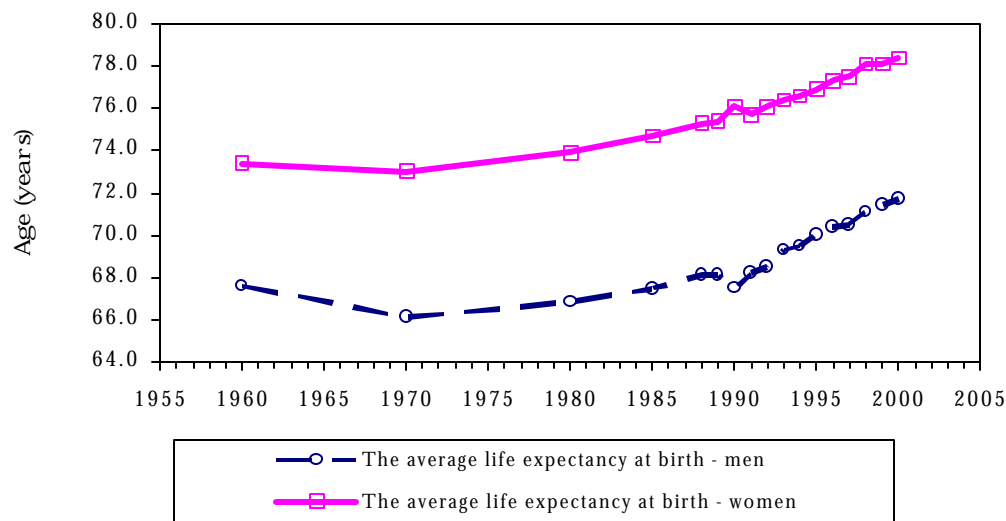
Fig.5.1: The Czech Population: the Long-term Development of Population



Source: *Statistical Yearbook 2001, Czech Statistical Office*

The accelerated increase of average life expectancy at birth (See Fig. 5.2), occurred to better lifestyle of Czech people, e.g. mainly changed diet with more vegetables and fruits, and due to better and more accessible medical care which utilizes the newest medical instruments and methods of diagnosis and treatment (for more information see Chapter 6 of this Profile). The values of average life expectancy at birth are 72 years for men and 78 years for women.

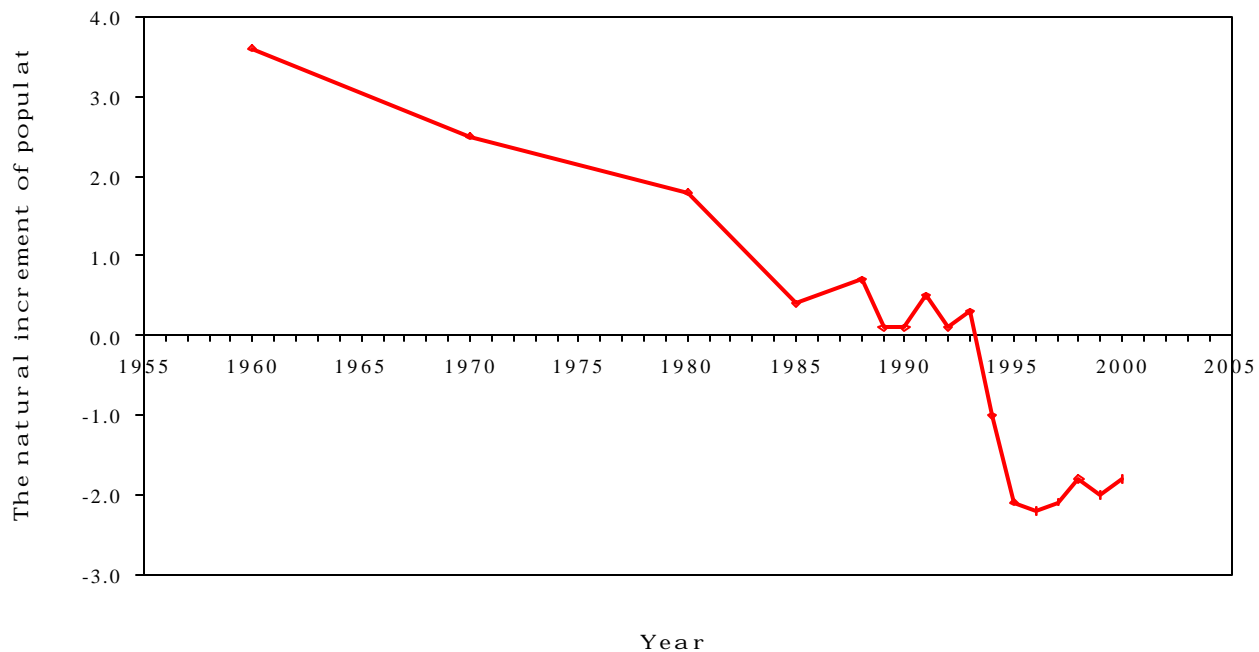
Fig. 5.2: The Average Life Expectancy at the Birth



Source: *Statistical Yearbook 2001, Czech Statistical Office*

From the point of view of the Czech Republic the mildly negative trend in the natural increment of population with reached negative values in 0/00 (See Fig.5.3) at present is not common but in the context of dangerous unregulated exponential growth of world population the stable level of population in the Czech Republic is consider as the only one possible. It must be emphasised that the changes of natural increment of population in the Czech Republic is determined in 0/00 thus the absolute values of changes are very small. The stage of the Czech population doesn't represent bigger problem. The education and emancipation of women is probably the most positive features, which leads to suppression of poverty in the history of Czech Republic and result in positive limitation of population growth.

Fig. 5.3: The Natural People Increment (on 1000 people)



Source: *Statistical Yearbook 2001, Czech Statistical Office*

Capacity-Building, Education, Training and Awareness-Raising: The information needed for planning marriages are given to students in the framework of education system.

Information: The data source for this chapter was the Statistical Yearbook 2001 (published by the Czech Statistical Office); Population, Environment and Development (2001), United Nations, New York.

Research and Technologies: There are many science institutions, which are considering the demographic task mainly in the traditional way and without taking into account the relations with other sustainable development figures.

Financing: The Ministry of Labour and Social Affairs and the Ministry of Finance guarantee the thorough system of child, family and older people care.

Cooperation: There is only a low information exchange between the Czech Republic and developing countries.

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CHAPTER 6: PROTECTING AND PROMOTING HUMAN HEALTH

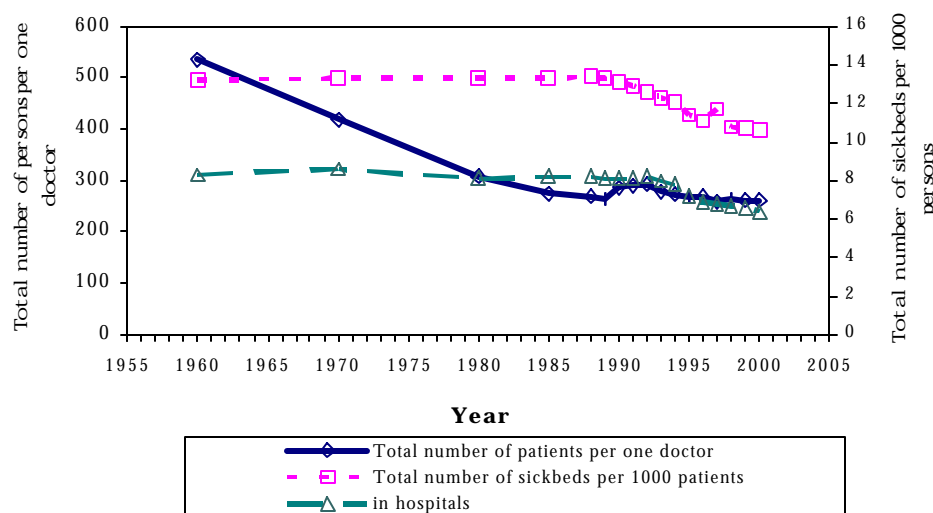
Decision-Making: The Ministry of Health, the Ministry of Environment, National Institute of Public Health and the Institute of Experimental Medicine, Medical Faculty and Hygienic Services are responsible for the decision-making and implementation in this area. One of the priorities of the State Environmental Policy (1995) is to develop a comprehensive system for the assessment of environmental and health risks associated with human activities.

Programmes and Projects: Well functioning system of epidemiological services that evolved into its present state since 1952, and that has been cooperating closely with primary health care services, has resulted in a remarkable reduction in communicable diseases. The Integrated Non-communicable Diseases Intervention Programme (CINDI, WHO) seeks to lower morbidity and mortality by focusing on non-communicable and metabolic chronic diseases through behavioural changes and community-based activities aimed at definition of population groups at risk. The Teplice Research Programme assisted by the EU PHARE programme, is intended to improve the health of the inhabitants of the Teplice region exposed to the extremely damaged environment. The National Health Restoration and Promotion Programme was adopted by the Government in 1991. On the basis of this document, National Health Programme was adopted outlining the long-term strategic goals and reflecting the objectives of the WHO “Health For All by 2000.” Several Czech towns participate in the WHO Healthy Towns programme—a complex community based-programme with the objective of improving the health of town inhabitants through their involvement in environment and health projects, which address their specific problems.

Status: The health care system in the Czech Republic has been reconstructed since 1989. The accession to medical health care for everyone without differences has been established in The Chapter 30 of the Charter of Fundamental Rights and Basic Freedoms approved by former Czech Federal Assembly. Over 20 500 independent health care centres have replaced the regional National Health Institutes administered and financed by the State. At the same time, a health insurance system was introduced, and private doctors signed contracts with these insurance companies. The Medical Chambers were founded, and pharmacies and spas, followed by other facilities, were privatised in spite of this privatisation the Czech present medical health care system is based on the principle of solidarity among Czech people. Quality standards for health services were set at a level compatible with that of Western Europe, due to introduction of new diagnostic and less invasive operating methods.

The total number of patients per one doctor has been decreasing continuously since 1960 (See Fig.6.1) and the medical quality standards of EU like accessibility of the human health care become more realistic. The trend in the decrease of the total number of sickbeds, mainly in hospitals, during last ten years has been outweighed by the shortening of time which every patient spend in hospital, because of intensifying of medical care.

Fig.: 6.1: Accessibility of Medical Health Care



Source: *Statistical Yearbook 2000*, Czech Statistical Office

Capacity-Building, Education, Training and Awareness-Raising: There are 26 technical schools with specialization for median medical staff and seven medical faculties at different universities, including one military medical faculty in Hradec Králové, with specialization for all main medical areas.

Information: By Government Decree No. 369/1991, a system to monitor air pollution, drinking water quality, noise pollution, food, toxic substances in human tissue and geno-toxicity, was established in order to measure the impact of different environmental hazards on human health. In 1993, this system was implemented in 30 districts with a budget of CZK 174 million (5.4 million €).

Research and Technologies: The Czech Republic awake to the necessity of support of scientific and research projects in all scientific fields including the medical sciences. The total number of medical projects in all medical branches is 565 for the time period 1998 – 2004 (the highest number of projects has been performing in oncology and hematology, 83 projects). The financial support of these project from the state budget has reached the level of 1.776 milliard CZK (55.5 million €) for the same period. The total financial support (including the international support) of these medical scientific projects has reached the level of 2.108 milliard CZK (66 million €). This financial support doesn't include the projects performed in natural scientific areas related to medical sciences as microbiology, biochemistry, molecular biology, pharmacology etc.

Financing: Since 1992, the main source of finance for the health care services has been contributions from employees (4.5% of earnings) and employers (9% of earnings). The State pays for people who are not earning, i.e. children, students, the unemployed, women on maternity leave and soldiers. To support activities in connection with the National Health Programme encompassing 12 project areas, the Czech Government has been allocating about CZK 35 million (1.1 million €) annually since 1993.

Cooperation: See under **Programmes and Projects**.

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CHAPTER 7: PROMOTING SUSTAINABLE HUMAN SETTLEMENT DEVELOPMENT

Decision-Making: The Ministry for Regional Development is responsible for decision-making in this area. The Ministry of the Environment supports some activities and projects concerned sustainable development; it also produced State Environmental Policy. The Czech government accepted this Policy and it is based on sustainable development principles. Other ministries have their own individual programmes related to sustainable development but the sustainable development is not the key criteria for activities of these ministries.

Actually activities and projects specialised on sustainable development of human settlements are not systematically supported. Some Major Groups such as the Association of Tenants Protection and Householders Association also participate in decision-making related to human settlements.

Programmes and Projects: There are many separate activities, programmes and projects, which are not established as permanent system of promoting sustainable human settlement development. There are some wider programmes and projects such as National Network of Healthy Cities of the Czech Republic (HCCR). This is national association of active cities in the Czech Republic that are implementing the WHO Healthy Cities Project, an international initiative under the auspice of the World Health Organization (WHO). The HCCR cooperates on various projects related to active ageing, injury prevention and healthy nutrition, including: Contact club for “youth from the street”; Dream of the Playground the Dreamland; Energy control and saving measures at schools; Catalogue of Leisure Activities; Path of Health; Programme for long-term unemployed clients of the social curators.

In Czech Republic, the Association for the restoration and development of rural area is also active. The project of the Czech Environmental Institute “Broader Support of Local Agenda 21 Processes in the Czech Republic” is supported by the British Know How Fund. There are some other programmes supporting sustainable development of human settlements specialised on particular issue such as community involvement, recovery of a local cultural heritage and customs, waste management, water management, landscape, etc.

Status: At the end of 2001 HCCR member cities (HCCR League) associated 31 cities (1.1 million inhabitants i.e. 11% of Czech population). Membership in this association is open to municipalities, micro regions and town districts. The core procedure for adopting principles of HCCR has been New Gate 21 a methodology for health, sustainable development and the quality of life in the cities of the Czech Republic since 1998. New Gate 21 Methodology is a support platform of strategic city development that helps cities to look towards quality in accordance with international documents (Health 21, Agenda 21, and NEHAP). The New Gate 21 Methodology was selected as a Worldwide Project EXPO 2000. It is being developed in cooperation with Charles University in Prague, other expert partners and NGOs. HCCR offers assistance in attaining the quality standards required by the European Union using New Gate 21 Methodology.

There are some strategic developing plans of villages, towns and regions with sustainable development principles in the Czech Republic. Main principles of sustainable development are slowly involved into regional strategic plans as well as into sectoral medium-term strategies.

Capacity-Building, Education, Training and Awareness-Raising: There is no wider awareness about sustainable human settlement development in the Czech Republic, but the Ministry of the Environment senses that this theme is worthwhile part of Agenda 21. The sustainable way of human settlement development is the basic assumption for improving the life of people in cities in accordance with environmental protection. The situation is improving via projects mentioned above and partially via activities of civil servants trained in sustainable development sphere.

Information: For more information see on the web pages: <http://www.nszm.cz>; <http://www.cpkp.cz/>; <http://forum.isu.cz/>; <http://www.ceu.cz/edu/ma21/praxecr.htm>; <http://uep.ecn.cz/projekty/uvod.shtml>.

For further information see Chapter 28 of this Profile.

Financing: There is no continual support of sustainable human settlement development in the Czech Republic but some processes are financed through NGOs. Many projects and programmes are supported by international organisations and foreign funds.

Cooperation: The further cooperation between sectors is still lacking on the central level. There is a weak area of open and close cooperation between business, civil services and NGOs in the Czech Republic, due to historical development of our country.

City Brno, the Moravian metropolis, represents the Czech Republic in the exclusive WHO European Healthy Cities Network. HCCR pursues long-term health and sustainable development of cities, represented by Health 21, Local Agenda 21, LEHAP and other strategic programmes for supporting the sound quality of life in the Czech Republic.

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CHAPTER 8: INTEGRATING ENVIRONMENT AND DEVELOPMENT IN DECISION-MAKING

Decision-Making: No information available.

Programmes and Projects: No information available.

Status: No information available.

Capacity-Building, Education, Training and Awareness-Raising: No information available.

Information: No information available.

Research and Technologies: No information available.

Financing: No information available.

Cooperation: No information available.

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CHAPTER 9: PROTECTION OF THE ATMOSPHERE

Decision-Making: Decision-making is the responsibility of the Ministry of the Environment - Air Protection Department. The coordinating bodies responsible for making decisions about the protection of the atmosphere include the ministries of: Industry and Trade; Environment; Agriculture; Finance; Foreign Affairs; Transportation and Communication, and the Czech Environmental Inspectorate. The Inter-ministerial Commission on Climate Change (ICCC) as an advisory body to the Minister of the Environment was re-established in 1998, consisting of representatives from the coordinating bodies, members of Parliament, scientists and representatives of NGOs. Decisions regarding small sources of air pollution (thermal output lower than 0.2 MW) are delegated to the lowest level of public authority.

The Czech national legislation addressing the protection of the atmosphere is extensive, and a new law on the air protection and ozone layer protection, which provides for the claims of the Beijing Amendment to the Montreal Protocol, was approved this year by Czech Parliament. In 1999 the National Climate Change Strategy in the Czech Republic was prepared by the ICCC and approved by the Government on 17/05/1999. It contains for example, the current stage of GHG (green houses gases) emissions, their projections for a 2010-horizon in two scenarios. It formulates priorities for further emissions reduction; it enhances removal of sinks (sector-by-sector) and presents the current position of the Czech Republic towards different Kyoto mechanisms.

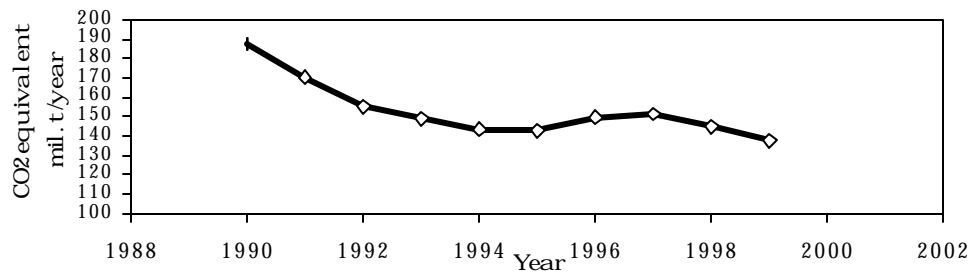
According to governmental decision No.480/99, the ministries of Environment, Industry and Trade, Transportation and Communication, Agriculture and Finance are responsible for implementing the strategy accordingly. The strategy relating to substances that deplete the ozone layer (ODS) involves meeting the requirements of the Montreal protocol. National policies and measures of the governmental decision No.480/99 are among others: energy saving; extended use of economically acceptable renewable energy sources; use of non-carbon fuels; increased conversion to gas in towns and cities; changes in credit systems for small and medium entrepreneurs, related to the introduction of energetically more efficient production technologies.

Programmes and Projects: The Czech Republic, with the support of the State Environmental Fund, is implementing the Chlorofluorocarbon Programme aiming at systematic collection, recycling and neutralization of the regulated substances and products encompassing freons by the 2003. The use of medical preparations with involving freons should be reduced and replaced with non-chlorofluorocarbon substances by the 2003.

Other methods being used for the protection of atmosphere include: the transposition of the EU directives concerning air protection; ban of leaded petrol in CR from 1.1.2001; the replacement of petrol by gas fuels; the endorsement by the Czech Ministry of Environment of the use of compressed natural gas, especially in public passenger and municipal freight transport (i.e. city buses and municipal lorries); and measures and changes that have been introduced to industrial and agricultural activities in order to reduce green house gas (GHG) emissions and concentrations, such as the State Programme for Energy Savings and Greater Utilization of Renewable Resources. In cooperation with GEF the following objectives were set up: reduction of global concentrations of green house gases and minimizing the adverse impact of climate change; phasing-out ozone depleting substances and introducing 3R scheme (Refrigerant Recovery and Recycling) in compliance with the Montreal Protocol.

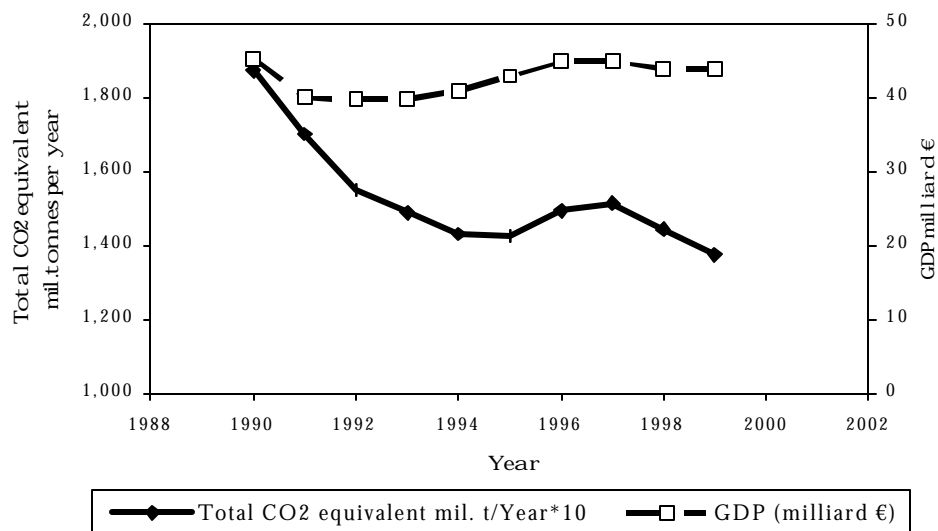
Status: During the period 1990-1999 the total entity of GHG emissions was reduced by 30%. The aggregated GHG emissions have been decreasing continually from approximately 185 mil. t CO₂ equivalent to 138 mil. t. (Fig. 9.1).

Fig. 9.1: The Development of GHG Emissions (total)



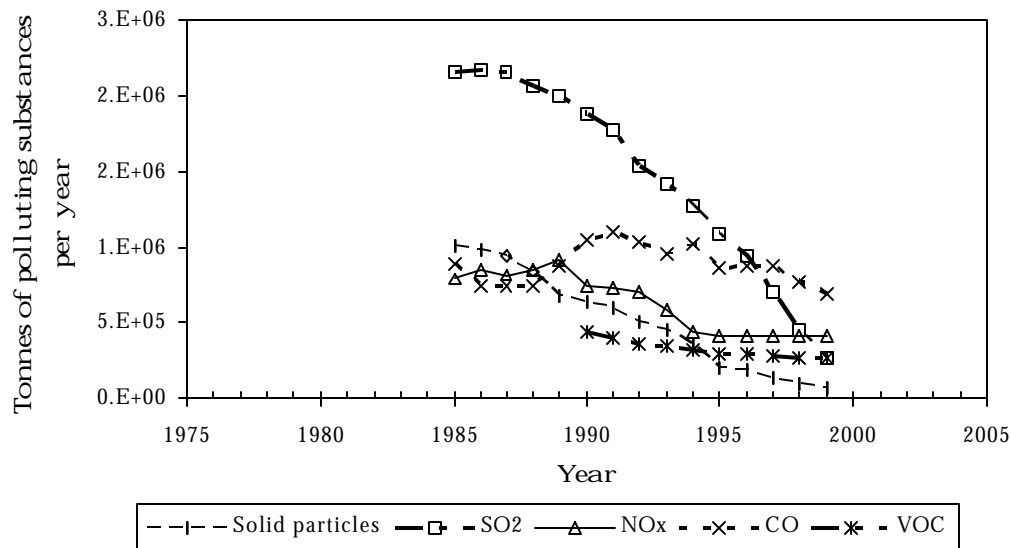
Source: *Statistical Environmental Yearbook of the Czech Republic 2000* and web page: <http://www.chmi.cz>
 85.9% of all emissions are covered by CO₂; 7.7% by CH₄; 6.1% by NO_x and 0.3% by “new gases” HFC, PFC and SF₆. The Czech Republic stands to the binding conditions of GHG emissions given in Kyoto already at present time and no problems are expected with standing to them in future. Partial success has been approached in the relative de-coupling of GHG emissions and of development in GDP (Fig. 9.2). It is very significant challenge this positive trend in the development of GHG emissions to deep it. Production of HCFC substances has been forbidden in the Czech Republic since 1997 and the current supplies are thus imported. The consumption for these substances should be stopped by 2010.

Fig. 9.2: De-coupling of the Curves of GHG Emissions and GDP Development in the Czech Republic



Source: *Statistical Environmental Yearbook of the Czech Republic 2000* and web page: <http://www.chmi.cz>
 We can see acceptable development of emissions of solid particles, SO₂, NO_x, CO and VOC (Fig. 9.3), where for example the SO₂ emissions have been reduced about 85%. The most important milestone in those emissions was 1989, when the new democratic system was established. The big stationary sources of emissions (the coal power stations in North Bohemia) have been equipped by the “end of pipe” technology during the following ten years. The lowest progress has been reached in emissions of carbon oxide, which can be considered as positive trend. Between the years 1998 and 1999 the emissions of SO₂, NO_x and CO₂ decreased dramatically due to the new emission limits.

Fig. 9.3: Emissions of the Main Air Polluting Substances



Source: *Statistical Environmental Yearbook of the Czech Republic 2000* and web page: <http://www.chmi.cz>

Reforestation and suitable deforestation of unmanaged land are conducted to increase greenhouse gas sinks. Sinks constitute about 3-4% of our total emissions balances due to forest activities. The problems related to air pollution are concentrated in urban areas. For example the Prague's city centre reported the highest values of NO_x in the Czech Republic in recent years with a moderately rising trend caused by the rising traffic density, mainly the higher passenger automobile transport. This situation has deteriorated (See. Figures in Chapter 4-Transport in this Profile). In spite of the public transport existing in cities at very high levels, the total amount of road km and of transported passengers has decreased continually since 1989. We can estimate the next negative trends in public transport, which is more environmentally friendly than the individual passenger transport. The Czech Republic should create such condition of public transport in order to increase the rate of utilization of public transport as the possibility of sustainable transport manner.

Capacity-Building, Education, Training and Awareness-Raising: Priority areas for capacity building identified in the Czech Republic are and has focused primarily on improving the quality of the national greenhouse gas inventories, including establishing of national registers; facilitating the elaboration of national policies and measures to reduce emissions and estimating their effects. The projects that are aimed at promoting a better understanding of the processes and consequences of changes in the atmosphere include; the Czech Hydro-Meteorological Institute: Air Pollution and Atmospheric Deposition in Data: the Czech Republic 1999 CHMI Prague; Project "Climate Change Research and Systematic Observations": National Climate Programme. The Czech Republic aims to promote public awareness of climate change and protection of the atmosphere through implementation of the Czech air protection legislation, information in the media and on the Internet.

Information: Automatic continuous monitoring systems for measurement of the three main pollutants (sulphur dioxides, carbon monoxides and nitrogen oxides) have been installed in the three most polluted areas (North Bohemia, Prague, Ostrava). Detailed information on pollution levels is given daily by the two national TV channels. Pursuant to the current legislation, air pollution sources are divided into four categories. Complying with this categorization, the ISKO system operated by the Czech Hydro-Meteorological Institute (CHMI) includes REZZO 1 – 4 databases (Register of Emissions and Air Pollution Sources) which serve for achieving and presenting data on stationary and mobile air pollution sources. Large and medium-sized sources are monitored individually (point - sources pollution), small source on a local level (area sources) and mobile sources on a national level (line sources).

The Czech Environmental Inspectorate (CEI) is in charge of collecting data and verifying the categories of large pollution sources. CHMI in cooperation with other organizations are in charge of the remaining of the categories in the REZZO database. Data are available on the web pages of the CHMI www.chmi.cz. Information is disseminated and shared on the national and international level through the reporting to the Convention on Long-range Transboundary Air Pollution.

Research and Technologies: The Air Quality Information System collects and generally provides access to data gathered within major air pollution monitoring networks. When preparing charts and maps of the air pollution and deposition load on the country's territory, geo-statistical procedures and the tools of the Geographic Information System (GIS) map algebra are applied to estimate fields of air pollution and deposition characteristics derived from point (station) measurements. It is especially the method IDW and the interpolation method "kriging."

Both of the above-mentioned interpolation methods enable the performing of an objective analysis of the field, i.e. they allow value estimation in every point of the field. In Annex No. 1 of the Decree No. 117/1997 Coll., there are described measuring methods and technical requirements on instruments for continuous measurements of emissions from sources of air pollution. Energy efficiency technologies are needed and are being developed in order to reduce green house gases emissions and thereby protecting the atmosphere.

Financing: Between 1990 and 1994, approximately 40% of all environmental expenditures were spent on air pollution control (equipment to reduce emissions and to reconstruct power plants). The State Environment Fund supports investment projects on air pollution control through direct allocations and soft loans. In 1997, the National Property Fund will transfer 191.10 million € to the State Environment Fund to support the Air Recovery Programme.

The financial support of air protection from the state budget and from the other resources during 1990 to 1999 is demonstrated in Chapter 33 of this Profile with regard to financial support of environmental protection and sustainable patterns of next industrial, social and environmental development.

Cooperation: The Czech Republic is party to the Convention on Long-Range Transboundary Air Pollution. It ratified UNFCCC in 1993, and signed the Kyoto Protocol in 1998 and ratified it in 2001. The Czech Republic ratified the Montreal Protocol, its London Amendment and its Copenhagen Amendment in 1996. The latest report to the Montreal Protocol Secretariat was prepared in 1996. The Czech Republic ratified the United Nations Framework Convention on Climate Change and submitted its report to the UNFCCC Secretariat in 1997 and it aims to access to Peking Amendment by the end of 2000. Obligations concerning transboundary air pollution for the Czech Republic originate from the Protocol to abate acidification, eutrophication and ground-level ozone (ACETO) (For more information about cooperation between the Czech Republic and the other countries (see Chapter 39 of this Profile).

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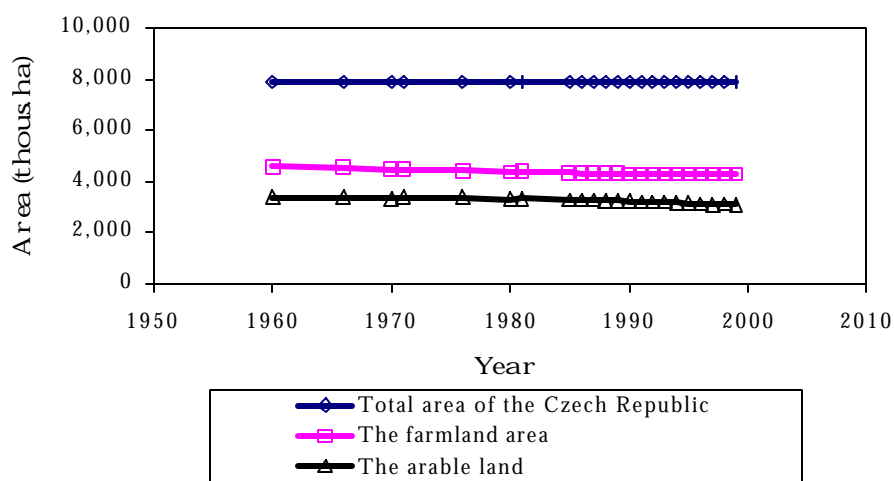
CHAPTER 10: INTEGRATED APPROACH TO THE PLANNING AND MANAGEMENT OF LAND RESOURCES

Decision-Making: Decision-making is undertaken by the ministries of the Environment, Regional Development, Transport and Communication and Agriculture. In accordance with the main priorities of the State Environmental Policy the most important decisions of responsible members of civil services should be made with the following aims: to establish and maintain the optimal ratio of arable land, meadows, pasturages, forests and water surfaces according the principles of sustainable development and limiting capacity of the environmental stands; to make permanent monitoring of the content of hazardous substances in the agriculture land; to minimize the content to avoid contamination of foods with these dangerous chemicals for people health in accordance with the framework of the Action Programme for Health; to create conditions for development of multi-functional agriculture to keep not only the productive function of agriculture also the non-productive functional of agriculture like is the maintenance of landscape, environmental services, growing renewable energy sources; to promote the ecologically thrifty form of agriculture with the aim to increase the part of land, where the organic agriculture would be performed (in 2005 6%, in 2010 more than 10%) (See Chapter 14 of this Profile for more information on the development in organic agriculture in the Czech Republic); to cover the whole land in protected landscape areas in accordance to principles of the sound agricultural practice and the organic agriculture; to create economical tools to promote the producers rape seeds for methylester of rape oil; to regulate individual components of the environment (water, soil, forest, climate), and fulfil international commitments through regional planning. Major Groups involved in this area include the Society for Sustainable Living and other NGOs, and the Commission for the Environment of the Academy of Science of CR.

Programmes and Projects: The Programme for Renewal of Rural Areas focuses on the development of the economies of municipalities, construction renewal, construction of civic and technical infrastructure and also care for the landscape. The programme stresses the necessity of preparing a suitable strategy (preparation of territorial plans of urban studies and local renewal programmes), which must precede the actual implementation of the local programmes. The Ministry of the Agriculture provides along with the Ministry of Environment and the Ministry of Finance the programme for promotion of producers of the rape. Its realization would start in this year 2002.

Status: The total acreage of the farmland represents 54.3% of the total Czech expansion; the arable land creates 39.3% of the total Czech expansion (See. Fig. 10.1). The farmland has been cultivated within many centuries and the switch from the extensive form of agriculture to the intensive one has been performed during this time period. Except of its productive function, the farmland affects intra its non-productive function the face of the landscape. So we must maintain carefully our farmland heritage.

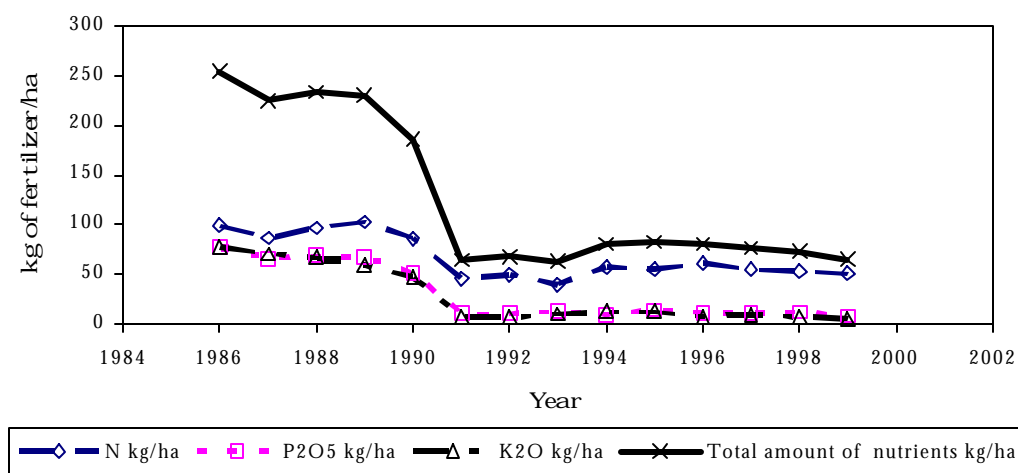
Fig. 10.1: The Farmland Area



Source: *Statistical Environmental Yearbook of the Czech Republic 2000*

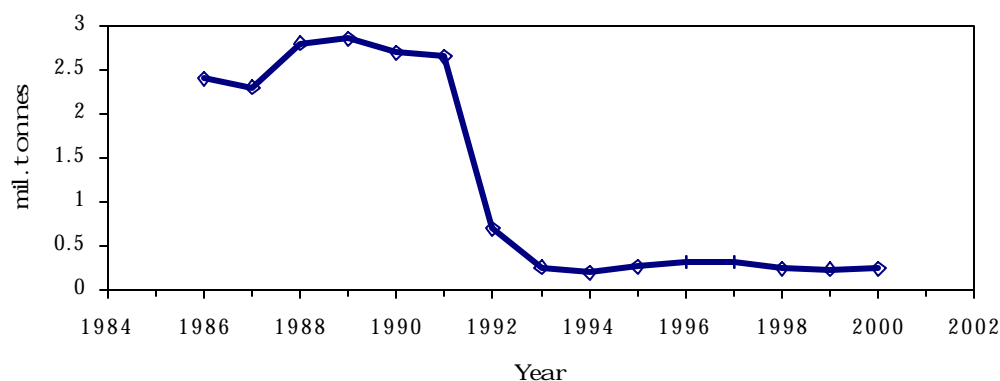
The possible way to manage our farmland (mainly the arable land) is very fine regulated application of fertilizers and pesticides, which could contaminate often the feeds and foods growing on our fields and so damage our health. The consumption of different fertilizers and pesticides is demonstrated on Figs.10.2 to 10.4.

Fig. 10.2: Net (N, P, K) Deposition of the Farmland with Fertilizers



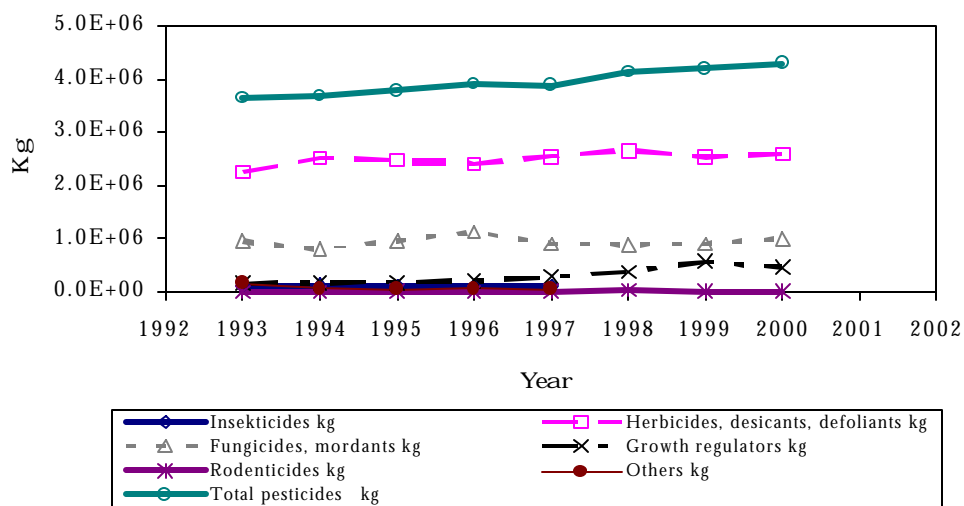
Source: *Statistical Environmental Yearbook of the Czech Republic 2000*

Fig. 10.3: Total Consumption of Ca²⁺ Fertilizers



Source: *Statistical Environmental Yearbook of the Czech Republic 2000*

Fig. 10.4: Total Consumption of Pesticides



Source: *Statistical Environmental Yearbook of the Czech Republic 2000*

The acreage of farmland and arable land has been slowly decreasing since 60th, but the rate of this decrease is not substantial now. Thus this positive trend, when farmland area doesn't change quickly, encourages stability of landscape in the country and it is necessary to keep this trend. The same positive trend has been registered in utilization of fertilizers, where the rapid downfall was occurred by 76% in 1989. The level of consumption of the fertilizers has been constant since 1990. In spite of this rapid downfall no dramatic decrease in the total corn production has been observed since 1990. This very positive situation could be the first steps to more sustainable forms of agriculture. Another explanation of this phenomenon is also possible. The high content of N, P, K or Ca deposited into the farmland in the past is sufficient for cultivation of farmland at present. The next period based on the observations of dependence of corn production on fertilizers consumption will be able to decide between these two hypotheses. Substantial dramatic downfall in the utilization of different classes of pesticides was registered in 1989-1990 (data not shown). Unfortunately this positive trend is not possible to keep in the following 10 years period and it is possible to see slow but continual increase in pesticides utilization now.

On the other hand it should be mentioned that present pesticides are more concentrated than these used before 1989. That the content of efficient substances fixed on 1 kg of pesticide has been comparable in both types of pesticides. Present pesticides are prepared by new methods and the majority of them are more biodegradable than the former types. It is the way to significantly decrease the risk of contamination of cultivated plants.

Capacity-Building, Education, Training and Awareness-Raising: There are many technical schools with a specialization on agriculture, two higher agricultural schools and two universities: Mendel's University of Agriculture and Forestry in Brno and The Czech Agricultural University in Prague.

Information: The data resources for this chapter were: The Czech Statistical Yearbook 2001 (The Czech Statistical Office), The Environmental Statistical Yearbook 1996, 1997, 1998, 1999 and 2000 (The Czech Statistical Office and The Ministry of the Environment), web sides of the Ministry of Agriculture.

Research and Technologies: The Research Institute of Plant Production, the Veterinary Institute, and the Research Institute of Agricultural Economy have been established by The Ministry of Agriculture. They are responsible for quality of agricultural research and for the development of new methods of agricultural activity.

Financing: Financing is provided by the national budget, the State Environmental Fund and foreign aid. The important financial resource is the programme of EU for countryside development - SAPARD.

Cooperation: Very important cooperation is running intra the programme of EU for candidate countries SAPARD

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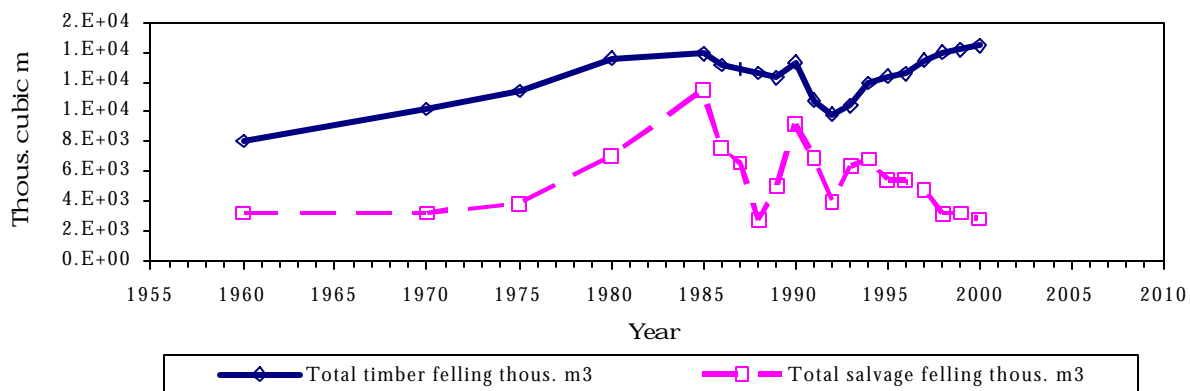
CHAPTER 11: COMBATING DEFORESTATION

Decision-Making: The ministries of Agriculture and Environment are responsible for decision-making in this area. A State Forest Policy was approved by the Government in 1994. The protection of the forests and forest management are provided by Act No. 289/1995, which creates the legal framework for balanced management of all the functions of forests. The Act stipulates the obligation of reforestation of clearings within two years. Even the wood sourcing is classified as renewable source we must very carefully regulate it.

Programmes and Projects: The Czech Republic seeks to increase forest areas through reforestation and suitable afforestation of unmanaged land in order to increase greenhouse gas sinks. A programme for afforestation of agricultural land began in 1994. In the framework of the programme subsidized within the restructuring of plant production (total amount CZK 65 million - 2 million €) 1516 ha were afforested during 1994-1996. In some areas damaged by emissions, foundations developed which subsidize regeneration of forests.

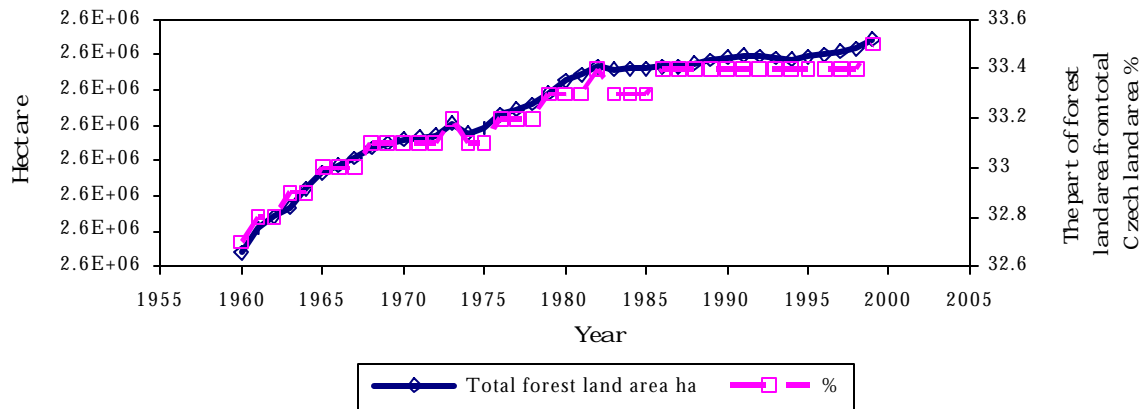
Status: The dependence of timber felling on the time is demonstrated on Figure 11.1. The timber felling has been increasing continually since 1960 and this trend is still not reversed. This fact is in direct opposition to the decrease in reforested land area. The Czech Republic has reached the success in the stabilization of the rate of salvage felling. Forests cover more than 33% of the country's territory (2 634 000 ha in 2000) and have been slowly increasing since 1960 but the forestland area does not exceed 35% of the Czech country's territory (see Fig.11.2). Some 43% of the forest territory has been classified as protected forest areas and special purpose areas. Forest in large-scale and small-scale protected areas covers approximately 27% of the forest area.

Fig. 11.1: Total Timber Felling



Source: *Statistical Environmental Yearbook of the Czech Republic 2000* and *Report on the state of forest and forestry in the Czech Republic 1999*

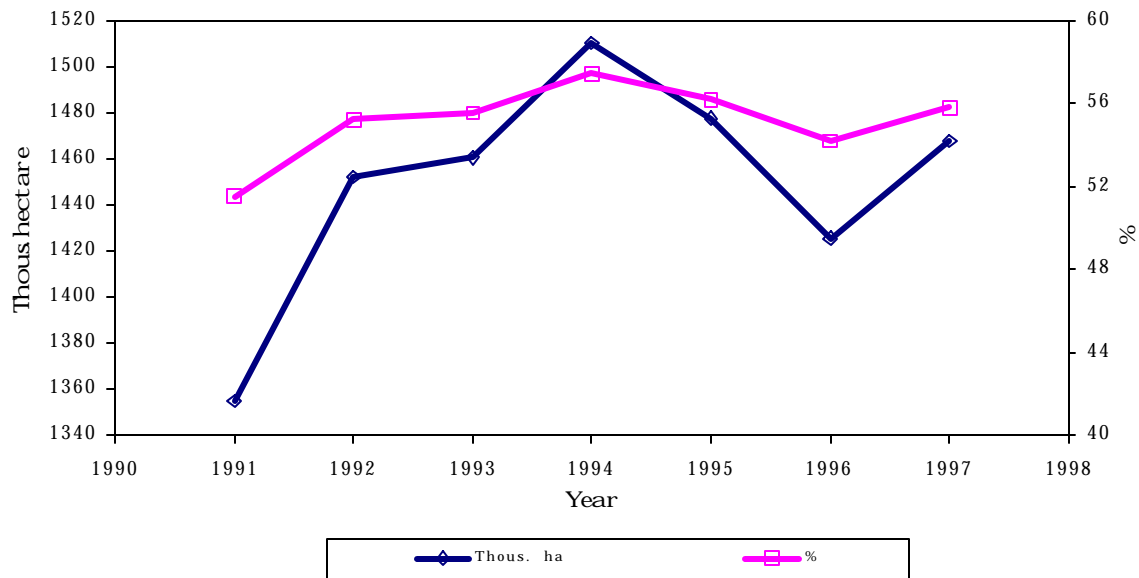
Fig. 11.2: Forestland Area



Source: *Statistical environmental Yearbook of the Czech Republic 2000 and Report on the state of forest and forestry in the Czech Republic 1999*

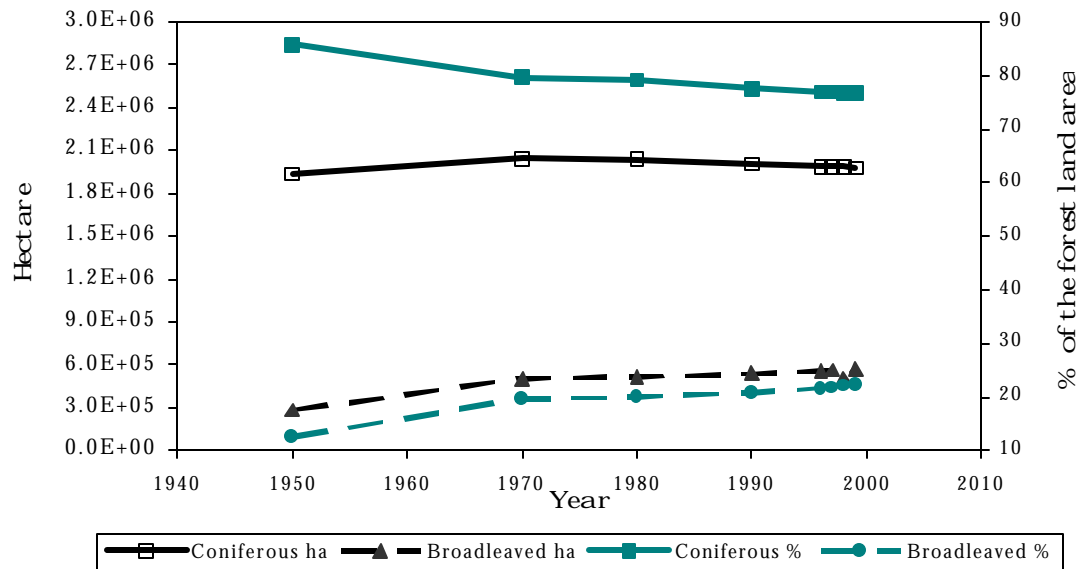
Most of the forest areas had to be logged due to emission damage since 1958. The total damaged forest area is slowly decreasing during last ten years (See Fig. 11.3) but the damaged forestland categorized as slightly damaged is increasing during the same time period. In 1994, 57.5% of the total forest area was damaged; in 1995: 56.2%; in 1996: 54.2%. Most of the resulting clearings have been reforested but we must respect the fact that the reforested land area has been decreasing since 1960 about 25% until 1989 (Fig. 11.4).

Fig. 11.3: Pollution damage to forest stands



Source: *Report on the state of forest and forestry in the Czech Republic 1999*

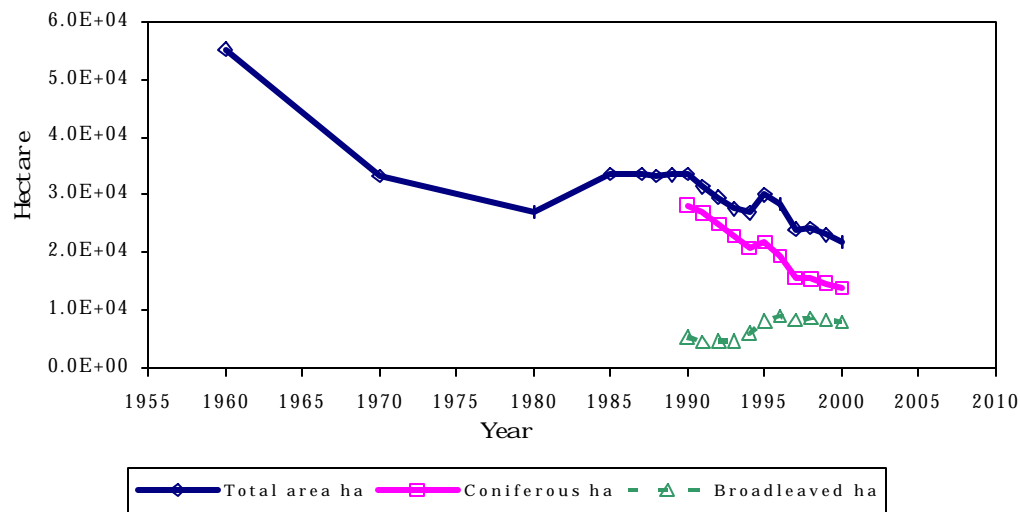
Fig. 11.4: Tree Species Composition



Source: *Statistical environmental Yearbook of the Czech Republic 2000* and *Report on the state of forest and forestry in the Czech Republic 1999*

We can see one positive effect in reforestation. The part of land area reforested with broadleaved species is continually increasing so this type of reforested land area becomes comparable with the land area reforested with conifers. The tree species composition is slowly approaching the former natural tree species composition defined as mixed forest (Fig. 11.5). The threat to forests has seemingly diminished after the logging of the destroyed areas on the North Bohemian mountain ranges and the reduction of emissions of sulphur compounds, through the health of forest vegetation, dropped further at some sites.

Fig. 11.5: Reforestation



Source: *Statistical Environmental Yearbook of the Czech Republic 2000* and *Report on the state of forest and forestry in the Czech Republic 1999*

Capacity-Building, Education, Training and Awareness-Raising: There are four main levels of the Forestry Education in the Czech Republic: 2 Universities - with forestry specialization and the bachelors study programmes of the farm and the Civil Service in the forestry farming, 781 students in the year 1998; 2 Higher forestry (technical) schools – 116 students in the year 1998; 5 Forestry technical schools – with following specializations:

forest and forest administration, 960 students in the year 1998; and, 13 Vocational: 3 years with the specialization: mechanization of forest operation, skilled workers and mechanic; 2 years with the specialization: forest operations and skilled workers, silviculture operations. The overall number of students in forestry schools is 1827 students.

Information: The Czech Statistical Yearbook 2001, Statistical environmental Yearbook of the Czech Republic 1992, 1996, 1997 and 2000 (The Ministry of the Environment), Report on the state of forest and forestry in the Czech Republic 1999 (The Ministry of the Agriculture).

Research and Technologies: The main objectives of forest research are resolved at the Forestry and Game Management Research Institute (FGMRI; Jíloviště- Strnady), at the Czech Agricultural University in Prague and at Mendel's University of Agriculture and Forestry in Brno. More important theme of the Czech forestry Research is the tree breeding and the studies reflecting the topics of tree species composition. Very important and current topic of the forestry research is the study of different features of the forests in areas damaged by pollution or by insect with the aim to avoid tree death. The FGMRI has elaborated 68 research reports in 1998.

Financing: Financing is provided by the State Agricultural and Forest Subsidence Fund, very important part of forest research is financed by the Ministry of the Agriculture intra-programme "Science and Research." The significant and constantly increasing contribution in financing creates the financial support from the organization "The Forests of the Czech Republic." Intra-this support has been resolving the concrete practical problems in maintenance of local forest systems.

Cooperation: The Czech Republic maintains bilateral agreements with Germany and Austria in the area of forests. The cooperation Intra-Europe territory is considered as financial support of projects of the 5th programme.

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CHAPTER 12: MANAGING FRAGILE ECOSYSTEMS: COMBATING DESERTIFICATION AND DROUGHT

Decision-Making: No information available.

Programmes and Projects: No information available.

Status: No information available.

Capacity-Building, Education, Training and Awareness-Raising: No information available.

Information: No information available.

Research and Technologies:

Financing: No information available.

Cooperation: The Czech Republic is a party to the United Nations Convention to Combat Desertification in those Countries Experiencing Serious Drought and/or Desertification, Particularly in Africa (UNCCD).

Czech experts are prepared to help developing countries in the sphere of pedology, hydrology, agriculture, reforestation etc.

* * *

CHAPTER 13: MANAGING FRAGILE ECOSYSTEMS: SUSTAINABLE MOUNTAIN DEVELOPMENT

Decision-Making: Decision-making is the responsibility of the ministries of Agriculture, Environment and Regional Development.

Programmes and Projects: In 2000 the Krkonoše and Šumava Biosphere Reserves took part in a project financed by the Global Environmental Facility, through the World Bank. The main objective of the project was to develop effective management techniques and model conservation programmes that would effectively address increasing threats, and allow control of the number of visitors.

Status: Most of the mountainous areas are part of protected areas - national parks including:

The Krkonoše Mountains (the Czech highest mountains) National Park: founded in 1963, the total core zone area is 10 149 ha, the buffer zone area is 31 722 ha, the transition zone area is 18 430 ha, Krkonoše Mountains are the source area of the rivers: Labe, Úpa, Jizera, Mumlava (the Czech part), the tree species forest composition is stated in Tab. 13. 1. There are app. 1 200 vascular plants species with many endemic species in the Krokonoše Mountains, See: www.krnep.cz for next information.

National Park Šumava, founded in 1991; the total area of this National park is 69 030 ha, 81% of total area is covered by forests, 9% by agricultural lands and about 10% of total area is non-wooded area. See: www.npsumava.cz for next information.

Tab. 13.1: Generic Structure of Forests in Krkonoše Mountains

Species	Current generic structure	Natural generic structure	Optimal generic structure
Silver fir	0,1	15,55	9,19
Dwarf pine	6,9	6,13	6,13
European larch	0,9	0	0
Norway spruce	86,7	49,44	49,03
Coniferous - total	94,6	71,12	64,35
European beech	2,6	26,68	30,43
Mountain ash	0,6	1,30	2,37
Other deciduous	2,2	0,9	2,85
Deciduous - total	5,4	28,88	35,65

Source: <http://www.krnep.cz>

Mountainous areas in the Czech Republic are partly covered by forests which have been damaged by emissions – the Krkonoše Mountains forests are completely damaged, 13% in the category A (vitality until 20 years), 31% in category B (vitality in the range from 21 to 40 years) and 56% in category C (vitality in the range from 41 to 60 years). The previous facts describe the status of Krkonoše forests in 1991.

The electric power stations on solid fuel, localized mainly in North Bohemia, were equipped with “end of pipe” technologies like the dust separators and installation for desulphurization of smoke gases after this year. The reduced emissions of dust and SO₂ by more than 80 % (for more information See Ch. 4-Energy) influenced the status and vitality of the forests in North Bohemia in sounder manner. The larger part of forests is considered as healthy at present. Agriculture in the mountains is subsidized - i.e. maintenance of the cultural condition through an agricultural land fund. Recreational activities have not yet exceeded the acceptable levels, with the exception of Krkonoše Mountains National Park. The number of visitors to the Krkonoše Mountains National Park is estimated on 8 million of visitors per year. Eco-tourism has been developing.

Capacity-Building, Education, Training and Awareness-Raising: The National Parks administrations have established the Departments of Ecological Education, which shall ensure different educational projects and programmes related to protection of mountains ecosystems.

Information: Administration of Mountains National Parks: Krkonoše and Šumava. For more information see web side: www.krnep.cz and www.npsumava.cz.

Research and Technologies: The research projects in this field are supported by Administrations of Mountains National Parks. For forest research projects see Ch. 11. Some special research projects for mountains ecosystems, for example for Krkonoše Mts., are supported by the Ministry of the Environment.

Financing: The national budget and the State Environment Fund are providing financing. Subsidies were provided from the State budget for the following measures: protection of the landscape against erosion; preservation of species and reinforcement of biodiversity; increasing the retention capacity of land etc. in the framework of the Programme of Conservation of the Landscape and Programme for Revitalization of River Systems.

Cooperation: The Czech Republic has bilateral agreements with Germany and Austria (agreements on cooperation between The Šumava Mountains National Park Administration and The Bayerische Wald Mountains National Park), and cooperation with Poland in this area. As a result of Czech-Austrian cooperation, there is a project for the systematic revitalization of a Sub-mountain headwater landscape.

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CHAPTER 14: PROMOTING SUSTAINABLE AGRICULTURAL AND RURAL DEVELOPMENT

Decision-Making: The Ministry of Environment and the Ministry of Regional Development run the Programme of Renewal of Rural Areas, which is focused on building investment.

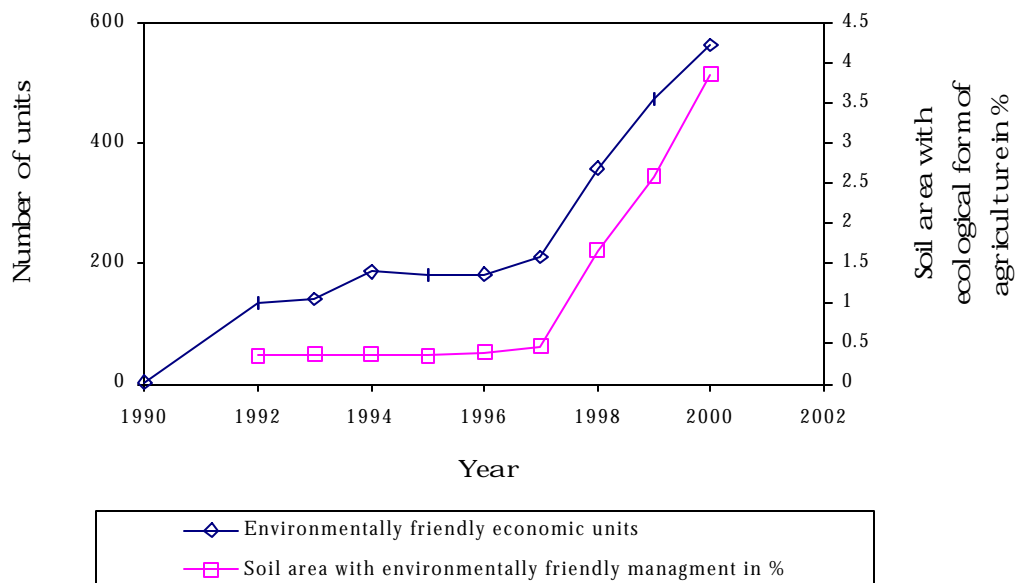
The Act on Protection of Agricultural Land No. 334/1992 Coll. (amended by Act No. 10/1993 and Act 231/1999 Coll.) concerns soil as a means of production, but does not provide measures to address environmental issues related to soil protection. The Decree of the Ministry of Agriculture No. 53/2001 Coll. explains the new Act on ecological Agriculture No. 242/2000 Coll. Act No. 58/1998 Coll. on payments for the discharge of waste waters into surface waters. It has been approved new Act about water resources No. 254/2001 Coll. The Decrees No. 341/1997 Coll. and No. 24/1999 Coll. established Programmes supporting non-producing functions (ecological) of the Agriculture. National agricultural policy subsidies non-producing functions of the Agriculture by Regulation No. 505/2000 Coll. of the Government of the Czech Republic (amended by Regulation No. 500/2001 Coll). For social purposes (LFA) it does increase support for: reforestation, maintaining the landscape; pasture of beef herds without milk production; non-producing forest functions; and support of less favoured areas. Environmental criteria are not the purpose of the support. In practice, a large part of the agro-environmental subsidies paid out is for maintaining (i.e. mowing) grassland.

Major groups of ecological producers are: PRO-BIO (Association of Organic Farmers) and LIBERA. Foundation of Organic Agriculture (KEZ) is appointed as the inspection and certification body in Czech Republic from 1.4. 1999. Organizations concerned with renewable energy are: Association of Biodiesel Producers and League of Energetic Alternatives. And concerning regeneration of the countryside: Association for the Regeneration of Countryside.

Programmes and Projects: SAPARD, PRRS, ISPA, Programme of support for energy savings and use of renewable energy sources. For more information about sustainable Agriculture see web sides: www.mze.cz, www.mmr.cz, www.kez.cz

Status: In 1998, the share of agricultural production in the Czech Republic was on level at 2% of the GDP. The use of fertilizers and pesticides is at a low level, with an impact of low profitability of agricultural production. The negative impact includes pollution of surface water (nitrogen, soil from erosion) leading to the pollution of neighbouring countries and to a low level of eco-stability of the countryside. More positive results are high quality ground water and no mono-cultures in plant production (high biodiversity). Use of GMOs is strictly controlled. The share of ecological agriculture in the Czech Republic in 1999 was 2.59% - 110 756 ha (See Fig. 14.1) of total agricultural land.

Fig. 14.1: Ecological Agriculture in the Czech Republic



Source: *Statistical environmental Yearbook of the Czech Republic 2000*

Integrated agricultural systems are also used, mostly for vineyards. The total number of units with ecological form of agriculture has been increasing by 400% since 1990, the total area on which ecological agriculture has been performing, has been increasing by 250% since the same year. Thus we can consider this trend as positive, but the absolute values of these indicators shown on the Fig. 14.1. are still insufficient.

Capacity-Building, Education, Training and Awareness-Raising: No information available.

Information: Information about sustainable Agriculture, see web sites: www.mze.cz, www.mmr.cz, www.kez.cz, www.pro-bio.cz and Information centre of ecological Agriculture.

Research and Technologies: Czech Agricultural and Food Processing Inspection, National Agricultural Inspection and Testing Institute, National Veterinary Administration of the CR. Crop Production Research Institute, Production of renewable energy source - biodiesel - was supported by investment in processing, and is now supported by lower VAT (5%) than other fuels (22%). New technologies of soil treatment and cultivation procedures are also being developed.

Financing: Financial sources include State Environment Fund, The supporting and guarantee Agriculture and Forestry Fund. The Ministry of Agriculture subsidizes organic farming (benefiting the environment) and with the Ministry of the Environment the regeneration of the countryside.

Cooperation: Since 1990, cooperation exists with the EU countries and European regions (Programme PHARE). The Ministry of Agriculture is an accredited member of International Federation of Organic Agriculture Movements (IFOAM), which provides the possibility of international certification of Czech organic products. The Czech Republic also works on the project and the European Ecological Network.” There is cooperation between Czech and foreign associations of organic agriculture (e.g. PRO-BIO and BIOLAND - Germany) and between FAO and similar organizations in European countries. Czech research institutes are involved in international research programmes concerning environmental issues.

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CHAPTER 15: CONSERVATION OF BIOLOGICAL DIVERSITY

Decision-Making: An important element of the strategy has been to amend the legislation. The current Act on Nature and Landscape Protection (114/1992) does not provide economic instruments that encourage protection of the environment. The legislation reassess the harmonization of the legitimate interests of environmental conservation and appropriate forms of economic activity, and to provide through law the control of trade in endangered and protected animals and plants in accordance with the CITES Convention. The Act emphasizes the Territorial system of ecological stability (TSES) that represents the national ecological network, connected to the European Ecological Network.

The Czech Republic participates through the medium of Agency for nature conservation and landscape protection of the Czech Republic on ecological mapping intra-EU. The aim of this activity is to create the interlinked system of small protected areas in Europe NATURA. The Czech Republic prepares TSET on interconnection of it with the other European system of ecological mapping with the network EECONET.

Ecologically educated experts and the Ministry of the Environment have defined in the State Environmental Policy strategic decisions for biodiversity protection. The main aims are to: update and elaborate the State Programme of Protection of Nature and Landscape of the Czech Republic on the basis of specific conditions in the regions and localities in areas respecting the principles of sustainable development, taking into account the capabilities of the state budget; implement the objectives of above mentioned and updated programme; decrease cultivation to 65% of farmland (through selected afforestation, biocorridors or establishing grasslands by the year 2005; improve the quality of the soil through reduction of the input of hazardous substances into composts and sludge; reduce foodstuff production on contaminated soils; utilize contaminated soils for growing industrial corn and biomass for energy generation; to establish at least 50% of proposed designated TSES, prepared in the framework of approved documents on complex land-use planning documents by the year 2003.

Programmes and Projects: The biological diversity in the Czech Republic has been significantly reduced due to industrial pollution, large-scale farming and unfavourable agricultural practices with heavy use of chemicals. Consequently, conservation of biological diversity is considered one of the priorities of the State Environmental Policy. During the period 1999-2005, the primary targets will be to protect biodiversity by minimizing harmful impacts, revitalizing biotopes and protecting and reintroducing endangered indigenous species.

Very important project supported by the Ministry of the Environment is participation of the Czech Republic in the network of ecological mapping NATURA 2000 related to protection of biodiversity in Europe. The Czech Republic developed the similar system of ecological mapping before 1989. The territorial system of ecological stability represents the system of biodiversity protection on our national level. But its promotion into the practice is not as easy as the Ministry of the Environment imagines.

Establishment of national parks is provided by Government decrees. In accordance to GEF objectives concerning protection and strengthening of the representative ecosystem biodiversity and preparing, The National Biodiversity Strategy and Action Plan was set up.

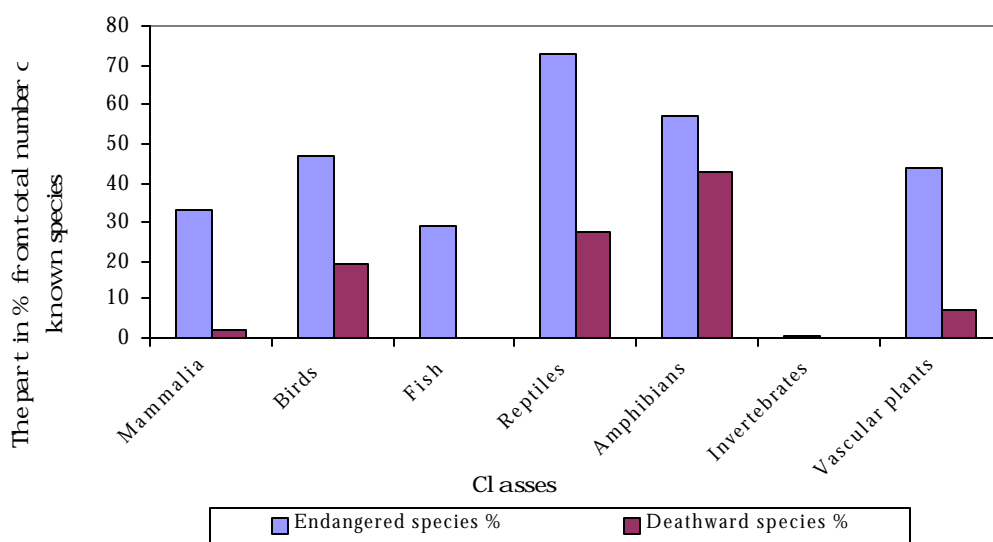
See also under **Decision-Making, Status and Capacity-Building, Education, Training and Awareness-Raising.**

Status: Due to some improvements in agricultural practices (mainly due to decrease in utilization of fertilizers and pesticides), biological diversity is gradually improving in the Czech Republic (for more information see Chapter 10 of this Profile). Many invertebrates and birds are reappearing but the total number of endangered biological species and deathward biological species is still high (for situation in 1997 see Fig. 15.1). New hedgerows, bush game refuges and green areas have been established to divide ploughed fields and to limit the extent of erosion of agricultural land. Consequently, the number of game animals has increased.

An important element of the Czech Nature Protection Strategy is the system of protected areas; national parks (1116.5 km²); protected landscape areas (10 416 km²); national nature reservations (275.4 km²); national nature monuments (27 km²); nature reservations (320.1 km²); nature monuments (264.3 km²). Total number of protected areas is illustrated on the Fig. 15.2. The curves representing separate types of protected areas demonstrate hospitable trend, where the total number of different types of protected areas have been stable or increasing since

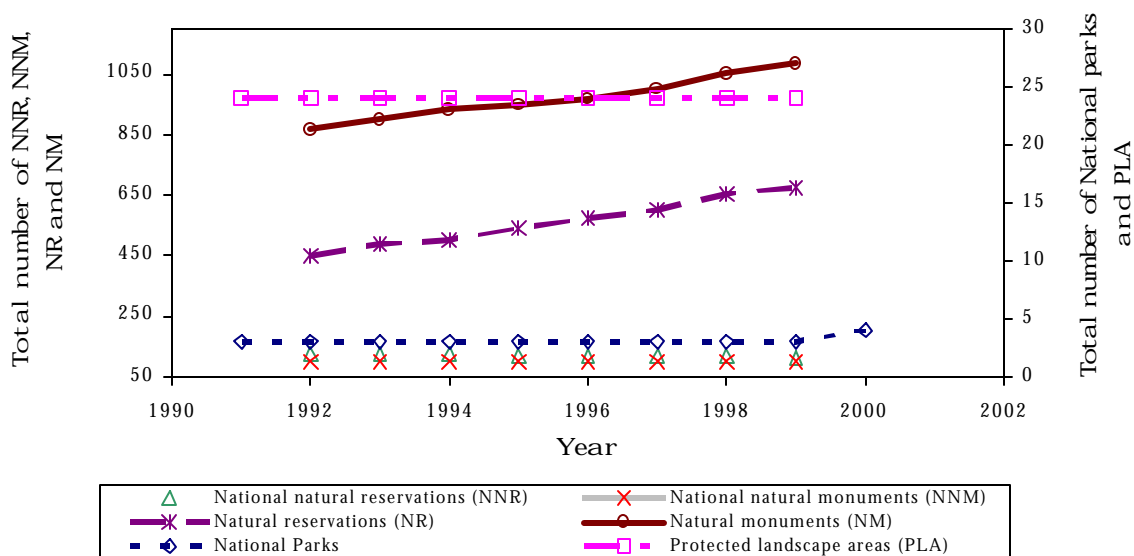
1991. Thus it is necessary to preserve this situation and subsequently look for new areas with rare species of plants or animals. We must protect even such small areas to keep our natural wealth.

Fig. 15.1: Biodiversity Protection – Endangered Species



Source: *Statistical Environmental Yearbook of the Czech Republic 2000*

Fig. 15.2: Total Number of the Different Types of Protected Areas



Source: *Statistical Environmental Yearbook of the Czech Republic 2000*

Capacity-Building, Education, Training and Awareness-Raising: The Czech Environmental Institute is involved with the IUCN project “Effective Communication for Biodiversity Conservation” which focuses on capacity building of experts.

Information: The data resources for this chapter were: The Czech Statistical Yearbook 2001 (The Czech Statistical Office), The Environmental Statistical Yearbook 1996, 1997, 1998, 1999 and 2000 (The Czech Statistical Office and The Ministry of the Environment), web sides of the Ministry of the Environment, OECD Indicators.

Research and Technologies: No information available.

Financing: Financing is provided by the State Environment Fund and foreign aid. Subsidies were provided from the national budget for the following measures: protection of the landscape against erosion, preservation and reinforcing of species biodiversity, increasing the retention capacity of land in the framework of the Programme of Conservation of the Landscape and the Programme for Revitalization of River Systems.

Cooperation: The Czech Republic signed and ratified the Convention on Biological Diversity in 1993. It has also ratified the Convention on International Trade in Endangered Species of Wild Fauna and Flora (CITES) and submitted its latest report for this Convention in 1995. The Czech Republic has signed the Convention on Wetlands of International Importance Especially as Waterfowl Habitat; Convention on the Conservation of Migratory Species of Wild Animals; Agreement on the Conservation of Bats in Europe. Bilateral cooperation is developing with Germany and other European countries.

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CHAPTER 16 AND 34: ENVIRONMENTALLY SOUND MANAGEMENT OF BIOTECHNOLOGY AND TRANSFER OF ENVIRONMENTALLY SOUND TECHNOLOGY, COOPERATION AND CAPACITY-BUILDING

Decision-Making:

Technology: The Czech Cleaner Production Centre is a non-governmental, non-profit and independent organization that plays a catalytic and coordinating role in the promotion of cleaner production by providing training, implementing demonstration projects, providing policy advice, providing advice on financing mechanisms and being a source of information.

Biotechnology: Decision-making in this area is the responsibility of the ministries of Agriculture, Environment and Health. The Commission for the Environment of the Academy of Science of CR, Society for Sustainable Living and others NGOs also participate in the decision-making. Methodical guidelines for biotechnology safety mechanisms were prepared in 1994 and they are updated periodically. The law on genetically modified organisms is in a preparatory stage. Specific plans to promote the use of traditional and modern technologies are in process. The use of living organisms in any biotechnological processes requires permission from the Ministry of Health, and the rules applied are very strict. Working with any health-endangered organism needs special permission and strict rules must be followed; monitoring takes place regularly.

Programmes and Projects:

Technology: In the framework of Phase I of implementation of measures to improve the air quality in the Czech Republic, new imported air-protection technology is being brought into operation in compliance with legislative acts passed/approved by the Czech Environmental Inspectorate. A range of other technical facilities have also been put into operation.

The following technical facilities have been brought into operation: equipment for sulphur removal from energy-production combustion equipment with the semi-dry sulphur removal method and separation of solid pollutants; equipment with fluid-bed sulphur-removal technology in a sorbent fluid bed; atmospheric circulation fluid-bed furnace; equipment employed for the combustion of solid fuels with the optional addition of alkaline additive, equipped with an electrostatic separator of solid particles from the combustion; AFB equipment for atmospheric fluid-bed combustion of solid and additive fuels equipped with a fluid-bed firebox and separator of solid substances from the combustion products; equipment fitted with technology for purification and sulphur-removal from the combustion products by the wet method - using an aqueous suspension of finely ground limestone, for energy-production facilities burning solid and liquid fuels without output; equipment employing two-step limestone scrubbing to purify combustion products from combustion of solid communal waste; equipment equipped with wet-dry combustion purification technology for combustion products from combustion of solid communal waste using a calcium hydroxide suspension; equipment fitted with combustion-product purification technology for combustion of solid communal waste using the method of conditioned dry sorption on a mixture of dry calcium hydrate and additive coke, equipped with a filter for removing the sorbent with selective catalytic reduction of nitrogen oxide; and equipment with technology for purification of the combustion products from the combustion of special and especially hazardous waste by the method of wet-dry sorption on a suspension of finely ground limestone and additive coke in combination with wet limestone scrubbing and selective catalytic reduction of nitrogen oxides.

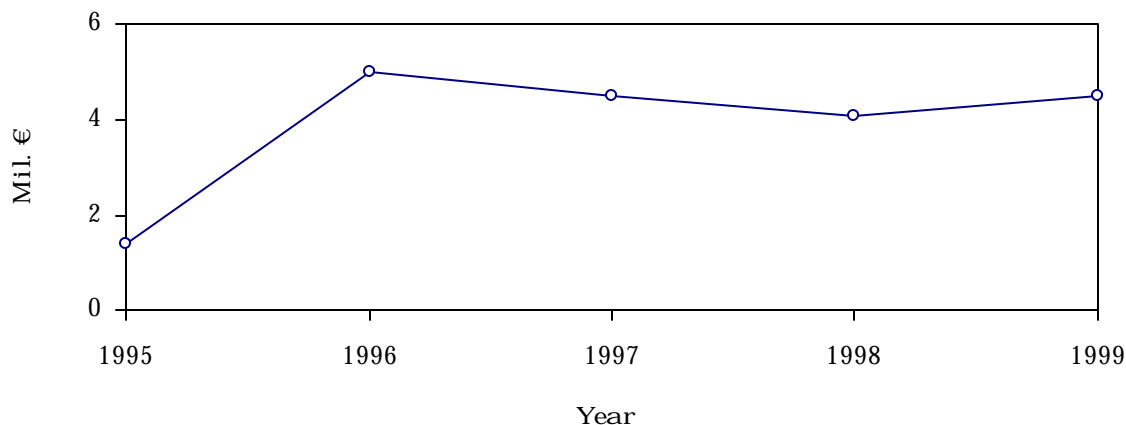
Biotechnology: See Chapter 2 of this Profile.

Status:

Technology: No information available.

Biotechnology: A bio-remediation working group was established, and a number of private firms have been established dealing with microbial decontamination of polluted waters and soils. The development of the investment in biotechnology is shown on the Fig. 16. 1., where it is possible to observe dramatic increase in financial support more than about 100 % from 1995 to 1996 and the stable level of financial support for next period from 1996 to 1999.

Fig. 16.1: Research and Development Expenditures on Biotechnological Research in Selected Areas



Source: <http://www.vyzkum.cz/databaze/cep/biotech/statist.eng.html>

Capacity-Building, Education, Training and Awareness-Raising:

Technology: There are four main universities dealing with technical education and research in the Czech Republic: Brno University of Technology with 8 specialized faculties and wide scientific background; Czech Technical University in Prague with 6 specialized faculties and wide scientific and research cooperation with EU, NATO, with post-communistic and developing countries; Institute of Chemical Technology in Prague with 4 specialized faculties and 16 industrial projects related to different chemical branches, including the treatment of waste water and polluted soil; and, Technical University in Liberec with 6 specialized faculties.

Biotechnology: There are many universities with faculties of natural sciences in the Czech Republic and many scientific and research institutions with educational and scientific programmes directly or indirectly related to biotechnology like: The Charles University, Palacky University, Mendel University of Agriculture and Forestry Brno, South Bohemia University etc.; Chemical, microbiological and biological institutes of the Czech Academy of Sciences, sectoral research institutions and laboratories, etc.

Information:

Technology: There is wide application of ISO 14 000 and EMAS procedures. The important sources of information were web pages of several technical universities: www.vutbr.cz, www.cvut.cz, www.vscht.cz

Biotechnology: The main sources of information about this topic were: The Statistical Yearbook 2001; Web pages of several institutions, for example: www.jcu.cz, www.muni.cz, www.vscht.cz

Financing:

Technology: No information available.

Biotechnology: During the last few years the Grant Agencies in the Czech Republic have supported many projects directed towards bio-techniques and environment.

Cooperation:

Technology: International cooperation takes place primarily through the multilateral initiatives like EUREKA, 5th and 6th Framework Programme of the EU, NATO programmes, and through the initiatives between the Czech Republic and developing and post-communistic countries intra programmes under administration of INTAS (www.intas.be). The international cooperation in the educational fields is realized through participation of the Czech Republic on programmes like LEONARDO DA VINCI, SOCRATES, CEEPUS, TEMPUS, EUROPASS.

Biotechnology: See above, under *Technology*.

* * *

CHAPTER 17: PROTECTION OF THE OCEANS, ALL KINDS OF SEAS, INCLUDING ENCLOSED AND SEMI-ENCLOSED SEAS, AND COASTAL AREAS AND THE PROTECTION, RATIONAL USE AND DEVELOPMENT OF THEIR LIVING RESOURCES

Decision-Making: The Czech Republic will prefer such decision-making in the management of water, which ensures to fulfil the aims in this sector as it has been covered in Chapter 18 of this Profile.

Programmes and Projects: No information available.

Status: The wastewater management decisions lead to improving quality of treated water, discharged into rivers. The Czech Republic reduces consequently its own portion of seas and oceans pollution.

The Czech Republic is a party to the multilateral conventions and protocols:

- Convention on the Protection and Use of Transboundary Watercourses and International Lakes (UN ECE);
- Antarctic Treaty;
- United Nations Convention on the Law of the Sea (UNCLOS);
- Convention on Cooperation for the Protection and Sustainable Use of the Danube River;
- Convention on the International Commission for Protection of the Elbe River;
- Convention on the International Commission for Protection of the Odra River against Pollution.

The Czech Republic is a signatory (not yet a party) to the Protocol on Water and Health to the Convention on the Protection and Use of Transboundary Watercourses and International Lakes.

The Czech Republic ratified: Moscow Treaty – Banning nuclear weapon tests in the atmosphere, in outer space and under water; Montego Bay – Convention on the Law of the sea.

Import of endangered species of sea Fauna is under control of the Convention on International Trade in Endangered Species of Wild Fauna and Flora (CITES).

Capacity-Building, Education, Training and Awareness-Raising: No information available.

Information: See Chapter 18 of this Profile for information on water quality protection.

Research and Technologies: No information available.

Financing: No information available.

Cooperation: More than 30% of the international boundary of the Czech Republic is formed by watercourses and thus cooperation with neighbour countries in transboundary water management is very important for the country. The activities of the Czech Republic in managing transboundary waters are governed by bilateral international conventions and agreements. The provisions of the agreements are implemented through bilateral commissions or representatives of the contracting parties.

Multilateral international cooperation conducted by the International Commissions for the Elbe, Oder and Danube River Protection is focused primarily on the following: to allow the use of water, mainly from bank infiltration for drinking water supply purposes and agricultural use of water and sediments; to improve condition of ecosystems to be as close as possible to natural conditions with sound diversity of the species; to reduce the load of the North Sea from the Elbe Basin, the Baltic Sea from the Oder Basin and the Black Sea from the Danube Basin; and, to increase Czech people travelling into the coastal areas should be taken into account by international cooperation in protection of coastal areas.

* * *

CHAPTER 18: PROTECTION OF THE QUALITY AND SUPPLY OF FRESHWATER RESOURCES: APPLICATION OF INTEGRATED APPROACHES TO THE DEVELOPMENT, MANAGEMENT AND USE OF WATER RESOURCES

Decision-making: Decision-making in the area of freshwater is the responsibility of the Ministry of Environment with its regional offices, the Ministry of the Agriculture, the Czech Inspection of the Environment and the State Environment Fund.

Protection of waters and the provisions related to water management are provided by Act No. 138/1973, Act No. 425/1990 and Act No. 114/1995 and by new Act No. 254 (water act) which was approved in June 2001 and which has come into force on 1st January 2002. The Czech Republic will prefer such decision-making in the management of water, which ensures to fulfil the following aims in this sector:

- to guarantee complete compatibility of the Czech environmental legislation with the EU legislation in accordance with national programme of preparation on the Czech membership in EU;
- to guarantee the filling of international commitment of the Czech Republic in the frame of protection of river basins Labe, Morava-Dunaj, Odra and in the frame of cooperation with nearby states on the protection of boundary water;
- to positively affect (to retrieve) the hydrological cycle in nature, to ensure the consistent protection of ground and surface water not only as water resources but mainly as water ecosystems, to improve capacity of nature to exclude water and to ensure the renewal of water resources;
- to consistently realize the aims of the programme for the revitalization of river systems (regeneration of riparian stands and natural meanders);
- to ensure mechanic and biological treatment of wastewater from municipal resources of pollution in every agglomeration with more than 2000 equivalent inhabitants;
- to enhance the efficiency of wastewater treatment plants with the aim to reach the European level;
- to enforce and promote alternative waste water treatment in the villages with less than 500 equivalent inhabitants, where building up of sewerage and wastewater treatment plants is not economically available;
- to enhance the part of people connected to sewerage to 80% in 2005;
- to reduce part of watercourses registered as high and very high polluted from 33% at present to 20% of overall length of watercourses;
- to reduce square pollution and the pollution from diffusible resources;
- to introduce new approaches in emission limits of industrial pollution published in briefs and leading in accordance with the EC directive 96/61/EC about IPPC (the Czech act on IPPC was approved by the Czech Parliament this year);
- to promote utilization of filters from waste water treatment plants in agriculture by reducing of content of hazardous substances in industrial waste;
- to spread monitoring of quality and amount of ground and surface water, including observation of the present environmental stage of water in accordance with EU commitments, to unify the monitoring of small watercourses with the monitoring of the important watercourses;
- to prepare and realize the action plans necessary for reaching the qualitative aims determined in EU commitments regarding to hydrosphere protection;
- to evaluate the runoff conditions in individual river basins, to define the flood areas, to make reinterpretation utilization of flood areas and to determine level of land protection of the parts of river basins against flood.

Programmes and Projects: See under **Decision-Making** and **Status**.

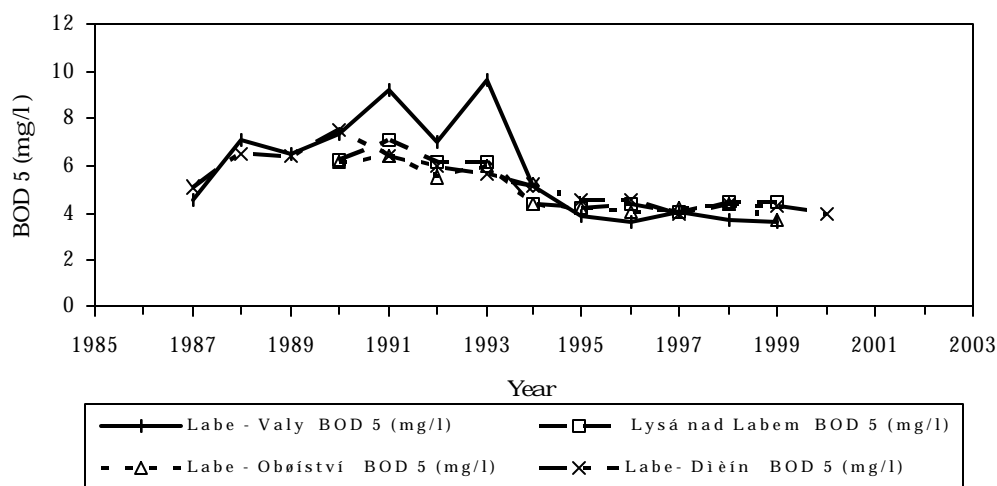
Status: It is envisaged that by the year 2000, all cities and towns with more than 5000 inhabitants will have a wastewater plant. The quality of drinking water is assessed in accordance with the WHO Guidelines for Drinking Water Quality.

Waters represent 2% of the total land area of the Czech Republic. There is a trend towards increased groundwater quality in the country; however the quality of drinking water withdrawn from the surface waters has neither

improved nor deteriorated. Although the drinking water withdrawn from the surface water is hygienically tested, People are aware of health risks connected to drinking surface water and thus consume bottled water.

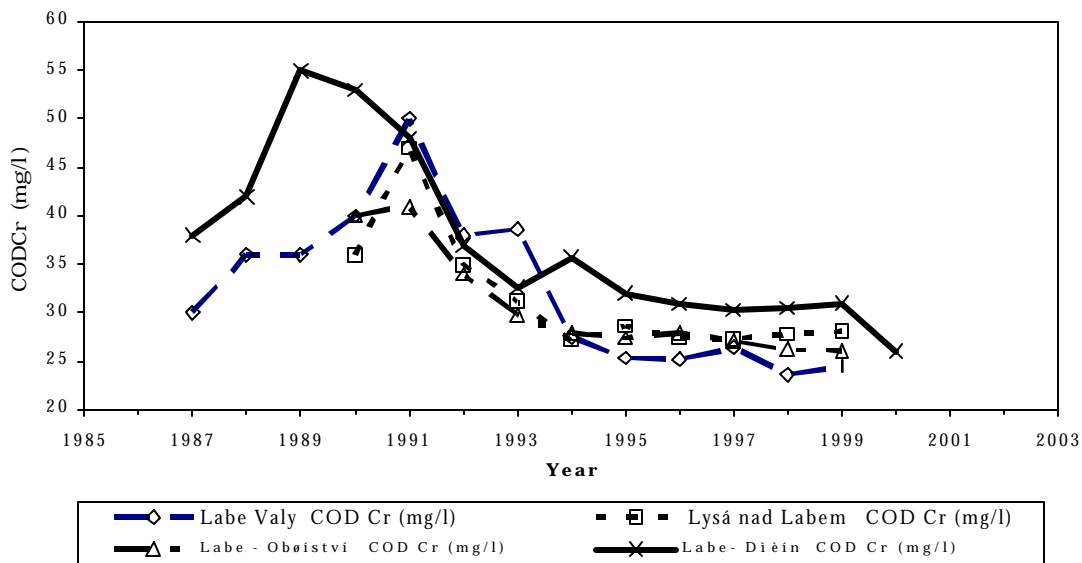
The amount of sold bottled water has been still increasing and thus increasing amount of PET bottles in the household waste becomes very serious problem at present. Special attention is paid to the protection of drinking water resources and to the improvement of quality of surface water, which was very low before 1989 due to very non-responsible relation of big industrial, mainly chemical or pulp and paper producing, plants and of agricultural farms. The 10 years development of BOD 5 (biochemical oxygen demand), COD Cr (chemical oxygen demand determined by Cr 3+), and concentration of N-NO₃⁻ are illustrated for the river Labe and for the different point of monitoring on the Figs. 18.1. to 18.2. There is shown very appropriate trend significant decrease of these parameters after the year 1989, when the democratic system was established, and following stabilization in the values of BOD 5 and COD Cr in time period 1990-2000. The similar positive trend could be observed for the other three Czech important rivers Vltava, Odra and Morava. This positive trend is observed at the all points of the monitoring. This positive trend is certainly connected with the installation of many wastewater treatment plants in big and small cities and in different industrial and agricultural installations.

Fig. 18.1: Water Quality in the River Labe: BOD 5



Source: *Statistical Environmental Yearbook of the Czech Republic 2000* and <http://www.chmi.cz>

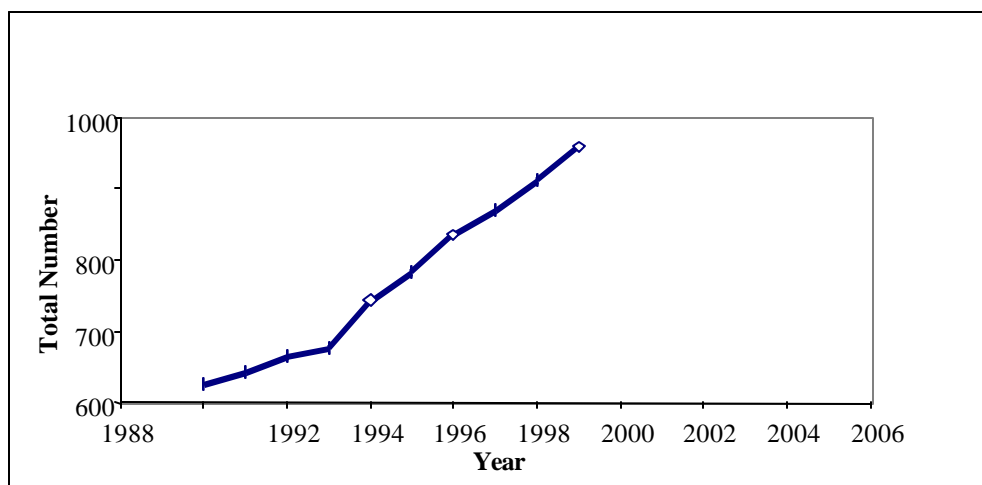
Fig 18.2: Concentration of N-NO₃⁻ in the River Labe



Source: *Statistical Environmental Yearbook of the Czech Republic 2000* and <http://www.chmi.cz>

The increasing amount of wastewater treatment plants has been observed since 1990 (See Fig. 18.3). The amount of wastewater treatment plants was doubled in last 10 years period.

Fig. 18.3: The Total Number of Waste Water Treatment Plants in the Czech Republic



Source: *Statistical Environmental Yearbook of the Czech Republic 2000* and <http://www.chmi.cz>

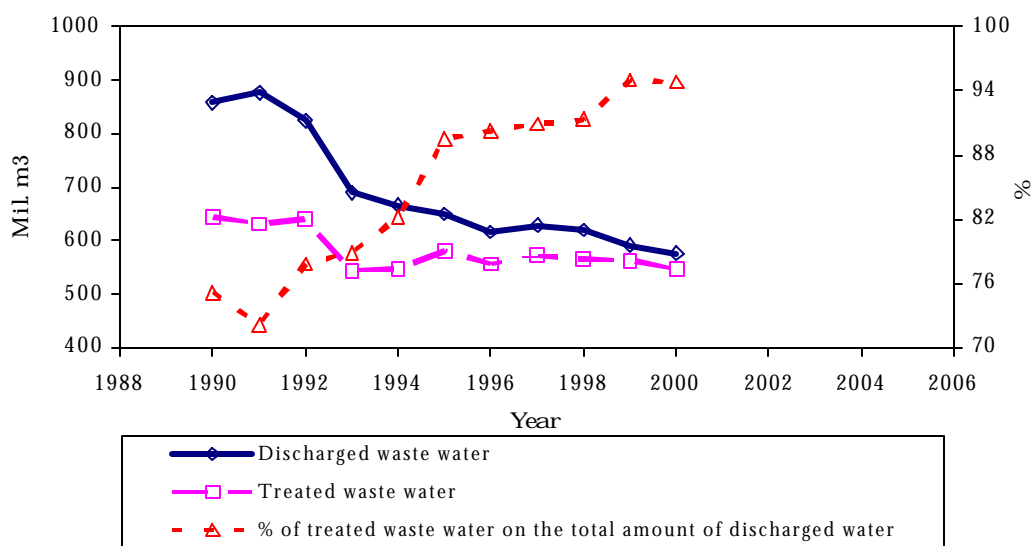
This positive development could be stalled only under very intensive financial support from the state budget or from the State environmental Fund. This support should be kept in the future, because there are many small towns and villages with connection neither to sewage system nor to the wastewater treatment plants. In spite of this intensive investment into water protection the worst, Vth class of water quality (very highly polluted water) and the IVth (highly polluted water) represent 30 % of watercourses).

The level of microbial pollution of watercourses is important especially for the use of surface waters for abstraction for drinking water and for bathing, and also limits the use of water for irrigation. Microbial pollution of watercourses in CR is high and municipal pollution sources are a significant source of this pollution. In 1999, 75% of the important watercourses in CR were unsuitable for bathing on the basis of the content of fecal coliform bacteria (C90 above 20 KTJ/ml).

The total amount of discharged waste water has been decreased since 1990 by more than 30 % and the amount of treated waste water has been stabilized since 1989 (See Fig. 18.4). Thus the part of treated waste water from overall

waste water represents 95% at present. The new reductions placed on chemical production plants and more efficient treatment of waste water have contributed to a significant reduction in the concentration of toxic substances in surface waters. For example, the total amount of BOD has decreased by 40%.

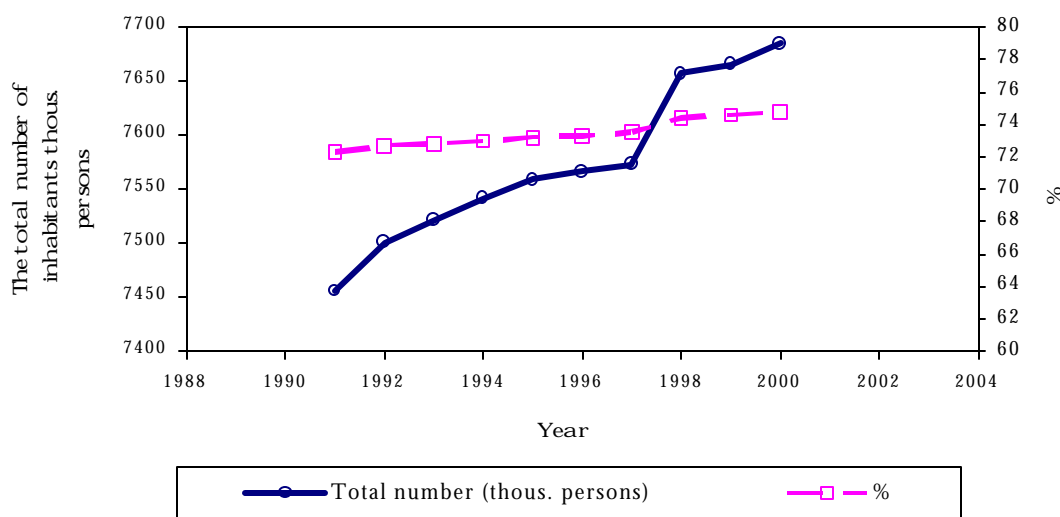
Fig. 18. 4: Production and Treatment of Waste Water



Source: *Statistical Environmental Yearbook of the Czech Republic 2000* and <http://www.chmi.cz>

The amount of inhabitants connected to public sewage system has been slowly increasing during the last 10 years and more than 75% of inhabitants are connected to it now (See Fig. 18. 5). It would be very good to increase this number in next time period (the plan is to reach level of 80% of inhabitants connected to the public sewerage network in 2005) because of improvement of life quality of the rest 25% and of quality of wastewater discharged into our rivers.

Fig. 18. 5: The Inhabitants Connected to Public Sewerage Network



Source: *Statistical Environmental Yearbook of the Czech Republic 2000* and <http://www.chmi.cz>

Capacity-Building, Education, Training and Awareness-Raising: No information available.

Information: The Czech Hydro-Meteorological Institute carries out assessments of surface and ground water resources. It also installs and runs a network of hydrological, meteorological and climatic stations, as well as air quality stations. In 1994, there were 505 surface water and 2550 groundwater observation stations. The State Water

Inspection measures water quality indicators and the results are published annually. The indicators primarily used to measure water quality are the following: the registered number of sources of pollution; the registered length of watercourses; the length of severely and excessively polluted rivers; the amount of sewage and impurities released to rivers.

Research and Technologies: No information available.

Financing: The water management sector is characterized by a rather complicated system of charges and prices of supplied water and water treatment. Charges are levied on water withdrawn from surface water reservoirs and from underground sources. They are generally low, and there are many exemptions. Other charges are levied on all wastewaters discharged into water courses. The revenues from wastewater charges are part of the State Environmental Fund's budget, and in the last decade it has been increasing (See Chapter 33 of this Profile for information on financial incomes and expenditures of the State Environmental Fund). Water management is heavily subsidized from the national budget.

Cooperation: The Czech Republic cooperates closely with its neighbouring countries in the field of utilization of frontier river courses. Bilateral agreements have been signed with Poland, Austria, Germany and Slovakia. The Czech Republic has also sent experts on the management and planning of water resources to the developing countries of Africa and Asia. The country has signed Convention on Wetlands of International Importance Especially as Waterfowl Habitat; Protocol to Amend the Convention on Wetlands of International Importance Especially as Waterfowl Habitat; Agreement on the International Commission for Protection of the Elbe River; Convention on Cooperation for Protection and Sustainable Use of the Danube River; Agreement on the International Commission for Protection of the Odra/Oder River against pollution.

* * *

CHAPTER 19: ENVIRONMENTALLY SOUND MANAGEMENT OF TOXIC CHEMICALS, INCLUDING PREVENTION OF ILLEGAL INTERNATIONAL TRAFFIC IN TOXIC AND DANGEROUS PRODUCTS

Decision-Making: The Hygienic Services Department of the Ministry of Health is responsible for the protection of human health and a healthy working environment. The Ministry of Environment is responsible for the management of toxic chemicals and hazardous wastes and provides technical help. The Ministry of Agriculture is responsible for pesticide problems. The Union of Chemical Industries and large manufacturers collaborate closely with the State authorities in the management of toxic chemicals and hazardous wastes.

The laws governing this issue are the following: the Act on Human Health (20/1966), the Government Regulation on Poisons and Some Other Compounds Harmful to Human Health (192/1988 and 182/1990), Regulation on Principles of Treating Chemical Carcinogens (64/1984), and the Act on the Treatment and Examination of Some Kinds of Commodities and Technologies (547/1990). The registration of pesticides is governed by the Act on the Expansion of Plant Production (61/1964). The Ministry of the Environment was reviewing and revising the legislation in 1994 to register and regulate chemicals discharged into the environment, to anticipate their impact on the environment, and to set new limits. At that time, the Law on Chemicals was being amended in order to improve the inter-linkages of environment and health. The proposal to establish a legal and institutional framework for the management of chemical substances was also presented to the Government in 1994. According to the State Environmental Policy, the crucial task is to complete the human health and environmental risk assessment of substances listed in the Decree No.10/2002 Coll., based on High Production Volume approach. Act on Chemical Substances and Chemical Preparations No.157/1998 Coll. amended by Act No.352/1999 Coll. The Act on Chemical Substances is equipped by 13 Decrees of several Ministries and one Government Regulation, laying down the packaging and labelling classification of substances and preparations, the registration, testing methods and reporting of production and use. The Act is fully harmonized with EU legislative and OECD Council Acts.

Programmes and Projects: See under **Status** and **Information**.

Status: In 1994, the principal problem for the environmentally sound management of toxic chemicals was inadequate legislation and its incompatibility with the legislation of the European Union. The laws did not contain testing requirements for the environmental toxicity of chemicals, and there were neither laws on good laboratory practices nor registration and notification practices. Neither did the legislation provide necessary protection measures concerning the transport of chemical substances. There was also an unclear division of labour and decision-making among different authorities. The existing limits were not based on thorough risk assessments and testing. Lack of funds slows down development of legislation, analytical instruments (mainly for eco-toxicology) and computerization, purchasing databases, training of specialists, testing of chemicals, and risk assessment.

Capacity-Building, Education, Training and Awareness-Raising: See under **Status**.

Information: With regard to the collection of data, a national information centre has been established under the auspices of the Ministry of Environment with support from the EU PHARE Programme. An inventory of existing chemical compounds was conducted in 1993 - 1994 with the help of the 500 - 600 principal producers, importers and customs offices. The national counterpart of the IRPTC (International Register of Potentially Toxic Chemicals) maintains contacts with the IRPTC, and harmonizes national databases with it. The most important national databases in the field are the following: CHEMBANK, IRIS, TOXLINE, HEADSET, EINECS, and IRPTC.

Research and Technologies: A network of laboratories specialized in chemicals has been created with the help of the EU PHARE Programme and Swiss Fund.

Financing: A lack of funding slows down the process.

Cooperation: In the management of toxic chemicals, the Czech Republic cooperates with the United Nations and UNEP, and takes part in the IRPTC.

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CHAPTERS 20 TO 22: ENVIRONMENTALLY SOUND MANAGEMENT OF HAZARDOUS, SOLID AND RADIOACTIVE WASTES

Decision-Making:

Hazardous Wastes: The Ministry of the Environment is responsible for the management of toxic chemicals and hazardous wastes. The Ministry of Agriculture is responsible for agenda related to pesticides. The State Institute for Health Protection and the Czech Environmental Institute also take part in the decision-making. The laws and regulations dealing with the management of hazardous waste are the following: Waste Management Act No.185/2001 Coll. is fully compatible with relevant EU directives, EU regulation on the supervision and control of Waste within and out of the European Community, Basel Convention on the Control of Transboundary movement of Hazardous Waste and their Disposal and EU Regulation on Catalogue of Waste and List of Hazardous Waste. The competent Authority for shipment of Waste is the Ministry of Environment. In addition, the new Waste Management Act includes measures to simplify the administrative regime of the hazardous waste transport and to harmonize the general rules regarding the transport of dangerous substances. The new Act will also ensure that provisions for the transboundary movement of secondary raw materials and wastes comply with EU and OECD standards (red, amber and green lists).

Solid Wastes: The Waste Management was controlled and regulated by Act No. 125/1997 Coll., which came into force on 1st of January 2001. For example, the local authorities are more responsible in municipal waste management. The Act No. 37/2000 Coll. modified the first Act. The newest Act on Waste Management Act No. 185/2001 Coll. came into force on the 1st of January 2002 and is fully compatible with EU legislation in waste area. Other relevant legislation includes the following: Decree No. 376/2001 Coll. on hazardous properties of Waste, Decree No. 381/2001 Coll. on Catalogue of Waste, List of Hazardous Waste and other List relevant to transboundary shipment of Waste (including coloured lists), Decree No.382/2001 on using Sewage Sludge's in Agriculture, Decree No. 383/2001 Coll. on details of Treatment of Waste, Decree No. 384/2001 Coll. on details of Treatment of PCB and Packaging Act (No. 447/2001 Coll. came in force on 1st of January 2002).

See also above, under *Hazardous Wastes*.

Radioactive Wastes: The responsibility for decision-making in the area of radioactive wastes is divided between The Ministry of Industry and Trade and The State Office for Nuclear Safety. The Society for Sustainable Living and other non-governmental organizations also participate. Sound treatment of radioactive wastes is regulated by Act. No. 18/1997 (Atomic Act) and the Decree of the State Office for Nuclear Safety (the former Czech Republic Atomic Energy Office) No. 67/1987 on the provision of nuclear safety in handling radioactive waste.

Programmes and Projects:

Hazardous Wastes: According to the Waste Management Act the Czech Republic prepares system of Waste Management Plan's (on national and regional level Producer's Plan's). The Waste Management Plan of Czech Republic (his obliged part) will be declared in State Regulation form till 2002.

Solid Wastes: See above, under *Hazardous wastes*.

Radioactive Wastes: The Atomic Act and Decree No. 14/1997 Coll. fully accepts provisions of Joint Convention on the Safety of Spent Fuel Management and the Safety of Radioactive Waste Management and relevant EU Directive. Categorization of waste is in compliance with IAEA recommendation.

Status: *Hazardous Wastes:* In 1991, some 180 million tons of waste were generated in the Czech Republic. Of this amount, some 5.4 million tons were hazardous waste. With respect to the development of the Czech economy in the last seven years and due to the implementation of environmental protection measures, which implicitly include the Agenda 21 principles, some major achievements in our country can be identified. This includes a decrease in the negative impacts of environmentally hazardous factors on the health of the population. The health risks caused by pollutants in the air, water and foodstuffs also show a decreasing tendency. The overall assessment of the quality of drinking water based on 250 000 analyses performed in 1994, exceeded the unacceptable values only in 0.85% of

cases. The negative influence of mining and quarrying on the state of the geological environment decreases: the overall mining area decreased by 24%. Measures were started to eliminate the negative consequences of uranium mining by chemical leaching technologies. Reduction of the total number of operated waste landfills and the increase of the fraction operated in compliance with the new waste legislation was fulfilled. The level of the production of hazardous waste from 1994 to 1999 is shown on the Fig. 20.1. The cause of dramatic decrease in the

Fig. 20.1: Annual production of hazardous wastes

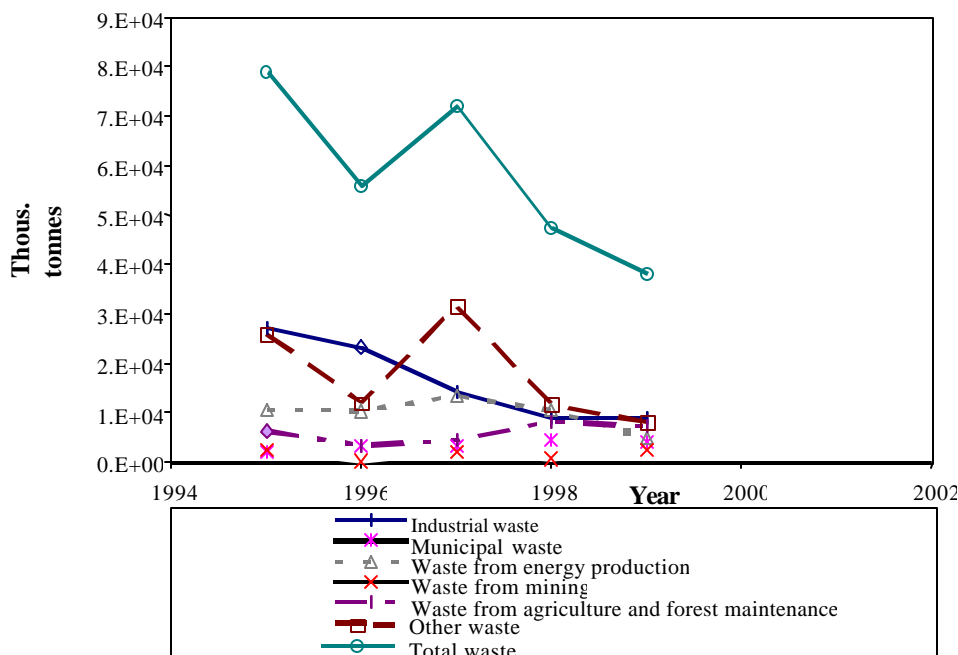


Source: *Statistical Environmental Yearbook of the Czech Republic 2000* and <http://www.ceu.cz>

Level of hazardous waste after 1997 was unfortunately not the real decrease in hazardous waste production but the implementation of new catalogue of hazardous wastes. Intra this catalogue many wastes were renumbered and belong no more to the category of hazardous wastes.

Solid wastes: The total volume of solid waste has been continually decreasing by 50% since 1994 (See Fig. 20.2). Production of several types of wastes (industrial, agricultural, municipal etc.) has decreased or has been unchanged during last ten years. The highest decrease has been determined in production of industrial waste, due to higher rate of reuse or recycling of wastes in production processes.

Fig. 20.2: Annual Production of Solid Waste in the Czech Republic

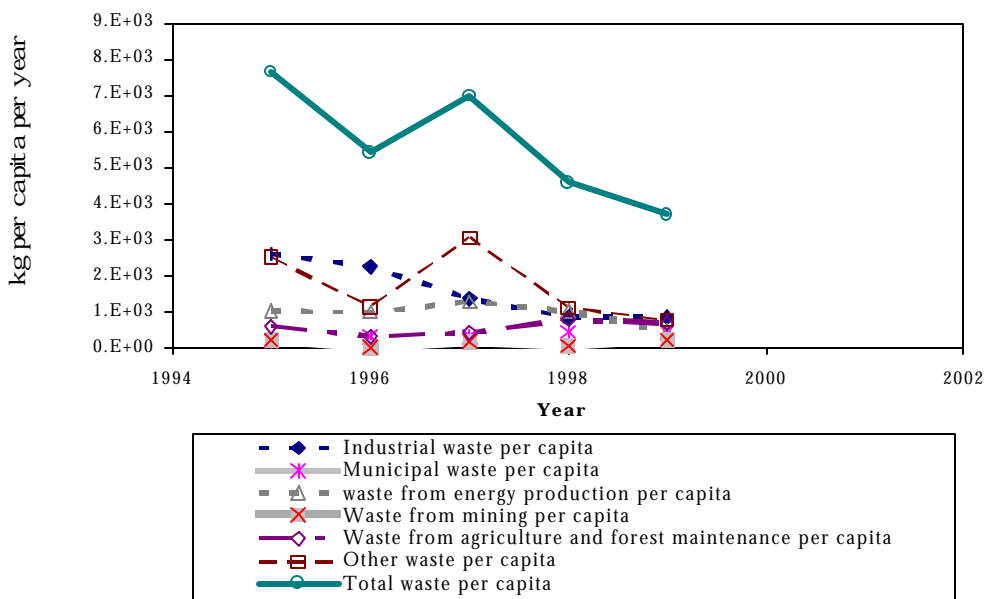


Source: *Statistical Environmental Yearbook of the Czech Republic 2000* and <http://www.ceu.cz>

There were 358 landfills, 77 facilities for composting and biological decontamination, 131 incinerators or facilities for thermal waste deactivation and 64 installations for recycling, regeneration and sorting of wastes. The total number of landfills has decreased by 72% since 1995 (compared to 1270 landfills in 1995) because the unsatisfactory landfills had to be closed. Thus all these installations are operating under binding conditions given in permit for operation. 75% of the population is connected to public sewage systems at present and this part of population should be continuously enlarged. As of 2000, about 95% of the waste water in public sewage systems was treated before being discharged (See Chapter 18.). The recycled waste represents 25 % of municipal waste and this level should be exceeded. The level of 30% of recycled waste should be reached in 2005. The amount of waste produced per capita per year has been also continuously decreasing since 1994.

It would be very useful to keep this positive trend all the time. The reached values of produced waste per capita are comparable to those reached in EU (Fig. 20.3). The installation of new technologies (according to EC Directive on IPPC 96/61/EC) must comply with the binding conditions given in permit necessary for operation. It is very important to fulfil the request to minimize material consumption in technological process, whence it follows that waste production is lower than in the case of the old technology utilization and may be further minimized by reuse or recycling of wastes and responsible waste management.

Fig. 20.3: Annual Waste Production Per Capita

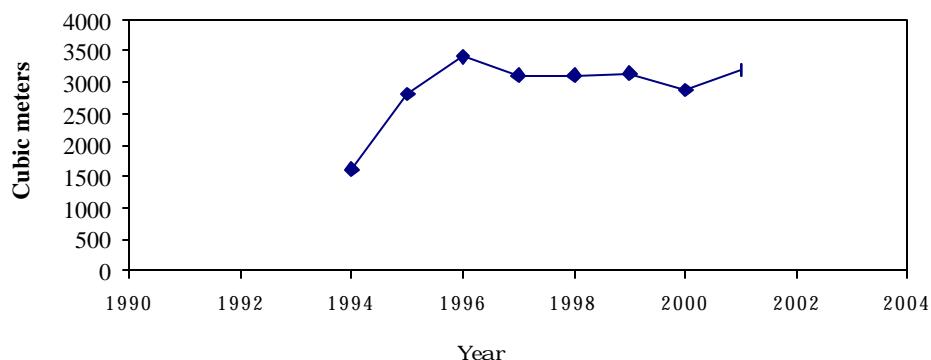


Source: *Statistical Environmental Yearbook of the Czech Republic 2000* and <http://www.ceu.cz>

The overall waste management is not as acceptable as we would desire because the majority of waste is landfilled and only about 8% of total produced waste is incinerated. The EU level of incinerated waste is achieving more than 20% at present and the rate of recycling of paper and glass is higher in EU than in the Czech Republic. So it is necessary to make such plans in waste management, which will lead to these levels in the Czech Republic, too.

Radioactive Wastes: The development of production of radioactive waste in the Czech Republic during last seven years is demonstrated on the Fig. 20.4. The relatively stable trend in radioactive waste production after 1996 will increase after the start of operation of the nuclear power station in Temelin.

Fig. 20.4: Production of Radioactive Waste in the Czech Republic



Source: *Statistical Environmental Yearbook of the Czech Republic 2000* and <http://www.ceu.cz>

Capacity-Building, Education, Training and Awareness-Raising:

Hazardous Wastes: The responsible body for hazardous waste management is the Ministry of the Environment.

Solid Wastes: The responsible body for solid waste management is the Ministry of the Environment

Radioactive Wastes: There are three repositories for the radioactive waste disposer in the Czech Republic. Their capacity is sufficient until 2030. All people involved in radioactive waste management should be educated and regularly trained in accordance with the Decree 146/1997 Coll., which set requirements on Qualification and Professional Training and Verification of Special Competency.

Information: *Hazardous Waste:* See below, under *Solid Wastes*.

Solid Wastes: The information Centre on waste management operating at the T. G. M. Water Research Institute works as supportive body for the Ministry of the Environment. The Waste Database System has been carried on the Czech Ecological Institute and this system was displaced together with the Center on wastes management on T. G. M. Water Research Institute in 2001, but this data are still not available due to technical difficulties accessible. You can see this database on the web sides of the Czech Ecological Institute www.ceu.cz.

Radioactive Wastes: The State Office for Nuclear Safety (SONS) is responsible for providing the information about the current status in radioactive waste management to the public. For more information see the web-sides of SONS: www.sujb.cz. All major producers of radioactive waste have to establish information centre for providing information to the public. Radioactive waste repository authority (RAWRA) manages the public information centre in the area of radioactive waste.

Research and Technologies: *Hazardous Waste:* No information available.

Solid Wastes: No information available.

Radioactive Wastes: RAWRA represents a coordinating body for research in the field of radioactive waste. The main part of this research has been performing at the Nuclear Research institute in Ůeř near Prague.

Financing: *Hazardous Wastes:* Existing economic instruments such as waste disposal charges often encourage undesirable types of waste disposal (unsorted land filling), and do not encourage waste producers to collect and recycle the waste. Many waste producers have been preparing to make the necessary investments in environmental technologies, but these investments were not finished in many cases. Nevertheless they are still obliged to pay waste disposal charges.

Solid Wastes: Financing is provided by the private sector and the State Environmental Fund.

Radioactive Wastes: Financing of research and management of radioactive waste is covered through special Nuclear Power Plans and by other waste producers corresponding to the amount of their waste.

Cooperation: *Hazardous Wastes:* The Basel Convention on the Control of Transboundary Movements of Hazardous Wastes and their Disposal was signed in 1991 and ratified in 1993. The latest information was provided to the Basel Convention Secretariat in 1997.

Solid Wastes: Cooperation in this area takes place through bilateral agreements.

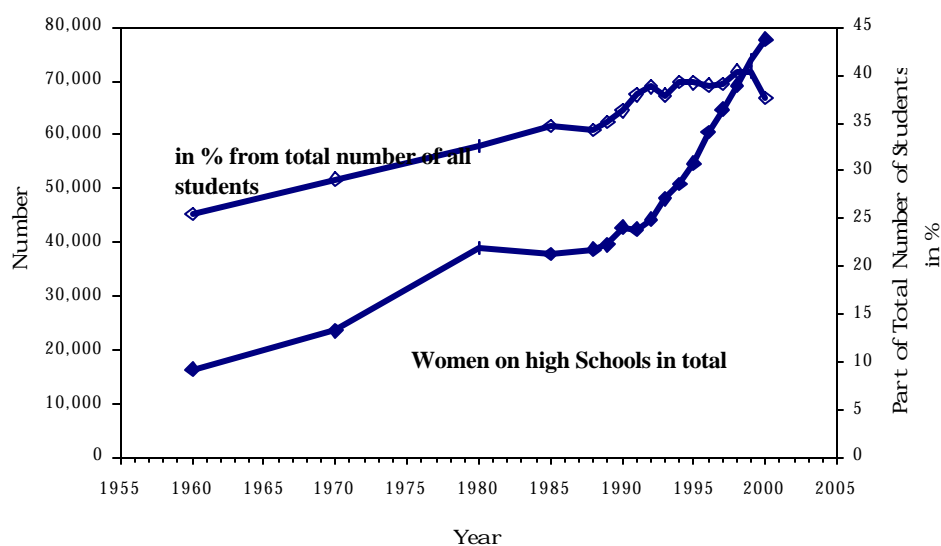
Radioactive Wastes: Cooperation in this area takes place through bilateral agreements, IAEA and OECD.

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CHAPTERS 24 TO 32: STRENGTHENING THE ROLE OF MAYOR GROUPS

Women: Decision-Making: Policies and strategies to eliminate obstacles to the full participation of women in sustainable development have already been drawn up. Further, mechanism is in place to assess implementation and impact of development and environment policies and programmes on women. **Status:** Women have had equal rights under the Constitution of the Czechoslovakia since 1918, after the destroying Austria-Hungary kingdom. The situation in the field of women at high schools and universities is demonstrated on Fig. 24.1. Even though the total number of women studying at high schools or universities has been increasing continuously since 1960 and significant acceleration in the increase of this number has been observed since 1989, the ratio of women studying at high schools or universities has not reached the level of 50% of all students at high schools or universities yet as it should correspond with equal parts of women and men in the Czech population. The women rights are formally equal to men rights but the reality is a little different. The average part of women in leading function in civil service altogether in percentage is stated in Tab. 24.1.

Fig. 24.1: Total Number of Women Studying at High Schools or Universities



Source: <http://www.msmt.cz>

Tab.: 24.1: Part of Women in % at Different Level of Management in Civil Service

Level in society	Minister	Deputy minister	Department director	Unit head	Other experts	Director of sectoral institution	Head of separated working place
% of women	0	16,9	24,2	31,4	49,2	11,5	17,5

Source: Ministry of the Labour and Social Affairs, web-sides www.mpsv.cz

The numbers stated in this table are well comprehensible. The women participation on leading positions of our society is very low and the majority of women have been still employed at the basic level (expert) of civil service or other companies. There are some exceptions from this trend in civil service like the Ministry of the Culture, the Ministry of the Labour and Social Affairs and the Ministry of the Environment (with 69.2%, 50% and 64.8% respectively of women employed at the level of Department Director) in the Czech Republic. Interesting data about the women salary divided according to reached educational level are stated in Tab. 24. 2. The salaries of women expressed as part of salaries men in % are very illustrative and describe the status reached during the time period 1988-1999. The situation of women in this topic is not significantly different from the time period mentioned above at present. We can see very surprising fact in this table, when the worst position of women was observed for high-educated women. The ratio of salaries of women has reached the level only of 64.9% of men salaries in this high-educated part of population. Thus the Czech Republic has not yet reached the equal position of women in this field in comparison men.

Tab. 24.2: Average Salary of Women as a Part of Men Salary

Year	1988	1996	1997	1998
All levels of education	70,6	77,2	75,7	72
Primary school	73,1	76,1	74,9	74,6
Secondary school without school-leaving exam	69	69,5	69,1	71,6
Secondary school with school-leaving exam	73,2	76,8	75,5	72,9
High school or university degree	81,4	74,7	68,9	64,9

Source: <http://www.msmt.cz>

The Czech Republic will have to transpose and implement the EU legislation regarding this topic before our entry into EU. The most important principle of this legislation process is not only to introduce equal rights of women into legislation but also to practically use them in common life. We consider it as the very complicated procedure, which will have to be based on significant changes in mind of men. It is necessary to say that these discrepancies are not caused only by non-equal social position of women but by women physiology, too. The decision of every woman to have family with children brings such patterns of professional life, which must take into account the responsibility of women in the care about children (for example women very often choose the part term jobs, very often don't like to work as leading persons, etc. due to very limited time for professional activities). Capacity-Building, Education, Training and Awareness-Raising: Curricula and educational material currently promote gender relevant knowledge. Cooperation: The Czech Republic ratified the Convention on the Elimination of All Forms of Discrimination Against Women in 1993.

Children and Youth: Decision-Making: On the basis of Government Resolution No. 232/1992, the Ministry of Environment (MoE) continuous to play the role of professional guarantor of environmental education and public awareness (EEPA) and is responsible for cooperation and control of its implementation. The Ministry of Education, Youth and Sports (MoEYS) plays an equally important role, as it is responsible for our future, having competence for education and enlightenment of children and youth during school attendance. The Centres for free time activities of children and youth was established by Decree No. 432/92 Coll. and they operate at regional level. Czech national agency "Youth" works subordinate to the Institute of Children and Youth, which belongs to MoEYS. Coordinating role in activities for Children and Youth is also played by: Association for promoting and development of Information Centres for Youth and Czech Council of Children and Youth. Programmes and Projects: EEPA, The GLOBE and EU Programme Youth. Grants of the MoEYS, MoE, Future Found, several Foundations, Euro regions, European found of Youth are supporting for example projects: Children Agenda 21, Children parliament (arranging by Agency Konikleč). The MoEYS supports 29 projects (total sum 170 185 €) in the field of social disabled children and youth this year (for example the project for prevention of all kinds of children and youth dependences, the project for prevention of racism, xenophobia on schools etc.) Status: There are many opportunities for children and youth to spend their free time in many Houses for children and youth. These institutions organize many interesting courses in many fields of human activities like computer sciences, natural sciences, art activities etc. The sporting activities represent the second form of free time utilization. There are many sport clubs, which prepare children and youth on different competitions in the Czech Republic. One of the most important sport organizations is "Sokol" with the aim to promote natural and recreational form of physical exercises. The organization of scouts "Junák" was reinstated immediately after the Czech historical milestone 1989, together with renewal of democratic politic system in the Czech Republic. Association of Scouts and Guides of the Czech Republic, "Junák," is the largest organisation of children and young people in CR with its more than 55 000 members. "Junák" is a voluntary, independent, non-political civic federation, associating its members without respect to nationality, religion, politics, race or any other differences. The goal established in Agenda 21 that by the year 2000 more than 50% of youth, gender balanced, have access to appropriate secondary education or vocational training has been reached. There are various activities for children and youth concentrated on environmental problems, as well as many NGOs (Duha, Brontosaurus, Tereza) and Eco-centres that promote appropriate activities for youth groups (in Czech Union of Nature Conservation is 22 certified CNPF Eco-centres and 17 other so far

uncertified Eco-centres are active within CNPF). Although there are many projects in the field of free time of children and youth in the Czech Republic, some negative trends exist regarding this group of the Czech population. The unemployment rate of Juveniles (15-19 year) was decreasing from 46.7% in 1999 to 34.7% in 2000, and the unemployment rate of young people in the age groups 20-34 year was on stable level about 36%. We consider these values as very high and the promotion of employment of graduates without necessary time of practice is a great challenge for every Czech government independent on political ideology. Crime of children and Juveniles is the second very important problem of the Czech society. The absolute number of criminal acts of these groups was increasing from 1993 to 1998. The numbers stated in Tab. 24.4. are very critical, especially because of the high number of violent criminal acts including murders. There is a spread discussion about the age of criminal amenability, when a suggestion of decreasing of this age from 15 years to 14 years has been made. The final conclusion of this discussion was not reached.

Tab. 24. 4: Criminal Acts Perpetrated by Children (to 15 years) and Youth (15-18years)

È R	1993	1994	1995	1996	1997	1998
Total number of criminal acts	398 505	372 427	375 630	394 267	403 654	425 930
Clear-up acts	126 442	129 540	151 842	162 929	169 177	185 093
Clear-up acts in %	31,7	34,8	40,42	41,32	41,91	43,46

Source: *Statistical Yearbook of the Czech Republic 2001*

Capacity-Building, Education, Training and Awareness-Raising: Programme of environmental education and public awareness (EEPA), NGOs concerned with activities in EEPA is connecting Pavuèina – Association of Centres of Environmental Education and the Environmental Education Centres of Czech Union of Nature Conservation. **Information:** see web sides: www.adam.cz, www.msmt.cz, www.eurodesk.cz, www.youth.cz. **Cooperation:** The Czech Republic takes part in the GLOBE project. The Czech government has joined also the UN Convention on the Rights of the Child. Young people from Czech Republic take part on first Youth Forum in Trieste on the occasion of the annual meeting of the Heads of Government of the Central European Initiative member states.

Indigenous People: Status: The issue is not applicable to the Czech Republic.

Non-governmental Organizations: **Decision-Making:** The Basis for creating the dialogue with NGOs is *Governmental Council for Non-State, Non-Profit Organizations*, which coordinates state policy for NGOs with other ministries. State policy has recognized how creative role can NGOs play in decision-making. There was created a rather stable system of cooperation and support for NGOs (on national level as well as on state level as on regional level). NGOs have shown high flexibility in form of their activities, which helped to increase cooperation with local state administration. Regional systems are arising in individual regions, in which NGOs are regular members. Some regions started to prepare special support policies for NGOs. Governmental Council for Non-State Non-Profit Organizations established working group for regional development. This group is working as meeting point for representative of NGOs, which are struggling for harmonic regional development. NGOs are important subject at Public Participation in Decision-making in Environmental Matters. This area was improved by signing *Aarhus Convention on Access to Information, Public Participation in Decision-making and Access to Justice in Environmental Matters* and following process which is leading to implementation of Convention in practice. **Status:** A number of NGOs supported by the Ministry of the Environment (MoE) are active in developing Local Agendas 21 on the implementation of sustainability principles, especially in the field of ecological education and raising public awareness, conservation of nature and sustainable development as a whole (e.g., Czech Union of Nature Conservation - Branch Veronica in Brno). The administration is complemented by special state and local administration bodies, which draw advice and support from various institutions such as the Czech Hydro-Meteorological Institute, the Water Research Institute, the Agency for Nature Conservation and Landscape Protection, the Czech Ecological Institute, the Geofund and the Research Institute of Ornamental Gardening. The Commission for the Environment of the Czech Academy of Sciences contributes to a more extensive application of

scientific knowledge in forming of future environmental policies in the spirit of Agenda 21. This Commission has twenty-five members from universities, academic and research institutes and the Ministry of the Environment. It was established in the 1970s and restructured in 1989. The Charles University Environment Centre concentrates its activity almost completely on problems of sustainability implementation, primarily in the fields of strategy, indicators of sustainable development and philosophy. The Society for Sustainable Living, founded in 1993, is an NGO with several hundreds of members and which engages in ecological problems and associated disciplines in the spirit of the Rio agreements. The Czech Business Council for Sustainable Development, founded also in 1993, is a body established by a number of Czech industrial companies. Its primary mission is to become a leading business advocate for issues regarding sustainable development, to demonstrate and share progress achieved in environmental management in businesses, and finally, to spread results achieved in environmental protection, energy efficiency, and sustainable resource management and to prevent air, water and soil pollution as well as waste production. Public participation, especially in NGOs oriented on environmental matters, have in our country relative long tradition. The law regulations in this area are in evolution. **Financing:** The Ministry of Environment has been supporting the activities of NGOs in three areas: protection of nature, landscape and biodiversity; public participation in decision-making in environmental matters and sustainable development; environmental education and public awareness since 1989. In 2001 the MoE supported project from this areas with 607 thousand € The Ministry of Education, Youth and Sports also supports environmental projects; in 2000 it provided 251 thousand €

Local Authorities: **Decision-Making:** In the Czech Republic, there are several local authorities which strive to manage their community in an environmentally sustainable way, e.g., in Din (especially sustainable energy sources), Žďár and Sázavou (waste management), Ěeský Krumlov (environment management in a town proclaimed by UNESCO as a site with worldwide importance as a cultural and historical heritage), and Mikulov (in cooperation with environmentally oriented NGOs - development of eco-tourism). Most of these towns do not exceed 50 000 inhabitants. The Czech Ecological Institute represents a supportive body of the MoE and it manages database of persons and subjects involved in LA 21, publishes the different guidelines. The CEI has been publishing the periodical journal "The LA 21 in the Czech Republic" opened to the public on the web-sides: www.ceu.cz. **Programmes and Projects:** The Czech Republic participates in programmes and projects for Healthy Cities supported by World Healthy Organization. The MoE methodically promotes LA21 (financial support of projects See paragraph Financing) and it would like to integrate LA 21 into the participation of public in decision-making in the field of the Environment protection. MoE has been organizing seminars regarding the exchange of information of authorities involved in LA 21 twice a year, since 1998. The MoE shielded appropriate projects regarding LA 21 like programmes PHARE (TEMPUS), LEONARDO DA VINCI and now running project supported by British Know-how Fund. **Status:** The Czech Republic confirmed conception of sustainable development in the Czech legislation already in 1992 (the Act No. 17/1992 on the environment). The main chapter regarding the regional dimension of sustainable development is the Local Agenda 21 (the topic stated in the State Environmental Policy since 1999). The dialogue between citizens and local authorities has already started intra-process of LA 21 in 57 cities and regions. Many cities belong to the National Network of the Healthy Cities (NNHC, 31 cities) in the Czech Republic. The Czech National Network of the Healthy Cities represents the Czech Republic in European Network of the Healthy Cities. There are 29 networks and 1 100 cities in Europe. The management (local authorities) of these cities administers them in accordance with principles of sustainable development mentioned in the Chapter 28 of Agenda 21. **Information:** An important information measure for local management of environmental and sustainability problems is the translation and publishing of the "Guide to Environmental Management for Local Authorities in Central and Eastern Europe," by the International Environmental Agency for Local Governments (ICLEI). This compendium comprises about eighteen volumes covering all relevant aspects of the issues, based on the application of Agenda 21. **Financing:** The total number of projects directed into the topic of Local Agenda 21 and their total financial support within the last 5 years is stated in Tab. 24.3.

Tab. 24.3: Projects regarding the Local Agenda 21

Source: *Statistical environmental Yearbook of the Czech Republic 2000*

Workers and Trade Unions: Status: ILO Conventions have been ratified, and workers take some part in national Agenda 21 decisions and implementation.

Business and Industry: Decision-Making: The Czech Business Council for Sustainable Development is active in the field of sustainable development, environmental management in businesses, environmental protection, energy efficiency, sustainable resource management as well as prevention of air, water, soil pollution and waste production. Programmes and Projects: In addition to economic instruments, an effective instrument has been the negotiation on voluntary agreements between the State administration and pollution producers. For example, in 1995, the Ministry of Environment concluded such an agreement with the Association of Manufacturers of Washing Powders for the gradual reduction of environmentally harmful substances from their products. As the first post-Communist country to take such an initiative, the Czech Republic introduced an eco-labelling programme in 1994. The current status in 2002 is such: 260 marks of ecological thrifty products are granted for products divided into 29 products categories. These labelled products are the artefacts of 49 companies, where 29 are the Czech companies and 20 are the foreign firms, established on the Czech market. The Czech eco-labelling programme has been fully harmonized with the same programme of EU member states.

Scientific and Technological Community: Decision-Making: The scientific and research community is divided into four mayor groups of appropriate institutions: The Academy of Sciences of the Czech Republic and into the sectoral research institutions, for example the Czech Hydrometeorological Institute, the T. G. M. Water Research Institute, the Czech Ecological Institute and the Czech Geological Institute governed by the Ministry of the Environment, research departments of different enterprises and universities and high schools. The scientific projects resolving the basic problems mainly of natural sciences has been bringing many experiences, which can be virtually exploitable in the topic of sustainable development. Thus many natural scientists consider as very important the protection of environment, because they can recognize the risk of common imbalance among individual natural processes. The Commission for the Environment of the Czech Republic Academy of Science was established and its responsibility is in the utilization of scientific experiences in practical promotion of sustainable development. Capacity-Building, Education, Training and Awareness-Raising: Lectures on the environment are given to seventeen university faculties. The Charles University Environment Centre concentrates its activity almost completely on problems of sustainability implementation.

Farmers: Decision-Making: The State Agricultural Policy emphasizes the role of farmers. Programmes and Projects: A Programme on Ecological Agriculture has been prepared. Status: The government of the Czech Republic strengthens the position of farmers several ways. The Ministry of Agriculture and the Ministry of Regional Development is preparing the nation programme of the EU for accession countries - SAPARD for support of rural regions including the restoration and development of villages and rural infrastructure, development and diversification of economical activities for alternative source of income, methods of agricultural production determined for environmental protection and sustainability of landscape. The similar programme will be adopted by means of programme documents as follows Sector Operation Plan (SOP) and Horizontal Rural Development Plan (HRDP). The Czech Republic adopted also the updated Government Regulation No. 505/2000 Coll. establishing

Year	1997	1998	1999	2000	2001
Total number of projects	1	3	8	7	7
Financial support from the budget of MoE (€)	5637	10930	27482	23960	32474

the programmes for non-production function of the agriculture - for landscape maintenance and for support of less favourable areas. The programme supports also agro-environmental programmes that are established for support of conversion of arable land into grassland, maintenance of grassland, support of organic farming and support of bee-keeping. Other support programmes are as follows, liming of farm plots, establishing elements of territorial

system of ecological stability of landscape (ÚSES), forestation and establishing plantation of fast-growing wood species.

* * *

CHAPTER 33: FINANCIAL RESOURCES AND MECHANISMS

Decision-Making: In the Czech Republic, implementation of environmental policies is funded from the national budget, the State Environment Fund, the National Property Fund, Private and Semi-private funds, and Foreign Aid. The State Environmental Fund (SEF) was established in 1991 as an additional financial resource for environmental protection. It operates in a similar way as in other countries, supporting investment projects through direct allocations and soft loans. There are charges for disposing of waste water in the surface waters; charges for releasing harmful emissions into the air; charges for land filling of waste; charges for the requisitions of agricultural land; and charges for the withdrawal of groundwater. Revenues from these charges are allocated to the State Environment Fund. In addition to these charges, tax relief and allocations from the State Budget are granted for products and activities meeting environmentally friendly criteria. The role of the private and semi-private sector in environmental funding has increased, although the lack of medium and long-term credit and the demand for Governmental guarantees by many international financial institutions still has a negative impact on the potential growth of the sector.

Programmes and Projects: The group of individual existing development plans includes the following most important programmes:

The main financial tool for assertion of *State Environmental Policy* has two aims. First, the incomes of SEF include the polluters charges in return to pollution of individual environmental media (air, water, soil etc.) and penalties of operators in return to non – compliance of individual sector Acts. The total income amounted 1.1 milliard € during the time period 1992 to 2000. Second, the total expenditure of SEF amounted 877 million € during the same time period. Constructions of many waste water treatment plants (803), actions for elimination of floods consequences (121), area introduction of gas as heat source (2356 boiler-houses), many actions for minimizing of stress of nature and landscape (777), actions in waste management (224) and actions towards utilization of renewable resources of energy (292) were supported by SEF during the time period 1992 to 2000.

Programme of Revitalization of River Systems: The total expenditure of this programme amounted 28.4 million € during the time period 1992 to 2000. Projects running under this support were directed into the programmes of recovery, stabilization and care of a water regime of the landscape. The total necessary sum of money was estimated on 30.1 milliard € for thirty years period (to 2030). It is about 1 milliard € yearly. Thus the total invested sum is still very insufficient.

State Programme of Nature and Landscape Protection: This programme has been supporting task in the field of regional and species protection. The range of this programme is very wide and more information about it is available on the web-sides: www.env.cz.

Programme of Landscape Management is an additive programme, which makes possible solutions of concrete local problems. Subjects of this programme are measures leading to the protection and the remedy of basic functions of the landscape. The total sum amounted 20.8 million € during the time period 1999 to 2001.

Programme of Small Actions in Water Management is an additive programme, too. This programme has been supporting projects, which could not be financed from SEF. The total invested sum amounted to about 27 million € during the time period 1999 to 2001 and the most important areas for investment were: the activities of local administration directed into water management in communities with less than 2000 inhabitants. The total necessary sum for optimal connection of people to sewage system has been estimated at 1.9 milliard € (the invested part represents 1.4 % of the needed sum only). It is necessary to increase substantially the money contribution to this project.

State Assistance Programme of Utilization Energy Saving, Renewable and Secondary Energy Resources is the common programme of MoE and the Ministry of Industry and Trade. Substantial effects have been seen in minimizing of energetic intensity and the replacement of fossil fuels with renewable resources. 159 projects were supported under this programme with total sum of 37.6 million € invested in 2000. This investment has brought the total energy saving of 551 thousands GJ per year. The energetic audits (total number 476) represent significant part of this programme. The State Environmental Fund has been supporting this programme since 1999.

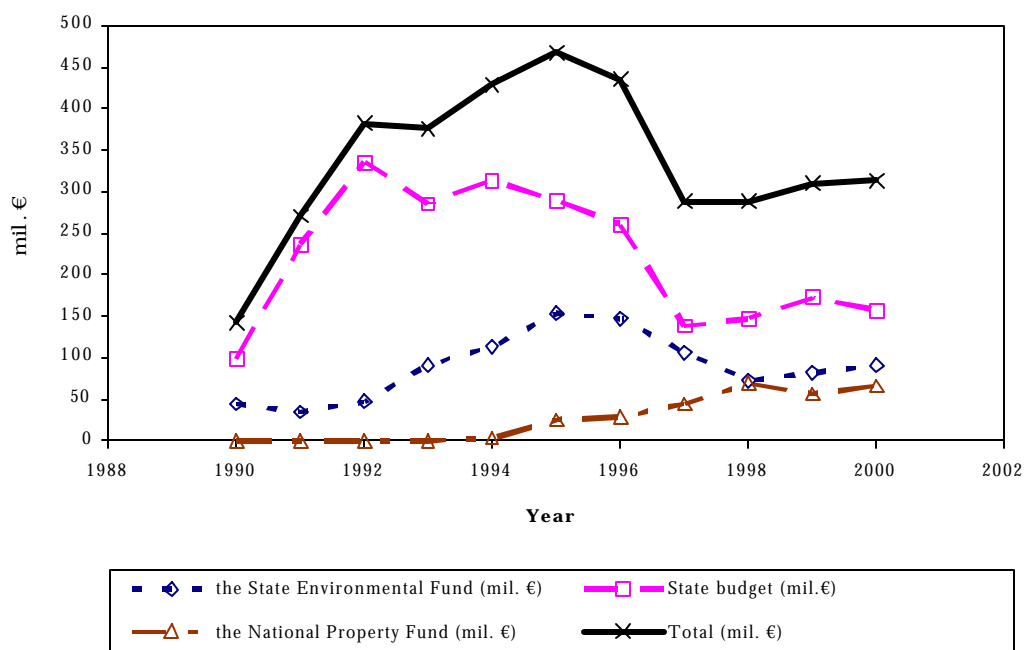
Assistance of Non-production Functions of Agriculture is also common programme of MoE and the Ministry of the Agriculture. The main aim of this programme should encourage the environmental function of the Czech agriculture as the considerable factor of an improvement of current status of landscape.

State Programme of Environmental Education, Training and Further Education in the Czech Republic is an inter ministerial programme with wide scope directed towards the civil services, children, youth and pedagogical staff, environmental education in business sphere and towards information for public. The total support amounted 0.5 million € and promotion of an editorial, cinematic, agitprop and educational activity has been supported under this programme.

Status: The principles of sustainable development given in Agenda 21 and in the State Environmental Policy 2001 have been consequently accepted by other sectors in process of preparation of sectoral policies. The representatives of MoE would like to state that this acceptance is not only formal action, but that the different ideas of these sectoral policies based on sustainable development principles will be introduced into practical use.

The costs of compliance with present legal norms for air and water protection and waste management - - the three priorities of the State Environmental Policy - are estimated to be at the level of 12.5 milliard €. The costs to restore the most seriously damaged sites, including the former Soviet military sites, are estimated to exceed 1.8 milliard €. According to the Ministry of the Environment, the total expenditures, both public and private, should remain at the present level until the year 2002, and these levels should reach at least 782 million € per annum (in current prices). The environmental expenditures from central sources (state budget, the State Environmental Fund, the National Property Fund) are demonstrated on the Fig. 33. 1.

Fig. 33.1: Total Environmental Protection Expenditures From Central Source



Source: *Information on the Environment in the Czech Republic* (1989-1994) and (1995-2000)

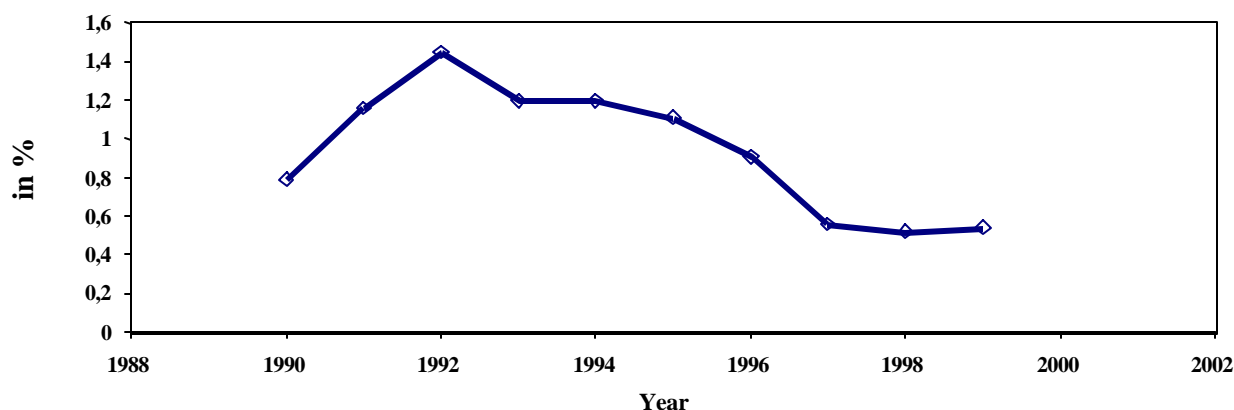
We can see that the curve of environmental expenditures indicates one maximum in 1995. The environmental expenditures have been decreasing continuously since this break year and this negative trend has not been stopped yet.

The total expenditures on water protection have been continuously decreasing since 1989, when these expenditures reached the value of 63 % of the total environmental protection expenditures. The value reached in 1999 was 30.5 % (more recent data are not available). The development of the total expenditures on air protection makes an overall increasing curve with one maximum 19% in 1996, 55% in 1989 and 58% in 1999. The development in waste management is very similar in character of the curve with this one in water protection. The total expenditures on waste management reached the level of 17% from the total environmental protection expenditures in 1989 and the level of 9% in 1999.

The portion of total environmental protection expenditures from GDP in % is a significant indicator for an observation of the importance in decision-making of the environmental area of the Czech government. The development of this indicator is demonstrated on the Fig. 33. 2.

Based on this graph the conclusion is not very optimistic, because the continual decrease of this indicator in time has been observing since 1992, when the maximum value of 1.45% from the GDP was reached.

Fig. 33.2: Total Environmental Protection Expenditure as a Part of GD



Source: *Statistical Environmental Yearbook of the Czech Republic 2000* and <http://www.indikatory.env.cz>

Pollution charges, as established under the previous legislation, were determined without thorough economic analysis of the relevant costs, and no provisions were included to index these charges to inflation. As a result, the revenue derived from pollution charges represents less than 20% of the total annual expenditure for environmental protection. Other types of instruments to promote waste recycling such as recycling premiums or deposit-refund systems have not been adequately utilized.

Capacity-Building, Education, Training and Awareness-Raising: See **Programmes and Projects** and **Status**.

Information: The data resources for this chapter were: The Statistical Yearbook 2001 (published by the Czech Statistical Office, CSO) and the Statistical Yearbooks of Environmental Protection 1996-2000 (the common writing of CSO and MoE). The different web-sides (<http://www.czso.cz> and www.indikatory.env.cz) were visited by authors during the data collection necessary for this chapter.

Research and Technologies: See under **Programmes and Projects**.

Cooperation: In the period 1990-1996, foreign aid represented merely 375.9 million €, of which 219.3 million € was a World Bank loan to CEZ for emission abatement in coal power plants, and 73.3 million € for PHARE programmes. In the period after 1994, technical aid has been substituted by investments and this trend will continue in the near future. The actual exchange rate was 31.92 CZK for 1 € in January 2002.

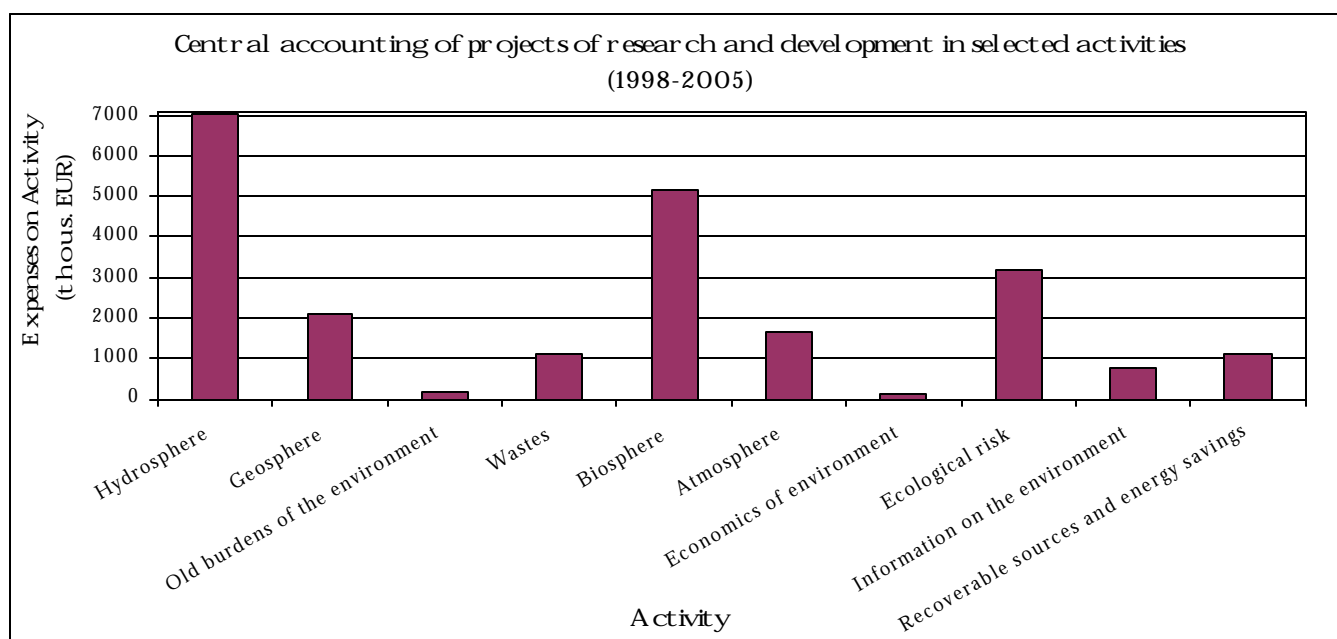
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CHAPTER 35: SCIENCE FOR SUSTAINABLE DEVELOPMENT

Decision-Making: Since 1989, research and development have undergone considerable structural and budgetary changes. In 1990, the central planning of research was abolished, but the Academy of Sciences has been preserved.

Programmes and Projects: Number of projects (from selected activities demonstrated in graph), which are registered in the Central register of research and development projects (CEP) of the Government council of Czech Republic of research and development: hydrosphere – expenses on 11 projects, geosphere – 3 projects, old burdens of the environment – 1 project, wastes – 6 projects, biosphere – 20 projects, atmosphere – 6 projects, economics of environment – 2 projects, ecological risk – 4 projects, information on the environment – 7 projects, recoverable sources and energy savings – 4 projects.

Status: Central accounting of projects of research and development for 1998-2005 as follows:



Source: <http://www.vyzkum.cz>

Capacity-Building, Education, Training and Awareness-Raising: The institutes of the Academy of Sciences are much better equipped than the universities. The scientific capacity of the Czech Republic is now in the process of transformation. In addition to traditional universities in Prague, Olomouc and Brno, a number of others in Ústí and Labem, Plzeň, České Budějovice, Hradec Králové and Ostrava also offer environmental studies.

Information: For more information from the Government council of Czech Republic of research and development see web site: <http://www.vyzkum.cz>

Research and Technologies: Research is developing, especially in universities.

Financing: The Academy of Sciences is an institution financed from the national budget. In 1993, the Grant Agency of the Czech Republic was founded in order to ensure equal access by all researchers to funding sources, regardless of their status in the organization. The privatisation process has led to an increase in investments by industry in Research and Development.

Cooperation: No information available.

CHAPTER 36: PROMOTING EDUCATION, PUBLIC AWARENESS AND TRAINING

Decision-Making: In the Czech Republic, society as a whole recognizes the importance of public awareness-raising and education in the promotion of sustainable development. There is an extensive nation-wide network of centres for environmental training run by various organizations. In the sphere of legislation, the Act No. 123/98 Coll., on the right on information on the environment and the Act No. 106/1999 Coll. on Free Access to Information, was approved and came into force. These Acts represent a transposition of EC Directive 90/313/EEC on the Freedom of Access to Information on the Environment. The objective of environmental education and public awareness-raising in the Czech Republic is to change attitudes and behavioural patterns as a means to establish the necessary preconditions to gradually remove normative and economic instruments. So far, no comprehensive system of environmental education or education of sustainable development has been established and there is no legislative or institutional support to establish such a system.

Programmes and Projects: A concept of environmental education and public awareness was drawn up in 1998 by the Ministry of Environment. This State Programme of Environmental Education and public Awareness (SP EEPA) was approved by Government on 23rd of October 2000. The purpose of this programme is to financially support projects, which shall encourage knowledge and awareness of the Czech population about the environment, sustainable development and encourage the participation of public on resolution of environmental problems related to its regions. The SP EEPA is directed to four target groups like: Public administration; Children, youth, pedagogues and professional workers; Business sphere; and, Public.

The inter-sectoral working group has been established at the Ministry of the Environment (MoE) in accordance with an Action Plan of the SP EEPA. This group operates as an advisory body of MoE and it will coordinate educational activities defined in the Action Plan of SP EEPA till 2003. This Action Plan will be updated every three years. The Czech Republic participates on projects supported from EU financial resources like programmes SOKRATES, LEONARDO, etc. The students and employees in civil services are environmentally educated in the frame of these programmes. The Czech Environmental Institute (CEI) prepares and distributes Newsletter “Local Agenda 21 in the Czech Republic” which is concerned with the issue of sustainable development, implementing Local Agenda 21, information about international cooperation in this field, exchange of experiences, reviews, methodologies etc. The Newsletter is distributed by electronic mail to all regional branches of the Ministry of Environment, to all district offices, Administrations of National Parks and Protected Landscape Areas of the Czech Republic and to municipalities, NGOs, high schools, universities and to members of networks working in the field of sustainable development. Some of these subscribers distribute the Newsletter to the other cooperating organizations and institutions within their regions. The CEI also organizes workshops and seminars for central and local administrators concerning the implementation of Agenda 21 in local conditions and focused on environmental education and public participation. The British Council supported these workshops for the last three years.

In 1997-1999 the CEI carried out the project “Cooperation with British lecturers in implementing the principles of Agenda 21 under conditions prevalent in the Czech Republic.” Non-governmental organizations provide services for schools and schooling facilities in the area of environmental education and public awareness. The network of consulting centres in the Czech Republic was founded in 1997. It promotes preventative protection of the environment and participates in defining environmental consulting as a profession. Non-governmental organization and environmental consulting centres organize countrywide and regional awareness projects (competitions, workshops, etc.). The Ministry of Environment participates on these actions. A project financed by the Ministry of the Environment of the CR entitled, Education Programme for Environmentally Sustainable Development (1 million ECU, from September 1995 to December 1996), consisted of three subprojects: services for pedagogical universities; preparation of textbooks for technical and other universities; and raising public awareness. In this context, about sixty textbooks were edited and published on related issues.

Status: In addition to traditional universities in Prague, Olomouc and Brno, a number of others in Ústí and Labem, Plzeň, ěeské Budějovice, Hradec Králové and Ostrava also offer environmental studies. The total number of fields related to ecological and environmental topics reached the value of 40 in 1996/1997. Ecology and environmental protection are included to a far greater degree in the curricula of secondary and junior schools and

in preschool education than before. The range of environmental journals has increased, environmental subjects appear far more frequently in the daily press, radio and television and the interest of the population in the environment is gradually increasing. In this connection, there is an absence of regular educational programmes on the radio and public television concerned with ecology, the environment and its protection. It is essential to implement the principle of sustainable development and to incorporate environmental considerations into sectoral policies and into environmental education, training and public awareness. There is no national curriculum. Environmental education is included in the curricula of elementary teaching, science and local/national history and geography. In middle school and the first years of secondary school, it is a part of the biology instruction, geography and civics, as well as an optional subject, environmental practice, and other subjects such as chemistry and the humanities. Headmasters have a choice between the traditional and an alternative (more focused on environmental links) syllabus of science. Environmental education and instruction in grammar school is a part of the classes in biology, geography and other natural sciences and the humanities. Some secondary schools of environmental orientation and programmes of college studies on the environment and its protection, ecology, landscape and nature conservation, etc., have emerged in the last few years. Studies on the environment and ecology are a part of virtually all the college programmes today and most universities and colleges, and a large number of faculties have established special departments on environment-related studies. There are offers to include training of new teachers in such studies. Since 1989, public awareness on environmental issues has greatly increased. There are, for example, several hundred environmental NGOs, which is an indication of the interest the people have in environmental issues. The media frequently reports on the quality of specific environmental issues. For example, TV weather forecasts regularly inform about air quality, particularly in the polluted regions. Education in schools is lacking due to insufficient teacher training and inadequate teaching material, including books.

The improvement of public awareness about ecological problems is ensured by the Czech legislation on access of public to information (See under **Decision-Making**), which is fully harmonized with legislation of EU in this field.

Information: The Ministry of Environment and civic organizations concerned with environmental awareness issue a number of newsletters, magazines, publications through the Internet and mass media among others. Some Internet addresses are: www.env.cz (Ministry of the Environment), www.ceu.cz (Czech Environmental Institute), www.cizp.cz (Czech Environmental Inspection) , www.ecn.cz (Econnect : includes information and references to the web pages of NGOs).

Research and Technologies: See under **Programmes and Projects** and **Status**.

Financing: It is a little complicated to estimate average means spent directly on education to sustainable forms of human behaviour. The total sum of 81.242 milliard CZK (2.544 milliard € about 11% of the total budget) is allocated from the State Budget for education in 2002. This level of allocated means to the sector administrated by the Ministry of Education, Youth and Sports has been remaining stable since 1996 and these means ensure the full literacy of the Czech population, which represents a guarantee of very good knowledge about nature and society and one of the guarantees combated poverty in the Czech Republic.

Cooperation: In the year 2000 the Institute for Environmental Policy in cooperation with Via Foundation Czech Republic and Westminster Foundation for Democracy realize the project "Support of Media Interest in Local Agenda 21 and NGOs' activities in this field." The Ministry of the Environment cooperates intra the SP EEPA with the Ministry of Education, Youth and Sports in promotion of environmental education, knowledge and awareness in the Czech society.

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CHAPTER 37: NATIONAL MECHANISMS AND INTERNATIONAL COOPERATION FOR CAPACITY BUILDING IN DEVELOPING COUNTRIES

Decision-Making: The Government of the Czech Republic by its Decision No. 91 of January 23, 2002 approved a new official development assistance policy of the Czech Republic. The policy is based on analysis of experience gained in provision of development assistance in 1996-2000 and reflects the current trends in development practice in the EU and OECD countries.

Programmes and Projects: Major technical cooperation programmes on education for sustainable development include: various training courses in meteorology, hydrology and air quality control (Central and East European countries, New Independent States, Africa, South America), development of sustainable agriculture production (Republic of Moldova, Morocco), capacity building in cleaner production in Croatia and Macedonia, introduction of advanced cost-effective technology and know-how on leakage-free handling of ODS at the cooling equipment service (Ukraine, Lithuania, Belarus), geological and hydrogeological survey (Burkina Faso, Cameroon, Ethiopia, Zambia, Namibia, Mongolia, Ecuador), assessment of natural risks of geological origin (Nicaragua).

Status: The Czech Republic provides technical assistance in the field of geology, meteorology, hydrology, air protection, assessment of natural risks, sustainable industrial management and sustainable agriculture.

Capacity-Building, Education, Training and Awareness-Raising: No information available.

Information: No information available.

Research and Technologies: No information available.

Financing: No information available.

Cooperation: No information available.

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CHAPTER 38: INTERNATIONAL INSTITUTIONAL ARRANGEMENTS

This issue deals mainly with activities undertaken by the UN System. The Czech Republic actively participates in all relevant United Nations agencies, organizations and programmes (e.g. UN CSD, UNEP, etc.).

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CHAPTER 39: INTERNATIONAL LEGAL INSTRUMENTS AND MECHANISMS

This issue has been covered under the heading **Cooperation** in the various chapters of this Profile. However, you will find below a listing of major international agreements and conventions joined by the Czech Republic.

The Czech Republic is a party to the following multilateral conventions and protocols:

UN ECE

Convention on Long-range Transboundary Air Pollution (CLRTAP):

- Protocol to the 1979 Convention on Long-range Transboundary Air Pollution on Long-Term Financing of the Cooperative Programme for Monitoring and Evaluation of the Long-Range Transmission of Air Pollutants in Europe (EMEP)
- Protocol to the 1979 Convention on Long-range Transboundary Air Pollution on the Reduction of Sulphur Emissions or their Transboundary Fluxes by at least 30 %
- Protocol to the 1979 Convention on Long-range Transboundary Air Pollution on Further Reduction of Sulphur Emissions
- Protocol to the 1979 Convention on Long-range Transboundary Air Pollution concerning the Control of Emissions of Nitrogen Oxides or their Transboundary Fluxes
- Protocol to the 1979 Convention on Long-range Transboundary Air Pollution concerning the Control of Emissions of Volatile Organic Compounds or their Transboundary Fluxes
- Protocol on Water and Health

Convention on the Protection and Use of Transboundary Watercourses and International Lakes;

Convention on the Transboundary Effects of Industrial Accidents; and,

Convention on Environmental Impact Assessment in a Transboundary Context.

UNEP

Convention for the Protection of the Ozone Layer/Vienna Convention

- Protocol on Substances that Deplete the Ozone Layer (Montreal Protocol)
- London Amendment to the Montreal Protocol on Substances that Deplete the Ozone Layer
- Copenhagen Amendment to the Montreal Protocol on Substances that Deplete the Ozone Layer
- Montreal Amendment to the Montreal Protocol on Substances that Deplete the Ozone Layer
- Beijing Amendment to the Montreal Protocol on Substances that Deplete the Ozone Layer

Convention on the Control of Transboundary Movements of Hazardous Wastes and their Disposal (Basel Convention);

- Amendment to the Convention on the Control of Transboundary Movements of Hazardous Wastes and Their Disposal;

Convention on Biological Diversity (CBD);

Cartagena Protocol on Biosafety;

Convention on the Prior Informed Consent Procedure for Certain Hazardous Chemicals and Pesticides in International Trade (PIC);

Convention on International Trade in Endangered Species of Wild Fauna and Flora (CITES);

- Amendment to Article XI of the Convention on International Trade in Endangered Species of Wild Fauna and Flora;
- Amendment to Article XXI of the Convention on International Trade in Endangered Species of Wild Fauna and Flora;

Convention on the Conservation of Migratory Species of Wild Animals (CMS); Agreement on the Conservation of Bats in Europe.

Council of Europe

Convention on the Conservation of European Wildlife and Natural Habitats

UNESCO

Convention on Wetlands of International Importance Especially as Waterfowl Habitat

- Protocol to Amend the Convention on Wetlands of International Importance Especially as Waterfowl Habitat

Convention concerning the Protection of the World Cultural and Natural Heritage

Other conventions

United Nations Framework Convention on Climate Change (UNFCCC)

- Kyoto Protocol

United Nations Convention to Combat Desertification in those Countries Experiencing Serious Drought and/or Desertification, Particularly in Africa (UNCCD)

Antarctic Treaty

United Nations Convention on the Law of the Sea (UNCLOS)

Convention on Cooperation for the Protection and Sustainable Use of the Danube River

Convention on the International Commission for Protection of the Elbe River

Convention on the International Commission for Protection of the Odra River against Pollution

The Czech Republic is a signatory (not yet a party) to the following multilateral conventions and protocols:

UN ECE

Protocol to the 1979 Convention on Long-range Transboundary Air Pollution on Heavy Metals

Protocol to the 1979 Convention on Long-range Transboundary Air Pollution on Persistent Organic Pollutants

Protocol to the 1979 Convention on Long-range Transboundary Air Pollution to abate Acidification, Eutrophication and Ground-Level Ozone

Convention on Access to Information and Public Participation in Environmental Decision-Making and Access to Justice in Environmental Matters

UNEP

Stockholm Convention on Persistent Organic Pollutants

Other conventions

Protocol on Environmental Protection to the Antarctic Treaty

The developed bilateral cooperation with the EU member states is oriented to the technical assistance in the sphere of environmental protection focused on the fulfilment of the requirements of the EU acquis. The bilateral cooperation with the neighboring countries is also concentrated on the common issues in the environmental protection – boundary watercourses, air pollution, nature protection.

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CHAPTER 40: INFORMATION FOR DECISION-MAKING

Decision-Making: Access to information in the CR is the subject of Law No. 123/1998 Coll., on the right to environmental information (fully compatible with Directive No. 90/313/EEC), and Law No. 106/1999, on free access to information. The ratification of the Convention on Access to Information, Public Participation in Decision-Making and Access to Legal Protection in Environmental Matters (the Aarhus Convention) is now undergoing the approval process in the Parliament. On the basis of Czech National Council Law No. 2/1969 Coll., on establishing the ministries and other central bodies of the state administration in CR, the Ministry of Environment (thereinafter MoE) provides for and manages the environmental information system, including extensive monitoring over the entire territory of the CR, in relation to international agreements.

The Environmental Information Council of the MoE (deputy ministers and head of informatics dept) and Task group (individual MoE departments, NGOs) was established in 2001, in order to effectively coordinate the environmental information system development.

Strategic documents: “Information policy of the MoE”; “Information strategy of the MoE for years 2001-2003.”

Programmes and Projects: The overall *Environmental Information and Decision Support System (EDSS)*:

It is intended to provide complex environmental information on the quality of the environment, covering environmental data together with derived information and additional services. The EDSS is also aimed to publicity of decision-making processes in the area of environmental administration, increasing the public awareness about the sustainable development, and direct supporting the development of strategic, long-term environmental policies and decision-making processes. The Quality Assessment/Quality Control mechanism will be implemented to ensure validity and reliability of the data. The EDSS comprehends component sub-systems focused on specific areas of processing or presenting information:

Information and data clearinghouse: it is intended to implement the decentralised mechanism of equal sharing and national and international exchange of data and information, to support and facilitate the global cooperation in this field. The need for tracking information flow paths resulted in the extension of European Environmental Agency (EEA) Biodiversity Clearinghouse to the Czech Republic under EU IDA II framework. Real life operation is expected in second half of 2003.

Gateway to environmental information: for the pilot see <http://infozp.env.cz>.

The Internet portal on environmental information collects both administrative and thematic environmental information, including on-line access to databases and info bases. Important features are considered to be classification, indexing and a search mechanism, using the linguistic analysis. Basic aims are to improve the quality and timeliness of the data and the capacities for delivering short-term environmental outlooks and reporting and ensure timely, targeted and reliable information. It represents the uniform user interface of the EDSS and incorporates the following sub-systems:

Catalogue of data and information sources: see <http://mis.env.cz>. This Catalogue lists and describes environmental data and information resources. It is based on the enriched EU Catalogue of Data Sources standard with regard to the Czech National Metadata Standard based on Dublin Core schema. This Catalogue has been gradually filled with majority of the environmental information sources available in the state administration such as librarian information, on-line services databases and other accessible resources.

Indicators on-line: see <http://indikatory.env.cz>

Environmental and sustainable development indicators information system is aimed at developing procedures and workflow for processing and presentation of environmental indicators.

On-line map service: see <http://map.env.cz>

Status: The environmental information system contains all the data and information from the MoE and from 20 component information systems of its 14 service organizations. Activities are centred on the data and information flow from national monitoring to presentation and dissemination of information, and international reporting. From the end of 2000, the system is being systematically converted into the indicator-based Environmental Information and Decision Support System (thereinafter EDSS) fully compatible with trans-European telematic networks and IDA II. This progress is prepared within a project, which objectives closely relate to fulfilling of national

obligations arising from adopting the Agenda 21 and to the Czech National Strategy for Sustainable Development, which is now being prepared for the 2002 review of Agenda 21 in Johannesburg.

Overview of related activities:

1992 – 1999	Building of environmental information system: - many databases, - rapid evolution of MoE component information systems, - insufficient central coordination
2000	- The environmental information system started to be converted into Environmental Information and Decision Support System - Strategic documents prepared - The Management Information System launched (the parent system for today's catalogue of data and information resources)
2001	- Pilot study on user needs and requirements finished - User groups defined - Started projects: Catalogue of data and information resources, Gateway to environmental information, Indicators on-line, On-line map service, Information and data clearinghouse

Capacity-Building, Education, Training and Awareness-Raising: For more information see the web page of the Ministry of Environment of the Czech Republic <http://www.env.cz>.

Information: Overall information, documents: <http://www.env.cz>

Internet gateway on environmental information: <http://infozp.env.cz>

Indicators on-line: <http://indikatory.env.cz>

Catalogue of data and information sources: <http://mis.env.cz>

On-line map service: <http://map.env.cz>

Financing: Phare projects: Phare CZ 9705-05-01-01-01-0001 “Development of a Management Information System (MIS) - for Approximation.” Finished in 2000; Twinning-light project “Information system of environmental indicators.” Project approved - To be started, approximately in May 2002.

Funding of all the other activities has been covered from the MoE budget.

Cooperation: International cooperation in the field of building the Environmental Information and Decision Support System is taking place through: EU Phare projects (twinning and twinning light projects); participation in the international and global projects such as Global Environmental Fund, United Nations; Environmental Programme, Infoterra, etc.; participation in the European Environment Agency activities; joint activities with European Commission Joint Research Centre in the field of environment, GIS and remote-sensing; cooperation in the international treaties; and, bilateral and international projects (neighbouring countries, Finland, Denmark)

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CHAPTER: INDUSTRY

Decision-Making: No information available.

Programmes and Projects: No information available.

Status: No information available.

Capacity-Building, Education, Training and Awareness-Raising: No information available.

Information: No information available.

Research and Technologies: No information available.

Financing: No information available.

Cooperation: No information available.

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CHAPTER: SUSTAINABLE TOURISM

Decision-Making: No information available.

Programmes and Projects: No information available.

Status: No information available.

Capacity-Building, Education, Training and Awareness-Raising: No information available.

Information: No information available.

Research and Technologies: No information available.

Financing: No information available.

Cooperation: No information available.

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