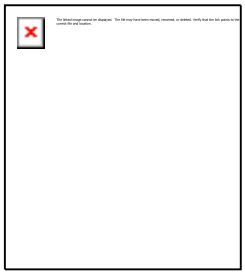
STATE ENVIRONMENTAL POLICY

JANUARY 2001

State Environmental Policy
© Ministry of the Environment of the Czech Republic
Prague 2001
ISBN 80-7212-171-5

CONTENT:

THE GOVERNMENT
OF THE CZECH REPUBLIC



RESOLUTION OF THE GOVERNMENT OF THE CZECH REPUBLIC

of January 10, 2001 No. 38
on the Updated State Environmental Policy of the Czech Republic

The Government hereby:

I. approves the updated State Environmental Policy of the Czech Republic contained in Part III of the material submitted, as modified by the comments of the Government, where the numerical values given in Chapter VIII - Costs and Effectiveness of the Proposed Targets are indicative;

II. entrusts the Prime Minister with submitting the updated State Environmental Policy of the Czech Republic as set forth in point I of this Resolution to the Speaker of the Chamber of Deputies of the Parliament the Czech Republic and President of the Senate of the Parliament of the Czech Republic as information for the relevant Parliamentary Committees of the Czech Republic;

III. requires
1. that the Minister of the Environment carry out further updating of the State Environmental Policy of the Czech Republic and submit it to the Government by December 31, 2002, together with a report on the fulfilment thereof.
2. that the members of the Government implement the priorities, tasks and targets following from the updated State Environmental Policy of the Czech Republic as set forth in point I of this Resolution (particularly in relation to Chapter VI.1 - Extraction of Minerals Resources, VI.2 - Energy, VI.3 - Industry and Trade, VI.4 - Waste Management, VI.5 - Transport, VI.6 - Agriculture and Forest Management, VI.7 - Water Management, Care for Water, VI.8 - Health and the Environment, VI.9 - Tourism and VI.11 - Educational System) in sectoral policies and activities of the sectors in the framework of the capabilities of the state budget, including the search for further financial resources,
3. that the members of the Government and heads of other central bodies of the state administration assist newly formed self-governing units in implementing the ideas, priorities and targets of the updated State Environmental Policy of the Czech Republic as set forth in point I of this Resolution.

To be implemented by:
Members of the Government and
the heads of other central bodies
of the state administration

Prime Minister

Milo¹ Zeman M.Eng.

INTRODUCTION

The updated State Environmental Policy of the Czech Republic (SEP CR) is based on documents prepared in 1999, which the Government of CR acknowledged in its Resolutions of April 14, 1999, No. 323, of January 12, 2000, No. 54, and of July 3, 2000, No. 666. The Minister of the Environment has been asked to submit an

augmented and updated SEP CR to the Government for approval, taking into account the assessment of environmental impact pursuant to § 14 of Law No. 244/ 1992 Coll., and other relevant policies.

The SEP CR is a basic, strategic, cross-sectoral document which forms the foundation for detailed programs for the individual components of the environment and for dealing with particular environmental issues. The individual programs are specific and provide details of targets, responsibilities and deadlines.

The SEP CR formulates policy principles not only in respect of environment, in the traditional, narrower sense of the word, but also specifies the means and targets for implementation of environmental considerations in regional and sectoral policies, such as the energy, raw material, transport, agriculture and etc. Thus, the SEP CR constitutes a highly integrated and important Government document.

At the present time, the main priority is to harmonize the environmental policy of the Czech Republic with the requirements associated with the aniticipated accession of this country to the EU. Thus, there is a direct connection between the SEP CR and the National Program for the Preparation of the CR for Membership in the EU, with the Approximation Strategy in the Environment, and with the Implementation Plan for the Chapter 22: Environment, and with the State Program for Conservation of Nature and the Landscape of the Czech Republic.

At the Helsinki Summit of the Council of Europe, the European Commission was requested to prepare a draft long term strategy for sustainable development and to present this draft to the Council of Europe in June, 2001. This strategy will also be used for the ten-year evaluation of results of the UN Conference on the Environment and Development in 2002. Immediately following this summit, it was determined that the National Strategy of Sustainable Development in CR should be prepared by the end of the year 2001, so that it could be presented at the 10th Anniversary of the UN Conference on the Environment and Development in 2002. The updated SEP CR should be one of the basic documents for this strategy.

The State Environmental Policy and the National Strategy of Sustainable Development must reflect the conclusions of the Helsinki summit and the adopted documents on integration of the environmental policy into sectoral policies Collected working materials of the ME Consultation Forum for Accession to the EU – Documents of the EU Helsinki Summit, Ministry of the Environment, January 2000. Global evaluation of the 5th Environmental Action Program (5EAP) provides a number of indications for the future direction of environmental policy. The 6th Environmental Action Program, which has just been completed and which the Commission should present at the end of January 2001, will form the basis for European environmental strategy in the near future and will form the main pillar of the Community Strategy for Sustainable Development. It will be important to take this Community Strategy into account in the national Strategy, as it will view environmental policy in the broader context of an enlarged EU. The Commission expects that the main priorities of the 5th Environmental Action Program will remain valid and that future activities should be based on these priorities.

The updated SEP CR includes analysis of current conditions and deals specifically

with each of the main aspects of environmental protection in the period between 2001 and 2005. It will be beneficial to update the policy after two years in the light of the speed of developments in environmental issues.

The SEP CR is the result of broad discussion and intersectoral deliberations at all levels, and attempts to take into account foreign experience. Business associations, the sectors, professional groups and the general public concerned with protection of the environment all played an important role in its formulation. The updated version was created at a time when the state and development of the environment increasingly affects quality of life, prosperity, poverty, economic activity, security and relations between individuals, nations and continents. In spite of numerous attempts by professionals, nations and the international community, to exert control over the exploitation of natural resources, their distribution and effective conversion in order to guarantee sustainable development, conservation of the full diversity of plant and animals species has not yet been achieved.

The gradual loss of global equilibrium between human activities and nature increasingly affects the life of human society on the Earth. It is apparent that conditions in the environment will fundamentally affect the course of events and all human activities and state policies in the near future. The inadequacies of previous technical analyses and the impacts of poor decision-making in the past are becoming critical in the light of the dramatic increase in the population of the Earth and the increase in the material requirements of its inhabitants.

The general framework of the SEP reflects the interest of the Czech Republic in further improving the quality of the environment in CR and in implementing the principles of sustainable development on a global scale. The CR accepts its portion of responsibility for the state of the environment on planet Earth, participates in the mechanisms of international co-operation. Through activities within its territory and through support for activities in other areas the Czech Republic is taking part in dealing with existing global issues.

The Czech Republic, as a country in the continent of Europe, affects and will be increasingly affected by environmental factors in the world. It will also participate in the millennium evaluation of the principal global ecosystems, which has been begun by the World Resources Institute, in co-operation with the UN Development Program, UN Environment Program and the World Bank, and which the UN Secretary General, Kofi Annan, endorsed at the UN Millennium Summit in September 2000, in New York. The target will be to determine the state of the individual categories of ecosystems, since the global economy and individual persons are dependent on the ability of ecosystems to continue to provide the same or greater amounts of resources and services. Political approaches and decisions will be derived and elaborated on the basis of the analysis of the results, and are to include:

a) improving the level of care for ecosystems through the application of best practice programs and the development of more effective institutions for their implementation;
b) on the basis of the information obtained on the state of ecosystems, consideration will be given to decision making mechanisms which take account of the various values and services of ecosystems and of environmental, political, social and economic targets;

c) the general public will be encouraged to participate directly in care for ecosystems, in the first instance through local communities, whose direct interest in protection of ecosystems is the greatest.

The Government is aware of these issues and accepts responsibility for future trends and, together with individuals and through the SEP and the interconnected sectors and regional policies, will attempt to the maximum possible degree to ensure favourable changes that will lead to sustainable living, sustainable economic development and a better quality of life.

I UPDATED SEP CR

The Government of the Czech Republic recognises the necessity to fully support the policy of sustainable development and other principles derived from this policy and is aware of its obligation to implement these principles in all the activities of society. In accordance with its declaration of August 1998, it wishes to demonstrate to individuals, institutions and the international community that it is aware of its responsibility for the state of the environment in this country and of the joint responsibility for the state of the environment in the European continent and the entire World. The Government accepts this responsibility and, through its members, transfers it to all the central bodies of the state administration and, through adopted laws, also to its citizens.

The Government cannot ensure the transition to the pathway of sustainable development by itself. Thus, the SEP CR is intended to act as an inspiration, motivation and challenge to the general public. Whilst recognising the results achieved in protection of the environment over the past decade, the SEP CR identifies the need for change, and sets out the means and targets of these changes:

· improvements in the behaviour of individuals as producers, consumers, inhabitants and visitors to the natural and artificial environment in this country,
· similar changes in community organizations,
· increased informal civic initiatives aimed to improve the approach to the environment,
· additional support for science,
· systematic education and enlightenment of the present and next generation, and
· broader international co-operation.

Updating of the SEP CR is necessitated by a number of factors, including the current unsatisfactory state of the environment in a great many respects, the preparation of the Czech Republic for accession to the EU, the increasing tension caused by global environmental changes and the need for international co-operation in the framework of the Organization for Economic Co-operation and Development (OECD).

For these reasons, it is essential:

· to achieve a further improvement in the quality of the environment as a whole and the state of its components;
· to implement the principle of sustainable development and further integrate environmental concerns into sectoral policies,

· to improve environmental education, enlightenment and public awareness (EEEA) and to coordinate these approaches
· to apply the principles of economics and develop economically-aware approaches in all plans and targets in environmental protection.

In the period 1997-99, the environmental performance of the Czech Republic was evaluated in the framework of OECD. This is to date the largest and most independent form of evaluation of the environment in this country. The Czech Republic was the 23rd country of the Organization for Economic Co-operation and Development to undergo the first cycle of this evaluation procedure. The following points were emphasized as part of the conclusions and recommendations contained in the OECD Environmental Performance Report, dealing with implementation of environmental policy:

· the traditions of the Rainbow Program (1990) and the SEP of 1995 should be continued; areas that remain neglected for various reasons should be developed;
· quantified targets and time periods for achieving them should be set in relation to preparation for accession to the EU;
· the level of information and data on the state and quality of the environment (e.g. wastes, expenditures for protection of the environment) should be improved in accordance with Law No. 123/1998 Coll.;
· greater emphasis should be given to horizontal approaches to environmental protection such as integrated pollution prevention and control (IPPC), and eco-management and audit schemes (EMAS) in contrast to traditional media specific vertical approaches;
· there should be a substantial increase in the resources devoted to the implementation of laws for the protection of the environment and its monitoring;
· there should be an increase in the capacity of the Ministry of the Environment, especially in respect of economic analyses and economic approaches to environmental issues.

In addition to implementation of environmental viewpoints, key steps towards achieving sustainable development include:
· the reinforcement of existing measures,
· development of new measures for dealing with new issues in the framework of the 6th European Environmental Action Program,
· increased integration of environmental interests in other policies,
· the acceptance of greater environmental responsibility by individuals, and
· more active participation of the public in decision-making processes.

Thus, the updated SEP CR concentrates on increasing the effectiveness of environmental measures especially prevention, on considering the economic aspects of protection of the environment, on suggestions for innovation of technical processes and on greater implementation of voluntary and economic instruments, which are implemented as part of a joint approach by the Ministry of the Environment and the industrial, agricultural and business spheres.

It is essential that the Ministry of the Environment co-operate and participate in the creation and implementation of industrial, energy, transport, agricultural and other policies, and in all the changes that follow from their practical implementation. Weak

or inconsistent implementation of the criteria of environmental protection in the preparation and the initial stages of large projects later requires expensive correction. To avoid such problems the Ministry of Environment must ensure broader and deeper environmental enlightenment, fuller implementation of environmental law and a more rigorous application of the environmental impact assessment (EIA) procedures.

Integration of environmental concerns into sectoral policies also requires constant refinement of the set of environmental indicators, that reflect the impacts of the individual policies and are also submitted for public discussion. Consequently, changes in the environment and key parameters must be monitored and evaluated on the basis of constant, comprehensible, quantifiable indicators that are comparable over time. It is also necessary to collate these indicators with other parameters of economic development and compare them with indicators of social, economic and environmental performance in other European countries, with which this country would like to be equated.

The updated SEP CR recommends fundamental changes in the approach to consistent, systematic co-operation between professionals and the general public with all levels of the public administration and civic life, whilst respecting local administrations and shared responsibilities. Reform of the public administration can significantly improve the efficiency and targeting of environmental protection. Simultaneously, it requires positive action in the areas of employment, social development, and development of the regions. This policy will continue to require open exchange of information and co-operation between the business sphere, individuals, NGOs and between all the sectors in dealing with specific environmental issues.

II INITIAL CONDITIONS

II.1 General Conditions

Democratic Changes in the Nineties

A great many democratic changes were achieved in the Czech Republic in the period following November 1989 and these changes have favourably affected the approach to dealing with environmental issues. A large number of non-governmental organizations have been created, most of which are frequently engaged in effective environmental protection and education, especially of young people. Thus, they have significantly contributed to the development of a civic society and their influence often extends beyond the framework of environmental protection and enhances public consciousness of the functioning of a democratic state.

Environmental issues are also gaining importance in the areas of industrial production and service provision, and are a key aspect of international co-operation. In spite of the democratic changes, some serious inadequacies have been resolved too slowly during this period and some continue to the present day. A great many new or renewed features of the social, economic and legal environment in CR in the nineties do not have fully unambiguous consequences for environmental protection. The profit motive has become the basis for the resolution of ownership issues, and for the operation of businesses, but has also given rise to a number of incentives for profit on the basis of adopting environmentally aware attitudes. The environment thus reflects -

and will continue to reflect - both favourable and unfavourable aspects of the transition of the Czech economy and society to free market circumstances. But the economy as a whole does not take into account or ascribe an economic value to its social and environmental consequences.

Despite an awareness amongst individuals and entrepreneurs of the scarcity of natural resources, the role of environmental legislation and other basic features of environmental protection, this knowledge has not always overcome the undervaluation of the environment in every day life nor other practical considerations. However, favourable improvements can be seen in the key role of the economic sector in caring for the environment and creation of market and non-market values, and also in the activities of enterprises in industry, agriculture, transportation, services and other branches, as well as the public economic sector (the state, cities and municipalities and other public organizations), in the creation and distribution of resources for the environment and implementation of specific measures. While in the first half of the nineties, the environment was of lower priority as enterprises found themselves deprived of central state assistance, in the second half of the nineties, the restructuring of the economy and its growing competitiveness in demanding markets, has led, amongst other things, to a more consistent application of environmental measures and enforcement of environmental legislation, including greater material and energy efficiency.

Institutions and Their Development

An undoubted milestone in environmental protection was the creation of the independent institutions of the state administration. In the years from 1990 - 1992, the Federal Committee for the Environment worked successfully in an international (the Dobøí¹ Initiative)and legal framework under the leadership of Minister Josef Vavrou¹ek. In 1990, the Ministry of the Environment of the Czech Republic was established with jurisdiction for the appropriate part of then Czechoslovakia and, since 1993, has existed as a national ministry.

During the nineties, and specifically as the process of approximation of environmental legislation to that of the EU has been accelerated, a number of organizations and instruments have been created in order to fulfil the legal obligations of the state, to assist in the execution of the competence of the Ministry of the Environment and to effectively achieve the targets of environmental policy. These organizations include the Czech Environmental Inspection (CEI) in the area of legal enforcement, the State Environmental Fund of the Czech Republic (SEF CR) as a financial instrument of environmental policy, the non-sectoral Central Flood Commission in the area of emergency management, the EMAS Council (Eco-Management and Audit Scheme), and the Government Council for Health and the Environment as a consultative body with inter-sectoral jurisdiction. Participation in international co-operation at an inter-governmental level has greatly contributed to the creation of model institutions in the area of environmental administration.

The newly created Czech Environmental Institute (CEU) supplements the professional and scientific base in the Czech Republic, which also includes the Czech Hydrometeorological Institute (CHMI), the T.G.M. Water Management Research Institute (TGM WMRI), the Czech Geological Institute (CGI), the Geofond of CR,

the Agency for Nature Conservation and Landscape Protection (ANCLP), the Silva Tarouca Research Institute for the Landscape and Horticulture, and some parts of the Czech Academy of Sciences and universities. In the year 2000, the European Commission approved the Waste Management Centre Twinning project, which will contribute to the implementation of the measures set out in the document "Preparation of a expert base for the management of waste".

Important non-governmental professional organizations have been established, such as the Business Council for Sustainable Development, the Czech Environmental Management Centre and the Cleaner Production Centre. Hundreds of people have received certificates of special qualification for preparation of documentation and expert reports in environmental impact assessment, dozens of certified laboratories have been established and a great many companies are now operating in the field of environmental protection technology. Control of the movement of protected and endangered species of plants and animals across state borders has improved, as has control over the movement of wastes.

In addition to the Krkono¹e National Park, the ©umava, Podyjí and Èeské ©výcarsko National Parks have been established. The number of Protected Landscape Areas (PLAs) has increased to 24 and a PLA Administration has been established separately from the Agency for Nature Conservation and Landscape Protection, with which it originally formed the Czech Nature Protection Institute.

Legal Basis

A key role was played by the development of legislation in the area of environmental protection at the beginning of the 90´s, including Article 7 of the Constitution of CR, which requires circumspect exploitation of natural resources and protection of natural wealth, Law No. 17/1992 Coll., on the environment, Law No. 244/1992 Coll., on environmental impact assessment, the Clean Air Law, the Law on Wastes and related regulations, Laws and Decrees on protection of nature and the landscape, the Amendments to the Construction Code and its regulations for implementation, and the Law on Protection of the Agricultural Land Fund.

In recent years it has become apparent that some of this legislation, notably the Law on Wastes, the Clean Air Law and Law No. 244/1992 Coll., on environmental impact assessment, is not fully compatible with the corresponding legislation of the European Communities and also does not correspond to modern environmental protection requirements. The new law on environmental impact assessment of 2001 constitutes an important step towards achieving full compatibility with the EC Directives for this area.

It is necessary to ensure ratification of international conventions aimed at addressing the issue of transboundary environmental impact assessment with public participation. Practical experience in execution of the duties of the state administration in the area of the environment by the District Authorities, authorized bodies in cities and towns, and administrations of national parks and protected landscape areas has led to a gradual improvement in the quality of environmental protection in routine operations.

Significant progress has been made towards fulfilling the goals of the SEP of 1999

and those of the National Program for the Preparation of CR for Membership in the EU through the introduction of the following laws:

· Law No. 161/1999 Coll., establishing the Èeské ©výcarsko (Czech Switzerland) National Park and amending Act No. 114/1992 Coll., on the protection of nature and the landscape, as amended;
· Law No. 353/1999 Coll., on the prevention of major accidents caused by selected dangerous chemical substances and chemical preparations and amending Law No. 425/1990 Coll., on District Authorities, outlining their jurisdiction and on some other related measures, as amended;
· Law No. 37/2000 Coll., amending Law No. 125/1997 Coll., on wastes, as amended by Law No. 167/1998 Coll.;
· Law No. 115/2000 Coll., on provision of compensation for damage caused by selected specially protected animals;
· Law No. 153/2000 Coll., on the use of genetically modified organisms and products and amending some related Laws;
· Law No. 238/2000 Coll., on the fire brigade of the Czech Republic and amending some Laws;
· Law No. 239/2000 Coll., on the integrated rescue system and amending some Laws;
· Law No. 240/2000 Coll., on crisis management and amending some Laws (the Crisis Law);
· Law No. 242/2000 Coll., on environmentally sound agriculture and amending Law No. 368/1992 Coll., on administrative fees, as amended;
· Law No. 258/2000 Coll., on protection of the public health and amending some related Laws;

Further legal regulations are under preparation:

· the Government approved draft of the new law on environmental impact assessment (Jan. 5, 2000);
· the Government approved legislative intention of the law on protection of the air and protection of the ozone layer of the earth (May 10, 2000);
· the Government approved draft of the law on waters (July 26, 2000) and amending some laws (the Water Law);
· the Government approved draft of the law on waste (August 30, 2000);
· the Government approved legislative intention of the law on packaging and packaging waste (Sept. 6, 2000);
· the Government approved legislative intention of the law on biocides (Sept. 6, 2000);
· the Government approved legislative intention of the law on water mains and sewerage systems for public use (Sept. 13, 2000).

Intensive work is progressing on preparation of the law on integrated pollution prevention and control and the integrated pollution register, through extensive co-operation with industrial, national and international organisations including NGOs.

Reform of the public administration and the establishment of the regional authorities are of key importance for the effectiveness of environmental legislation. Through transfer of decision-making powers and responsibility to the regional authorities, environmental issues can be addressed closer to their point of origin and impact.

However the need for co-ordination of decision-making in the area of the environment at the regional, national and international levels, including public participation, is also being addressed.

Enlightenment and Education

The long years of absence of education in environmental protection in the period of totalitarianism, the prevalence of anthropocentric viewpoints and the scarcity of information on the quality of the environment and on the presence of dangerous substances in foodstuffs, led to a low level of environmental consciousness amongst the population. This was reflected over a number of generations in a lack of knowledge, a lack of interest, and inadequate education of children to protect nature and their own health and to lead a sustainable life style. Resolution of the Government of the Czech Republic No. 232/92 on the strategy of state assistance for environmental education in the 90´s has not been sufficient. On January 6, 1999, a resolution on the concept of a state policy in relation to young people in the Czech Republic to the year 2002 was prepared and approved by the Government. Environmental education, public awareness and enlightenment all feature prominently in this policy. Subsequently, the State Program of Environmental Education, Enlightenment and Public Awareness in CR was prepared and approved (Resolution of the Government of CR of October 23, 2000, No. 1048). The use of sophisticated instruments leading to environmental protection will not be effective in the absence of adequate environmental education and awareness amongst the general public. Environmental considerations must be a natural part of the educational process at all levels. The attained level of knowledge limits effective and constructive public participation in decision-making processes affecting the environment, and also is increasingly decisive in managerial success in the business sphere.

Selected Aspects of the Environment and the Approach Employed to Date

In the 90´s, progress was achieved in some of the elements of the environment:

Air - Up to the present time, the vast majority of large and medium-sized pollution sources have been brought into line with air protection limits. This has been fundamentally reflected in an improvement in the air quality and lower smog levels during the colder months when heating is most used. Problems related to emissions from local sources continue or have even been exacerbated by the burning of municipal waste in households, by increasing emissions from mobile sources connected with rapidly increasing road transport. These emissions are also contributing to the increase in greenhouse gases and the associated global impacts. The cut back and closing down of some obsolete operations at the beginning of the nineties, accompanied by detrimental consequences for employment levels and the economy, also had a favorable impact on air pollution levels in CR. However, the renewal of industry, especially through foreign investments has, in recent years, ameliorated some of the detrimental social and economic consequences of these changes. Nevertheless the favorable impacts of these measures on employment levels and economic growth should not be to the detirment of environmental quality. The air quality in CR at the end of the nineties and the measures adopted are generally comparable and, in some indicators better than in the EU countries. However, differences continue to exist between the regions and there are also seasonal

variations.

Water protection - Water purity has improved in some water courses, especially along the borders, as a result of about 330 new waste water treatment plants in large cities and municipalities, industrial enterprises and agricultural operations, and the use of smaller amounts of industrial fertilizers and pesticides. Nonetheless, the water in one third of all water courses important for water management is classified in either class IV (highly polluted) or class V (very highly polluted) pursuant to CSN (Czech National Standard) 75 7221. The quality of standing surface waters and ground water, especially in the vicinity of industrial plants and large agglomerations, also remains unsatisfactory. There are high levels of eutrophication of waters and pollution of minor water courses, especially by nitrates. As pollution from point sources decreases, surface water quality is increasingly affected by extensive and diffuse pollution sources. Human activities significantly disturb the stability of aquatic and water-dependent ecosystems. The greatest improvements will come from treatment of municipal waste waters from smaller sources and a decrease in diffuse pollution.

Mineral Extraction and the Landscape - The reduction in mining of brown and black coal and the increased extent of reclamation and decontamination has halted the devastation of urban structures, nature and the landscape in the North Bohemian and Sokolov brown-coal mining areas, in the districts around Hodonín and Kladno, under the Krkono¹e mountains, and in the Ostrava and Karviná areas. A reduction in uranium mining and the commencement of the necessary reclamation works are gradually improving conditions in the Èeská Lípa and Pøíbram areas, the Kru¹né Mts., Western Bohemia and Czech-Moravian Uplands. However , there is a sensitive relationship between social welfare in these regions and the measures which have been adopted. Programs concerned with restoration of nature and the landscape in these areas, which thereby attempt to renew and increase the environmental and tourist potential, could help in resolving this situation.

The Landscape - Past and current activities with impacts on the landscape are still frequently ill-considered; some installations are of poor quality and built without foresight, and construction work is constantly being begun from scratch rather than adapting unused and obsolete sites. Intensive farming continues on agricultural land with favorable conditions, leaving insufficient space for landscape ecostabilization features, and the chemical preparations that are sometimes employed decrease biodiversity. Land improvement, straightening and confinement of water courses destroy the appearance and retention ability of the landscape and water-bank life along a great many water courses. These unsuitable activities are only gradually being corrected and at great cost by projects implemented in the framework of the Program for Recovery of River Systems. The utilisation of land outside of present-day cities and municipalities is continuing, and the landscape is damaged by unused buildings, landfills and billboards. The aesthetic, recreational, tourist and biological potential of the landscape is misused and frequently continues to be impaired.

Ecosystems are renewed only slowly in the landscape. A comprehensive network of regional and supra-regional territorial systems of ecological stability (TSES) has been created in CR, where biocentres interconnected by biocorridors also create conditions for optimum development of plant and animal communities. This is of great benefit, but these territorial systems of ecological stability should also be connected to a

system of larger protected territories. A total of 2/3 of the elements of TSES are completed at the local level. Professional management and planting of TSES using mixed tree species of domestic provenance creates the potential for employment in the regions and greatly improves and extends the function of the landscape as a source of livelihood. Care for the landscape, including its cultural and historical heritage and aesthetic function, is a task for all the sectors. Regionalization of care for the landscape as a result of reform of the public administration could have some detrimental consequences, and remedies should be sought at all levels of decision-making.

Flora and Fauna - Some species of plants and animals are reappearing after decades of absence in nature in this country, ranging from mushrooms and lichens to vertebrates. However the use of chemicals, contamination of the biosphere by foreign substances and the utilization of natural habitats for other purposes continues to fundamentally threaten the biodiversity and state of health of fauna and flora. There has been a favourable decrease in the introduction of NPK nutrients (combined fertilizers containing nitrogen, phosphorus and potassium) into the soil to a level equal to 33% of the 1989 consumption and a decrease in the use of pesticides to 44% of the level for that year. Implementation of Council Directive 92/43/EEC on the conservation of natural habitats and of wild fauna and flora will, however, require an adequate response through additional measures. The targets of this Directive are to:

· promote the maintenance of biodiversity through the conservation of natural habitats and of wild fauna and flora in the European territory of the members states;
· ensure the restoration or maintenance of natural habitats and species of wild fauna and flora;
· implement measures taking into account economic, social and cultural requirements and regional and local characteristics;
· create a coherent European ecological network of protected territories EC NATURA 2000 and a system of strict conservation of species of fauna and flora.

The purpose of the NATURA 2000 network is to maintain or restore natural habitat types and the populations of species at a favourable conservation status in the interest of the Communities. NATURA 2000 includes territories – Special Areas of Conservation (SAC) and areas protected pursuant to the Directive on birds - Special Protected Areas (SPA). Each member state will contribute to the creation of the NATURA 2000 network in proportion to the representation in its territory of the natural habitat types and the habitats of species for which the network is to be declared.

Waste - Progress has been achieved in the development of the state administration in waste management. Legal and institutional conditions have been created for keeping records of waste generation, waste management and waste disposal. Nonetheless, the Law on waste must be rapidly amended. The first wave of closure and reclaimation of old unsuitable landfills has been completed. Evaluation of the risks posed by landfills operated on the basis of special conditions pursuant to Law No. 238/1991 Coll., on waste was completed through project VaV/530/98 in December 2000. There has been a favourable trend towards the greater exploitation of the potential of waste as a source of energy, but this is offset by the unsatisfactorily low fraction of waste which

is utilized as secondary raw material. The overseeing of waste management will be one of the important duties in relation to the environment that will be transferred to the regional authorities.

Environmental Damage from the Past - Decontamination is on-going at various locations polluted by the actions of foreign army units, including the Soviet Army, and in some privatized companies. Completion of decontamination at locations formerly occupied by foreign army units is expected to be completed by 2008 and, at the present time, decontamination is being carried out at the 6 most polluted locations. Steps leading to remediation of environmental damage from the past in privatized companies and the principles of dealing with environmental obligations in the framework of privatization follow from the Resolutions of the Government of the Czech Republic No. 123 of 1993 and No. 810 of 1997. Under these provisions the state provides guarantees for remediation of environmental damage caused by the activities of former state enterprises. The legal obligation of the privatized company comprises of the submission of an environmental audit estimating the extent of the expected environmental obligations. Following granting of consent by the Government of CR to a proposal by the Ministry of Finance for payment of the costs of remediation of the environmental damage in these most serious cases, the new owner and the National Property Fund (NPF) sign an environmental agreement, in which the NPF pledges to pay the costs of dealing with the environmental obligations of the state. The agreement states the maximum amount which the NPF guarantees to pay for decontamination (the guarantee is usually limited to the purchase price of the property or to the value of the corporate stock of the company). In 2000, Regional Lists of Priorities for remediation of environmental damage from the past were drawn up so as to target the available finances in the most effective way. The Ministry of Environment in co-operation with the Ministry of Finance is preparing a Government resolution on a more effective system of remedying environmental damage. The beneficial consequences of these steps are expected to become apparent during 2001.

Forests - The principles of sustainable development are also of significance for the utilization of the landscape and ecosystems. From the standpoint of ecological stability, integrated environmental protection and conservation of biodiversity, the importance of forest ecosystems is ever increasing. Forests function as landscape features, pollution filters, tools for water management, means of protecting the soil, as a component of climate control and as places of recreation. Simultaneously, they fulfil the function of an important producer of a renewable, environmentally sound raw material. The gradual increase in the overall area of forest land from 2 629 905 ha in 1990 to 2 634 000 ha in 1999 is a welcome trend. However, the overall area of land with forest vegetation decreased from 2 582 780 ha in 1990 to 2 518 845 ha in 1999. The fraction of the land covered by forests in CR is quite favourable and equals 33.4%; however, this corresponds to only about 0.25 ha of forest land per inhabitant.

Of the countries of Europe, larger areas are covered by forests in Finland (76%), Sweden (68%), Austria (47%), Norway (39%) and Portugal (35%), while smaller areas are covered by forests in Germany (30%), France (27%), Italy (23%), Belgium (20%), Denmark (11%), Great Britain (10%) and the Netherlands (9%). As forest ecosystems are an important ecological stabilizing feature in the environment, one of the basic requirements for sustainable development is multi-functional forest management, based on strict respect for the limits of environmental space in terms of

ecological stability of climax and paraclimax succession stages of biotic communities and for the felling capacities of the forests. Dead and damaged forest stands have been renewed with varying success in CR. The acidity of the soil and its altered chemical composition, caused by long-term acidification as a result of chronic contamination by pollutants, together with the synergystic effect of episodes of smog and the detrimental effect of the weather, have caused repeated weakening and even dying-off of reforested stands, even of substitute, pioneer, resistant species such as birch, alder, and larch, which were only 20-25 years old. It is necessary to better prepare the soil, adjust its chemical composition (decrease the acidity and add deficit components) and devote greater care to selection of suitable tree species in relation to habitat conditions. Even the currently decreased pollution levels continue to be high in relation to the requirements for healthy forest development. Damage to forest stands by pollution, from the first indications through to very serious damage and the dying-off of trees, is apparent in over 1 467 900 ha. The species composition, sources of seedling material, and the age and spatial structure of forests are also unsuitable. The measures implemented to date have frequently led to a slight increases in the fraction of broad-leaved trees in some areas. In some places, unsuitable felling practices and poor management have had detrimental consequences for the non-productive function of the forests and have destabilized the forest ecosystems.

The authorities of the state administration of forests and the Czech Environmental Inspection have to deal with an increasing number of cases of tree-felling carried out in contradiction of the provisions of Law No. 289/1995 Coll., on forests and amending and supplementing other Laws (the Forest Law). 538 cases of unauthorized forest management occurred in 1998 and almost 111 066 m3 of wood material was extracted. In 1999, the number of cases of unauthorized tree-felling increased to 720 and the amount of wood felled equalled 152 400 m3.

Environmental Education - In addition to the traditional universities in Prague, Olomouc and Brno, a number of others, new in Ústí nad Labem, Plzeò, Èeské Budìjovice, Hradec Králové and Ostrava, also offer environmental studies courses. Ecology and environmental protection are included to a far greater degree in the curricula of secondary and elementary schools and in preschool education. The range of environmental journals has increased, environmental subjects appear far more frequently in the daily press, on radio and on television, and the interest of the population in the environment is gradually increasing, at least in some age groups and social groups. However, it is notable that there is a marked absence of regular series of educational and enlightenment programs on the radio and public television concerned with ecology and the subject of the environment and its protection.

Public Participation - The signing of the Aarhus Convention on access to information, public participation in decision-making and access to justice in environmental matters and its ratification, and the passing of associated new environmental regulations create conditions for greater public participation in decision-making processes on obligations and activities with an impact on the environment. This is a democratic aspect whose importance extends beyond the sphere of environmental protection. The new legislation on access to environmental information also constitutes a break-through in relation to the former restrictive practices operated by former state bodies in relation to environmental information.

On-going Problems - In spite of all the improvements referred to above, all the preconditions for a sustained and definite improvement in environmental management have not yet been achieved.

· In general, there has been only a slow development in the technologies and approaches to industrial production, towards the integration of environmental considerations into product design and the adoption of life-cycle analysis which considers the impact on the environment from the production processes, the consumption of raw material and energy inputs, and emissions and waste produced. At the present time, fundamental reform of the approach to production technology has only occurred to a limited extent.

· In spite of certain improvements, there has not been a fundamental change in the behaviour of businesses in rural areas. Bad management practices continue, together with a cavalier attitude to protection of the land and water, to elements of the territorial system of ecological stability (TSES), water sources and nature in general. Attempts to profit from forests without concern for their non-productive function are also not unusual. The situation is complicated by the disruption of ownership patterns between the generations, whereby the persons to whom the properties and farms were returned have lived for long periods in distant cities.

· Undesirable means of waste management continue to predominate. The fraction of waste used as secondary raw material, recycled materials or at least for production of energy is small; illegal waste dumps continue to appear in the landscape;

· There has been an improvement in the cleanliness and order of public areas and streets in cities. The increasing number of vehicles in urban areas and the continuing neglect of local roadways has led to a deterioration in the environment, including increased noise levels and pollution by tropospheric ozone. As transport increases, increasing amounts of nitrogen oxides and other pollutants are emitted and thus progress in improving large and medium-sized stationary sources of air pollution is counter-balanced.

· Trends in the division of transport activity are unfavourable. Transport is being shifted from railways to roads, passenger transport from inter-urban and urban mass transport to individual automobile transport, all with detrimental impacts on the environment;

· The proportions of natural and built-up areas has exhibited unfavourable trends in recent years. At the edges and beyond the boundaries of built-up settlement areas and even in the open landscape, new industrial, storage and commercial areas, petrol stations, billboards, isolated groups of houses and other structures are emerging, in spite of the fact that within existing settlements a great many buildings with the same purpose are gradually falling into disrepair; and properties equipped with services and roadways are left unused. Thus, agricultural land and natural areas are being used up, leading to new requirements for transportation and causing the economics of investment and operation in urban areas to deteriorate. The undesirable trends in investment pressure on open, so-far unused areas can be at least partly eliminated by using foreign experience in the process of revitalization of abandoned or unused industrial areas. The first attempt at recovery of unused territory is being implemented in Ostrava with the support of US EPA, and similar programs are being prepared in Brno and Prague. If these projects are coordinated throughout the country and extended to include all of CR, it can be expected that it will be possible to prevent further investments in green-field construction.

· Insufficient attention is paid to the economic aspects of environmental protection. Policies have not yet been adopted in this area (and have frequently not even been

prepared), to enable the creation of environmental protection on the basis of economic instruments. The individual areas that should be addressed are primarily:

· specific economic instruments in environmental protection,
· financial policy and a strategy for environmental protection,
· economic impacts of important targets in environmental policy and related legislation,
· the effectiveness of expenditure in achieving targets,
· evaluation of natural resources, and
· quantification of environmental damage.

It will be necessary to fully enforce the polluter pays and the user pays principles. Practical implementation of these principles is currently inadequate.

· Fascination with consumption is continuing, supported by massive and aggressive advertising of the consumer way of life propagated in the mass media. The originally expected temporary reaction to enforced restraint under socialism on confrontation with a sudden rich supply of goods is disappearing only slowly and then only under economic pressures and fears of the population about the future. Enforced restraint has not been replaced by frugality, based on an awareness of the limited nature of natural resources in the face of the population explosion, where the number of inhabitants of the Earth has reached 6 billion, compared to only 2.5 billion 40 years ago.

European and Global Issues – Environmental approaches and issues need to be seen in the European and global context, in which they are faced by the Czech Republic. Considerable risk is entailed in the global and European context by the upward trend in populations and by the distribution of resources. Economic and political uncertainties in the countries of eastern and southeastern Europe, Central Asia, the Near East, almost all of Africa, south-eastern Asia, all of Central and parts of South America, the uneven distribution of raw material resources, especially oil, and also drinking water and fertile land, climate change, exponential population growth and natural catastrophes are creating ever increasing pressure on the advanced countries to re-evaluate their approach to the exploitation and distribution of resources, or accept massive population migration from poor areas. If the global community, through its political representatives and international structures, does not, in the near future, find recipes for remedying the disproportion caused by the population explosion in the poor parts of the world, accompanied by material and energy demands and consumption of the major part of global resources in the minority areas of Western Europe, parts of North America, Japan, Australia and New Zealand and in small islands of prosperity scattered throughout the remainder of the world, there is a danger that insignificant local conflicts will expand into prolonged global conflicts.

Warning signs should be taken from the fact that technical and economic development, facilitating the process of globalization of the economy, characterized by free movement of capital and materials, is not accompanied by equally fast and effective control and regulation. Control can no longer be provided either by the Governments of the individual countries, that are frequently poorer than international companies, or by international political institutions that lack executive jurisdiction. If the Czech Republic wishes to join the other advanced countries and, together with them, preserve a reasonable standard of living for its inhabitants, it must actively participate in dealing with these issues. In this sense, resolving global environmental

issues in the modern world is also a task for the foreign policy, defence, education, health-care, agriculture, science, culture, internal security, public administration and other areas in this country.

II.2 Obligations Following from Preparation for Accession of the Czech Republic to the European Union

The orientation of the Czech Republic towards the European Union has increased attention on both continuing differences in environmental legislation compared to the relevant regulations of the European Communities and differences in enforcement of legislation and the administrative level at which certain aspects of environmental management are tackled. Measures that are clearly bound up in the concept of sustainable development and that are an essential part of pre-accession strategy include:

· harmonization and implementation of the environmental legislation of the European Communities in the Czech Republic;
· implementation of the National Program for the Preparation of CR for Membership in the EU;
· implementation of projects in the framework of the Phare National Program;
· establishment of the Natura 2000 network;
· adaptation of the administrative and institutional base for environmental protection and adoption of successful methods of enforcement;
· improvement of many environmental quality parameters to at least the level of the average for EU member countries;
· improvement of the data and information base, successful introduction of a unified environmental information system, enabling provision of information on the state of the environment at local levels (regions, districts, cities), including the ability to model and evaluate the effectiveness of the measures adopted;
· participation of the private sector and the general public in environmental activities;
· strengthening investments, especially in water protection, and also in air protection and waste management (the ISPA Program);
· effective co-operation with the European Environmental Agency - EEA and the European Environmental Information and Observation Network - EIONET - in provision and harmonization of data;
· implementation of the Directive on Integrated Pollution Prevention and Control (IPPC), which constitutes a new approach to issuing permits for production activities in large and medium-sized installations and complexes.

More detail concerning these measures was provided by the comprehensive assessment of the legislation and state of preparedness of the Czech Republic in the environment sector compared with the legislation of the European Community (the screening process). The current state of affairs indicates that extensive tasks will have to be undertaken in the area of the environment in connection with accession to the European Community. Set forth in detail in the National Program for the Preparation of CR for Membership in the EU - Environmental Part, ME, Prague - April, 1999. Set forth in detail in the Implementation Plan for Chapter 22: Environment, approved by the Government in the Resolution of July 26, 2000, No. 772 Transposition of the *acquis communautaire* into the environmental legislation in the Czech Republic will require considerable attention in the coming years. So far, relatively rapid progress has been achieved in the area of public access to environmental information,

management of chemical substances, and nature protection. In contrast, modification of the current legislation, especially in the areas of water protection and waste management, on which work is currently on-going, will be more complex and will require intense inter-ministerial co-operation.

The implementation of the Directive on Integrated Pollution Prevention and Control (IPPC), No. 96/61/EC, of September 1996, which introduces a new form of permits for production activities in large and medium sized production installations and complexes, will be very important and CR is devoting considerable attention to this Directive. A new feature in the permitting process is the partnership between the regulator and the operator of the installation and the method of interactive negotiation on the wording of the integrated permit, so that the operator is continuously motivated to successfully deal with the often complex set of emissions and other environmental aspects of the operation. Open and broad communication with representatives of operators, trade unions, ministries, international groups, enterprises, and professional NGOs has been found to be an effective instrument in implementation of this Directive and in preparation of the corresponding Law on Integrated Pollution Prevention and Control and the Integrated Pollution Register (IPPC and IPR). The goal of IPPC is to achieve an integrated system for prevention and control of pollution resulting from industrial, agricultural and other activities, which are set forth in Annex 1 of the IPPC Directive. The purpose of the integrated system is to implement measures to prevent or decrease emissions from these activities into the air, water and soil, including measures related to waste management, in the interests of achieving a high level of protection of the environment as a whole. The integrated approach is also based on prevention of pollution by application of the principle of the best available technique (BAT), advanced organization of work, effective use of energy and raw materials and control of accidents including amelioration of their potential consequences. The best available technique is considered to be the most effective and advanced state of development of the technology employed and the means of operating it, that has been developed on a scale permitting introduction in the particular branch of industry under economically and technically acceptable conditions and that is simultaneously most effective in achieving a high level of protection of the environment as a whole. The technology that is available in individual fields and which is recommended as BAT is described in the BREF documents (Best available technique REFerence documents). These documents are prepared by technical working groups at the European IPPC Office in Seville. The integrated pollution register is part of the proposed Law on IPPC and IPR, and is designed on the basis of Commission Decision 2000/279/EC on implementation of the European Pollution Emission Register (EPER), the draft Guidance Document on EPER Implementation and takes into account the documents of the working group for the Integrated Pollution Register of UNECE (UNECE PRTR Working Group) under the Aarhus Convention on access to information, public participation in decision-making and access to justice in environmental matters.

Gradual implementation of the EC legislation will lead to considerable direct economic impacts on the business sphere (polluters, but favourably for suppliers and those concerned with the environment) and will have related economic impacts and simultaneously favourable and also detrimental impacts on the population. Consequently, considerable attention must be paid both to obtaining detailed quantification of these impacts and to finding mechanisms to decrease or at least

compensate for some of the negative economic impacts. The public must be adequately informed of the importance of these compensation mechanisms.

II.3 Economic Aspects of SEP CR

The SEP is being updated at a time of mild economic recovery after prolonged stagnation. There is limited potential for setting demanding short-term targets for improving environmental protection. This also follows from the fact that Law No. 212/1992 Coll., on the tax system, has not yet been implemented, and a Law on environmental protection tax (environmental tax) has not yet been adopted; revenue from this tax would be employed to remedy environmental damage. Slow changes in some other taxes (consumer tax, value added tax) are not favourable for the area of the environment. However, the SEP CR is prepared with a long term perspective and is based on the assumption of increased economic output of the nation. The proposed shift in emphasis from regulatory instruments to economic and voluntary instruments is necessary to ensure that attempts to improve environmental protection are in accordance with the increasing economic efficiency and competitiveness of the entire economy.

With suitable and substantial involvement of domestic industry, if it proves successful in the face of foreign competition, it will be possible to revitalize the national economy and decrease unemployment through work on environmental projects, such as waste water treatment plants, and through the work connected with the replacement of older technologies with more effective and energy-efficient designs.

III PRIORITY ENVIRONMENTAL PROBLEMS

III.1 Acute Problems in the Quality of Components of the Environment

On the basis of the evaluation in the previous chapter, continuing environmental problems in the Czech Republic can be summarized and characterized as follows:
· high emissions of greenhouse gases;
· a high proportion of water courses with poor water quality;
· toxic chemical substances in the environment;
· unlicensed tips, dust and litter in cities and settlements;
· eutrophication of surface waters, especially water supply reservoirs;
· low stability of ecosystems in the present cultural landscape (disproportionately high cultivation of agricultural land and related low biodiversity, disturbance of the hydrological cycle and danger from wind and water erosion, and insufficient density of natural features in the agricultural landscape);
· lowered hydrological retention ability of the landscape;
· inadequate protection of flood areas of water courses against undesirable utilization and location of structures;
· decreased biological diversity of the landscape;
· continuing physical, chemical and biological degradation of the soil;
· an increase in unmanaged areas connected with the spread of non-native and invasive species of plants;
· high numbers of endangered species of fauna and flora;
· a high level of air pollution damage to forests;

· continuing unfavourable age and spatial structure and species composition of forest stands;
· high fraction of the population exposed to excessive noise;
· significant land area affected by mining activities;
· extensive hazardous environmental damage from the past;
· the presence of significant physical, chemical and other risk factors;
· significant concentration of problems in selected areas (Northern Bohemia, Ostrava area, the Capital City of Prague).

Some new problems are also appearing in the environment:

· air pollution from transportation (nitrogen oxides, volatile organic compounds, polycyclic aromatic hydrocarbons, toxic metals, suspended particulate matter, etc.);
· photochemical smog and ozone in urban and industrial agglomerations;
· increasing importance of diffuse pollution of surface and ground waters by various branches of human activities;
· intense spreading of built-up areas;
· fragmentation of the landscape and disturbance of ecosystems by transportation structures;
· other use of land in the agricultural land fund and properties designated to fulfil the function of forests, as a consequence of construction of investment complexes in the industrial sector on currently unbuilt-up areas, the creation of isolated shopping/trade zones and the creation of isolated, outlying residential areas and artificial groups of houses outside of urban areas. Nonetheless, there has not been an overall decrease in the area of land designated to fulfill the function of forests since 1945;
· a large number of unused old industrial zones and old residential or shopping buildings within urban areas;
· a large area of land with environmental damage from the past, where decontamination is not yet being carried out;
· a decrease in the area of urban vegetation and unsuitable distribution over urban areas.

If effective sectoral measures are not adopted, environmental problems can be expected in the following areas:

· a limitation of the protection of nature and the landscape in the public interest as a result of the development of new industrial shopping zones in open areas;
· high specific emissions of carbon dioxide and other greenhouse gases;
· emissions from transportation into the tropospheric layer of the atmosphere, especially in urban agglomerations.

III.2 Problems in the Environmental Infrastructure

· high fraction of the population and settlements without suitable sewerage systems and waste water treatment (especially settlements with between 2000 and 5000 equivalent inhabitants [EI]);
· large losses in water supply systems and leaks in sewerage systems;
· low efficiency of some waste water treatment plants in operation;
· a low rate of remediation following the mining of industrial minerals, especially coal;

· high specific waste production;
· low fraction of separated and reused waste;
· the dominant role of landfilling in waste management;
· necessity of reclaiming a large number of old unsecured waste landfills;
· the public warning system for the case of natural catastrophes and major industrial accidents has not yet been completed.

III.3 Urgent Structural Problems in Environmental Protection

· adoption and implementation of Acquis communautaire in the area of environmental protection;
· inadequacies in environmental legislation in CR - (management of the geological environment, soil protection, minor differences in compatibility with EC legislation in the sphere of water and waste management);
· restructuring of industry, relatively high energy and raw material intensity in relation to the gross domestic product;
· adoption and implementation of Directive 96/61/EC on Integrated Pollution Prevention and Control, particularly the use of the best available technique in major industrial installations, factories and large breeding facilities;
· ineffective operation of the state administration and unsatisfactory enforcement of legislative requirements in practice;
· inadequate implementation of economic instruments in the framework of environmental protection;
· unsystematic financing of environmental protection from public budgets;
· inconsistent implementation of environmental considerations in sectoral policies;
· preference for a consumer life style and low public awareness of environmental issues;
· the public is not in the habit of participating constructively in decision-making processes;
· inadequate environmental education; public bodies are poorly informed.

III.4 Global Aspects, International Commitments and Shared Responsibility of the Czech Republic

· endangering of the global climate system;
· endangering of the ozone layer of the Earth;
· decrease in water sources;
· long-range transboundary air pollution and problems connected with acidification in Europe and in the Northern hemisphere;
· changes in ecosystems and their destabilization, threatening biodiversity;
· soil degradation, erosion and desertification;
· waste production, disposal and re-use;
· chemical substances, genetically modified organisms (GMOs);
· industrial accidents and natural catastrophes;
· endangering of the environment in cities and industrial agglomerations through synergistic detrimental impacts;
· transboundary movement of environmentally damaging technologies and wastes;
· transition of the Czech Republic from a recipient to a donor country;
· support for education in developing countries as the most effective tool against

poverty leading to natural stabilization of the population and family planing;
· implementation of Agenda 21.

The Czech Republic is a member of a number of international organizations concerned with the environment and sustainable development. It actively participates in dealing with environmental problems in the framework of the United Nations Organization (UN) and its specialized or regional organizations, especially the UN Environmental Program (UNEP), the UN Commission for Sustainable Development (UNCSD), the UN Economic Commission for Europe (UNECE), the United Nations Education, Science and Culture Organization (UNESCO), the United Nations Food and Agriculture Organization (FAO), the UN Development Program (UNDP), the International Union for Conservation of Nature (IUCN), the World Meteorological Organization (WMO), the World Health Organization (WHO), the International Atomic Energy Agency (IAEA), the International Commission for Radiation Protection (ICRP), the UN Scientific Committee for the Effects of Atomic Radiation (UNSCEAR) and, in the framework of other intergovernmental organizations, especially the Organization for Economic Cooperation and Development (OECD), the Council of Europe and the North Atlantic Treaty Organization (NATO). CR is also a party to most international environmental conventions initiated by the above organizations, especially UNEP and UNECE: the UN Framework Convention on Climate Change, the Convention on Biological Diversity, the UN Convention to Combat Desertification in Those Countries Experiencing Serious Drought and/or Desertification, Particularly in Africa, the Vienna Convention for the Protection of the Ozone Layer and its Montreal Protocol, the Basel Convention on the Control of Transboundary Movements of Hazardous Wastes and their Disposal, the Convention on Long-Range Transboundary Air Pollution, the Convention on International Trade in Endangered Species of Wild Fauna and Flora, the Convention on Wetlands of International Importance especially as a Waterfowl Habitat, the Convention on the Conservation of Migratory Species of Wild Animals, the Convention on the Transboundary Effects of Industrial Accidents, the Convention on the Prior Consent Procedure for Some Hazardous Chemicals and Pesticides in International Trade and the Convention on the Protection and Use of Transboundary Water Courses and International Lakes.

The most important international agreements signed by the Czech Republic include the Kyoto Protocol to the UN Framework Convention on Climate Change, whose ratification is being prepared, according to which CR pledges to decrease total emissions of greenhouse gases by 2008 - 2012 by 8% compared to the 1990 level; the Cartagena Protocol on Biological Safety to the Convention on Biological Diversity, intended to ensure protection and safety in handling, using and transferring living modified organisms that are a result of modern biotechnology and that could have a detrimental effect on the protection and use of biological diversity; the Convention on Environmental Impact Assessment in a Transboundary Contex (the Espoo Convention); and the Convention on Access to Information, Public Participation in Decision-Making and Access to Justice in Environmental Matters (the Aarhus Convention).

In implementing the principle of sustainable development, CR has adopted the documents accepted in 1992 in Rio de Janeiro at the UN Conference on the Environment and Development (especially the Rio Declaration, Agenda 21), which

were further elaborated at the 19th Special Session of the UN General Assembly in 1997 and also employs other final documents resulting from global conferences in the 1990´s. The Czech Republic is determined to meet the obligations following from membership of the relevant international organizations and from international treaties and to actively participate in further development of international law.

The voluntary contributions of CR to the UNEP, the Global Environmental Facility (GEF), the Multilateral Fund of the Montreal Protocol, as well as special projects in multilateral and bilateral developmental co-operation, financed in the framework of the program of developmental assistance of the Czech Republic to less advanced countries, are an expression of responsibility for protection of the environment on a global scale and interest in implementing the principles of sustainable development.

IV PRINCIPLES OF SEP CR

IV.1 Sustainable Development

Since the UNCED Conference in Rio in 1992 and the publication of Agenda 21 (A Program for the 21st Century), the principle of sustainable development has been gradually implemented by all the developed countries. The principle of sustainable development is based on three pillars of sustainability, namely harmonization of the economic, environmental and social aspects of each development program. Implementation of the principle of sustainable development is a basic characteristic of the updated SEP CR.
There are a great many general definitions of the principle of sustainable development, that are variously interpreted for practical purposes. In resolving individual specific local problems and development programs, it will be useful to employ four criteria of sustainability:

· minimization of the requirement for exploitation of non-renewable resources and prudent use of renewable resources, raw materials and energy and minimization of land use;
· minimization of detrimental impacts on the environment, emissions into the air and water, soil contamination, waste production and noise levels and minimization of potential risks and accidents;
· consistent protection or augmentation and improvement of basic natural and human capital;
· demonstrating the economic advantage of environmentally sound approaches.

IV.2 Public Participation in Formation and Implementation of SEP

The formulation and implementation of the SEP is a public issue. The general public is a partner in all phases of preparation, formulation and implementation of the SEP. Individuals and NGOs can participate directly in the up-dating process. They can affect the set of targets in the SEP CR and the environmental requirements on the individual sectoral policies through their comments and proposals.

In accordance with Article 35 par. 2 of the Charter of Fundamental Rights and Freedoms and the provisions of Law No. 123/1998 Coll., individuals have the right to request objective information on the state of the environment in the Czech Republic

and in the regions, on implementation of environmental measures, and on the process of implementation of the principles of integrated environmental protection and sustainable development. They can subsequently use this information, amongst other things, in their participation in the processes of creation of Local Agenda 21 documents in the municipalities and regions, through which the targets of the SEP CR will be fulfilled and the principles of sustainable development will be implemented in all areas of social activity.

IV.3 Other Broadly Accepted Principles

In adopting the up-dated SEP, the Government accepts a number of further principles set out in accepted documents of the international community, such as:

· the precautionary principle - in some cases it is not possible on the basis of current experience and knowledge to determine with certainty the effect of human activities and their products on health and the environment, especially in the long-term, and synergistic effects (i.e. if the consequences of an activity are not certain, it should be undertaken only exceptionally and with great care or not at all);
· the principle of prevention - based on the fact that measures carried out in advance to prevent danger or damage to the environment are in practice always more effective and cheaper than later remediation of that damage;
· the principle of decreasing risks at source - it is usually most effective and cheapest to minimize detrimental impacts directly at the source;
· the principle of economic responsibility (the polluter pays principle) - the generator bears economic responsibility for pollution and must bear the costs connected with limiting pollution and compensation for damage caused;
· the principle of shared responsibility - responsibility for the state of the environment lies not only with the state but also with the local government, economic entities and each individual citizen;
· the principle of subsidiarity - decisive jurisdiction and competence should lie at the lowest possible professionally qualified level of decision-making, i.e. as close as possible to the given issue and individual citizens;
· the principle of integration - this principle states that requirements on environmental protection must be reflected in all the relevant sectoral policies, development programs, and all economic activities; decision-making must integrate environmental concerns and minimize impacts across all the components of the environment;
· the principle of the best available technique (BAT) - will be a decisive criterion for setting environmental parameters, compliance with which will be a criterion in issuing permits for production activities, where BAT will be defined in terms of environmental parameters rather than by requiring any specific technology;
· the principle of cost-effective approach - ways of minimizing costs will be sought for implementation of all targets and measures;
· the principle of substitution - replacement of hazardous and detrimental substances with more environmentally friendly preparations.

IV.4 Inter-Sectoral Cooperation and Sectoral Policy Integration

In accordance with the provisions of § 19 par. 1 of Czech National Council Law No. 2/1969 Coll., on establishing the ministries and other central bodies of the state administration of the Czech Republic, as amended (printed in the full wording as No.

122/1997 Coll.) the Ministry of the Environment (ME) is the body of supreme state supervision in environmental matters. It is simultaneously the central authority of the state administration for protection of natural accumulations of water, protection of water sources and protection of the quality of surface and ground waters, for air protection, for protection of nature and the landscape, for protection of the agricultural land fund, for operation of the state geological service, for protection of the geological environment, including protection of mineral resources and ground waters, for geological work and for environmental supervision of mining, for waste management and for environmental impact assessment of activities and their consequences, including transboundary impacts. It is also the central authority for game-keeping, fishing and forest management in national parks, as well as for the state environmental policy (§ 19 par. 2 of Law No. 2/1969 Coll.). In order to provide for management and control activities of the Government of CR, ME co-ordinates the conduct of all the ministries and other central authorities of the state administration in CR in environmental matters (§ 19 par. 3 of Law No. 2/1969 Coll.).

Inter-sectoral co-operation is an important principle. The requirements of Law No. 2/1969 Coll. set forth above on the role of the Ministry of the Environment in environmental supervision and co-ordination of the conduct of the other central authorities of the state administration are not yet sufficiently implemented in practice. Integration of environmental considerations into the activities of the other sectors is sometimes difficult and slow. Nonetheless, an integrated approach is being increasingly used.
As it is based on the principle of sustainable development, the SEP CR is not a policy only for the sectoral competence of ME, but rather the policy of the Government of CR and simultaneously is relevant to all the inhabitants of the country. The creation of the SEP CR policy and the fulfilment of its objectives must be based on close cooperation with other economic and social sectors of the national economy, including the sectors of industry, agriculture, transport and communications, regional development, health , foreign affairs, education and others.

In accordance with the provisions of § 14 of Act No. 244/1992 Coll., on environmental impact assessment, the process of strategic environmental impact assessment (SEA) has been carried out for the following policies:

· Proposal for development of the transport network in CR to the year 2010 (SEA 1999) - approved by the Government of CR (Resolutions of the Government of CR No. 741 of July 21, 1999, No. 1006 of September 29, 1999, No. 1262 of November 29, 1999, No. 1313 of December 13, 1999 and No. 354 of April 10, 2000);
· Medium-term strategy of the sector of transport, communications and postal services in CR (SEA 1999) - taken into cognizance by the Government of CR (Resolutions of the Government of CR No. 385 of April 27, 1999 and No. 164 of February 9, 2000);
· The Energy Policy (SEA 1999) - approved by the Government of CR (Resolution of the Government of CR No. 50 of January 12, 2000);
· Draft concept for the raw material policy in the area of industrial minerals and the sources thereof (SEA 1999);
· Concept of the sectoral policy of the Ministry of Agriculture for the period prior to accession to the EU (SEA 1999);
· National Development Plan of CR (SEA 2000) – taken into cognizance by the Government of CR (Resolutions of the Government of CR No. 714 of July 14, 1999,

No. 1140 of October 27, 1999 and No. 14 of January 5, 2000);
· The Strategy of Regional Development in CR (SEA 2000) - approved by the Government of CR (Resolution of the Government of CR No. 682 of July 12, 2000);
· Regional operational program for NUTS II Southwest (SEA 2000).

Implementation of the objectives of SEP CR and introduction of the principles of sustainable development must also be a consequence of continuous co-operation with the representatives of universities, professional institutions, bodies of the public administration, NGOs, chambers in the branches of industry and in the business sphere. Cooperation with all the sectors of the economy is also important as they have the greatest affect on the state and changes in the quality of the environment; finally, cooperation with the health-care sector is of key importance, with close connections existing between the SEP CR and NEHAP (the National Environmental Health Plan) as approved by the Government in December 1998.

V TARGETS AND MEASURES OF SEP CR

V.1 General Targets of SEP CR:

· to implement the principle of sustainable development;
· to carry out the tasks of the National Program for the Preparation of CR for Membership in the EU;
· to employ direct and indirect instruments to systematically protect and improve the state of all components of the environment;
· to ensure the cross-sectoral application of economic analysis in environmental protection;
· to increase the effectiveness of economic instruments in environmental protection;
· to enforce compliance with the requirements of harmonized legislation on environmental protection in practice and to check compliance at a national, regional and local level as part of the process of approximation to EC environmental legislation;
· to implement the principles adopted at the UNECE/WHO ministerial conference in London in 1999 in the framework of the Protocol on Water and Health;
· to participate in international co-operation and contribute to resolving global environmental issues;
· increase the effectiveness of the state administration especially in the sphere of preparation of laws and regulations necessary for the transposition of EC environmental legislation;
· to define competence and division of responsibility in the sphere of environmental protection amongst the individual sectors and to create a fully functioning and effective system of state administration through on-going reform and introduction of regional authorities;
· to deal with environmental issues closer to their creation by transferring an appropriate part of substantive decision-making to the regional authorities and other public administrative authorities;
· in the framework of development of the higher regional governing units, to contribute to the elimination of differences in the state of the individual components of the environment within and between regions;
· to integrate the requirements of environmental protection into decision-making

processes in other sectors concerning further development of the country and, through co-operation with other bodies of the state administration and local governments, to implement the requirements of environmental protection;
· to develop closer and more permanent relationships between all the participants in the decision-making process, especially between the Members of both Chambers of Parliament, the representatives of local government and local state bodies, industry and NGOs, with the aim of increasing mutual information exchange and of creating a feeling of shared environmental responsibility;
· to put in place a system of provision of information on the environment and, in this framework, implement the principles of free access to and dissemination of this information (the Aarhus Convention);
· to make the state administration accessible to individuals - electronic state administration;
· to strengthen the role of research and development in the area of the environment;
· through environmental education, public awareness and enlightenment, to increase interest and to support public participation in environmental decision-making;
· to prepare a strategy of financing environmental policy and the consequent measures, especially to improve water quality, waste water treatment and waste management;
· to create conditions for expanding the sources of financing through the use of combined instruments;
· to bring dealing with environmental issues closer to their creation and transferan appropriate part of the substantive decision – making to the regional authorities and other public administrative authorities;
· at the level of the individual components of the environment, to contribute to eliminating the differences between the level of development in the individual territorial units.

V.2 Measures and Targets for the Individual Components of the Environment

V.2.1 The Atmosphere (Air)

The development of civilization over the last two centuries has seriously disturbed the natural processes that maintain a balanced state of the atmosphere. Ever increasing amounts of gaseous, solid and liquid pollutants are being emitted into the air (dust, particulates, sulphur and nitrogen oxides, volatile and persistent organic and inorganic compounds, methane, heavy metals, etc.).

Between 1987 and 1999, there was a marked decrease in emissions of traditional pollutants in the Czech Republic (dust, sulphur oxides). The short-term pollution limit values for SO2 are not exceeded at the present time. The concentrations of suspended particulates have also decreased. The expected increase in transport led to an increase and then stagnation in NOx emissions. In spite of these relatively favoorable trends, it will be necessary to decrease the level of pollution by NOx , which leads to the formation of tropospheric ozone and photochemical smog.

However, it should be pointed out that specific emissions of traditional pollutants remain amongst the highest in OECD member countries. CR remains a country with a detrimental impact on air quality in neighbouring countries. The expected increase in transport will probably mean that it will not be a simple matter to decrease NOx

emissions and control NOx concentrations and subsequently tropospheric ozone, and this will be reflected in the frequent occurrence of photochemical smog. Problems persist in Northern Bohemia, in Northern Moravia, in the Capital City of Prague and in other large cities in CR. It is necessary to modernize the state monitoring and warning system, which was established to monitor the most important pollutants on the basis of the state of the art at the beginning of the 90´s. Improvements in monitoring of ozone and fine dust particles will be particularly important.

Objectives and Measures:

· complete the tasks set out in the National Program for the Preparation of CR for Membership in the EU (air quality);
· decrease emissions from small stationary sources;
· introduce stricter emission limits for NOx for large enterprises in the fuel-energy industry in line with the EU requirements;
· decrease specific emissions of NOx, volatile organic compounds and particulates from mobile sources;
· decrease emissions of volatile organic compounds from production, business and distribution chains;
· continue integration of environmental aspects into sectoral policies;
· implement a general strategy for sustainable transport, respecting the load-bearing capacity of the area and the limits of environmental space in CR and introduce environmentally sound means of transporting passengers and freight in order to minimize the negative impacts on the environment;
· utilize more effective combinations of economic instruments, including strengthening of the role of emission charges;
· improve collection of data and submission of reports on the occurrence of heavy metals and other hazardous substances, including fine dust particulates and persistent organic pollutants in the air;
· decrease overall emissions of air pollutants so that the emission ceiling values are attained in 2010 (see table No. 1);
· introduce emission limit values for nitrogen oxides, sulphur oxides and particulates for new, important sources in line with EC legislation and the Protocol to the UNECE Convention on Long-Range Transboundary Air Pollution of 1979 to reduce acidification, eutrophication and tropospheric ozone (see table No. 2);
· in an attempt to reduce emissions of ammonia, introduce the binding principles of the Codex of Good Agricultural Practice (Protocol to the UNECE Convention on Long-Range Transboundary Air Pollution of 1979 to reduce acidification, eutrophication and tropospheric ozone, Annex IX);
· introduce the principles of evaluating and managing air quality according to EC Directives.

Table No. 1 Emission Ceilings for the Czech Republic (according to the new Protocol to Abate Acidification, Eutrophication and Ground-Level Ozone to the UNECE CLRTAP)

Pollutant	**Emissions in 2010 (kt p.a.)**

Sulphur Dioxide	283
Nitrogen Oxides	286
Volatile Organic Compounds	220
Ammonia	101

Table No. 2 Specific emission limit vaues for NOx for furnaces and process heating with a thermal output of 50 MW or greater

Type of installation	**Value (mg/Nm3)** The values are related to gaseous combustion products under normal conditions (273.15 K, 101.3 kPa) and reference content of O2 of 6% for solid fuels and 3% for other fuels.
Solid Fuels, new installations - Furnaces 50 – 100 MWth - Furnaces 100 – 300 MWth - Furnaces > 300 MWth	400 300 200
Liquid Fuels, new installations - Furnaces 50 – 100 MWth - Furnaces 100 – 300 MWth - Furnaces > 300 MWth	400 300 150
Gaseous Fuels, new installations - Furnaces 50 – 100 MWth - Furnaces 100 – 300 MWth - Furnaces > 300	150 100 200

MWth	

V.2.2 The Hydrosphere (Water)

In CR the long-term annual average precipitation is equal to 54.6 billion m3, the annual run-off equals almost 16 billion m3, the capacity of secured sources of surface water equals 5 billion m3, and utilizable ground water sources correspond to 1.3 billion m3. The network of rivers in CR consists of 15.3 thousand km of water courses important for water management, (of which 5.2 thous. km are regulated) and 60.7 thous. km of minor water courses (of which 16.9 thous. km are regulated). 303 km of water courses belong in the category of water courses that can be used for transport. Surface waters are accumulated in 216 major water reservoirs and more than 24 thousand small water reservoirs and fishponds. There are 1121 hydro-power plants on water courses, with an output capacity of 2139 MW.

Water protection is one of the most important tasks of an advanced society. At the time of preparation for accession of the Czech Republic to the European Union, the main object is protection of waters, in accordance with the requirements of the EC legislation, improvement of the condition of water sources and water ecosystems, support for sustainable use of waters and alleviation of the adverse effects of floods and droughts by improving the retention ability of the landscape.

There are only a small number of minor water courses entering the Czech Republic, and therefore the water balance of Czech Republic is affected primarily by precipitation. Protection of the water resources is achieved through the rational management of waters and the ongoing creation of conditions for increasing the accumulation ability of the landscape.

In 1999, an average of 625 mm of precipitation fell on the territory of the Czech Republic, corresponding to 90% of normal precipitation based on the long-term average for the period 1961 - 1990. With an average air temperature of 8.5oC and a temperature deviation from the long-term average of +1.1oC, 1999 was a year with normal temperatures. During the calendar year of 1999, a total of 14 460 mil. m3 of surface water flowed out of the territory of the Czech Republic. Run-off was slightly below average in most of the water courses of the Czech Republic. Average annual flow rates were mostly between 80 and 95% Qa (Qa is the long-term annual average for 1931 - 1980). Only two major floods occurred in 1999.

At the beginning of 1999, stocks of groundwater at shallow depths were between average and slightly above average; however, there was a deficit at greater depths which had developed over the previous years and the water levels were rather low. Stocks of ground water in December 1999 were about 25% below the long-term average. The total basic runoff, corresponding to the proportion of ground-waters in the overall runoff from the territory of CR, was estimated at 8230 mil. m3 in 1999. This value corresponds to 105% of the long-term average for the 1971 - 1990 period.

In 1999, 798 withdrawals of surface water from water courses and reservoirs were recorded, along with 2 226
withdrawals of groundwater and 2 226 discharges of waste waters into surface waters (withdrawals and discharges of water exceeding 15 000 m3 p.a. or 1 250 m3 per

month are recorded). In 1999, 1 419 mil.m3 of water were withdrawn from surface waters and 450.9 mil.m3 of water from ground-waters, while 1 845.7 mil.m3 of waste waters were discharged into water courses. There was an increasing overall trend in withdrawals from surface waters in 1999 in all water courses. There was a slight decrease in withdrawals of ground-waters compared with 1998 in the watersheds of the Vltava, Morava and Odra and a slight increase in the watersheds of the Labe and Ohøe.

Compared to 1998, the amount of waste water discharged decreased by 13.3%. There was a decrease especially in the watershed of the Labe, both in the industrial and energy spheres as well as a decrease from public sewers and there was also a decrease in the watershed of the Morava in the energy sphere. The decreases were less significant in the other watersheds and there was a slight increase in the amount of waste waters discharged amongst some groups of users. These decreases are the result of both reduced production and general saving of water.

Since 1990, there has been a decreasing trend in water use for all main categories of users, with the exception of withdrawals of water for agriculture. The decrease in withdrawals of water between 1990 and 1999 equalled 47.2% in industry, 48.7% in the energy industry and 34.5% in withdrawals for public water mains and sewer systems, compared with the 1990 values. The trend in discharging waste waters corresponds to the trend in withdrawals.

The intensity of water use (one of the environmental assessment indicators of the OECD countries), expressed as the ratio of the total withdrawals and the flow of water out of the country, equalled 12.9% in the calendar year of 1999. The decrease from 15.7% (the value for 1998) is a result primarily of a decrease in overall withdrawals of water (down by 14%) and also the greater flow out of the territory of CR (up by 3.7%).

Water protection is based on reducing the entry of pollutants from pollution sources into waters and their surrounding environment, and protection of water sources through prevention of pollution. Water quality is affected by point pollution sources (cities and municipalities, industrial plants and sites of concentrated agricultural animal production). In 1999, 7.67 million persons were living in buildings connected to the public sewers, i.e. 74.6% of the population of CR. In the European member countries of the OECD, an average of 62% of the population is connected to sewerage systems. A total of 592 mil.m3 of waste waters were discharged into public sewerage systems, of which 95% was treated in at least some way. Amongst principal operators, 92.5% of waste water was treated in installations with satisfactory effectiveness. 86.9% of the population was connected to the public water mains. There is a difference of 12.3% between the fraction of the population supplied by public water mains and living in buildings connected to public sewerage systems.

The level of water management and care for protection of waters against pollution is most frequently evaluated on the basis of trends in pollution produced, removed and discharged. Produced pollution means the amount of pollution contained in polluted waste waters. The production of pollution did not differ significantly in 1999 compared to 1998. The production of pollution measured in terms of BOD5 (five day biochemical oxygen demand) remained more or less constant, but the production of

pollution measured in terms of COD5 (chemical oxygen demand measured by the dichromate method) increased by 30 093 t (5.3%), while the amount of dissolved inorganic salts increased by 17 727 t (2.9%).

Discharged pollution means the amount of pollution contained in waste waters discharged into waters. In 1999, the trends towards a significant decrease in discharged pollution continued, with the exception of discharged inorganic salts, where the total amount in recent years also includes substances contained in mine waters, whose amounts vary widely. Between 1990 and 1999, there was a decrease in discharged pollution measured as BOD5 by 84.9%, as COD5 by 77.8%, as insoluble substances by 84.1%, and as dissolved inorganic salts by 37%. The discharged amount of specific organic substances and heavy metals also decreased over the period 1990 – 1999
.
Since 1999, fees have been paid for the discharge of waste waters into surface waters pursuant to Law No. 58/1998 Coll. The following criteria are used for setting fees: chemical oxygen demand, dissolved inorganic salts (DIS), undissolved substances (US), total phosphorus, ammoniacal nitrogen (to December 31, 2000) and the concentration of two of the most important heavy metals - mercury and cadmium. From January 1, 2001, fees will also be paid for inorganic nitrogen and adsorbable organically bonded halogens. Fees will no longer be paid for petroleum substances, BOD5 and apparent acidity and alkalinity. In 1999, fees were paid for about 183 337 t of DIS and 1 351 t of undissolved substances, and fees were imposed for approx. 78 314 t of COD5, i.e. 86.7% of the total amount of 90 361 t.

The quality of surface and ground waters is significantly affected by diffuse pollution sources, which include mainly pollution from agriculture, atmospheric deposition and erosion runoff from the terrain. The importance of diffuse pollution sources is increasing with the decrease in pollution from point sources. Their contribution is especially important for nitrates and less so for phosphates, and differs in various area of the Czech Republic depending on the population density, the degree of treatment of waste waters, intensity and type of agriculture and the amount of atmospheric deposition. Areas affected by pollution of surface and ground waters by nitrates from diffuse sources (especially agriculture) include about 25% of the total area of agricultural land.

One of the factors that has an adverse effect on the quality of surface and ground waters is accidental pollution. In 1999, the Czech Environmental Inspection recorded 186 cases of accidental pollution or endangerment of the quality of surface water in the Czech Republic, of which groundwaters were involved in 55 cases. The largest group of pollutants continues to be petroleum substances (49% of the total number of cases recorded), followed by chemical substances (16%). From the standpoint of the causes of accidents, transport accidents are most common, corresponding to 16.7% of the total number of accidents.

Basic indicators of water quality in water courses important for water management

The worst, Vth class of water quality (very highly polluted water) was recorded in larger water courses in a lengthy section of the Jihlava River (from Jihlava to Tøebíè).

The Bílina River also mostly falls into this category. The worst water quality was found in the Teplický potok and in the Bílina. The Lu¾nice River, which is used for recreational purposes, is also still highly polluted. Since 1991, class V of water quality has been eliminated along the main water courses (Labe, Vltava, Morava, Dyje and Odra) and along some important side streams (Sázava, Chomutovka, Nisa, Ol¹e, Opava), with a change in water quality to class IV (highly polluted water) and class III (polluted water) along other water courses (Úpa, M¾e, Úhlava, Beèva).

The level of microbial pollution of water courses 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 water courses in CR is high and municipal pollution sources are a significant source of this pollution. In 1999, 75% of the important water courses in CR were unsuitable for bathing on the basis of the content of fecal coliform bacteria (C90 above 20 KTJ/ml).

The aspect of hazardous substances in the aquatic environment is dealt with in EC legislation in Council Directive 76/464/EEC and its daughter Directives. In CR, the subject of discharge of waste waters is treated in Government Regulation No. 82/1999 Coll. At the present time, little information is available on emissions of these substances from pollution sources. In accordance with Directive 96/59/EC, the Czech Republic will have to provide for completion of an inventory of installations containing PCBs/PCTs by the expected date of accession to the EU. Final remediation of these facilities will have to be carried out by 2010. Transposition of these obligations will be the subject of an amendment to implementing Decree No. 301/1997 Coll., to the Law on chemical substances, and the new Law on waste.

Basic indicators of water quality in minor water courses

Information on water quality in minor water courses and on contamination of sediments in small water reservoirs is collected by the State Land Reclamation Authority through systematic monitoring. Pollution characterized in terms of BOD5 and COD5 indicators is greatest in the South Moravian region. Pollution of minor water courses by phosphorus and ammoniacal nitrogen is greatest in both the Moravian regions. The concentrations of nitrate nitrogen are highest in Central and Eastern Bohemia. Analysis of the sediments of small water reservoirs indicates the highest contamination by PCBs in Northern and Western Bohemia and the highest contamination by mercury was found in Eastern Bohemia.

Water quality in water reservoirs

In 1999, the water quality in a number of water reservoirs was affected by eutrophication (caused by an increase in the content of mineral nutrients, especially phosphorus and nitrogen compounds, in the waters).

Sediments and Biomass

Water quality is only one of the indicators of the overall state of the quality of surface waters. The overall state of waters is also affected by the quality of deposits, sediments and biofilms in the channel of the water course and also the condition of the biomass - species diversity and diversity of the entire biomass of the individual

groups of aquatic organisms and contamination of the biomass by pollutants. Monitoring of these characteristics is coming to the forefront as, together with the physical state of the channel, banks and adjacent flood plains, they will form the basis for evaluation of the ecological state of the water course according to the Directive establishing a framework for Community action in the field of water policy (2000/60/EC). Council Directive 76/464/EEC on hazardous substances and its daughter Directives require that the contents of selected substances in sediments must not increase. Council Directive 82/176/EEC gives only one limiting requirement for contamination of the biota: the mercury content in indicative species of fish must not exceed 0.3 mg/kg. Decree of the Ministry of Health No. 298/1997 Coll., gives a permissible amount of 0.1 mg/kg for fish.

Monitoring

In the framework of fulfilling the requirements of the EC Directives for hazardous substances (76/464/EEC and its daughter Directives) and as a basis for introducing the Directive establishing a framework for Community action in the field of water policy (2000/60/EC), work was commenced in 1999 on a project for extending water quality monitoring in water courses to include monitoring of additional components of the river ecosystem. From the standpoint of the EU requirements (especially Council Directive 80/68/EEC on protection of ground-waters and Council Directive 91/676/EEC on protection of water against pollution by nitrates from agricultural sources), it will be necessary to reconstruct the observation network for ground-waters; the estimated costs of this process exceed 200 mil. CZK. If it is not possible to obtain financial means for this reconstruction, the Czech Republic will also have to request a new transition period for this Council Directive 80/68/EEC on protection of ground-waters. In 1999, co-operation between Povodí Plc. and the T.G.M. Water Management Research Institute was extended and the Ministry of the Environments Register for municipal pollution sources was updated; this register includes municipalities with over 1000 inhabitants. In addition, the Ministry of the Environment´s Register for industrial pollution sources was established.

Preparation for accession to the EU

Environmental protection, an important part of which consists in water protection, is an important part of EU policy. The area of water protection is the most broadly conceived and extensively elaborated area of the EC environmental legislation. It consists of more than seventy regulations, over fifty of which are relevant for the Czech Republic. During 1999, requests for transitional periods were formulated in a number of gradual negotiation stages. The following areas were involved:

· treatment of municipal waste waters (Council Directive 91/271/EEC);
· drinking water quality and its monitoring (Council Directive 98/83/EC);
· discharge of hazardous substances into waters (Council Directive 76/464/EEC and its daughter Directives);
· pollution of water by nitrates from agricultural sources (Council Directive 91/676/EEC).

CR requested a transition period to the end of 2010 for complying with some of the criteria of Council Directive 91/271/EEC on treatment of municipal waste waters. CR

requested a transition period to the end of 2006 for implementation of Council Directive 91/676/EEC concerning protection of water against pollution by nitrates from agricultural sources. CR also requested a transition period to the end of 2008 for compliance with the requirements of Council Directive 76/464/EEC on pollution caused by certain hazardous substances discharged into the aquatic environment and its daughter Directives. A transition period to the end of 2006 is requested for implementation of the requirements of Council Directive 98/83/EC on the quality of water for human consumption. CR is encountering temporary difficulties with monitoring of substances for which the limits set in the new Drinking Water Directive (98/83/EC) have decreased by an order of magnitude from those set in the previous Directive (80/778/EEC). The level of occurrence of some newly introduced quality indicators in drinking water is not yet known, especially for minor water mains.

Measures and Targets:

· ensure full compatibility of Czech environmental legislation with EC legislation, in accordance with the fulfilment of the tasks established by the National Program for the Preparation of CR for Membership in the EU (water quality), and especially prepare, adopt and implement a new law on waters and related regulations (Ministry of the Environment in co-operation with the Ministry of Agriculture);
· provide for fulfilment of the international commitments of CR in protection of the watersheds of the Labe, Morava-Danube and Odra and along border waters in the framework of co-operation with neighbouring countries;
· gradually improve and revitalize the natural water cycle in nature, ensure consistent protection of groundwaters and surface waters not only as sources, but particularly as aquatic ecosystems, increase the retention ability of the landscape and ensure the renewable nature of water sources;
· continue consistent implementation of the Program for Recovery of River Systems though renewal of bank vegetation and natural meanders, creation of protective riverbank zones along water courses and reservoirs;
· for municipal pollution sources, achieve a state where waste water from all agglomerations over 2000 population equivalent will be mechanically and biologically treated;
· increase the efficiency of treatment of waste waters in existing treatment plants to the level required by the EC Directive on Urban Waste Water Treatment (91/271/EEC);
· in municipalities of up to 500 population equivalent, where it is not economical to construct sewerage systems and waste water treatment plants, introduce and support alternative waste water treatment;
· increase the percent of the population connected to the public sewers from 73.3% in 1997 to 80% in the year 2005;
· decrease the fraction of the length of monitored water courses in the quality classes of highly and very highly polluted water from the current figure of about 33% to 20% of the overall length of the monitored water courses;
· decrease extensive pollution and pollution from diffuse sources;
· introduce new approaches to controlling industrial pollution according to BAT, leading to a reduction in pollution by industry as part of implementation of Directive 96/61/EC on Integrated Pollution Prevention and Control (IPPC);
· support the utilization of sludges from waste water treatment plants in agriculture, especially through reduction of discharges of hazardous substances from industry into

public sewers;
· extend monitoring of the quality and amount of ground-waters and surface waters, including monitoring of the ecological state of waters according to EU requirements, unify monitoring of minor and major water courses;
· prepare and implement action plans for achieving the quality standards set by the individual EC Directives in the area of water protection;
· gradually assess the drainage capacity in the individual water sheds, delimit flood plains, re-evaluate the use of flood plains or the level of flood protection in their individual parts. In increasing the level of flood protection, evaluate the individual measures available such as easing river flows, dry dikes, protective dams and retention reservoirs in a comprehensive framework of catchment management of the entire watershed;
· prepare and implement measures to improve the retention ability of the landscape and protect the quality of ground waters.

V.2.3 The Lithosphere (Soil, Geological Environment, Mineral Raw Materials)

The soil is the living surface layer of the Earth´s crust, which fulfills important ecological and production functions. The soil is the environment for soil organisms, the habitat for vegetation and the base for plant production; it regulates the water cycle and filters, adsorbs and breaks down foreign substances. The quality of the soil to a considerable degree predetermines the quality of other components of the environment. The soil is an endangered natural resource, whose amount and quality must be protected and renewed.

In addition to the Earth´s oceans, the lithosphere accumulates pollutants produced by human activity. Through biological and geochemical processes, some of the substances in the soil are converted (the organic fraction), whilst others are retained (in the case of toxic metals, uranium, radioactive caesium) and returned to the ecological cycle or incorporated into the soil and underlying layers.

Extraction of raw materials damages the landscape by changing the relief and destroying the biotopes of wild fauna and flora, causing the destruction or destabilization of ecosystems, endangering groundwaters and using up non-renewable natural raw material resources Thus, it is necessary to decrease this extraction to the lowest practicable level and ensure maximum added value directly in the individual regions in accordance with the requirements contained in Resolution of the Government of CR of December 13, 1999, No. 1311, on the Raw Material Policy in the Area of Mineral Raw Materials and their Sources. Ore processing residues from the past and tips, together with acidic mine waters, endanger the biosphere through toxic metals and acidity. Reclaimation of areas subject to the impacts of mining and securing of old mine works is a priority task for the future.

Surface mining of brown coal in Northern Bohemia releases large volumes of gaseous pollutants and dust into the air, changes morphology, causes extensive devastation of the original area by both the mines and their accompanying structures. The damage to the environment is so apparent that this area has become a symbol for serious environmental problems in Central Europe.

Objectives and Measures:

· prepare and implement a new legal framework for protection of the soil as a component of the environment;
· prepare and implement a new legal framework for protection of the geological environment (including environmental supervision over extraction) in the framework of complex mining legislation;
· analyze the application of the principle of sustainable development to:
· the environmental limits for mining
· the degree of implementation of land-use planning in the exploitation of non-renewable mineral resources
· ensuring greater utilization of secondary raw materials in the individual member countries of the EU
· propose a suitable analogous model for CR (Ministry of the Environment in co-operation with the Ministry of Industry and Trade, the Ministry for Regional Development and the Czech Mining Authority - by 12/2003);
· identify and quantify the inputs of foreign substances into the soil, including assessing these from the ecological, economic and health viewpoints;
· update the methodological instructions of Ministry of the Environment for assessing the risk from old environmental burdens (by 06/2002);
· ensure support for extensive revitalization of areas affected by mining activities;
· undertake securing of old mine works, including remedying of detrimental impacts.

V.2.4 The Biota (Flora, Fauna, Landscape)

Nature and the landscape are part of the wealth of the nation and their condition directly or indirectly affects the economic and, in a great many respects, the cultural state of the nation. Protection of this natural wealth is in the public interest. Issues of strategic importance, that the state must take responsibility for, include maintenance and support for biological diversity, beneficial water management, preservation of the natural fertility of the soil and functional use of territories, and protection of the natural and cultural values of the landscape.

The landscape as a whole and its natural components have undergone substantial changes over the last few decades. Disappearing species of fauna and flora and the changing landscape are the most serious indicators of environmental damage. The current situation has been brought about by prolonged, unilateral exploitation of natural resources and the landscape, undertaken without consideration for nature protection. This has been characterized by inappropriate intensification of agricultural and forest production, unsuitable production techniques, recreational construction, excessive pollution of water sources and frequently unrestrained or inappropriate urbanization. Over part of the territory, the ecological functions of the landscape are being damaged by extensive mineral extraction. Extensive areas have been damaged over prolonged periods by poor air quality and atmospheric deposition from industry, energy production and mobile sources, leading to critical danger to forests and disturbance of the stability of watersheds. Subsequently, these weakened forest stands are subject to secondary attack by catastrophic pests in a number of areas.

The most serious consequence of this trend is the loss of the natural fertility of the soil, the marked decrease in its ability to retain water and a decrease in the biological diversity and populations of indigenous species.

In spite of the overall unsatisfactory state of the natural environment, some valuable natural areas have been preserved in relatively good condition, or in a state that enables the renewal of natural processes. Some areas of special natural value (about 15% of the overall area of the state) are designated under special protective regimes pursuant to Law No. 114/1992 Coll., on protection of nature and the landscape. A specific protective regime has been introduced for 120 natural parks, with an overall area corresponding to 8.4% of the total area of CR.

In spite of the slow reaction times of natural processes, individual improvements can be identified. These are a result of the implementation of landscape programs, gradual creation of elements of territorial systems of ecological stability and an increase in the proportion of permanent grasslands in the landscape. However, the present ecosystem instruments for protection of biodiversity are not very effective.

Even under the conditions of a market economy, the state plays a decisive role in providing for protection of nature and the landscape, ecosystems, biotopes and biodiversity in the public interest. A systematic approach to dealing with the current conditions was approved in the State Program of Protection of Nature and the Landscape of the Czech Republic in Government Resolution No. 415 of June 17, 1998. This program is concerned with protection of the natural environment and sustainable exploitation of its components, and includes a summary analysis of the state of nature and the landscape, evaluation of causes of conditions and developmental trends, including evaluation of the effectiveness to date of instruments of nature and landscape protection. This conceptual material contains a general program and specific actions, priority tasks and measures in protection of nature and the landscape, and tasks based on the relationship between protection of nature and the landscape and regional policies, land-use planning and urbanisation, forest management, game-keeping, agriculture, water policy, water management, tourism and recreation, transportation and extraction of mineral raw materials, as well as legislative tasks, economic tasks and tasks in information management.

Objectives and Measures:

· update and elaborate the State Program of Protection of Nature and the Landscape of the Czech Republic taking into account the specific conditions in the regions and localities for decision-making, respecting the principles of sustainable development, and taking into account the capabilities of the state budget;
· implement the objectives of the updated and elaborated State Program of Protection of Nature and the Landscape of CR;
· decrease cultivation to 65% of agricultural land (through selective afforestation, biocorridors or establishment of grasslands) by the year 2005;
· improve the quality of the soil through reduction of the input of hazardous substances into composts and sludges;
· reduce foodstuff production on contaminated soils;
· utilize contaminated soils for growing industrial crops and biomass for energy generation;
· by the year 2003, establish at least 50% of proposed designated territorial systems of

ecological stability, as identifed in the framework of approved documents on complex land-use planning.

V.2.5 Physical Fields

Physical fields, consisting of the distribution and action of physical forces, constitute a very important component of the environment. The individual factors of physical fields (cosmic, ionizing and nonionizing radiation, electromagnetic fields, noise, vibrations, thermal pollution) differ in their physical nature. Problems connected with physical fields are global environmental problems. The increasing fraction of CO2 in the atmosphere and the consequent greenhouse effect and climatic changes are a very serious type of thermal pollution (disturbing the thermal balance of the Earth) and the damage to the ozone layer from human activities increases the intensity of cosmic radiation reaching the surface of the Earth.

Of the physical factors, the best known are various kinds of radiation, noise and vibrations. Radon and its daughter products are a significant source of radiation. In CR, 6000 new cases of lung cancer are recorded annually, of which approximately 900 are related to radon exposure. Radon concentrations in the indoor air are several times greater than in the outdoor air. About 2% of the population of CR lives in buildings where the radon concentration exceeds the critical level (200 Bq/m3). Systematic searches for buildings with elevated occurrence of radon are required by Resolution of the Government of CR No. 709 of December 15, 1993. Studies are being carried out in CR in existing residential buildings, educational facilities and some other buildings, especially in areas known to be at elevated risk of radon exposure. Approximately one quarter of buildings in which radon concentrations exceed the critical level have been made safe with financial assistance from the state.

Noise is the physical factor that causes the greatest nuisance level to the population. Noise has a detrimental impact on the quality of sleep, causes general aggravation, a deterioration in social behaviour and particularly decreases mental functioning. Over longer periods of time, it causes stress, fatigue, insomnia and can be considered to be a potential pathogenic agent that can lead to increased occurrence of other diseases. Transport causes 85 - 90% of all noise. The greatest contribution comes from highway transportation and air transport which causes maximum noise levels in the vicinity of airports (civilian airports LAmax = 95 dB, military airports LAmax = over 100 dB). Noise is also caused by industry, construction activities, various operations including restaurants and entertainment facilities, technical equipment in the home, human activities, wind and animals. In the developed countries of Europe, nuisance caused by noise is considered to be the worst of all the physical factors and dealing with this problem is very expensive. It should be stated that legislation for protection against noise is stronger in many respects in CR than in these countries (the legislation in CR covers a far broader range of aspects of noise than in the EU countries). The subject of noise is currently dealt with in Decree No. 13/1997 Coll., on protection of health against the detrimental effects of noise and vibrations, and five more public health regulations. Requirements on stating the values for noise emanating from machinery and technical equipment in the instruction manuals for this equipment are contained in Government Regulation No. 170/1997 Coll., laying down technical requirements for machinery and equipment, as amended by Government Regulation No. 15/1999 Coll. and Government Regulation No. 283/2000 Coll. This Regulation is one the

regulations for implementation of Law No. 22/1997 Coll., on technical requirements for products.

Limits for protection of health related to the presence of persons in electromagnetic fields are set forth in Decree No. 408/1990 Coll., on protection of health against the effects of electromagnetic radiation. The limits contained in this Decree are stricter than those in the EU countries.

Law No. 258/2001 Coll., on protection of the public health and amending some related Laws, came into effect on January 1, 2001; this Law deals with the rights and obligations of natural and legal persons in the protection of public health, including protection against noise, vibrations and non-ionizing radiation. The regulations for implementation of this Law also include the new Decrees on protection of health against the detrimental effects of noise, vibrations and nonionizing radiation, which must be in accord with the EC Directives and standards.

Objectives and Measures:

· at the present time, the production and import of CFCs is regulated in CR; from January 1, 2015, the production, import and export of HCFC substances is prohibited. CR will probably be capable of eliminating these substances at an earlier date.
· in accordance with the Kyoto Protocol to the UN Framework Convention on Climate Change, ensure that emissions of greenhouse gases are at least 8% lower than the 1990 level in the period 2008 - 2012 and, in the year 2005, ensure that emissions are 20% lower than the 1990 level;
· decrease overall exposure to noise;
· stop specific increases in noise, especially transport noise, and extend protective zones;
· ensure that persons using machinery and equipment that are a source of noise, and that the owners or administrators of roadways, railways, airports and other sites, whose operation causes noise, are obliged to implement technical, organizational and other measures to ensure compliance with the public health limits for noise; the public health limits must also not be exceeded for noise from routine operations and noise from public reproduction of music;
· draw up noise maps for all settlements with more than 50 000 inhabitants by the year 2003 and up-date them every 5 years;
· continue the search for buildings with elevated radon levels and provide for the protection of their inhabitants by preventing such elevated radon levels.

V.2.6 The Urban Environment (human settlements, synergistic detrimental effects)

In urban and industrial agglomerations, there is an accumulation and synergistic effect of detrimental factors which damage the environment. In addition, a greater number of inhabitants are exposed to these negative effects. Natural features, where present in urban agglomerations, gain special value. However, artificial features predominate – structures created by man and residential buildings, structures for production, sports and recreation and technical installations and the infrastructure.

Under the conditions in urban and industrial agglomerations, the quality of life is

valued, rather than the natural environment. The loss of purely natural values is compensated by satisfaction of complex cultural and social needs, the potential for interesting employment and, frequently, also higher income. Consequently, cities continue to attract inhabitants.

However, the attractiveness of cities must be supported by the maximum attainable improvement of air quality, a decreased environmental noise burden from traffic, protection of natural and cultural monuments and improved cleanliness in cities. Local government has a substantial role to play in this process.

Objectives and Measures:

· decrease air pollution from mobile sources and small local heating units;
· protect the quality of drinking water from surface and ground waters;
· decrease water leakage in water mains;
· decrease the volume of hazardous waste and provide for its safe disposal;
· increase separation and reuse of industrial and municipal wastes;
· in providing public transportation in urban areas, implement primarily the principle of minimization of transport needs and base the system on environmentally acceptable traffic levels on the road network;
· promote a shift of individual passenger transportation onto mass transportation by extending the services offered, even at the expense of increased subsidies;
· extend pedestrian zones and support environmentally sound transport systems (e.g. cyclist routes);
· employ active and passive measures to decrease accident levels in road and rail transport;
· decrease noise emissions from transport by active and passive measures;
· prepare a policy for undertaking environmental audits and analyses of environmental burdens from the past;
· prepare a policy for the revitalization of unused old industrial zones and old residential or business buildings in the inner parts of cities and agricultural sites in the landscape (to 06/2001);
· prepare a program of support and provide for financing of the revitalization of unused old industrial zones and old residential or business buildings in the inner parts of cities and agricultural sites in the landscape (from 07/2001 to 2005);
· increase the effectiveness of land-use planning as a powerful instrument for sustainable development in relation to urban areas, support the residential function of urban centres and maintain the structure of local services;
· prepare and implement a policy for protection and revitalization of the suburban landscape (prepare policy by 9/2001, implement by 2005);
· in order to revitalize the urban landscape, emphasize directing investment plans towards the original industrial and abandoned zones of cities. Prevent the creation of new commercial zones in suburban areas. Consistently support the use of these areas for free-time activities, tourism and sports;
· consistently protect natural features of an extensive, point and linear nature in urban areas.

V.3 System of Selected Indicators

In drawing up a sensitive, reliable, representative, and especially quantifiable set of indicators, not only in the framework of the EU, but particularly in the framework of the European OECD countries, it will be advantageous to base work on the existing set of OECD indicators (OECD: Towards Sustainable Development – Environmental Indicators, Paris, April 1998). This set of indicators is used for monitoring environmental and socio-economic trends, and contribute to measurement of progress in sustainable development. The first group consists of indicators monitoring progress achieved in improving the state of the environment. The second group includes indicators classified by sectoral policy, e.g. environmental indicators of transport, energy production, industry and agriculture. The third group of indicators is derived from environmental accounting. These indicators are intended to influence economic policies, and to promote sustainable exploitation and management of natural resources. The OECD indicators, which represent the best developed system at the present time, are also in accordance with the indicators monitored by the EU, and in this spirit the Czech Republic will continue to monitor and evaluate the state of its environment.

The following group of indicators is monitored:

Environmental Indicators:

· climate change (specific emissions of greenhouse gases);
· depletion of the ozone layer;
· air (specific emissions, air quality);
· waste (waste production and recycling);
· water quality (water quality in rivers, waste water treatment);
· water sources (intensity of use, public water supplies, water prices);
· forests (area, state, intensity of use);
· biodiversity (endangered species, protected areas);
· the soil and geological environment (input of toxic substances, erosion).

Socio-Economic Indicators:

· GDP and population (consumption, expenditures of the state administration, expenditures of the population);
· energy (intensity and effectiveness of use, diversity of primary energy sources, prices);
· transport (length and density of roadways, fragmentation of the landscape, numbers of vehicles, age, structure, prices and taxation of fuels);
· agriculture (consumption of fertilizers and pesticides, numbers of domesticated animals);
· environmental expenditures.

In order to improve monitoring of the state of the environment and related areas through a selected group of indicators, it is essential to create and implement in practice a uniform structure of data collection and a system of responsibility for supplied data.

The set of environmental indicators must be extended to include determination of

environmental traces, understood as the ecologically productive land equivalent that human society, the state, city/municipality, individual human being, and also a specific branch of industry, transport, agriculture, etc. requires to provide for its needs and to dispose of its waste. The condition for sustainablility is that the environmental trace for a given unit should not exceed the available area.

The environmental area of the state, regions, cities and municipalities defines the amount of natural resources that a human being and the society can use permanently without disturbing the natural equilibrium. Limits following from the environmental space and the state of the environment, characterized by environmental indicators, including the environmental trace, must be taken into account in all sectoral policies and respected at all levels (state, regions, city/municipalities) in strategic planning.

VI SECTORAL POLICY MEASURES AND OBJECTIVES

VI.1 Extraction of Mineral Resources

The geological environment has long been influenced by human activities. In addition to the extraction of mineral resources, these activities have included various forms of construction as well as deposition of waste both on the surface and underground, and activities connected with contamination of the geological environment and ground waters.

In relation to protection of the geological environment, a decrease in extraction of mineral resources, such as uranium, has led to a decrease in the overall area affected by mining activities. This trend will probably continue in the light of expected developments in mining of brown and black coal.

Because of the decrease in the energy intensity of the economy and restructuring of industrial production and energy sources in CR, it can be expected that mining of fossil fuels will continue to decline. On the other hand, it must be expected that the exploitation of other mineral resources will continue, especially those used in traditional light industries (kaolin, clay, feldspar, glass-making sands, limestone). Optimum use of these minerals should be a prime consideration. Raw materials for construction will also continue to be mined (decorative and crushed stone, gravel and sand, etc.), with a significant impact on the state of the geological environment and the landscape. The increased consumption of limestone can be attributed to the necessity for sulphur removal in large power sources. In accordance with the principles of sustainable development and employment policy, it is necessary to ensure maximum added value from the mineral resources in the individual regions of CR. It will be
necessary to increase the fraction of recycled construction materials in overall consumption, to cover any possible increase in demand from the construction industry associated with infrastructure renewal and to reduce the landfill capacity required for disposing of construction waste.

The “Raw Material Policy in the Area of Mineral Raw Materials and their Resources“ was approved by Government Resolution No. 1311/99 of December 13, 1999; this document was prepared jointly by the Ministry of Industry and Trade, and the

Ministry of the Environment. Prior to deliberation in the Government, this document was assessed pursuant to Act No. 244/1992 Coll., on environmental impact assessment (EIA), on the basis of which the Ministry of the Environment gave its approval for the document. Consequently, the approved Raw Material Policy considers environmental aspects, and balances the requirements for economic development and environmental protection while respecting the principles of sustainable development.

Environmental aspects contained in the Raw Material Policy

· analyze the application of the principles of sustainable development and environmental limits to mining, and the degree of application of land-use planning in the exploitation of non-renewable natural resources, and the introduction of greater utilization of secondary raw materials in the individual EU member countries and propose a suitable model for CR;
· carry out an analysis of mining law and related legislation in the EU countries; on the basis of this analysis, prepare desirable modifications in an attempt to introduce similar legislative and administrative procedures in CR;
· elaborate the application of the overall raw material policy of the state to the specific conditions for the regions and localities for the purposes of decision-making in the areas, whilst respecting the principles of sustainable development;
· achieve the average level of resource consumption in the EU through lower use of non-renewable resources and of industrial minerals through complex utilization and greater use of secondary raw materials and recycling;
· re-evaluate the system and amounts of payments for mining space in order to achieve differentiation on the basis of the value of the area affected, the level of impacts and the character of the work carried out;
· re-evaluate the raw-material potential of large specially protected natural areas in an attempt to reduce the impact of exploitation of mineral resources in Protected Landscape Areas;
· create conditions for providing for the requirements of the economy for industrial minerals while respecting the principles of sustainable development and environmental limits;
· further decrease the consumption of industrial minerals as a consequence of structural changes in the economy and technical developments.

VI.2 Energy

It follows from the energy balance for 1999 that gross consumption of electricity in CR was equal to approx. 64 368 GWh. Net production equalled approx. 59 474 GWh. Gross and net production in this period is 99% of that for 1998. Thermal power plants produced 77% of this electricity, hydro-electric plants produced 3% and nuclear power plants (the Dukovany NPP) produced 20%. About 34% of all heat was supplied from central sources in 1999. About 9% of electricity was produced in combined processes.

The consumption of primary energy sources has decreased in the period 1990 to 1999 by about 26%. The fraction of solid fuels used in the consumption of primary resources decreased by about 14% in this period. In contrast, the fraction of gaseous fuels increased by about 10% in the same time. The energy intensity of the national

economy decreased by about 23% between 1990 and 1999. The detrimental environmental impacts of energy production decreased over this time. Emissions of sulphur dioxide from stationary sources decreased by more than 86%, emissions of nitrogen oxides by about 72% and emissions of particulates by about 89%. Trends in the emissions of carbon dioxide were also favorable, corresponding to a decrease by about 25%.

The objective of SEP in the energy sector is to supply energy in a regime of sustainable development. Developments in the supply of energy will need to ensure both a sustainable supply, and be in accordance with the criteria of sustainability. This requires sound use of non-renewable energy sources and realisation of potential savings. The ratio of renewable and secondary energy sources to the consumption of primary energy sources will increase to between 4 and 6% by the year 2010, compared to the present 2%. It is assumed that the effect of energy production on the environment will continue to decrease in the light of the expected trends in the structure of primary energy sources, gradual elimination of price distortions, compliance with legal requirements in the area of air protection and natural turn-over of technology.

Sustainable supply requires the harmonization of economic, environmental and social aspects. To support activities favouring the sustainable supply of energy, it is necessary particularly to create a suitable legislative and economic environment. The Energy Law and Law on Energy Management should be passed in the near future. The Energy Law, which lays down the rules for operating a business and for the execution of the state administration in the energy sector, from the standpoint of environmental protection, emphasizes particularly pollution prevention in the operation of an energy production business and supports greater utilization of renewable energy sources and the combined production of heat and electricity. The Law on Energy Management defines measures for environmental protection, such as the preparation of the state energy policy, preparation of territorial energy policies, preparation of energy audits, labelling of energy appliances, increasing the efficiency of energy cycles, and the obligation concerning combined production of heat and electricity. The state will continue to support activities for effective use of energy through the State Program of Support for Energy Savings and Use of Renewable Energy Sources.

Environmental Requirements for the Energy Policy

· support the use of cleaner fuels rather than solid fuels. Where solid fuels are used, support the use of clean coal technologies;
· support greater use of renewable and secondary energy sources and potential savings in the framework of the State Program of Support for Savings and Use of Renewable Sources, in an attempt to increase the proportion of these sources to at least 8% of total consumption of energy by the year 2010;
· support the implementation of key measures in the framework of the Strategy for Protection of the Climate System of the Earth;
· support the introduction of modern energy technologies with high efficiency (fluid combustion, gas and steam-gas cycles, etc.) and combined production of heat and electricity;
· support activities to decrease the energy intensity of the national economy, e.g. by

preparing a territorial energy policy, energy audits and activities directed towards decreasing energy losses in transmission;
· support professional consulting and greater awareness in relation to energy efficiency and initiate a change in the behaviour of final energy consumers towards more effective energy use;
· accelerate resolution of the issue of how to deal with the back end of the nuclear fuel cycle and the procedures for decommissioning nuclear facilities;
· in the framework of completion and possible amendment of the regulations for implementation of Law No. 18/1997 Coll. (the Atomic Law), transpose the requirements of the pertinent EC regulations as set down in the environmental *acquis*;
· include information on the fulfilment of requirements related to the environment and sustainable development. in the framework of regular reports to the Government of the Czech Republic on the implementation of strategic policies in the area of energy

In order to achieve the required stability of the energy sector in CR and create conditions for accession of CR to the EU, the following should be supported:

· rapid completion of the process of correction of price distortions and tariff structures in energy commodities and services and implementation of price and tax policies in accordance with developments in the EU;
· complete effective privatization of the state share of key energy companies while retaining appropriate state control of the management of primary energy sources;
· accelerated establishment of a clear regulatory framework for the energy sector;
· the creation of a competitive environment in the area of production and supply of energy and the ability to choose suppliers of energy and gas for individual groups of consumers in line with trends in the EU;
· implementation of a functioning, non-discriminatory, transparent and motivating system of support for energy savings, the use of renewable energy sources and combined production of heat and electricity;
· from the standpoint of environmental protection, tolerable extraction of domestic energy-production materials, taking into account social aspects and employment, including reclaimation after extraction activities.

VI.3 Industry and Trade

Over the last two years, the Government has approved an industrial policy and a medium-term economic policy. The ideas contained in the SEP are incorporated into these policies. Integration of environmental protection into the industrial policy is reflected primarily in the fact that end-of-pipe measures to decrease the environmental impacts of pollutants are being replaced by an approach whereby the requirements for protection of nature and human health are integrated directly into the production process through the modification of process technology. In addition to the introduction of the principles of sustainable development into society generally and the implementation of new patterns in production and consumption, greater emphasis will continue to be placed on the introduction of environmental management of companies pursuant to standards of the ISO 14000 series and EMAS in accordance with Regulation 1836/93/EEC and Resolution of the Government of CR No. 466 of July 1, 1998 on approval of the National Program of Introduction of Eco-Management and Audit Schemes (EMAS Program). Developments to date have been satisfactory, as 43 enterprises in CR already hold certificates pursuant to standards of the ISO

14000 series or declarations of validity pursuant to Regulation 1836/93/EEC. It is necessary for enterprises to participate in the future in fulfilling the objectives of SEP through investments into environmental measures and consistent adherence to the requirements of environmental legislation.

In addition, emphasis must be placed on the introduction and use of new environmental indicators in accordance with the international commitments of CR (EU, OECD). These indicators will be also be used to assess the programmes introduced through regional policy, raw material policy and energy policy. A fundamental change in industrial development and significant restructuring of industry will be brought about by implementation of Directive 96/61/EC on Integrated Pollution Prevention and Control and the implementation of the principle of the best available technique as part of this Directive.

Environmental Requirements on Industrial Policy

· emphasize environmental considerations in all strategic industrial and business development plans to achieve a fundamental decrease in the pressure on the environment resulting from manufacturing, while respecting the principles of sustainable development, and emphasise further environmental improvements in industry that should lead, amongst other things, to an increase in competitiveness (elimination of accusations of eco-dumping);
· develop structural plans in industrial production leading to the development of products with greater added value (with more favourable environmental impact);
· in co-operation with the Ministry of Industry and Trade and sectoral industry associations, ensure that industrial policies and related policies are in line with the targets of SEP and the principles of sustainable development;
· prepare a program to support extensive application of low-emission, low-waste and energy-saving technologies with reasonable costs and closed production cycles;
· promote programs directed towards the development of an environmentally sound manufacturing industry and provide support for environmental investments in protection of air quality, for waste water treatment and purification, for waste processing and disposal and for introduction of cleaner technologies;
· develop new environmentally sound production policies including the concepts of ecodesign, ecolabelling (labelling of environmentally friendly products) and producer responsibility for products throughout their life cycles (Life Cycle Assessment);
· support changes in production and consumption patterns;
· provide maximum support for the introduction of environmental management systems - at least 150 enterprises should participate by the end of year 2000 (the EMAS National Program – Ministry of Industry and Trade in co-operation with the Ministry of the Environment);
· support voluntary activities within industry to achieve better standards of environmental protection (e.g. Responsible Care);
· in accordance with the EC Directives on state support for small and medium-sized enterprises, implement support for the environmental area;
· create conditions for maximum use of wood as a raw material from renewable natural resources directly in the individual regions in an attempt to create new jobs (Ministry of Industry and Trade in co-operation with ME, Ministry of Agriculture, Ministry of Labour and Social Affairs, and Ministry of Regional Development);
· create a program and introduce systematic economic incentives for the producers of

the methyl ester of rapeseed oil as a product from domestic renewable natural resources intended for the production of mixed biodiesel fuel (Ministry of Industry and Trade in co-operation with Ministry of Finance and ME - 2001 program, implementation from 2002);
· implement a system of technical and organizational measures to minimize the risk of industrial accidents;
· limit the production, import and use of hazardous chemical substances and replace them with alternative products;
· limit noise emissions, especially from construction machinery and equipment;
· include indications of the level of fulfilment of tasks related to the environment and sustainable development in the framework of regular reports to the Government of the Czech Republic on the progress of strategic policies in the area of energy.

VI.4 Waste Management

Current conditions in CR in the sphere of waste management can be characterized by a relatively large amount of waste production, totalling almost 35 million tons annually (1999), especially from the manufacturing and power industries, and a high proportion of hazardous waste in the total amount of waste produced and a low proportion of waste used as a source of secondary raw materials and energy. The clean-up and reclaimation of landfills that have been closed by law is a serious financial problem.

The unsatisfactory conditions in waste management are also caused by the predominance of waste land-filling, especially municipal waste. However, one major improvement has been the restriction, since August 1, 1996, of land-filling to only those landfills which are provided with adequate technical measures to prevent environmental pollution. In contrast to the adequate capacity of landfills in the Czech Republic, there is insufficient capacity for waste utilization or energy recovery from waste.

In 1999, the facilities for combustion of waste and energy-production from waste, incinerated a total of 638 000 tons of all kinds of waste (about 2%). Municipal waste incinerators are in operation in Brno and Prague. The incinerator in Liberec is undergoing test operations. The fraction of waste incinerated in CR is very low compared with that in the EU member states.

A new Law on Waste, which is fully compatible with the EC regulations, has been submitted to the Parliament of the Czech Republic. All the necessary implementation regulations are close to completion. The Government of the Czech Republic has approved the draft of the legislative intention of the Law on packaging and packaging waste, implementing the Packaging Directive. Both Laws are expected to enter into force in January 1, 2002. The Czech Republic has requested a transition period to the year 2005 for a few minor provisions of the Packaging Directive.

The quantity of waste produced which contains PCBs will continue to decrease as a result of complete prohibition of PCB production. However, to prevent escape of these dangerous substances into the environment, it is necessary to immediately prepare an inventory of facilities containing PCBs. Predictions of the remaining quantities of these wastes will depend on the rate of their disposal; thus, it is

necessary, following completion of the inventory, to prepare a national plan for management of wastes containing PCBs.

Environmental Requirements on Waste Management Policy:

· adopt the new Law on waste and prepare the related implementing regulations, including a regulation on transboundary waste movement - to be undertaken by Ministry of the Environment in 1999 - 2001 - with entry into force from January 1, 2002;
· prepare a Law on packages and packaging waste and a related implementing Decree - to be undertaken by ME in co-operation with Ministry of Industry and Trade by 2001 - with entry into force from July 1, 2002;
· ratify the Amendment to the Basel Convention approved at the Conference of Parties in 1995, acceptance of Annex VII - by 2001;
· prepare concepts for regional and national plans for waste management for consistent implementation in accordance with the requirements of the EC Directives, including the creation of a reliable information base using the accepted classification of disposal routes:
a) waste land-filling,
b) waste incineration,
c) municipal waste management,
d) management of packaging (by individual product type),
e) management of waste oil,
f) management of PCBs,
g) management of used batteries and accumulators,
h) management of tires,
i) management of fluorescent tubes;
· prepare hazardous waste management plans at company and regional levels - to be phased in by 2005;
· prevent waste generation, particularly by implementation of cleaner production, reducing the hazardous properties of waste, and introduction of EC Standards for contents of hazardous substances (e.g. heavy metals) in products, and promotion of recycling, systems of environmental audit and product life cycle assessment. Prevention will also include increased information for consumers on the properties of products and how they should be used. Possibilities for recycling must be considered when designing the product;
· make greater use of voluntary agreements with business on implementation of environmental measures that can assist considerably in meeting waste management objectives;
· develop and enforce the implementation of economic instruments (payments, taxes, subsidies, etc.) to prevent waste generation and stimulate the return of waste to the production process (the reduce-reuse-recycle principle – the waste hierachy);
· compile inventories of facilities and equipment using PCBs - by June 30, 2002 - and prepare an inventory report and a plan for the destruction of PCBs by December 31, 2002, so as to comply with the final deadline for destruction by the year 2010;
· create conditions for the development of effective product return systems (and ensure their implementation in practice), based on the responsibility to take back and re-use the following products:
j) mineral oils,
k) galvanic cells and batteries,

l) electric batteries,
m) discharge lamps and fluorescent tubes,
n) tires,
o) packaging;
· while respecting the priorities of prevention of waste generation and re-use of packaging, ensure that systems based on the obligation to take back packaging achieve the following targets:

by December 31, 2001

I. recovery of at least 35% of packaging waste by weight,
II. recycling of at least 15% by weight of all materials contained in packaging waste;

by December 31, 2005

I. recovery of between 50% and 65% of packaging waste by weight,
II. recycling of between 25% and 45% by weight of all packaging material contained in packaging waste, with at least 15% of the weight of each packaging material recycled,
· ensure achievement of the limit on the content of heavy metals and labelling for batteries and accumulators placed on the market;

by January 1, 2003 at the latest, it will be forbidden to place on the market batteries containing

I. over 0.0005% wt. mercury, including cases where such batteries and automotive batteries are incorporated into facilities; button batteries and batteries consisting of button cells with a mercury content not exceeding 2% wt. are exempted from this prohibition,
II. over 0.025% wt. cadmium
III. over 0.4% wt. lead, for alkaline manganese batteries containing over 0.025% wt. mercury;

by January 1, 2003 at the latest, it will be forbidden to place on the market batteries not labelled with the symbol for separate collection and labelled with the kind of heavy metal they contain;

· with assistance from the Phare Twinning Program, build a Waste Management Centre - for professional, methodical and information support of the state administration in waste management;
· strengthen the state administration in the area of waste management (at a national and regional level including reinforcement of import controls) - by 09/2001

VI.5 Transport

Modern transport is an essential part of the life of society. It enables population mobility, with access to places, services, raw materials, goods, jobs and other people. However, increasing mobility also has negative impacts, which are increasing particularly as a result of increases in road transport. These impacts include increasing emissions (nitrogen oxides, particulate matter, carbon dioxide, volatile organic compounds) and noise pollution of the environment, fragmentation of the landscape and disturbance of ecological systems caused by construction along new routes, use of agricultural land and forests and areas within settlements, high accident rates, damage

to the state of health of the population, congestion on roadways, barrier effects and problems associated with parking and stopping vehicles, especially in areas with large population densities and in recreational areas.

External costs from damage to infrastructures, traffic accidents, deterioration of the state of health of the population, environmental damage and costs associated with congestion, which are currently paid by persons other than the users, or are paid by society generally, have been estimated to equal about 5% of GDP. In the medium term future, the proportion of motor vehicles with low fuel consumption and low emissions will remain small. It will be necessary to protect the inner parts of cities and other sensitive areas against the negative impacts of automobile traffic through suitable regulation and support for environmentally sound means of transport (e.g. mass transport including a park-and-ride system and cyclist transportation, including a bike-and-ride system).

While the detrimental impacts on the environment from other sectors in the Czech Republic are decreasing, in the case of transport (especially road transport), the technical progress in the quality of vehicles (lower noise levels, consumption and emissions) is outweighed by the increasing number of motor vehicles and the increasing traffic density, so that the overall trend in environmental impacts continues to be unfavorable, even though most of the indicators of specific load (per unit distance travelled) on the environment from traffic are decreasing.

The division of transport intensity in favour of the least environmentally sound modes of transport is worsening. Rail transport in CR has not managed to react quickly enough to the substantial social and economic changes in the second half of this century. The lack of flexibility towards the business traveller has led to a shift of passengers and goods onto the roads. Nonetheless, the railways have remained a transport mode that is relatively friendly to nature and the environment.

In the medium-term, 2000 - 2015 (after accession of CR to the EU), there will be increasing pressure to implement the objectives of the Strategy for Recovery of the Railways of the Communities (White Book of the European Commission) and achieve compliance with Council Directive 91/440/EEC, on development of the railways of the Communities and subsequent regulations. Positive trends can be expected in the development of rail transport, especially in long-distance passenger and freight transport and passenger transport in urban areas. This will be assisted by modernization of tracks in railway corridors and a greater use of railway transport in suburban and urban areas. Railways will gradually become more important in modern combined transport systems and in the integrated transport systems of large cities and industrial agglomerations.

Since 1996, when the basic principles of sustainable transport were accepted at an international level, the subject of the environment has also become part of strategic documents on development of transportation in CR. The following measures will be implemented to fulfill environmental objectives set forth in the individual documents deliberated by the Government of CR:

Transport Policy in CR (Government Resolution No. 413/98)
- principles of transport policy:

· orientation towards support for and development of those kinds of transport that have the lowest requirements on energy consumption, land use, environmental impacts and regulation of operations;
· respecting the requirements on life style, undisturbed environment, standard of living and simultaneous free will of mankind in relation to the choice of the time, route and mode of transport limited only in relation to other public interest;
- criteria that must be met by transport in the future:
· effective use of resources and areas,
· protection of the environment, setting environmental criteria for the choice of a transport mode;
- main objectives in the future:
· strategy of sustainable transport modes with support for environmentally sound modes and reduction of less sound modes,
· support for amendment of the systems of tax and trade laws in order to harmonize the system of taxes and fees related to transport including gradual internalization of the external costs of transport (in the competence of Ministry of Finance),
· support for public transport rather than individual transport,
· support for research and development in modes of transport friendly to the environment,
· support for a decrease and elimination of negative environmental impacts;
· support for an improvement in public mass transport.

A priority objective of transport policy will be provision for stabilization and gradual reduction of the detrimental effects of the transport infrastructure and traffic on the state of the environment. The system of assessment of these impacts (EIA, SEA) will be augmented and supplemented by assessment of transboundary effects (Espoo Convention).

Medium-term strategy in the sector of transport, telecommunications and post services (Government Resolutions No. 385/99 and No. 164/00)
- Strategic objectives
· effective use of resources and land,
· provision corresponding to the long-term transport demands of society, including provision of transport services in a given area,
· protection of the environment and health, laying down environmental criteria for choice of modes of transport,
· a constant increase in traffic safety and reliability.

The National Development Plan of CR - sector of transport, telecommunications and post services (Government Resolutions No. 714/99, 1140/99 and 14/00)
- principles and objectives:
· state support for environmentally better kinds of transport respecting the EU legislation, and taking account of the financial expression of the external effects of transport.

An essential precondition for integration into European transport structures is the continuing and complete transposition of the provisions of EC regulations and standards related to the environmental impacts of transport, as well as application of the criteria and conditions laid down by international transport organizations. Gradual implementation of important tasks adopted by the UN in the area of decreasing

emissions of greenhouse gases (Kyoto Protocol 1997), following from the UNECE Regional Conference on Transport and the Environment (Vienna, 1997), from the Charter on Transport, the Environment and Health (London, 1999) and other documents, will be undertaken by the Ministry of Transport and Communications in co-operation with the Ministry of Health, the Ministry of the Environment and the regional authorities.

The Czech Republic is already introducing measures to implement the Aarhus Declaration on stopping the production and distribution of leaded petrol by the year 2005. In accordance with the commitments of CR in relation to compliance with the requirements of Directive 98/70/EC, the sale of leaded petrols will be prohibited from Jan. 1, 2001 pursuant to Ministry of Transport and Telecommunications Decree No. 244/1999 Coll.

Environmental Requirements on Transport Policy

· in land-use planning documents and transport strategies, implement measures to decrease transport demand, support intermodal and integrated approaches to planning transport infrastructure, and approaches that appropriately take into account environmental, spatial, operational, economic and social issues;
· promote a gradual change in the modal split of passenger and freight transport in favour of railway, combined and inland water transport;
· provide systematic support for a greater role for railway transport in strategies for regional transport infrastructure, i.e. in the formulation of development plans for the individual regions;
· in the activities of the state administration, give preference to public passenger transport, introduction of integrated transport systems, together with development of the associated infrastructure and environmentally sound vehicles, in an attempt to make this kind of transport attractive to the public with concurrent emphasis on reduction of the use of private automobiles in sensitive areas;
· in expenditure from the budget of the State Fund on Transport Infrastructure, take into account the environmental aspect in proposing proportions for the individual kinds of transport;
· promote the gradual introduction of economic instruments, including internalization of external costs, in an attempt to increase the use of transport systems and transport modes that are economically acceptable and decrease the burden on the environment;
· in modernization of the road network, make greater use of existing highways or their corridors and limit fragmentation of the landscape by new routes;
· promote the rapid construction of complex integrated transport systems in large cities and their vicinity with greater participation of rail transport as an environmentally preferable means of mass transportation;
· in urban agglomerations, promote a combined system of individual and public transport (the park-and-ride system), supplemented by regulation of parking and access for passenger cars to city centers, improve organization and regulation of road transport, especially through implementation of more effective traffic control systems;
· promote an improvement in conditions and creation of facilities for bicycle transport, including combination with public transport (the bike-and-ride schemes) and pedestrian transport;
· in co-operation with ME, create a strategy and promote development of a public transport system in protected areas;

· promote a system for the use of mixed biodiesel fuel as a product produced partly from domestic renewable natural resources;
· promote the development and introduction of standards for road, rail, water and air transport which correspond to the standards laid down by the relevant international bodies in relation to environmental impacts and safety, and promote the development of alternative means of powering these transport modes;
· increase the attention paid to the transport of dangerous goods, prepare for the introduction of compulsory accident insurance for the transport of dangerous goods and particularly protect water sources against the impact of transport;
· promote suitable technical and infrastructure measures (city by-passes, noise barriers along roads and rail tracks) to minimize health risks and negative environmental impacts caused by excessive exposure to noise and pollution emissions in urban areas from road transport;
· promote the implementation of measures to reduce excessive noise from air transport and delimit noise protective zones around airports according to the EU recommendations, in an attempt to eliminate or compensate for the environmental impact of air transport;
· promote measures to increase the safety of transport and improve protection of pedestrians, cyclists and animals;
· in co-operation with NGOs, influence the general public to give greater preference to passenger and bicycle transport;
· systematically monitor the impacts of the individual transport modes on the state of the environment;
· provide support for scientific and research work, especially in connection with increasing the depth and extending the scope of projects concerned with decreasing the negative impacts of traffic on the individual components of the environment, including quantification of externalities;
· develop international co-operation at the level of governmental and non-governmental organizations in dealing with issues related to protection of the environment against the detrimental impacts of transport;
· include indicators on the level of task completion in relation to environmental matters in the framework of regular reports to the Government of CR on the implementation of transport strategies.

VI.6 Agriculture and Forest Management

The overall area of the agricultural land fund in CR decreased from 4 374 000 ha in 1980 to 4 282 446 ha in 1999. Of this:
· 20% of agricultural land is located in protected areas with imposed management regimes;
· about 59% of the agricultural land fund belongs in the LFA category (less favoured areas);
· 7%, i.e. 300 000 ha of agricultural land (according to qualified estimates) are in areas with highly unfavourable natural conditions, i.e. elevation above sea level of over 800 m, with slope of greater than 11o, and 600 - 800 m with a slope of greater than 8o.

There has been a decrease in arable land from 3 294 000 ha to 3 095 960 ha. The level of cultivation of agricultural land has remained virtually unchanged and remains quite high (72.3%) compared with the average level in the EU (53%). A major part of the

overall area of agricultural land in CR continues to be managed in unsuitably large units that are not broken up by permanent green areas that would form biocorridors and biocenters as an integral part of territorial systems of ecological stability (TSES). The consumption of NPK fertilizers in 1999 corresponds to about half of that in 1990 and the consumption of lime fertilizers is about 12% of that in 1990. The consumption of pesticides is less than half that in 1990. The lower consumption of fertilizers is also favourable for the environment, but only in some areas do the crops and the soil fully absorb these compounds, and partial permeation into lower soil layers and run-off continues to be a problem.

Gross agricultural production expressed in adjusted prices decreased by 28.4% between 1989 and 1999 (from 108 633 000 thous. CZK to 77 798 000 thous. CZK; of this, crop production decreased by 18.9% and animal production by 35%). Gross production per ha of agricultural land decreased from 25 040 to 18 163 CZK (by 17.46%); of this, crop production decreased from 10 478 CZK to 8 463 CZK (by 19.23%) and animal production from 14 562 CZK to 9 700 CZK (33.38%). Gross added value in real terms, related to 1 ha of agricultural land decreased by 30% between 1994 and 1998.

While in 1980, of the average number of 5 148 000 persons working in the civilian sector of the national economy, 642 000 were employed in the branches of agriculture, game-keeping and forest management; in 1999, only 222 681 persons of the average total number of 4 670 432 persons were employed in the primary sector (of this number, 190 800 were employed in agriculture alone and 33 300 in forestry). The average gross monthly salary in 1980 equalled 2 656 CZK (civilian sector of the national economy) and 2 689 CZK (agriculture, game-keeping and forest management); in 1999, these figures equalled 12 655 CZK (civilian sector of the national economy) and 9 589 CZK (agriculture, game-keeping and forest management). The radical decrease in gross monthly salary in agriculture, similar to that in forest management, to 75.77% of the national average, reflects the inadequate social prestige of these sectors that should primarily participate in protection of the landscape and ecosystems, in accordance with State Environmental Policy.

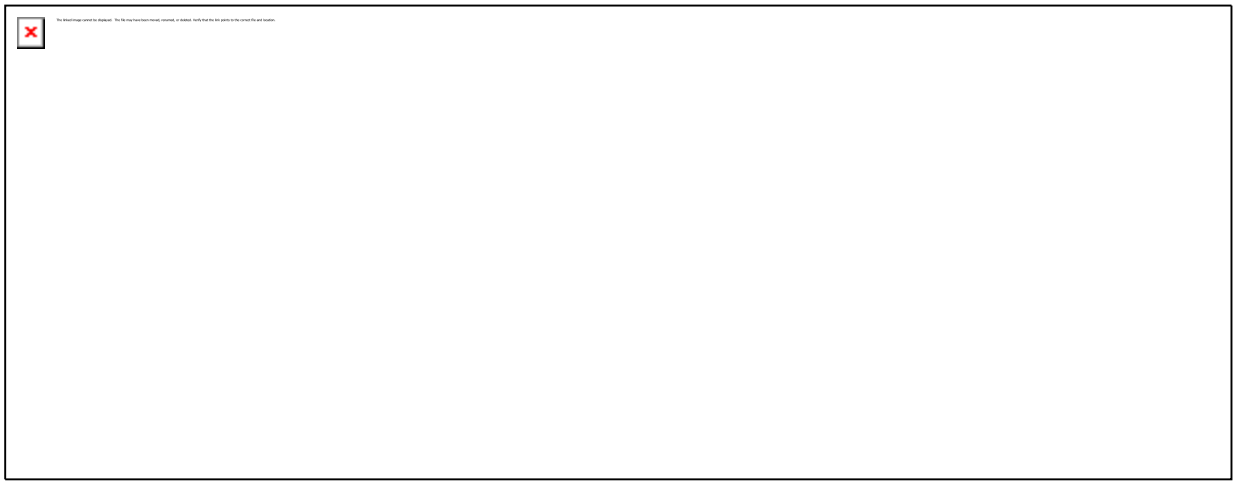
Czech agriculture is characterized by a very old fleet of machinery, which is not being renewed rapidly enough as a consequence of the very limited investment capital which is available to the individual agricultural entities. This state of affairs not only prevents a gradual increase in the effectiveness of production and productivity in agriculture, but is also a cause of excessive burdens on the environment.

There has been a favourable increase in the portion of environmentally sound agriculture in CR. Environmentally sound agriculture is a very economical approach to management in the landscape, with a favourable impact on all the basic components of the environment (soil, water, air, ecosystems), respecting the principles of sustainable development and the natural cycle of substances and energy in ecosystems. Environmentally sound agriculture produces high-value and good quality foodstuffs as a consequence of a great reduction in artificial inputs (artificial fertilizers, pesticides, veterinary medicines, prohibition of use of GMOs) into the agro-ecosystem. Environmentally sound agriculture has been evolving in many countries of the world for several decades, in some cases within the framework of the International Federation of Organic Agriculture Movements (IFOAM). Since 1991, it

has been an integral part of EU agricultural policy (Council Regulations 2092/91/EEC and 1084/99/EEC).

At the end of 1999, 454 enterprises were managed in accordance with the principles of environmentally sound agriculture, on an area of 110 756 ha (i.e. 2.59% of the total area; in the EU this area is 2.3%). These increases in the number of enterprises and area in CR over the last three years is a positive sign, but the fraction of environmentally managed land in the overall area of the agricultural land fund of CR remains relatively low. This is especially true in the light of the fact that environmentally sound agriculture only partly compensates for the burden imposed on the individual components of the environment as a result of conventional large-scale agricultural production and some of its detrimental approaches to the management of the landscape. Further examples of environmentally sound approaches are integrated growing systems (especially in viticulture, and fruit and vegetable growing) and some other specific programs with direct and indirect favourable environmental impacts: maintenance of the landscape, support for introduction of TSES, support for planting of grasslands and aforestation of arable land, dredging and renewal of the function of fishponds, apiculture, biological plant protection,, carried out in the framework of the subsidy policy of the agricultural sector. From the standpoint of sustainable development, the importance of forest management is also increasing; its contribution to GDP is low (equal to 7.9 bil. CZK in 1995, corresponding to 0.6% of the total GDP in CR; in 1999, the total was 11.3 bil. CZK, or 0.7% of the GDP). Employment in forest management decreased from 44 600 persons in 1995 (0.9% of the total number of persons employed in the civilian sector of the national economy) to 33 300 in 1999 (0.7%). The wood processing industry exhibits the opposite trend; in 1995, 57 000 persons were employed there (1.1%), increasing to 62 500 persons in 1998 (1.3%).

Since 1994, following consolidation of ownership relations, the absolute area of forests has continued to increase and, as a result of the fall in agricultural production, a further increase in the forest area can be expected in the coming years. About 60% of the total area of forests is damaged by pollution and, of this, about 56% of the affected forests are characterized by a low or medium level of damage. The composition of species, age and space structure of forests remain unfavourable.



Total stocks of timber in the forests of CR increased from 445 mil. m3 in 1970 to 625 mil. m3 in 1999 (an average of 245 m3 per ha of forest land). Total felling of timber

increased in proportion to felling potential from 10.178 mil. m3 in 1970 to 14.20 mil. m3 in 1999, i.e. 5.39 m3 per ha of forest land; in this, the proportion of felled broad-leaved tree species equalled 1.78 mil. m3, i.e. 12.54%. However, in spite of this increase, the total felling of timber did not attain the level of the total growth increment, which corresponds to the actual overall timber production per year. The overall growth increment increased from 14.8 mil. m3 in 1970 to 18.8 mil. m3 in 1999, i.e. by 7.3 m3 per ha of forest land. The decrease in salvage felling from 9.822 mil. m3 in 1990 to 3.84 mil. m3 , i.e. 27.45% of the total felling in 1998, and 3.736 mil. m3, i.e. 26.3% of total felling in 1999, represents a favourable trend. The 1970 level of salvage felling was achieved in comparison with the proportion of salvage felling (27.51%), but not when compared in absolute figures (2.8 mil. m3).

The trends in exports of raw materials, i.e. logs from narrow leaved and broad-leaved species, is unfavourable; while this is a product of a renewable natural resource, it is also a product with minimal added value. The table shown here gives a comparison with selected countries. In Resolution No. 716 of July 19, 2000, the Government of CR required the Minister of Agriculture, in co-operation with the Minister of the Environment, to establish a set of indicators for assessment of the environmental impact of agriculture in further reports. This measure will contribute to improving the sets of data obtained and increasing the objectivity of published data and will facilitate specification of subsequent measures.
The necessity for balanced assessment of water management and environmental objectives will provide a new impetus for resolving multi-disciplinary issues relevant for several sectors, and must lead to an agreement on optimization of measures in the hydrological watershed. This harmonization of water management services of an economic nature in the watersheds with environmental interests is thus a new specific task for water management and simultaneously sets out new terms of reference for the Ministry of Agriculture of CR in co-operation with the Ministry of the Environment of CR.

Environmental Requirements on Agriculture and Forest Policy

· establish and maintain the optimum proportions of arable land, meadows, pastures, forests and water areas in accordance with the principles of sustainable development and the capacity of the environment. These proportions should be taken into account in the land-use planning documents for the individual territorial units;
· permanently provide for the health safety of foodstuffs through minimization of the levels of foreign substances in food chains in accordance with the framework of the Action Program for Health;
· create conditions for development of multi-functional agriculture (including agriculture, food production, forest and water management) over the largest possible area, addressing not only agricultural production, but also providing for non-productive functions, particularly maintenance of the landscape, environmental services, non-agricultural activities, growing renewable sources of energy and other services related to sustainable development of rural areas;
· limit diffuse water pollution, especially by nitrates, ammonia and agricultural biocides;
· promote environmentally sound means of management, increase the proportion of the agricultural land fund farmed organically to at least 6% by the year 2005 and at least 10% by the year 2010;

· promote environmentally sound means of management so that, by 2005, the land in protected landscape areas, national parks and protected zones of water sources is managed exclusively in accordance with the principles of good agricultural practice or environmentally sound agriculture;
· in the interest of increasing the ecological stability of the landscape, its ability to retain water and its resistance to erosion, promote a decrease in the area of arable land by afforestation with tree species suitable for the habitat, by grassing over or by creation of biocorridors and elements of TSES;
· support renewal of forest stands in areas affected by atmospheric pollution and increase the diversity of forest tree species, in an attempt to approximate natural forest composition and achieve balanced fulfilment of all functions;
· support a continuous increase in the proportion of land-improvement and stabilization tree species in renewal and aforestation, in an attempt to double this proportion by the year 2030, i.e. to 44% in accordance with the objective laid down in the State Program for protection of nature and the landscape;
· support the implementation of environmentally sound techniques in tree felling and renewal of forest stands;
· create conditions for maximum utilization of wood as a raw material from a renewable natural resource, directly in the individual regions in order to create new jobs and thus decrease the exports of logs from narrow-leaved and broad-leaved species (Ministry of Agriculture in co-operation with ME, Ministry of Regional Development, Ministry of Labour and Social Affairs and Ministry of Industry and Trade);
· promote complex land-use concepts in environmentally sensitive areas, that significantly contribute to maintenance and improvement of the ecological stability of the landscape;
· create a program and implement systematic economic incentives for the producers of rapeseed for the production of the methyl ester of rapeseed oil (Ministry of Agriculture in co-operation with Ministry of Finance and ME - 2001 program, implementation from 2002) and prepare an analogous program to promote the production of bioethanol;
· provide for labelling of products containing genetically modified organisms or parts thereof and implement the precautionary principle where a risk of negative impacts on biodiversity cannot be completely excluded;
· include indicators of task completion in relation to environmental measures and sustainable development in the framework of regular reports to the Government of the Czech Republic on implementation of agriculture and forestry policies.

VI.7 Water Management, Care for Water

Water management is comprised of activities which aim to balance the requirements of all forms of water resource use under various hydrological conditions with the requirements for protection of aquatic ecosystems. These activities include the provision of water services for public benefit and measures to decrease detrimental effects on waters, including provision for care for natural renewal of water sources in the landscape. The two fundamental uses of water are withdrawals of water and discharge of waste waters. Decreasing trends have been exhibited in this area for a number of years and these continued in 1998 and 1999, especially in the category of surface waters. The amount of discharged waste waters also follows this trend.

At the end of 1999 the fees levied for discharge of waste waters into surface waters pursuant to Law No. 58/1998 Coll., equalled 641.3 mil. CZK for the year. Of this, selected payments for discharge of waste waters totalling 526.7 mil. CZK were provided as income for the State Environmental Fund of the Czech Republic. The average price for supplies of surface waters in 1999 varied between 0.925 CZK/m3 and 1.996 CZK/m3. Income for supplies of surface waters in 1999 equalled a total of 1 833.2 mil. CZK; this was fully expended to cover the costs of the water basin management corporations in providing for supplies of surface waters and for the administration of water courses. Payments for withdrawals of ground-waters, with the exception of withdrawals for drinking water, have been charged at a basic rate of 2 CZK/m3 since 1989. In 1999, total collected payments equalled 20.6 mil. CZK and were one of the sources of income for SEF CR.

In addition to the prices of supplies of water and payments for discharge of waste waters, the functioning and state of water management and care for water are affected by other economic factors, including instruments implemented through complex programs, the activities of SEF, the state budget and the internal resources of investors. The Ministry of the Environment´s Program of Minor Water Management Projects was created to provide assistance in treating waste water and constructing sewer systems in smaller municipalities and to implement measures through the landscape programs of ME in order to ensure the ecological stability of specific areas. The program concentrates on municipalities that cannot solve problems related to treating waste waters through the funds of SEF CR or the Ministry of Agriculture of CR (MA). In 1999, in the framework of this program, a total of 241.6 mil. CZK was provided from the state budget to finance 129 projects.

The ME Program for Recovery of River Systems (PRRS), and the MA Landscape Program and the MA Rural Recovery Program, are important tools in improving the currently unsatisfactory state of water features in the landscape. In 1999, 315 sub-projects were implemented in the framework of PRRS, of which 86 were on-going (total subsidies 163 860 CZK) and 229 were newly initiated (total support of 227 525 CZK). Total financial support of 399 214 CZK was provided for implementation of measures in 1999. 130 structures for water protection were completed in 1999. Overall expenditures for construction carried out in 1999 increased by about 6.2% compared to 1998; however, the overall expenditure has decreased since 1994. In 1999 a total of 4 419 mil. CZK was expended on 365 structures for water protection, constituting about 32% of all structures for environmental protection. 1073.1 mil. CZK (corresponding to 659.6 mil. CZK in subsidies and 413.5 CZK in loans) was expended from SEF CR for water protection and 457.0 mil. CZK (corresponding to 289.2 mil. CZK in subsidies and 167.8 CZK in loans) was provided through MA from the state budget for the construction and renewal of sewerage networks and waste water treatment plants.

In 1999 - 2000, the Government transformed the water basin management companies (Povodí), which provide for the administration of water courses important for water management, into state enterprises. This process was completed in 2000 through adopting of Law No. 305/2000 Coll., on watersheds. In 1999, 1.1 bil. CZK in non-investment expenditures and 1.4 bil. CZK in investment expenditures were spent for administration of water courses important for water management and the State Land Reclaimation Authority (SLRA) expended a total of about 80 mil. CZK for these

activities in the area of minor water courses important for water management.

Activities in the management of water courses have been fundamentally influenced over the last few years by the catastrophic flood in 1997 and the later floods in 1999 and the winter of 2000. In 1999, in the framework of renewal of water courses, 2175 construction projects were initiated, of which 2051 were completed that year. Flood protection projects were undertaken along 2200 km of water courses, 116 km of protective dikes, 49 water reservoirs and 175 dams. In parallel with work on renewal of areas affected by flooding, over the last two years basic conceptual and legislative measures were implemented to increase the level of flood protection in CR. In 1999, Government Resolution 100/1999 Coll., on protection against floods, was adopted and in 2000 the Government adopted the Strategy of Flood Protection in CR, which is the first comprehensive document of its kind in CR. In connection with this strategy, a set of programs has been adopted, of which the Program of Designating Flood Areas, study of run-off conditions and anti-flood measures is of the greatest importance. Implementation of the Program of Recovery of River Systems and the Landscape Program are of considerable significance. The issue of flood protection was also included in the draft of the new Water Law and the legislation adopted in the area of crisis management and the integrated rescue system.

In 1999, the signing of an Agreement between the Government of the Czech Republic and the Government of the Slovak Republic on co-operation on Boundary Waters completed the process of ensuring co-operation in the overall management of border waters. International co-operation of CR in protection of waters in the watersheds of the Labe, Odra and Danube in the framework of the international commissions has continued. One of the chief tasks of these commissions will be the implementation of the EC Framework Directive on water policy, which was approved in 2000 and is a document of fundamental importance for the entire area of water management and protection.

Environmental requirements on water policy:

· ensure full compatibility of Czech legislation in water management with EC legislation, in accordance with the tasks contained in the National Program for the Preparation of CR for Membership in the EU (water quality), in particular prepare, adopt and implement a new Law on waters and the related regulations;
· include indicators of the progress in fulfilment of tasks related to the environment in the framework of regular reports of the Government of CR on the implementation of water policies.

VI.8 Health and the Environment

Following relatively constant values in the 70´s and 80´s, the average life expectancy increased between 1990 and 1998 for men from 67 to 71 years and for women from 76 to 78 years. The close connection between protection of the environment and protection of human health is expressed in the National Environment and Health Action Plan in the Czech Republic (NEHAP), submitted by the Minister of Health in co-operation with the Minister of the Environment and the Minister of Agriculture and approved by the Government in Resolution No. 810 of December 9, 1998. As in other European countries, NEHAP was drawn up on the basis of the 2nd European Conference on the Environment and Health in Helsinki and addresses objectives laid

down by the World Health Organization and monitored by the European Union.

Together with national environmental action plans, NEHAP is intended to contribute to the integration of efforts to protect health and the environment in the context of the Europe for Health and the Environment Program. The Government of the Czech Republic has agreed to implement this program in CR. NEHAP represents a strategy for resolving health issues in relation to the environment and its goal is to improve the health of the nation, eliminate undesirable differences in the state of health of individual groups of the population, minimize the risk of the impact of the environment on the health of the population, harmonize the health and the environmental protection policies with the policies of the European Union and react to proposals arising from important recent international activities. This strategic material is based on the general principles of national solidarity and international cooperation, on the principle of sustainable development, on cooperation between individual partners and on the principle of subsidiarity in implementation of NEHAP.

Regional (European) coordination between NEHAPs was the subject of a Conference of Ministers of Health and the Environment in London (1999), based on the Environment and Health Action Plan for Europe (EHAPE). Government Resolution No. 296 of April 7, 1999 approved the Statute of the Council for Health and the Environment, and the composition and program of the work of the Council, which was established by Government Resolution No. 810/1998 Coll. The Minister of Health (Chair of the Council) named the members of the Council from amongst Deputy Ministers on the basis of nominations by the appropriate ministries and the Council began work on July 1, 1999. The establishment and the activities of the Council are very useful in relation to the information provided to Government, submitted pursuant to Government Resolutions No. 810/1998 Coll. and No. 296/1999 Coll. The Council assists in creating conditions for improving the environment and human health. Attention must continue to be focused on the activities of the Council and implementation of tasks and measures following from the Action Plan.

In June 1999, the Minister of Health and Minister of the Environment attended the 3rd Ministerial Conference on the Environment and Health in London. The Government adopted Resolution No. 706 of July 12, 2000 to implement the conclusions of this conference, in which it agreed to the motion for ratification of the Protocol on Water and Health and acknowledged the Charter on Transport, the Environment and Health and the Declaration from this conference. It laid down protection of health and the environment as a priority. Attention will be paid to tasks following from this Government Resolution by the appropriate ministries and the Council for Health and the Environment.

Environmental Requirements in Connection with NEHAP and Cooperation with MH:

· consistently coordinate steps for implementation of both documents (SEP and NEHAP) so that they support and reinforce one another;
· implement Agenda 21 and Health 21 as the initial task for the Council for Health and the Environment;
· in developing strategies and setting objectives for environmental policy, make use of and build upon the results and conclusions obtained in the jurisdiction of the Ministry

of Health, especially in evaluation of the impact of living conditions on the health of the population, in determining and assessing health risks, in monitoring the state of health of the population in relation to the environment and identifying related obligations in protection of public health;
· cooperate with the Ministry of Health in preparation of legislative measures at the level of working drafts;
· support the work of the Council for Health and the Environment in the context of the approved Statute and program of activities and participate in cooperation with other sectors;
· provide for the appropriate measures and cooperate with the Ministry of Health and other sectors in relation to tasks laid down in Resolution of the Government of CR No. 706/2000 in implementing the conclusions of the Third Ministerial Conference on the Environment and Health, including support and assistance in preparation and implementation of local plans for improving the health of the population and the environment.

VI.9 Travel and Tourism

Travel and the related sectors currently contribute 9 - 11% to the GDP and 9 - 10% to overall employment. Foreign currency income from travel corresponded to about 16% in 1997. The number of foreign visitors has tripled since 1990 and attained a total of 107.9 million persons in 1997. The average length of stay equalled 4.2 days in 1997. 80% of tourists visit Prague and large cities, while the remaining 20% visit areas with cultural and natural attractions, i.e. areas that are environmentally very sensitive. It can be expected that the number of visitors will not increase radically; however, the length of tourist stays will probably be longer and the centers of tourist interest will become broader. Thus, it is necessary to provide for planned development of tourism, monitored on the basis of environmental indicators with high information content. Concern for the attractiveness of the landscape should include care for its historical, natural, cultural, aesthetic, biological, social, romantic and symbolic aspects.

Environmental Requirements on Travel and Tourist Policy:

· revise the Policy on Tourism in CR in accordance with the requirements for strategic environmental impact assessment (Ministry of Regional Development in co-operation with ME by 05/2001);
· support development of environmentally sound, ecologically acceptable forms of tourism and provide for monitoring of tourism using environmental indicators;
· support the creation of new jobs through development of appropriate forms of tourism in large, specially protected landscape areas, their vicinity and especially other regions in the framework of the cultural landscape in this country;
· provide conditions for access to the landscape for pedestrians and cyclists through reconstruction and creation of footpaths in connection with land use measures, as an instrument of landscape management;
· support the creation of pedestrian zones in the centers of cities or in historically valuable urban areas;
· promote a green codex for operators of hotels and accommodation facilities;
· through development of the necessary infrastructure, reduce excessive stress on a limited number of tourist areas and diversify centers of tourist interest;
· support the creation of environmentally sound transport systems in all areas of

tourism;
· utilize eco-tourism for environmental education of the public and visitors to the Czech Republic to adopt a responsible approach to protection of the environment;
· include a chapter on protection of the environment in the framework of material to be submitted to the Government of CR in the area of tourism.

VI.10 Regional Development

The transfer of a great deal of the decision-making competence and responsibility from central government to the regions and local governments will provide considerable opportunities for creative activities in the regions, including the area of the environment. A high quality environment can be a source of pride and prestige in the regions, of benefit to the standard of living of the inhabitants of the regions and simultaneously an attractive factor for inflow of capital from tourism and investors. Pursuant to Law No. 129/2000 Coll., on the regions, the regions have independent jurisdiction, amongst other things,
a) in accordance with local expectations and local customs, to care for complex territorial development (including the development of healthy living conditions) - § 14 of the Law,
b) to co-ordinate the development of the territorial area, approve programs of development of the territorial area of the region pursuant to the special laws, provide for their implementation and control their fulfilment - § 35 of the Law.

Law No. 132/2000 Coll. delimits the jurisdiction of the regions (independent and delegated). The Law states for the area of the environment that the region in independent jurisdiction shall prepare the following programs (concepts):
a) a plan for waste management for the region (Part. 46 of the Law on Waste, amendment of Law 125/1997 Coll., on waste as amended),
b) in co-operation with ME, forecasts and plans for a strategy for nature protection in their territorial jurisdiction, except for the territories of national parks and protected landscape areas (Part 49. of the Law, amendment to Act No. 114/1992 Coll., on protection of nature and the landscape, as amended),
c) in co-operation with ME, plans for air protection, taking into account the composition of fuel burned in their territorial jurisdiction that could significantly affect air quality ((Part. 50. of the Law, amendment of Law 389/1991 Coll., on state administration in air protection and payments for air pollution, as amended).

Pursuant to Law No. 248/2000 Coll., on support for regional development, the independent jurisdiction of the regions includes (in connection with § 35 of the Law on regions) approving the program of development of the territorial area of the region, the content of which is delimited in § 9 of the Law. It also follows from this Law that all the central administrative authorities (also ME, Ministry of Regional Development, etc.), within their jurisdiction, shall "analyze the differences between regions and districts and contribute to equalizing differences between the levels of development of the individual territorial units" (§ 11of the Law). In the individual areas of the environment (air, water, forests, integrated prevention, etc.), it is not sufficient to simply transfer the management of these issues to the regions (or MRD), but it is necessary to also actively seek solutions at the level of the central administrative authorities, especially ME.

In the decision-making jurisdiction of the regional administrations (regions), it will be practical and appropriate for them to create their own policy and strategy for protection and improvement of the state of the environment. The regional policy will be a guiding document; this policy should be prepared in relation to the specific conditions in the administered area, taking into account the objectives of the state policy. Practice in the EU emphasizes the regional dimension of implementation of environmental policy in the framework of regional development (Council Directive EC/1260/1999, EC/98/0090, etc.). Equalization of the difference between the regions is based on consistent implementation of the objectives of protection and improvement of the environment through regional guidance documents. The specific conditions in the individual areas necessarily lead to the setting of different priorities, which is allowed for in regional policies. Therefore it is necessary to also prepare guidance for the development of regional policies, preferably in the first phase of the work of the regional authorities. Application of this guidance in the development of regional plans will enable and support sustainable development. Although key issues can be quite different in the individual regions, the manner and form of resolving them should also be based on SEP CR. The priorities of the environmental policy are specified at the level of the NUTS II territorial units, for which the policies are created in relation to the EU. However, the set of measures in programs at this level is concerned only with the main targets and cannot include the whole range of issues. In contrast to the NUTS II units, the responsibility of the regions for the state and trends in the environment is quite specific and requires a complex approach. For example, the regions of Ústí nad Labem and Ostrava are affected most by the consequences of extraction of industrial minerals, energy production and industry. Long-term trends in these regions will be strongly influenced by the remediation of past environmental damage, as well as with consistent protection of existing natural assets. The issue of air quality is most important in Northern Bohemia, the Ostrava area and Prague. The subject of the Prague region is quite different. The area is highly urbanized and maintenance of acceptable conditions in the environment is, and will continue to be, very difficult.

The burden imposed on the environment by large-scale intensive agriculture has affected practically all the regions in the past. This has led to the need for renewal of the environmental functions of many areas. However, this problem is most serious in areas that have favourable conditions for production of foodstuffs and will continue to be intensively used in the future (e.g. the areas along the Labe and the Morava Rivers). Priority issues here include renewal of the systems of ecological stability, including recovery of the water regime. The preservation of natural assets in national parks and protected landscape areas will be of high priority in a number of regions; together with the network of protected areas, these features form the skeleton of ecological stability and will be amongst the most valuable features of the regions. Detailed information on the environment in the regions is published annually in the reports of ME. The regional aspects of the State Environmental Policy will be defined in co-operation with the regions.

Consequent environmental requirements on regional development policy:

It should be pointed out that, in relation to the independent jurisdiction of the regions, terms of reference cannot be imposed through a Government Resolution, but only through a Law, or recommendations, although recommendations may arise from

individuals in the particular regions.

· it is recommended that the regions establish Regional Councils for Sustainable Development in the individual higher regional self-governing units;
· it is recommended that the regions prepare a Regional Policy of the Environment and Health in co-operation with the ministries;
· it is recommended that fulfilment of environmental objectives contained in the regional development strategies be regularly monitored and evaluated (the regions in co-operation with ME and Ministry of Regional Development - from 2001 to 2005);
· in the framework of the material submitted to the Government of CR in the area of regional development policy, programs, subsidy schemes and other economic proposals, it is recommended that a chapter on environment be introduced, which could also contain information on implementation of integrated environmental protection and sustainable development;
· in co-operation with the regions and Ministry of Regional Development, the regional dimension of the State Environmental Policy should be defined (ME).

VI.11 Education

On the basis of Resolution of the Government No. 1048 of October 23, 2000 on the Draft State Program of Environmental Education, Enlightenment and Public Awareness (EEEA) in the Czech Republic and on the basis of inter-ministerial agreements on provision for EEEA between the Ministry of the Environment and the Ministry of Education, Youth and Physical Training (MEYPT), it is necessary to emphasize that a serious aspect of environmental education and enlightenment in the educational system is adequate training of most teachers to properly utilize EEEA in practice.

MEYPT provides guidance and assistance in the provision of courses and workshops for the study of ecology and the environment and the study of the methods of environmental education and enlightenment. Similar to a number of other countries of Europe MEYPT supports complex initiatives for independent schools and organises mutual co-operation in this area. It will be necessary to gradually modernize the educational system in this country by incorporating the model of sustainable development, utilization of regional and local features in the educational content and in teaching methods in schools of all kinds and types. Such reform will need to achieve interconnection between the various components of the subject and create an integrated view of the environment. In order to improve environmental education, enlightenment and public awareness in the educational system, it is recommended that use be made of school environmental projects and of the teaching programs provided by the specialized facilities of NGOs environmental education centers.

Environmental requirements on the educational system;

· incorporate environmental education into all levels of the educational system in CR (MEYPT in co-operation with ME - 2/2001);
· prepare and implement differentiated educational programs for further environmental education of employees of the public administration (Ministry of Interior in co-operation with ME - preparation 12/2001, implementation from 2001 to 2005).

VII ENVIRONMENTAL POLICY INSTRUMENTS

In the framework of implementation of SEP, greater emphasis will be placed on the role of economic approaches and criteria, and greater use will be made of economic instruments in achieving the most important objectives in environmental protection. In choosing measures for environmental protection, consideration will be taken especially of the criterion of minimizing risks (decreasing the risk for human health, decreasing the risk for the natural environment, limitation of undesirable outputs - emissions and waste) and the criterion of minimizing costs (achieving a decrease in risks with minimal costs, achieving maximum risk reduction for the given costs). Auxiliary criteria include economic sustainability, social acceptability, political feasibility, regional and international acceptability and administrative demands. In light of the Czech Republic´s foreign policy priority of achieving accession to the European Union, all measures must be designed so as to lead to gradual harmonization of regulatory, economic, informational and institutional instruments with those of the EU . Similarly, emphasis will be placed on support for environmental education, enlightenment and public awareness.

VII.1 Legal Instruments

The law is one of the most important instruments in environmental policy. Its importance for the creation of the conditions of sustainable development are evident from the role of the law in human society as a set of rules governing behaviour and the relations between individual entities in the society. In general, the law is, to a considerable degree, a reactive instrument, dealing with issues that arise. The law was primarily understood in this way at the beginning of the 90´s. However, the law can act with forethought and can be proactive, i.e. can predict future developments and create the necessary institutions. This role of the law is of great importance in environmental protection and in complying with the requirements of sustainable development.

The current Czech legislation on protection of the environment is composed of a considerable number of legal instruments of one form or another.The list of regulations given below covers the entire area of the environment. However, it is based on the concept of a ministerial approach, which is not well suited to ensuring sustainable development. Components of sustainable development are covered by several groups of legislation, based on the usual categorization of environmental law. The general environmental legislation is contained in horizontal or cross-sectoral legislation, i.e. regulations related to the environment as a whole, rather than to a particular part of component. This category of regulations includes especially:

· Act No. 17/1992 Coll., on the environment, as amended;
· Act No. 244/1992 Coll., on environmental impact assessment, as amended;
· Act No. 123/1998 Coll., on the right to information on the environment, as amended;
· Law No. 50/1976 Coll., on land-use planning and the Construction Code (the Construction Code), as amended.

The second category of laws contains regulations dealing with the protection of the components of the environment, i.e. the air, water and soil. These include:

· Law No. 309/1991 Coll., on protection of the air against pollutants (the Clean Air Law), as amended;
· Law No. 86/1995 Coll., on protection of the ozone layer of the Earth;
· Law No. 138/1973 Coll., on waters (the Water Law), as amended;
· Law No. 58/1998 Coll., on payments for the discharge of waste waters into surface waters;
· Law No. 334/1992 Coll., on protection of the agricultural land fund, as amended.

The third category of laws contains regulations dealing with protection of ecological systems. These include particularly:

· Law No. 114/1992 Coll., on protection of nature and the landscape, as amended;
· Law No. 16/1997 Coll., on conditions for the import and export of endangered species of wild fauna and flora and other measures to protect these species and on amending and supplementing Czech National Council Law No. 114/1992 Coll., on protection of nature and the landscape, as amended;
· Law No 289/1995 Coll., on forests and on amending and supplementing some Laws (the Forest Law), as amended.

The fourth category contains regulations dealing with protection of the environment against some kinds of danger. These are especially the following Laws:

· Act No. 125/1997 Coll., on waste, as amended;
· Law No. 18/1997 Coll., on peaceful use of nuclear energy and ionizing radiation (the Atomic Law) and on amending and supplementing some Laws;
· Act No. 157/1998 Coll., on chemical substances and chemical preparations and on amending and supplementing some other Laws;
· Law No. 147/1996 Coll., on plant protection products and on amending and supplementing some related Laws;
· Law No. 156/1998 Coll., on fertilizers, auxiliary soil substances, auxiliary plant preparations and substrates and on agrochemical testing of agricultural soils (Law on fertilizers).

The fifth category contains regulations dealing with the organizational provisions for environmental protection. They include especially:

· Law No. 389/91 Coll. (as amended by Law No. 212/1994 Coll.), on the state administration in air protection and payments for air pollution, as amended;
· Law No. 130/1974 Coll., on state administration in water management, as amended;
· Law No. 282/1991 Coll., on the Czech Environmental Inspection and its jurisdiction in forest protection;
· Law No. 388/1991 Coll., on the State Environmental Fund of the Czech Republic, as amended.

The basis in constitutional law for environmental protection is provided by Constitutional Law No. 1/1993 Coll., the Constitution of the Czech Republic, and in the Charter of Fundamental Rights and Freedoms, Constitutional Law No. 2/1993 Coll. This brief survey reflects the markedly sectoral character of environmental law, which is a reason for some of the negative features of this young branch of the law.

These negative features primarily result from the lack of integration between the legislation in the individual areas of the environment. The legislation does not take sufficient consideration of the connections between materially related components (areas) of the environment and the legislation often overlaps or there are unjustified differences or gaps.

The basic principles of environmental protection are included non-uniformly or inconsistently in the existing sets of laws (these principles include the precautionary principle, the principle of integrated pollution prevention and control, etc.). These principles would unify the approach in enforcing environmental protection and would enable the environment to be approached as a system of mutually interdependent phenomena. Lack of uniformity is also reflected in the form of a number of institutions and procedures, that are common for the entire area of the environment. This fact frequently complicates the course of the administrative process. Examples include various kinds of permits, viewpoints and standpoints, which take different forms depending on the legislation governing the individual components of environmental protection, which in turn leads to a state of legal uncertainty. The non-uniform nature of the legislation and the number of regulations that must be applied in each specific case also complicate interpretation of the regulations on environmental protection, not only amongst the general public, but also amongst professionals. This fact also contributes to a loss of legal certainty. One of the consequences of these basic inadequacies in the existing Czech environmental legislation is that environmental law lacks a uniform concept, which is necessary for an effective system. This is a problem that has arisen in this area over a number of years, since new laws began to be adopted on environmental protection at the beginning of the 90´s. It was not resolved by the adoption of Law No. 17/1992 Coll., on the environment. Originally this Law was intended to ensure uniformity of the entire environmental protection legislation, especially through the introduction of basic concepts, principles and obligations. However, it did not fulfill this role, as it has the same level of legal force as all the other laws in this area; the legislators have not decided on a uniform, coordinated approach.

One of the important problems associated with the Czech environmental legislation is its orientation mainly towards environmental protection. Czech law does not yet adequately incorporate the requirements of sustainable development. However, this is not an aspect of the legislation alone, but also of the basic values and the driving forces of the economy. Only by addressing such matters can the law act as a regulator of social relations leading to sustainable development. In this context, new instruments and institutions are being developed to satisfy the requirements of the concept of sustainable development, such as the broadest possible public participation in decision-making processes involving environmental protection, and the incorporation of environmental requirements into the policies and decisions of other sectors. EC legislation contains, for example, the concept of integrated pollution prevention and control (IPPC) and the overall democratization of environmental policy and environmental law is reflected in the right to free access to information on the environment, the introduction of the process of environmental impact assessment, increasing public participation in decision-making in environmental issues, and ecomanagement and audit schemes. These are new instruments in the EC environmental legislation, although they have been commonly used in a number of member countries for some time. However, it is clear that this trend will continue in

Community legislation. For example, a Directive on environmental impact assessment for plans and programs is being prepared; this is not yet as common in member states.

New institutions and instruments reflecting the concepts of sustainable development are not only appearing in EC environmental legislation but are also included in the latest developments in international environmental law. Perhaps the most important of these is the Aarhus Convention (the Convention on Access to Information, Public Participation in Decision-Making and Access to Justice in Environmental Matters). This Convention belongs to an entirely new generation of international conventions and extends beyond current EC requirements on environmental law. It will thus require some modifications in Community law. It follows from the nature of the EC and Acquis Communautaire that the EC does not require a certain form of legislation from its member states. It is important only that the individual obligations following from Community law become part of internal national law and that they have a generally binding character. The EC is concerned that Community law be properly enforced. This means that internal legislation must be reasonable, transparent, comprehensible and applicable, to enable its effective enforcement. Summarizing what was stated above, the Czech legislation should first encompass the following aspects:

a) elimination of the inconsistent and the uncoordinated nature of legislation on environmental protection;
b) creation of a system of environmental protection law based on uniform concepts and principles, which will be reasonably interconnected with the other areas of the legislation (especially with land-use planning, civil law and criminal law);
c) modify institutions and instruments so as to reflect the requirements of sustainable development, including integration of environmental requirements into the policies of the other sectors;
d) provide for an effective system of enforcement of environmental law and a rational system of bodies that will provide for this enforcement, including court bodies.

These requirements apply both to the present legislation and also to newly proposed regulations, including those transposing Acquis Communautaire into Czech legislation.

Tasks of legal instruments after the year 2000

The importance of legal instruments is increased as a result of the intention of the Czech Republic to accede to the EU. The extent of current legislative work largely results from the need to ensure full compatibility of environmental legislation in the Czech Republic with the most important legislation of the European Community. After 2000 it is necessary to regulate a number of the areas of the environment through new legislation. The following steps will be involved:

Short-Term Legal Measures (to the year 2001):

· adopt an amendment to the Geology Laws in an attempt to improve the process of geological prospecting and increase public participation in decision-making in this area;
· prepare amendments to the legislation on protection of nature and the landscape to

bring it into line with EC legislation;
· in the area of waste, complete preparation of the new legislation that will be fully compatible with the EC regulations and that will eliminate serious inadequacies in the current legislation, especially in the part dealing with management of hazardous waste, and for selected kinds of hazardous waste (waste oil, batteries, accumulators, PCBs);
· in the area of air protection, adopt new legislation that will be fully compatible with the relevant EC Directives, and will especially harmonize emission and air quality limits, amend the provisions governing smog control, create action plans and programs to improve air quality and introduce the necessary information systems;
· adopt a new law on protection of the soil as a component of the environment with the purpose of ensuring its preservation;
· adopt a new law on packaging, that will be fully compatible with the EC legislation;
· prepare new land-use planning legislation (ME in co-operation with Ministry of Regional Development);
· in accordance with Directive No. 96/82/EC (SEVESO II) and on the basis of new legislation, implement mechanisms for prevention of accidents in enterprises where hazardous chemical substances are stored.

Medium-Term Legal Measures (to the year 2003):

· by the year 2003, prepare for and implement Directive 96/61 EC (IPPC) on Integrated Pollution Prevention and Control for new facilities; from 2007 this will also be applied to existing facilities unless an individual transition period is agreed on;
· prepare a new Law on chemical substances and chemical preparations that will be fully compatible with the relevant EC regulations;
· on the basis of analysis of mining laws and related legislation in the individual EU countries, propose amendments to Czech legislation in order to achieve the level of control and administrative procedures comparable with those in the EU countries and reinforce the incorporation of environmental supervision over mining;
· prepare modern legislation in the form of an Environmental Code, which will integrate the various features and institutions of the regulations pertaining to the environment through the application of basic unifying concepts, economic instruments and sanctions in accordance with environmental protection requirements;
· carry out other tasks following from the National Program for the Preparation for Membership of CR in the EU (Chapter on the Environment).

Long -Term Legal Measures:

· analyse and improve the effectiveness of codes of the component legislation, in the areas of land-use planning, soil protection, mining law, water and forests, etc.

VII.2 Economic Instruments

Following the recommendation of the European Commission, economic instruments will be used to a much greater degree to achieve the aims of SEP. The conditions necessary to achieve these objectives will be created on the basis of new policies on the application of economic instruments, which will be prepared pursuant to SEP CR. Specific economic instruments will be introduced over various time periods, in light of the priority objectives of SEP CR. Direct (subsidies, loans or their combinations)

and indirect (guarantees for credit, contributions towards partial payment of interest on credit) financial assistance provided in the framework of the Financial Strategy of the State Environmental Fund of the Czech Republic (SEF CR) constitute important economic instruments. The strategy prepared for the period 2000 to 2005 is codified by SEP CR as a uniform environmental fund integrating support for financing important areas of the environment.

Short -Term Objectives and Measures:

· prepare a draft policy for the application of economic instruments as a strategic document that will form a starting point for new approaches to the use of economic instruments;
· prepare a draft environmental financial policy, to include a new concept and policy for SEF CR and a strategy for use of foreign financial resources;
· prepare and implement a strategy of financing for reclaimation of old environmental damage;
· prepare and implement a strategy for financing a State Program of environmental education, enlightenment and awareness in CR;
· prepare a new system of payments for air pollution, where the current number of pollutants for which fees are charged will be reduced, the fee rates will be increased and new fee rates (e.g. for emissions of nitrogen oxides, heavy metals and persistent compounds) will be set sufficiently highly to act as an incentive;
· prepare and update a policy for utilization of EU structural funds in the environment, the ISPA pre-accession funds and the Cohesion funds and provide for preparation of the relevant projects;
· directly and indirectly promote energy efficiency and the use of renewable energy sources;
· promote the application of cleaner production techniques;
· prepare a proposal for creation of other, less traditional financial resources for environmental protection;
· in accordance with EU procedures, assess and re-evaluate current forms of environmental tax relief;
· propose and implement a system for directly and indirectly returning waste and packaging for re-use or disposal;
· implement proposals for the introduction of municipal taxes, amongst other things to support and protect the environment and achieve the objectives of SEP (e.g. a municipal tax on waste, a municipal tax on furnaces and stoves burning solid fossil fuels);
· in relation to the new Water Law, prepare a proposal for an environmental component of fees for use of surface and ground waters;
· regularly carry out economic analysis of the objectives and measures of SEP CR and quantify overall costs necessary for securing them; simultaneously, carry out assessment of the realistic nature and feasibility of achieving these objectives;
· develop a model for assessment (evaluation)of the impacts of legislative and economic measures.

Medium -Term Measures:

· re-evaluate and modify the overall structure of the current system of payments for pollution and exploitation of the environment, with unification of the entire system

and simplification of administrative procedures connected with imposing, paying and collecting fees;
· prepare a proposal for introduction of environmental tax reform (including environmental protection taxes - especially taxes on fuel and energy), in order to eliminate price distortions and indirect subsidies, and mirror the approach in the EU countries. At the same time, propose compensation through a decrease in other forms of taxation so that the overall tax burden does not increase;
· create and implement a program for systematic economic incentives for mixed bio-diesel fuel as a product partly from domestic renewable natural resources (ME in cooperation with Ministry of Finance, Ministry of Agriculture and Ministry of Transport and Telecommunications - program 2001, implementation from 2002);
· in connection with air pollution fees, prepare a proposal for a gradual transition from payment of fees for emission of atmospheric pollutants to payments for fuel consumption (this transition must be co-ordinated with the preparation of the environmental tax reforms referred to above);
· introduce tax relief or other economic instruments to provide benefits for enterprises that allocate part of their cash flow to environmental protection, recycling or reprocessing of waste as secondary raw material;
· introduce a new system of economic instruments in the sphere of raw material mining;
· prepare a proposal for the introduction of production fees - especially for solvents, protective chemical substances, artificial fertilizers, detergents and persistent biocides;
· in connection with the new legislation, prepare a legislative regime for payments for noise creation (especially from air transport);
· prepare an appraisal of the externalities connected with exploitation of nature as the basis for proposing a fee system for such exploitation;
· prepare a system for evaluation of the environment and the non-productive function of its components, including a proposal for the practical application of this system;
· prepare a proposal for introduction of further forms of municipal taxation to support environmental protection;
· evaluate foreign experience in the use of tradable emission permits at a national and international level and, subject tothe creation of a stable market environment, prepare a scheme for their possible introduction;
· reinforce the role of positive economic incentives in relation to cleaner production, renewable sources of energy, energy efficiency and production or consumption of environmentally friendly products;
· carry out detailed economic analysis and quantification of the overall costs of the individual medium-term measures necessary for implementation of the key objectives of SEP.

VII.3 Voluntary Environmental Instruments

In industrially developed countries, environmental protection is of the same importance to companies as finances, taxes, personnel and other issues that are a traditional part of the management process. This is a result of a fundamental change in the approach of society to prolonged and complex problems: the low effectiveness of sanctions and associated penalties imposed on producers has gradually led to a preference for voluntary preventative measures that, through the application of a systematic approach, have a fundamental impact on any company activity affecting the environment. The creative response of enterprises to environmental protection

requirements set out in the form of systematic rules, has a marked preventative character. This approach signifies a significant change from the current role of most companies as polluters who simply comply with the requirements of the state. Under these circumstances it often happens that particular problems are simply transferred from one component of the environment to another, at a disproportionately high cost. Using the new approach an increase in both efficiency and environmental performance can be achieved as a result of careful mapping and management of non-productive business areas. In an environment of increasing pressure from the public, a company with an interest in further development gains an advantage in declaring its own preventative approach to environmental protection. This new approach is implemented through soft or voluntary instruments for environmental protection. It is necessary to adopt a systematic approach that better takes into account the economic context.

In implementing the preventative principle in environmental protection and support for the export policy of CR, it is necessary to constantly monitor and provide for a legal and administrative framework (approaches and methods) for application of voluntary instruments in domestic practice (in addition to eco-labelling, cleaner production, EMS/EMAS and eco-design, LCA - life cycle assessment, retail – creation of wholesale and retail networks for preferential purchase and sale of environmentally friendly products, etc.), in an attempt to facilitate access to international markets by domestic producers.

Short- and Medium-Term Measures:

· undertake an analysis of new instruments for product oriented policies used by businesses in developed countries
a) instruments falling within the competence of the company (life-cycle assessment, cleaner production and eco-design, environmental impact assessment, environmental statement of the company, environmental policy of the enterprise),
b) specifically targeted instruments (e.g. responsible business in chemistry),
c) instruments requiring support from external conditions (eco-labelling and other types of environmental labelling according to ISO standards, voluntary agreements, retail, environmental insurance, etc.);

· in connection with the activities of OECD and the EU, prepare other soft instruments to improve the quality of the environment and to support a pro-export policy for Czech producers;
· promote the implementation of new instruments in business practice by creation of a legislative and administrative framework for their use.

VII.4 Information

Access to information is the subject of Law No.123/1998 Coll., on the right to environmental information. The Law came into force on July 1, 1998 and is fully compatible with Directive No. 90/313/EEC. The Law constitutes a completely new approach in Czech legislation. On the basis of practical experience in the functioning of the Law and following ratification of the Convention on Access to Information, Public Participation in Decision-Making and Access to Justice in Environmental Matters (the Aarhus Convention), steps will probably be taken to amend the Law. The

adoption of Law No. 106/1999 Coll., on free access to information is also of great importance for the public. 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, as amended, the Ministry of the Environment provides for and manages the uniform environmental information system, including extensive monitoring over the entire territory of the Czech Republic, and in relation to international agreements.

At the present time, the uniform environmental information system is being converted to an Integrated Environmental Information System (IEIS), which is intended to provide a full range of environmental information from basic information on the sector through to complex information covering not only environmental data but also derived information. IEIS will simplify and accelerate access to environmental information for all users. The succes of IEIS will depend on the participation of all IEIS entities, including the public. The provision of consistent, relevant and pertinent information to the public on the state of the environment, together with information on the functioning and financing of the state administration, is the basic objective for the creation of IEIS, and this objective has thus been incorporated into Law No. 123/1998 Coll., on the right to information on the environment, and Law No. 106/1999 Coll., on free access to information.

The main sources and processors of data and information for IEIS are the sectoral organisations responsible for the component information systems required to provide data under the relevant legal regulations and to satsify the requirements of authorized recipients. The system also utilizes data and information from other sectors, from international cooperation and from research projects. Recipients of IEIS include the participants in the decision-making process at ME. At the present time, a feedback system is being created for better identification of their information needs. Other recipients include the authorities and organizations of the state administration and local governments, schools, NGOs, and private entities. Recently, there has been an increase in the extent of data and information provided to organisations outside the Czech Republic (reporting for EU, EEA, Eurostat, OECD, GEF, UNEP, ...) and particulary for the corresponding information systems and networks (e.g. EIONET). The public is of one of the most important recipients of IEIS, as it is intended to extend the positive effect of individuals and the business sphere on the execution of state administration.

The means and services needed to provide for the functioning of IEIS are comprised of the network connecting most of the sectoral organizations, which was created to facilitate exchange of data and information. In this way, effective and economically advantageous connection of all the sectoral organizations to the Internet and public administration information systems is ensured. The Environmental gateway contains administrative and professional information in the area of the environment, including on-line access to databases and info-bases.

Establishing a hierarchy, classification and indexing of information ensures significant simplification of the search for relevant information. The information and data clearing-house is the main mechanism of national and international exchange of data and information to support and facilitate technical and scientific co-operation in the environment. This decentralized and need-oriented mechanism provides access to

environmental data and information based on the principle of equal sharing of benefits from access to sources. Knowledge of the system permits combination and organization of data on mechanisms and processes, information, accessible sources, places and people, so as to detect trends and developments that cannot be identified through other means. The meta-information system contains information on the data available in each of the systems in the responsibility of the providers. There is also an indicator system provides environmental indicators for the EEA Reporting Obligation Database (ROD) and serves as a basis for annual publishing of objective and timely Environmental Yearbooks and Reports on the State of the Environment.

Public Information Services in Libraries Czech National Council Law No. 173/1989 Coll. required the ME to create an environmental information system, of which the public information services in libraries (PISL) are an integral part. The work of these services is based on a program arising from Resolution of the Government of CR No. 338 of December 12, 1990 (the Rainbow Program), laying down the strategy of the Ministry of the Environment (ME) in this area. On the basis of Resolution of the Government of CR No. 208/1991, the "Situation report on the state, provision for and concept of PISL in the sector" was prepared, and pursuant to Resolution of the Government of CR No. 357/1992, the "Report on provision for continuity or means of liquidation of PIS within the jurisdiction of ME CR", was also prepared. The public information services in libraries provides access for the public to selected information areas. PISL includes services provided to the professional and general public by public general, professional and other specialized libraries, information centers and other processing or mediating workplaces. These services extend from standard library services through bibliographic research, documentary research and reference services to special services related to the EU agenda.

The public information services in the sector constitute a complex information resource for users in all categories, by providing access to primary information sources (Czech and foreign periodicals, special monographs and special information sources in the area of the environment), as well as secondary information sources (bibliographic, documentographic, reference and specialized databases concerned with the environment), and through provision of information services and consultations assists in dealing with specific user questions and in preparation of summary materials in this area. This service is supplemented by the publication of printed outputs and presentation of information on the web page of ME. Special information services include information support in the framework of the negotiation process for CR with the EU in the area of the environment. In the framework of these activities, tasks connected with administration of the ISAP (Information system for approximation of law) database are carried out along with co-ordination and review of translations of technical and legal regulations of the European Communities (Resolution of the Government No.163/1999 of February 3, 1999).

Co-operation in the area of PISL is co-ordinated by the "Consulting body for public information systems in the sector" and its "Working groups for acquisition and information services and automated documentary systems". The editing council and the newly formed Working group for the publication process on electronic media – the Internet, co-ordinate promotional and multimedia publication activities. The formation of these working teams unified the interest of the individual, mostly specialized information centers and libraries of the sector in activities in this area.

Provision of an open system including conventionally published and unpublished information on the environment, through public information services and libraries is a priority of all the information providers. This system is created in accordance with principles which fully respect the information activities of parent organizations and take into account the interests of various groups of users. It also includes connection to information systems in the area of the environment outside the direct control of the Ministry of Environment.

Recently several key documents have been approved, which will lead to important changes in the implementation of ME strategy in the area of PISL. It is important that the plan for development of PISL be in accordance with implementation of plans set forth in the State Information Policy (Resolution of the Government of CR No. 525/1999 of May 31, 1999) and with the program under preparation for the State Information Policy for the area of public information services, i.e. the development of information networks for public libraries, etc.

Consistent dissemination of information on the environment and its protection must also be ensured by the other instruments directly affecting the environmental consciousness of the public (media with national, regional and local impact, municipal information centers and enlightenment and special-purpose facilities and the facilities of NGOs).

Current objectives and measures:

· complete the development of an integrated environmental information system taking into account the standards of the European Environmental Agency;
· transform the Register of Environmental Air Pollution Sources (RESAP - REZZO) pursuant to EU requirements;
· promote the system for labelling environmentally friendly products and ensure its compatibility with similar systems in the countries of the European Union (on-going) and concentrate on products in everyday use;
· complete the sectoral network and connect all subordinate organizations, ensure connection to the public administration information system;
· complete an indicator system and ensure its full utilization and development;
· create a data clearing house and prepare a methodical base for dissemination of this information;
· ensure fulfilment of the provisions of § 5 of Law No.106/1999 Coll. and the provisions of Law No.123/1999 Coll.;
· support the education of business people in the sphere of environmental management systems and the use of environmentally sound, cleaner technologies (on-going);
· in the framework of harmonization with the EU and OECD, improve the system of environmental statistics and environmental accounting;
· introduce a uniform system of environmental risk management.;
· develop a network of public information systems and libraries in the sector particularly in light of the reorganization of public administration;
· ensure support of ME in implementation of Law No. 123/1998 Coll., on the right to information on the environment, and Law No. 106/1999 Coll., on free access to information;
· develop the publication process in public information systems of libraries on the ME

internet site;
· include the full texts of reviewed translations of regulations of the European Communities on the ME internet site;
· create a database of English translations of Czech environmental legislation and include it in the ME internet site.

Medium-term objectives and measures:

· completion of IEIS to provide a uniform mechanism for collection of data and information for decision-making processes, the public and external entities;
· consolidate the outputs and mechanisms of information systems in the sector with the requirements of EEA;
· develop the feedback mechanism for the IEIS system;
· ensure openness of the sectoral information systems to promote decentralized access to information;
· create an environmental gateway containing information from all entities concerned with the environment in CR;
· harmonize all the sectoral information systems so that they are capable of uniform automated exchange of data on a question-answer basis and provide relevant data for the central database and information clearing house so that user access is established on the basis of central address services, thereby facilitating transition to the EU standards.

VII.5 Instruments of Education, Enlightenment and Public Awareness

Environmental education, enlightenment and public awareness (EEEA) is a multidisciplinary field implementing the right to information and education in the area of the environment. It can influence not only consumers and producers, but also future trends in sectoral policies. EEEA is effective in influencing the value judgements made at a personal, social, and consumer level and of influencing other behaviours of individuals. In this way EEEA is one of the crucial factors in determining the state of the environment, nature, the landscape and natural resources, and has marked economic consequences.

EEEA has a positive effect on the creation of public pressure on politicians, legislators, the media and producers. The greatest impact is through the gradual introduction of teaching of environmental protection in schools at all levels, through qualified active environmentally concerned NGOs and in the voluntary activities of the media, cultural and business spheres.

ME has prepared a draft Concept of enlightenment, education and public awareness in the environmental sector (hereinafter the EEEA Concept) and an EEEA Supplementary Program as an instrument of SEP. These documents had constituted a basis for preparation of the State Program of environmental education, enlightenment and awareness in CR (SP EEEA CR), which the Government approved in the Resolution of October 23, 2000, No. 1048. These policies reflect the complex relationship between people and the principles of sustainable development. Emphasis is placed on Local Agenda 21 and compliance with the Aarhus Convention. In current practice, individual elements of environmental education, enlightenment and awareness are implemented quite broadly and supported by the state either directly or

indirectly. However, there is no comprehensive system and no legislative or institutional support. Thus, SEP should lead to the creation and use of an interconnected system of environmental education, enlightenment and awareness implemented in all the sectors, including state, public, private and civic institutions and organizations and utilizing the relationships between them on the basis of democratic principles whilst recognising regional differences, potentials and needs. It must utilize experience in this country and in other countries, especially the EU, but must be adjusted to conditions in this country. In relation to preparation of CR for accession to the EU, it must consistently support the protection and enlightenment activities of NGOs and constantly facilitate these activities, amongst other things through economic and legislative instruments.

Current objectives and measures:

· implement SP EEEA CR and ensure its coordination with other programs;
· take the objectives of SP EEEA CR into account in the relevant legislation;
· provide support for environmental education, enlightenment and awareness at all levels of schools and in the mass media;
· promote environmental education, enlightenment and awareness amongst the employees of the public administration in the framework of differentiated educational programs;
· promote environmental education, enlightenment and awareness in the business sphere;
· promote environmental education, enlightenment and awareness in NGOs.

VII.6 Institutional Instruments

In connection with the new regional structure and the need to harmonize Czech environmental legislation, it will be necessary to restructure the existing system of state administration, and to greatly improve its performance in implementation of legislation, inspection and enforcement of compliance. In order to implement the newly prepared legislation and that which is being introduced gradually in areas not currently regulated (accident prevention and emergency response, live modified organisms, integrated pollution prevention and control) and as a result of the harmonization of the entire current Czech environmental legislation with the legislation of the European Communities, it will be necessary to restructure and extend the current state administrative system (the Ministry of the Environment, the Czech Environmental Inspection, administrations of Protected Landscape Areas and National Parks, District Authorities). This restructuring will need to include agency-type subsidiary ME institutions (as the new legislation comes into effect) and will need to reflect the the new territorial and administrative organization of the state.

Expert support is currently provided by the Czech Environmental Inspection, the Czech Environmental Institute, the Czech Institute of Geology, the Czech Hydrometeorological Institute, the Agency for Protection of Nature and the Landscape of CR, the Administrations of Protected Landscape Areas of CR, the Silva Tarouca Research Institute for the Landscape and Horticulture, and the T.G.M. Water Management Research Institute and Geofond. The coordinating and integrating role of ME is not supported by an appropriate expert base at the present time. Thus, it is necessary to strengthen the Czech Environmental Institute and improve coordination

between the institutes that deal with specific components of the environment in relation to the later establishment of an Environmental Agency of the Czech Republic after evaluating the functioning of the regions.

The State Environmental Fund of CR is a very important institutional instrument in SEP; this fund was established in accordance with the provisions of Law No. 388/1991 Coll., as amended by Law No. 334/1992 Coll. This state financial institution provides crucial support for the environmental investments of municipal and other entities. The provision of financial means from SEF CR is governed by an ME Directive and its Annexes. Support is directed towards the following areas:

Water protection:
· Program - Medium-sized sources;
· Program - Protection of drinking water sources;
· Program - Industrial sources;
· Program - Extension and intensification of existing municipal waste water treatment plants;
· Program - Extension of sewer systems;
· Program - Provision for disposal of municipal waste waters using existing waste water treatment plants.

Air protection:
· Program to decrease the main pollutants and protect the climate of the Earth with emphasis on energy-savings:
a) Program to decrease emissions of substances polluting the air from small and medium-sized sources of air pollution operated for the purpose of public benefit activities,
b) Program to decrease emissions of substances polluting the air at the source,
c) Program for use of cogeneration units,
d) Program for development of the infrastructure in small municipalities.
· Program to comply with the Protocol to the UNECE CLRTAP concerning the Control of Emissions of Volatile Organic Compounds or their Transboundary Fluxes:
e) Program to decrease emissions of volatile organic compounds;
· Program to comply with the Montreal Protocol on substances depleting the ozone layer of the Earth:
f) Program to protect the ozone layer of the Earth;
· Program to achieve air quality in relation to the EU requirements:
g) Program to decrease emissions and air pollution in the regions,
h) Program to prepare concepts to decrease emissions and air pollution levels,
i) Program of implementation of concepts to decrease emissions and air pollution levels.

Care for the natural environment, protection and exploitation of natural resources:

· Program of care for the natural environment:
a) Basic features of territorial systems of ecological stability in the landscape,
b) Recovery of important landscape features, protection of monumental trees, recovery of important and monumental protected parks and gardens,
c) Environmentally sound forest management,
d) Care for tree stands and areas in national parks, their protective zones and protected

landscape areas,
e) Establishing and implementing plans of care for specially protected areas in the categories of national nature reserves, national natural monuments, nature reserves and natural monuments,
f) Purchase of properties in specially protected areas,
g) Rescue program for specially protected species of flora and fauna,
h) Contributions to compensation for demonstrated damage to properties of agricultural and forest management pursuant to Law No. 114/1992 Coll., Law No. 334/1992 Coll. and Law No. 289/1995 Coll.;
· Program to secure or liquidate old mining works with methane emissions.

Waste management:

· Program of support for decontamination and reclaimation of old landfills;
· Program to promote the re-use and safe disposal of wastes;
· Program to prepare a concept of waste management;
· Technology and production;
· The best available technology program (BAT);
· Program to introduce eco-management and audit schemes (the EMAS program);
· Program to support the construction of the infrastructure for environmentally sound urban mass transport;
· Support for selected coal mining areas in North Western Bohemia affected by previous coal mining;
· Liquidation of illegal landfills within the cadasters of municipalities;
· Creation of waste collection centers and technical facilities for waste separation and recycling;
· Cleaning of water courses, modification and consolidation of river banks;
· Care for greenery;
· Planting and protection of trees in forests owned by municipalities.

A new feature of the updated SEP CR is implementation of the principle of sustainable development, i.e. harmonization of economic, environmental and social aspects of development of society as a whole and each individual development program. The utilization of the landscape and use of natural resources and protection of areas - ever more precious resources - is a condition for the sustainable lives of individuals, municipalities and society as a whole.

Concept of an Institutional Arrangement

Concept of co-operation with the Parliament of CR

Both Chambers of the Parliament of CR deliberate and approve the Report on the State of the Environment, SEP CR, the sectoral policies of the individual ministries and strategic plans (the strategy of sustainable development).

The professional demands for decision-making in relation to measures, concepts and laws to ensure a transition to sustainability will require more extensive utilization of professional institutions.

The Chamber of Deputies and the Senate should assess measures, concepts and laws

as issues requiring qualified deliberation. In relation to the current neglect of the role of science, it would be useful to create a systematic connection to scientific and professional institutions in both chambers of Parliament. The need to take into account different components, i.e. economic, social and environmental, the balancing of which is the only possible approach to achieving sustainable development, will require the participation of the representatives of the main economic activities, i.e. industrial federations, organizations of farmers, forestry, transport and services. Consideration of social interests should be ensured by the inclusion of representatives of trade unions and other civil groups. All these issues have an ethical dimension and are related to the preservation of cultural identity.

The means of creating this system must be deliberated so that proportional representation will be ensured for a range of the most important non-political organisations federations and associations. The adoption or rejection of measures, concepts and laws by the Parliament should be extensively published so that it is clear to the public how professional, environmental, economic and social interests are reflected in the decisions adopted by both chambers.

The Government

The Government, in accordance with the recommendations contained in Agenda 21, should use the Council for Sustainable Development as a consultative body (hereinafter Council). The jurisdiction of the Council should include deliberation of the National Strategy of Sustainable Development and other strategic programs and concepts, including SEP. It should consider the principles of integration and adequate incorporation of the criteria of environmental protection into Government policy. Specifically, the Council should deliberate complex developmental strategies in the areas of energy, mining, transport, industry, agriculture, forest and water management, waste management and tourism.

The Government Council for Social and Economic Strategy already fulfils this function to a certain degree; the Minister of the Environment is a member of this Council. All three pillars of sustainable development are represented in the Council. It would better reflect its interest in sustainable development if its name were changed.

The Ministries

In accordance with Agenda 21, the individual Ministries should, in the framework of their competences, monitor the 135 indicators of sustainable development that were adopted by the UN Commission for Sustainable Development (CSD). Every Ministry or other central administrative authority is to create suitable conditions for the effective inclusion of the aspects of environmental protection and sustainable development in the framework of its activities. It will be necessary to assess the preparation of concepts, programs or important substantive decisions (including laws under preparation) from the standpoint of environmental protection and sustainable development. The Ministries should also provide for more frequent education of their employees in the area of sustainable development and the environment, which will become a more integral part of all activities.

Strategic planning

The concept of sustainable development will require planning and quantification (especially environmental indicators, calculation of ecological traces and

environmental space). Co-ordination of work should be undertaken by special institutions for strategic planning of a non-administrative character, which would work on the creation of documents for meetings of the Government and Parliament. Its materials would be deliberated by the Council for Sustainable Development (the renamed and slightly modified existing Council for Social and Economic Strategy) prior to submission to the Government and Parliament. In preparation of these documents it will be of basic importance to recognise the limitations in available resources (energy, foodstuffs, water, raw materials) and to search for substitute approaches or resources, and, where appropriate, to point out the necessity to reduce consumption of limited resources and the corresponding economic and social consequences.

This activity should also include proposals for redistribution of limited resources, without disturbing the essential functioning of the market economy. Similarly, it will be necessary to define the limits of sustainability in the consumption of environmental resources in specific areas (pollution, production of wastes, especially hazardous wastes, protection of biodiversity, space, etc.). Although the basic idea of a specific environmental space can be applied, it is apparent that the size of this space will change in accordance with development of society. Nonetheless, it will be necessary to establish at least programs designed to attain or maintain the limits of this space within a period of a few years.

After deliberation of these documents by the Government, the Parliament should also express an opinion. As the documents will affect other institutions including regional bodies, municipalities, councils for sustainable development, Local Agenda 21 committees and NGOs, they should also participate in deliberation of the relevant programs.

The Ministry of the Environment

The system of state administration for environmental protection must be reformed as part of the implementation of Acquis Communautaire and especially in respect of regulations of a horizontal nature which are a very important aspect of environmental protection. It will be necessary to closely consider the potential benefits of creating an effective state authority for environmental protection such as an Environmental Agency in line with the model which has been adopted in many developed countries. An Agency of this type could play a positive role in providing professional advice to regional authorities in areas of difficult technical decision-making, such as those which will arise from the prepared Law on integrated pollution prevention and control and the integrated pollution register (IPPC and IPR), the Law on prevention of industrial accidents, obligations following from the Law on chemical substances and preparations, management of hazardous and especially hazardous wastes and air protection in relation to large pollution sources, which is within the competence of ME. In the first instance it would be necessary to devolve some of the decision-making powers of the Ministry and ensure the principle of objectivity of administrative decisions. The Agency would also constitute a professional base for environmental matters in the newly formed regional, district and local authorities and local governments.

The Environmental Agency, in co-operation with professional and scientific institutions, would provide for overall monitoring of the state of the environment. It

would also provide for communication with the European Environmental Agency. It should consist of a central office and regional workplaces, which would reflect the structure of the central office, as in the Czech Environmental Inspection. It would be headed by a Director appointed by the Minister of the Environment.

The relatively independent Czech Environmental Inspection (CEI) is an important institutional instrument in implementation of environmental law in practice.

Regional and local public administration
In connection with the reform of the public administration, competence will be transferred from the existing District Authorities to the new Regional Authorities and to some authorized District Authorities.

Special emphasis must be placed on the creation of programs to reflect the recommendations of Agenda 21. Especially at a local level, it is necessary that the programs apply not only to urban areas, but also include the broader surroundings, from which various resources are drawn (water, foodstuffs, etc.) and where wastes are deposited. Attempts should be made to maximize reliance on the local area and limit dependence on external input of resources.

At the level of the regions, however, it will be necessary to define a similar framework for sustainable development as at the national level. The municipalities will have to respect this framework in the creation of programs for Local Agenda 21. At this stage, it is not possible to designate a body that would provide this framework for the creation of a program for regional and local Agendas 21, either at the regional level or at the municipal level. In the regions and statutory cities, it would appear that special units will need to be established or these tasks will need to be transferred to a commission for sustainable development. In the other municipalities with the status of cities, this function could be carried out by the environmental sections in their administrations in co-operation with the commissions for sustainable development. If local Agendas 21 are to created by smaller municipalities, this will need to occur in co-operation with the authorized municipalities.

The following provisions of **Law No. 128/2000 Coll., on municipalities**, are particularly relevant for the establishment of institutional relationships for the achievement of sustainability:
· § 46, according to which municipalities may co-operate in exercising their independent competence. In paragraph 2 of this provision, letter b) is important, in accordance with which municipalities may form federations of municipalities;
· in this connection, § 50 especially emphasizes that the sphere of activities of a federation of municipalities may include protection of the environment and also a number of other important issues, including management of municipal wastes, water supplies and collection and treatment of waste waters. This narrow approach does not exclude, but rather presumes the creation of programs of sustainability with a broader framework and scope. Consequently, it also does not exclude the implementation of Local Agenda 21 for the entire federation of municipalities;
· § 55 permits co-operation with municipalities in other countries, which is of special importance in relation to the creation of Euroregions and co-operation in this framework.

The postulates of sustainability are provided for particularly by the competence afforded to local representatives in municipalities pursuant to § 84 par. 2 letter a), according to which local representatives are to approve a program of sustainable land-use development in the municipality, and letter b) of the Law, according to which the local representatives are to approve the land-use plan and regulation plan and promulgate their binding parts in a generally binding edict. Pursuant to the provisions of § 84 par. 2, letter j), the local representatives are to announce a local referendum.

This legal framework provides sufficient scope in the application of competences to allow the establishment of relationships to promote sustainability and, as appropriate, for the creation of local sustainability programs. A number of the provisions of Law No. 129/2000 Coll., on the regions, create a framework that can be utilized in the interest of the principles of sustainability:
· § 35 par. 2 - the local representatives shall co-ordinate development in the territorial area, approve programs of development of the territorial area of the region (letter d)), approve land-use planning documents for the territory of the region (letter e)), establish the extent of basic transport services for the territory of the region (letter g)), and make decisions on co-operation of the region with other regions and on international co-operation (letter h));
· § 24 par. 1 - the regions may co-operate in executing their independent competence;
· § 28 - the regions may also co-operate with the territorial self-governing units of other countries and especially enter into regional groups with foreign partners. The content of this co-operation may consist only in activities falling within the independent competence of the regions. This creates full preconditions for co-operation in the framework of Euroregions and for programs of sustainable development established on this basis.

The Courts

The development of a legal framework for sustainable development also leads to the need to reform the system of administrative justice. The current system of administrative justice has not been found to be effective and it is necessary for the administrative courts or administrative tribunals to act with full jurisdiction. It is apparent that administrative justice will be faced with two important tasks. The first will be decision-making on the basis of the valid laws, and on appeals against decisions by the administrative authorities. Without regard to the number of benches and their possible specialization, it will be necessary to create special benches or administrative tribunals comprising appropriately educated judges or members of the tribunal to address this matter. Another area of decision-making will be disputes on other environmental requirements, where one of the parties will be civic groups, similar to the first case, or institutions holding conflicting positions on the approach taken by the state administration and on the content of these approaches.

Current objectives and measures:

· strengthen the Council of the Government of CR for Sustainable Development as a consulting body of the Government by extending the Council of the Government of CR for Social and Economic Strategy to include environmental issues and change its name accordingly;
· create conditions at Ministries whose activities are related to the issue of

environmental protection, to enhance the preparation of concepts, programs and, as appropriate, substantive decisions important from the standpoint of environmental protection and sustainable development;
· in the Chamber of Deputies and Senate, propose the establishment of a committee for sustainable development to deliberate on SEP, on the Report on the State of the Environment and on the sectoral policies of the individual Ministries in the Assembly of Representatives;
· recommend that the Regional Authorities and their sections for regional development and land-use planning prepare concepts of sustainable development at the level of the higher territorial self-governing units and promote the creation of similar concepts at a municipal level;
· because of the high professional demands on decision-making in the medium term, establish an Environmental Agency to provide professional support in decision-making, to control jurisdiction in issues related to IPPC, accident prevention, decision-making pursuant to CITES, EIA, etc., and to form a professional base for the regional self-governing units;
· strengthen the professional and technical base of ME;
· on the basis of detailed analysis of the current situation, carry out objective evaluation of the competence of the central state administrative bodies in land-use planning, forest and water management in relation to the necessity for consistent implementation of the principles of sustainable development in practice at the level of the country and regions;
· strengthen CEI as an important instrument of enforcement of environmental law and as a professional support base for IPPC and IPR;
· provide for organizational preparation of ME and the regions in preparation of projects to obtain resources from international funds of support for development of the regions.

VII.7 Public Participation and Agenda 21

The implementation of Agenda 21, one of the fundamental activities arising from the UN Conference on the Environment and Development in Rio de Janeiro in 1992, is progressing slowly in CR. There is no national program of sustainable development and the programs of Local Agenda 21 are developing slowly and falteringly. In most of the EU member countries, Agenda 21 constitutes a foundation for participation of the population in developmental programs in municipalities, towns, cities and regions. For example, in Great Britain, about 96% of local governments have commenced the Local Agenda 21 process. Local Agenda 21, as an initiative from a local level, will be of great importance in implementation of the principle of sustainable development in CR, and the Government of CR, the individual Ministries and the state administrative authorities and governments at a regional and local level must provide broad assistance for this process. Local Agenda 21 constitutes a process that reacts to global and local issues through the creation of a strategic plan for local development, with precisely delimited and respected conditions of sustainable development, including improvement of the quality of life and integration of social and economic considerations with the subject of environment. These strategic plans must be created on the basis of a broad social consensus at a local level (region, city/municipality). Co-operation amongst all the affected entities (public administration, public, scientific institutions, NGOs, professional/consulting companies, schools, producers, entrepreneurs, workers in cultural and special-purpose facilities) must continue in

identification of potential financial resources, obtaining of financial means and during the implementation phase. An important part of the process is the monitoring of implemented measures and evaluation of their effectiveness or benefit for sustainable development.

Current Measures and Targets:

· implement in practice the Aarhus Convention and Chapter 27 of Agenda 21 "Strengthening the role of non-governmental organizations as partners for sustainable development" and Chapter 28 of Agenda 21 "Local authority initiatives in support of Agenda 21";
· in co-operation with the other sectors, prepare a National Agenda 21 Program (12/2001);
· provide extensive assistance for existing initiatives in the area of Local Agenda 21 through the provision of guidance materials, organizing training sessions and workshops, provision of expert advice, promotion of public awareness and provision of information;
· prepare information materials with instructions for preparation of the relevant sectoral concepts for local Agendas 21 at the Ministries concerned with the activities of the municipal authorities (e.g. create instructions for decreasing unemployment in the framework of the process of local Agendas 21 through the Ministry of Labour and Social Affairs);
· ensure that technical, organizational and economic conditions exist to facilitate public access to environmental information (public information centers, an environmental information system, publication of yearbooks, the reports on the state of the environment, publications, workshops, the Internet).

VII.8 Research and Development

Science and technology are an important factor in decreasing the detrimental impacts of human activities on the environment, in remedying and eliminating damage and in monitoring changes in the quality of the environment (waste water treatment technology, clean waste-free technologies, recycling technology, technologies for more effective use of renewable and non-renewable resources and raw materials, development of products of everday use with minimal externalities, methods of chemical and biological detoxification, monitoring technology and methods of physical and chemical analysis). It is a matter for the strategy of SEP that this powerful instrument be used for timely warning against the potential risks, for decreasing detrimental impacts on the environment and to protect and improve the environment.

Current objectives and measures:

· support selected subjects in the EU´s 5th Framework Program for Science and Research, primarily those concerned with environmental protection under the headings "Competitive and Sustainable Growth" and "Preservation of Ecosystems" ;
· participate actively in formulation and implementation of the 6th Environmental Action Program;
· make use of scientific institutions (Academy of Sciences (AS) CR, universities and research institutes) in formulating the priorities of environmental research and

development and in the provision of expert support for environmental programs;
· co-operate with the Commission for the Environment and the Technical Centre of the Academy of Sciences of CR;
· actively support research in new biotechnical fields in agriculture, including environmental risk assessment related to their implementation;
· co-ordinate general educational projects supported by the EU for universities in relation to the environment (e.g. PHARE TEMPUS and Leonardo da Vinci);
· actively support new biotechnical fields in agriculture in relation to the environment.

VII.9 Land Use Planning

Land-use planning is a very effective instrument for implementing the objectives of sustainable development, with a long tradition, established legislation and organizational, technical and professional foundations. In order to achieve a more considered utilization of the landscape and use of natural resources, it is necessary to establish closer co-operation between ME and Ministry of Regional Development in the process of establishing the terms of reference and concepts for land-use planning documentation. The implementation of land-use plans determines for a long period of time the degree and severity of factors affecting the environment, including the designation and use of areas, severance of the landscape by transport infrastructure, and generation of transport demand; however, it also permits effective protection of nature, creation of territorial systems of ecological stability and protection of recreation areas for urban settlements and industrial agglomerations. In accordance with the provisions of amended Law No. 50/1976 Coll., on land-use planning and the construction code (the Construction Code), with legal force from July 1, 1998, it is necessary to prepare a chapter on the environmental impact of measures for the land-use plans of municipalities.

Current objectives and measures in the short term:

· establish and initiate work by a co-ordination group of ME and Ministry of Regional Development officials in land-use planning;
· expand and improve the quality of participation of ME in the preparation stage of land-use plans and strategies;
· require an improvement in strategic environmental impact assessment for land-use plans for large territorial units and municipalities in accordance with the provisions of Law No. 244/1992 Coll.

VII.10 An Ecosystem Approach

An ecosystem approach will be adopted as an important instrument in ensuring integrated environmental protection. The individual categories of ecosystems and, in the long term, similar groups of ecosystems in CR will be broadly evaluated to determine how human use affects their functioning and productivity. In accordance with the millennium evaluation of ecosystems, the following categories of ecosystems will be monitored:

· agroecosystems;
· forest ecosystems;
· freshwater ecosystems;

· grassland ecosystems;
· urban ecosystems.

Categories of ecosystems will be evaluated according to their capacity to provide goods and services now and in the future. Data on market and non-market goods and services will constitute the basic information:

· production of foodstuffs and fibers;
· provision of a sufficient amount of water;
· provision of water of the necessary quality;
· deposition of carbon;
· maintenance of biodiversity;
· provision of recreational and tourist opportunities.

Such an integrated evaluation of ecosystems will identify the links between a great many goods and services, provided to human beings by ecosystems and between the biological processes on which these goods and services are dependent. Such an analysis will form a basis for the development of scenarios for potential management schemes for ecosystems. The results of this analysis will be gradually introduced into decision-making processes and applied to the care of ecosystems.

The temporal framework for the integrated ecosystem approach:

Initiating work on the Czech part of the millennium analysis:	**2001**
Preliminary results of the analysis:	**2003**
Complete results of the analysis (after the consultation procedure):	**2005**
Fact-finding phase of implementation of the ecosystem approach in the framework of the environmental sector:	**2002 – 2003**
Preparation for implementation of the ecosystem approach in decision-making processes outside of the environmental sector:	**2004 – 2005**
Implementation of the ecosystem approach in decision-making processes	**from 2006**

VII.11 International Cooperation

International co-operation is an important instrument of SEP CR. Its principles, following from global processes, are in accordance with the interests of international environmental organizations that can assist particularly in inter-sectoral implementation of environmental protection measures. Compliance with obligations following from international agreements will assist in this area; on the other hand, these commitments constitute further tasks for SEP CR. International assistance

offered in the form of support for projects, expert assistance, training or workshops can be an important instrument in implementation of SEP CR. Good technical and organizational preparation is necessary for effective utilization of this assistance. Under the conditions of the present intense phase of preparation for accession to the EU, this consists particularly in use of means from prestructural funds, SAPARD and ISPA. In the framework of the ISPA Program, the State Environmental Fund of CR acts as the Implementation Agency, including carrying out and managing financial payment operations. Simultaneously, it is necessary to prepare conditions for a change in the role of the Czech Republic - from a country accepting assistance to a country that provides assistance. This is carried out to a limited extent in the framework of developmental assistance by CR.

The Czech Republic will contribute to the joint efforts of democratic countries to create an atmosphere of global safety and cooperation. Protection of the environment and achieving sustainable development are now global issues requiring joint international efforts. The importance of the environmental dimension of current international relations is reflected in the growing number of international conventions and bilateral agreements aiming to eliminate some of the detrimental environmental impacts of economic development, human activities, natural disasters and environmental accidents. Thus, in the development of international co-operation, the Czech Republic must ensure strict application of environmental standards corresponding to international commitments and the requirements of national legislation.

Specific tasks for the environment sector in the sphere of international co-operation are based on current international commitments and priorities established by the Government of the Czech Republic. In international co-operation, it is necessary particularly to take the following steps:

· to actively participate in international, inter-governmental and regional organizations to protect and improve the environment;
· to comply with commitments accepted by the Czech Republic as a party to international agreements;
· to create conditions for accession of the Czech Republic, adoption or ratification of further international environmental agreements and their effective implementation;
· in negotiations on accession to the EU, to attempt to maintain advanced standards corresponding to conditions in the Czech Republic and that will be in accordance with the interests of transformation of Czech society;
· to closely co-operate with candidate countries negotiating on accession to the EU;
· to create effective mechanisms and set aside means for effective use of resources offered to countries aspiring to membership in the EU (programs and funds created for this purpose);
· to prepare effective mechanisms for providing official developmental assistance, including mechanisms of environmental impact assessment for projects implemented in the framework of the assistance provided by the Czech Republic;
· to take the steps necessary to ensure that the Czech Republic ratifies the Aarhus Convention and the Espoo Convention (by 6/2001);
· test co-operation with neighbouring countries on practical examples, in assessing plans that could have transboundary environmental impacts, in an attempt to improve and shorten the procedure of deliberation and mutual provision of information.

VIII COSTS AND EFFECTIVENESS OF THE PROPOSED TARGETS

VIII.1 Strategy of Target Financing

VIII.1.1 Investments for environmental protection and financing of expenditures for environmental protection in the nineties

Investments in environmental protection have increased considerably over the last ten years, from 6 bil. CZK and about 1% of GDP in 1990 to about 35-40 bil. CZK or 2.0 - 2.4% GDP presently. The amount of environmental investments in the Czech Republic was much higher than in the EU member countries, because the environment of this country was in a much worse condition at the beginning of the nineties and remediation was just beginning. Investments in environmental protection constituted a significant proportion expressed in relation either to the GDP or to overall investments, and exhibited a larger relative growth compared with the growth in the GDP. Investments in environmental protection corresponded to about 2.4% of the GDP in the period 1994 - 1997 and corresponded to about 2.0% of the GDP in the other years. They constituted about 7.0 - 8.0% of overall investments and in some branches equalled 20-30% of overall investments. In the EU member countries, the proportion of investments for environmental protection equalled about 0.2 - 0.6% GDP and constituted 1.0 -1.3% of total investments. Total investments into environmental protection in the 1990 - 2000 period equalled about 300 bil. CZK. Almost 60% of investments were related to the areas of air quality and climate change, and arose from the requirements of the Law on the Air. A marked decrease in air pollution was achieved, however, mostly by end-of-the-pipe technologies (filters, traps, etc.). Investments in the area of water protection were stabilized at a level of about 10 mil. CZK annually.

During the 90´s, the proportion of investments financed from public sources in overall investments gradually decreased, to a level of about 4-7 bil. CZK, or 10-20% of total investments. Between commencing of the work of the State Environmental Fund of the Czech Republic in 1992 and the end of 1999, a total of 3 132 approving decisions were issued by the Minister on provision of financial assistance in a total amount of 29.804 bil. CZK. Support was provided for the construction of 646 waste water treatment plants and sewerage systems, and implementation of 106 projects to remedy flood damage, 1 752 full conversions of municipal boilers to gas (including other technologies) and 627 projects to decrease the burden on nature and the landscape. In the second half of the nineties, investors utilised their own resources in an amount of about 17-25 bil. CZK annually, corresponding to 52-67% of the investments, and 5-7 bil. CZK credit was used annually, corresponding to 10-20% of the investments.

The following conclusions are important for further evaluation of financing:

· the proportion of investments for environmental protection in the GDP gradually increased to about 2.4% and has remained at a level of about 2.0% over the long term, and equals values of an order of magnitude greater than in the EU member countries; absolute investments for environmental protection equalled about 35 - 40 bil. CZK annually,
· most investments were financed from the internal resources of investors, mostly in

the area of the air and water, where the fraction of public resources in financing these investments has decreased,
· overall expenditures from the state budget, SEF CR and NPF CR for environmental protection equalled an average of 9-10 bil. CZK annually (prior to the change in the method, 13 bil. CZK, i.e. including expenditures for supply of drinking water), corresponding to about 1.4%, of all public expenditures (or 2.7% excluding expenditures from local budgets),
· expenditures from regional budgets for environmental protection in 1997 - 1999 equalled about 12.5 - 14.5 bil. CZK; overall unconsolidated expenditures from local budgets in this period equalled about 150 - 170 bil. CZK. Most of the expenditures (97%) were spent by municipalities and associations of municipalities, 50% constitute capital expenditures (1999),
· during the nineties, there was a gradual decrease in the proportion of environmental investments financed from public sources; however, a number of local budgets are burdened by investments to finance measures in environmental protection (conversion to gas, waste management, treatment of waste waters) or environmental developmental programs.

VIII.1.2 Impacts of accession of CR to the EU

The extent and scope of EC legislation in the area of environmental protection and its implementation are considerable. Compliance with these requirements will lead to large investments and non-investment expenditures in the private and public sector. Preliminary calculations indicate that expenditures for environmental protection at the level of up to about 3% GDP will be required (according to expert estimates, the overall annual capitalized and operating costs, including expenditures from the state budget, could equal up to 56-58 bil. CZK, i.e. about 3% GDP in 2000, where these expenditures do not include the existing amount of environmental expenditures not related to the accession of CR to the EU; however, it is very difficult to separate the part that is connected directly or indirectly with accession of CR to the EU from the current level of investments and normal expenditures for environmental protection). The overall economic impacts must be regularly assessed and the financing strategies must be adjusted according to trends in the relevant economic and substantive conditions. The Phare and ISPA programs must be consistently and effectively utilized as sources of investment finance in this area. Estimates of economic consequences were one of the subjects addressed during the preparation of the Approximation Strategy in the Environment, the Implementation Plan for the Chapter 22: Environment of July 2000 and economic analyses prepared for a number of drafts of new Laws. The Draft Strategy for financing implementation of Council Directive 91/271/EEC, on treatment of municipal waste waters, is another important document, which was approved in Government Resolution No. 998 of October 11, 2000.

Overall investment expenditures are estimated at approximately 280 bil. CZK and are mostly intended for the period up to 2005; for EC Directives requiring larger investments, expenditure will also occur during the requested transition periods (2006 - 2012). The overall investments required are as follows:

· air protection 17 bil. CZK
· air protection- waste incineration 7 bil. CZK
· wastes 11 bil. CZK

· packaging and packaging wastes 7 bil. CZK
· water protection - waste water treatment and sewerage systems 98 bil. CZK
· water protection - drinking water 30 bil. CZK
· water protection - hazardous substances13 bil. CZK
· water protection – nitrates 39 bil. CZK
· IPPC 70 bil. CZK The estimate for the area of implementation of IPPC is approximate. The overall result can be better and more effective implementation of investments caused by replacement of obsolete equipment or necessary restructuring. The amount of additional investments would be minimal, where investments into replacement of equipment are connected with savings of material, energy and wastes, and thus also operating costs. Part of the investment costs of certain companies could be part of technical innovation caused by other requirements and included in other items (decreased pollution caused by hazardous substances discharged into the aquatic environment, costs of incineration installations, costs caused by management of wastes and packaging).
· industrial accidents, chemical substances,
biocides 4 bil. CZK

After converting these expenditures to annual investment flows, they correspond to annual investments of 26 – 32 bil. CZK, where the largest amount will be required in the period 2004 - 2008. Further additional operating costs (only for the area of packaging and chemical substances) have been estimated at about 2.1 bil. CZK annually (annual operating costs caused by accession of CR to the EU for the entire area of the environment were estimated in a study by the World Bank at 17 - 28 bil. CZK). Demands on the state budget connected with increasing the number of personnel in institutions, monitoring and effective enforcement of requirements for the period 2000 - 2003 will equal about 5.7 bil. CZK (including expenditures connected with increase in the number of personnel in institutions at the end of 1999). The greatest demands on the state budget arise from support for investments in the area of water protection of about 38 bil. CZK in the period 2001 - 2010. Further costs may be associated with effective provision for the NATURA 2000 network (especially compensation for limitation of economic activities and purchase of properties), which is predicted for the period 2004 – 2010 in an amount of about 12 bil. CZK (gradual increase in expenditures). The state budget should participate in financing of overall expenditures in an amount of approx. 13%, in absolute terms about 5.5 bil. CZK annually (for details, see Table 1). Local budgets will be directly or indirectly affected by costs in the area of the public infrastructure (waste management, treatment of waste waters and supply of drinking water). The estimate of investments connected with the area of public environmental infrastructure equals approximately 140 bil. CZK.

VIII.1.3 Strategy of further financing of accession of CR to the EU

The strategy of further financing will cover only the area of approximation requirements, requirements necessary from the standpoint of environmental quality standards in the EU countries. They do not include investment costs for the environment that are not connected with approximation. Thus, both SEF, the state budget and local budgets, as well as private individuals will have higher expenses than those set forth here, i.e. expenditures that are connected with normal environmental protection. The costs of approximation, however, constitute the vast

majority of the overall expenditures of SEF CR, especially in the medium term to the year 2003.

The investment flow in the 2000 - 2003 period is estimated at approximately 85 - 95 bil. CZK, where the amount of public infrastructure investments (treatment of waste waters, supply of drinking water, waste management) is estimated at about 40 - 70 bil. CZK. Table 2 illustrates distribution of the required investments according to the requirements of the individual Directives. Other investment expenditures from the state budget compared to the levels of expenditures in 1999 equal about 5.73 bil. CZK for the period 2000 - 2003. The impacts of accession of CR to the EU on the state budget for the purpose of financing necessary investments in public infrastructures in the period 2000 - 2003 will equal about 12.1 bil. CZK. Of the expenditures of SEF CR, the accession of CR to the EU will affect financial investment requirements in an amount of at least 6.4 bil. CZK for measures to treat municipal waste waters. Further expenditures from SEF CR can be expected particularly in the area of waste management. Expenditures of SEF will be in accordance with SEF Strategy in the pre-accession period and proposed measures in SEF CR (measures in the area of protection of air and water, financing of the Program to support energy savings and use of renewable sources of energy, etc.).

Financing of required expenditure from external sources (especially from the EU - ISPA and Phare programs) is estimated for the 2000 - 2003 period at about 5.3 bil. CZK, especially for measures of municipal environmental investments (treatment of municipal waste water, supply of drinking water).

Table 1: Requirements on the state budget in 2000 - 2010 compared to the level in 1999, in mil. CZK

	2000	2001	2002	2003	from 2004
Increased personnel, monitoring, analysis	425	1 970	1 650	1 510	1 230
support in the area of waters - waste water treatment plants, drinking water and in radiation protection Expenditures for radiation protection are connected with a change in instrumentation equipment in health-care facilities and equaled 670 mil. CZK in 2001 (according to IP).	1 636	3 630	3 730	3 800	3 700
support in the area of nature protection (compensation, purchase of properties)	-	-	-	170	370 - 2 600 Expenditures connected with compensation for limitation of economic activities and purchase of

					properties in the framework of effective provision for the NATURA 2000 network. These will correspond to a gradual increase in expenditures from a level of 370 mil. CZK in 2004 to up to 2700 mil CZK in 2008.
Total	2 061	5 600	5 380	5 480	5 300 - 7 530

Table 2: The most expensive investments relating to EC regulations (costs for the period 2000 – 2003).

Item	**Estimated costs: bil. CZK**
Council Directive 91/271/EEC on treatment of municipal waste waters	31.9
Council Directive 76/464/EEC on pollution caused by certain hazardous substances discharged into the aquatic environment	13.4
Council Directive 98/83/EEC on the quality of water intended for human consumption	11.0
Council and EP Directive 98/70/EC on the quality of petrol and diesel fuels	6.4
Relevant Council Directives in the area of chemical substances, prevention of accidents and biocides	5.7
EP Directive 94/62/EC on packaging and packaging waste	4.5
Council Directives on limiting emissions of volatile organic compounds formed in the use of organic solvents in certain activities and certain installations	4.2
Council Directives 88/609/EEC and 94/66/EC on limiting the emissions of some pollutants into the air from large combustion installations	4.0
Council Directive 89/369/EEC on prevention of air pollution from new municipal waste incinerators. Council Directive 94/67/EC on incineration of hazardous waste	2.9
Council Directive 75/439/EEC on management of waste oils	1.5
Council Directive 99/31/EC on waste landfills	1.2
Council Regulation 793/93 (EEC) on evaluation and control of the	1.2

risks from existing substances	
Directive 91/676/EEC concerning pollution of water by nitrates from agricultural sources	20

Table 3: Financial Consequences of measures required to achieve accession to the EU

Item	2000	2001	2002	2003	2000-2003
Increase in personnel, monitoring, analysis	425	1 970	1 650	1 510	5 555
Support for investments from public sources (the state budget and SEF CR). Expenditures from SEF were predicted using the optimum scenario	2 645	5 230	5 530	5 800	19 205
Support from foreign sources (ISPA, Phare, etc.)	430	1 600	1 600	1 700	5 330
Investment expenditures covered from own resources or commercial credit	12 000	18 000	16 500	17 000	63 500
Induced operational costs	500	1 300	1 700	2 100	5 600
Total	16 000	28 100	26 980	28 110	99 190

Investments by the public sector will be dominated by expenditures in the area of waste water treatment, supply of drinking water, waste management, extension of monitoring, provision for personnel in institutions and other normal expenditures connected with enforcing legal requirements and environmental protection. Public sector is expenditure is derived from the budgets of municipalities, regions and the state.

Identification of potential sources of financing:

· State budget: financing or co-financing of expenditure priorities of the Government of CR (targeted subsidies, Government and sectoral programs), financing of measures at a central level in the public interest. Financial means will be allocated particularly in the budgetary chapters of ME, Ministry of Agriculture, Ministry of Health, Ministry of Defence, Ministry of Interior and Ministry of Finance.
· Extra-budgetary funds (SEF CR, NPF CR) - financing of measures in accordance with the approved strategy, sectoral priorities, co-financing of international programs (ISPA). Resources from NPF CR may be used for remediation of old environmental damage, but these are not the subject of the approximation process. Programs and other extra-budgetary funds have an important indirect impact on the environment (State Transport Infrastructure Fund, State fund for housing development, etc.).
· State programs (State program to support energy savings and use of renewable energy sources) - these programs are mainly of importance in initiating improvements.
· Foreign sources - for participation in financing most external sources require

participation of state or local budgets, funds or state-guaranteed or soft loans (e.g. BEP - IPB; Phare, ISPA). Most of the participation in financing such projects will occur through public budgets.
· Banking sources – a conventional selection of projects according to financial parameters can be assumed here, where the key criteria are economic and not environmental.
· The private sector - from a general point of view, the requirements on the private sector are well-defined, but the classification and timing of expenditure is highly uncertain; this will continue until the state introduces stricter regulation and especially enforcement policy. ME will initiate the introduction of positive fiscal stimuli, which favour environmental expenditures (faster depreciation, etc.). In addition, it will be necessary to carefully develop novel approaches to the financing of projects, e.g. through financing by the lessors of infrastructure - whether the investor is the operator or some other company, especially in the area of public infrastructure investments in the area of the environment.
· Local budgets - budgets of municipalities, regions, regional associations; finances from these budgets are either used to fully finance individual projects or as a contribution to the financing of complex projects. Both normal expenditures for protection of the environment (preparation of plans and concepts, enforcing requirements, etc.) and part of the required infrastructure investments will be financed from these budgets.

The expected trends in financing of required expenditure can be drawn up on the basis of the above assumptions (see Table 3). However, trends in financing of expenditures will, in reality, be affected by a number of factors that cannot be predicted. Consequently the indicated trends in financing provide only a framework for the financial sources that will participate in financing the individual requirements. The strategy of financing measures and estimates of overall economic impacts will be regularly updated both in the Investment strategy for financing requirements on provision for implementation of the legislation of the European Communities in the area of the environment, and in the reviewed version of the Implementation Plan for the Chapter 22: Environment.

VII.2 Continual Economic Evaluation of Targets

Economic analysis of targets and measures of environmental policy is carried out regularly. Simultaneously, economic feasibility will be evaluated, particularly in relation to the timing of expenditure. In addition to the economic analysis, the precise overall expenditures necessary for the most important targets and measures will be quantified following specification by the individual sectors. Part of the economic analysis will comprise the evaluation of potential instruments to achieve the individual targets of the environmental policy. Instruments that will provide for fulfilment of targets with the minimum expenditure will be recommended.

On the basis of the completed cost analysis and recommended instruments, an assessment will be carried out of the realistic nature of the individual targets from both a time and economic standpoint and the individual targets and priorities will be refined and modified accordingly.

IX ENVIRONMENTAL POLICY TARGETS

The State Environmental Policy of the Czech Republic is being formulated at a time of intensive preparations for accession to the European Union, when CR must comply with a broad range of commitments from international environmental conventions, and when a new stage in the vitally-needed improvement of environmental quality is being initiated for a great many environmental parameters. Extensive restructuring will also play an important role. All these circumstances form a framework for establishing specific environmental objectives. This policy was, however, conceived up to the year 2005, so that a five-year time period must be taken into consideration. From this point of view, it is possible to describe the SEP through two scenarios. The specific targets of SEP will lie somewhere between the baseline and optimum development scenarios.

IX.1 Baseline Scenario: Europe 1990 - 1995.

In this developmental scenario, the baseline or minimum objective for SEP to the year 2005 is taken as achievement of standards of environmental quality and environmental infrastructure characterized by the average parameters for the EU Member States in the middle of the 1990s. Fulfilling this baseline scenario would mean that, in the year 2005, CR would still lag behind standards in developed European countries. The standards required by this scenario can be relatively easily determined from a number of reports on the state of the environment in Europe and OECD evaluations. The initial state in CR is defined by the Statistical Yearbook for 1998 and the Report on the Environment of CR in 1999. Target values for selected indicators are given in the tables of specific targets of SEP. It is apparent that there is only a small difference in a great many indicators and in some cases the target has already been achieved; however, in some areas achieving even this baseline scenario will be a demanding task.

IX.2 Optimum Scenario: Europe 2005.

The optimal policy objective should be achievement of the standards of environmental quality and environmental infrastructure equal to the average in the EU Member States in 2005 or 2003. Setting target values for the relevant parameters and indicators is a more complex problem than for the Europe 1995 scenario, where the values are already known.

In the optimum scenario, the target is moving as progress has not stopped in the EU Member States. Currently known trends and projections form a basis for this task (cf. EEA-EU Report 1998). With some simplification, current conditions in the most advanced EU countries (especially the Scandinavian countries, the Netherlands, Austria) can be considered as values that will be achieved in the year 2005 by an average member state and also by CR if the optimum scenario is fulfilled. Actual trends must be monitored, indicators must be evaluated and quantitative targets must be extended and supplemented and the goals and measures for achieving them must be refined. This process will be carried out annually and it is expected that the SEP will undergo overall refinement after three years and an up-dated version will be prepared.

X OVERVIEW OF SELECTED ENVIRONMENTAL POLICY INDICATORS AND TARGETS

Name	EU Averagea)	Max.a)	Min.a)	1997 CR	1999 CR	Target State 2005
A) Social and Economic Indicators						
1. GDP (1000 USD per capita)b)	18.0	31.0 (L)	10.8 (G)	11.7	13.2	-
2. Population density (inhab/km2)	115.9	378.1 (NL)	15.2 (SF)	130.7	130.3	-
3. Unemployment as % of the labour force	10.4	22.7 (SP)	3.3 (L)	4.3	-	-
4. Domestic consumption of primary energy sources structure of DPES* according to source (%)						
- solid fuels	18.7	38.4 (D)	7.9 (I)	56.0	51.0	40.0
- oil	42.1	58.8 (L)	31.1 (SF)	17.5	20.0	18.0
- natural gas	21.3	47.1 (NL)	1.3 (S)	18.6	21.0	23.0
- nuclear energy	15.8	41.7 (F)	0 (A, L)	5.0	5.0	11.0
- other	2.0	9.7 (A)	0 (L, B)	3.0	3.0	8.0
5. Transport						
- fraction of railways in freight transport %	29	54 (A)	6 (NL)	33.7	30.6	35.3
- total number of cars per 100 inhabitants	50.8	57.5 (L)	23.4 (G)	32.5	36.0	37.0
- density of road network (km/100 km2)	102.3	478.7 (B)	23.1 (SF)	69.6	70.3	70.0
- density of superhighways (km/10 000 km2)	153.9	536.1 (NL)	13.1 (SF)	61.5	63.3	-
6. Agriculture						
- specific consumption of nitrogenous fertilizers (t/km2)	6.7	12.1 (N)	4.1 (SP)	5.5	5.1	5.0
- specific	1.1	2.0 (F)	0.1 (S)	1.6	0.9	1.6

consumption of phosphorus fertilizers (t/km2)						
- density of cattle breeding (head/km2 agric. land)	58.1	437.1 (N)	14.8 (G)	39.8	36.8	38.0
- density of breeding of sheep and goats (head/km2 agric. land)	89.7	245.0 (P)	34.4 (SF)	3	2.8	3.5
- density of pig breeding (head/km2 agric. land)	82.9	1164.7 (N)	123.9 (G)	93.4	86.1	95.0
- apparent pesticide consumption (kg active substance per km2)	362.4	1136.2 (B)	24.5 (IRL)	90.9	98	95.0
7. Foreign assistance - ODA**						
- ODA per capita (1000 USD/capita)	77.2	32.2 (DK)	2.5 (P)	0.001	0.001	-
- % GDP (1996)	0.43	0.99 (DK)	0.20 (I)	0.022	0.017	0.2
B) Environmental Indicators						
1. Emissions of carbon dioxide – specific emissions (t/1000 USD HDP)	0.5	0.7 (L)	0.3 (F)	1.1	0.09c)	-
- specific emissions (t/capita)	8.9	21.7 (L)	5.5 (P)	12.7	12.1c)	-
- energy intensity (toe***/1000 USD HDP)	0.22	0.25 (GB)	0.03 (I)	0.35	0.27	0.24
2. Substances depleting the ozone layer						
- production of CFCs, change 1986-97, 99 (%)	-92	-100 (D)	- 75 (N)	- 100	- 100	- 100
- consumption of CFCs,, change 1986-97, 99 (%)	-99	-	-	- 100	- 100	- 100
- production of HCFCs, change	+190	+632 (F)	-	- 100	- 100	- 100

1986-97, 99 (%)						
3. Emissions of sulphur dioxide						
- emissions per unit GDP (kg/1000 USD GDP)	1.5	4.6 (G)	0.4 (A, NL)	5.8	2.0	1.9
- emissions of SO2 per capita (kg SO2 /capita.)	26.0	4.9 (SP)	7 (A)	67.9	26.6	26.0
4. Emissions of nitrogen oxides (NOx)						
- emissions per unit GDP (kg/1000 USD GDP)	1.8	3.4 (G)	1.1 (A)	3.5	2.9	-
- emissions of NO2 per capita (kg NO2 /capita.)	30.3	50.6	21.2 (A)	41.1	38.4	35.0
5. Air in cities						
- average annual SO2 concentration (m/m3)	9.7	27.3 (Athens)	1.3 (Rörvik)	23.3	13.7d)	17.0
- average annual NOx concentration (m/m3)	35.3	55.8 (Athens)	6.6 (Rörvik)	46.5	44.2d)	40.0
6. Waste and waste management						
- production of municipal waste (kg/capita p.a.)	443	560 (NL, IRL)	360 (S)	320	408e)	340
- % recycled waste	18.2	45 (A)	7 (GB)	29	25	30
- % waste incinerated	22.1	58 (DK)	2 (SF)	3	8	10
- % waste landfilled	64.4	90 (I)	12 (DK)	68	67	60
- amount of recycled paper (%)	43	70 (D)	12 (IRL)	36	36	50
- amount recycled glass (%)	55	88 (A)	26 (G, GB)	27	30	60
- amount of industrial waste from processing sector (kg/1000 USD GDP)	68.6	109 (L)	3.4 (P)	65.6c)	62e)	-
- amount of nuclear waste (kg heavy	7.8	13.3 (GB)	0.8 (N)	4.5	4.4e)	-

metals per 1000 pop.)						
- production of hazardous waste per unit GDP (kg/1000 USD GDP)	2.8	10.5 (L)	1.9 (GB)	22.3	17.7	10
7. Water and water management, waste water						
- % of population connected to sewers	80.9	98 (NL)	56 (P)	73.5	74.6	90
- total treatment of waste waters (%)	73	97.4 (NL)	20.7 (P)	90.9	95	-
- secondary treatment (%)	27.4	57.4 (L)	6.0 (S)	-	99.7f) -	
- tertiary treatment (%)	40.6	87 (S)	1 (P)	-	10-12f) -	
8. Forests and forest management						
- area of forests as % of total area	33.4	75.5 (SF)	8.9 (IRL)	33.4	33.4	35
- intensity of exploitation of forest resources, felling as overall increment	58	83 (SF)	27 (I)	74.0	75.5	65
- annual felling, change 1980-97, 99 (%)	+48	+342 (IRL)	-12 (DK)	- 1.0	+4.2	-
- annual increment, change 1980-97, 99 (%)	+42	+172 (I)	-0.2 (L)	6.4	+9.9	-
- export of wood and wood products (% of total national export)	-	-	-	1.6	2.0	-
9. Biodiversity, protected areas						
- % endangered species of mammals	24.5	54 (L)	7 (IRL)	35	35	-
- % endangered species of birds	19.5	50 (L)	7 (SF)	57	57	-
- % endangered species of fish	24.8	82 (N)	7 (F)	28	28	-
- % endangered species of reptiles	39.8	100 (L)	7 (G)	100	100	-

- % endangered species of amphibians	44.4	100 (L)	16 (SP)	95	95	-
- % endangered species of vascular plants	12.9	39 (A)	1 (IRL)	45	45	-
- large protected areas (% of total area)	12.3	32 (DK)	0.9 (IRL)	16	15.7	-
- expressed as km2/capita	1.3	5.5 (Fin)	0.1 (B)	1.2	1.2	-
10. Expenditures for environmental protection - Expenditures as % GDP						
- expenditures from state funds (% GDP)	0.8	1.3 (N)	0.4 (GB)	0.9 (1996)	0.5c)	-
- expenditures by business (% GDP)	0.4	0.7 (A,D)	0.1 (P)	1.5 (1996)	1.5c)	-
- total (% GDP)	1.1	1.8 (NL)		0.3 (GB)	2.4 (1996)	2.0c)
- Expenditures as USD/capita						
- expenditures from state funds (USD/capita)	140	264 (NL)	59 (G)	45 (1996)	66c)	-
- expenditures by business (USD/capita)	78	108 (NL)	41 (G)	76 (1996)	198c)	-
- total (USD/capita)	206	372 (NL)	60 (G)	121 (1996)	264c)	-

Explanation of abbreviations
a) most data for the end of the 1990™s (1997 - 1999), some from the middle of the 1990s because of lack of availability of later data
b) based on parity purchasing power
c) data for 1998
d) Bene¹ov, Beroun, Kladno, Kolín, Karlovy Vary, Mìlník, Mladá Boleslav, Most, Ostrava, Prague
e) preliminary estimate
f) rough estimate of the T.G.M. Water Management Research Institute
* Domestic consumption of primary energy sources
** Official Development Assistance
*** tons of oil equivalent (recalculation of DPES), 1 toe = 41.9 GJ
A - Austria, B - Belgium, D - Germany, DK - Denmark, F - France, G - Greece, GB -

Great Britain, I - Italy, IRL - Ireland, L - Luxembourg, NL - Netherlands, P - Portugal, S - Sweden, SF - Finland, SP - Spain.
(Prepared on the basis of documentation of ME CR, Czech Statistic Office, Czech Environmental Institute, Czech Hydrometeorological Institute, TGM Water Management Research Institute, OECD, the European Commission and Eurostat)

XI CONCLUSIONS

Harmonization and Implementation of EC Environmental Legislation

The quantitative targets of SEP reflect the basic requirements in the preparation of CR for access to the European Union, based on transposition and implementation of EC environmental legislation and improving the standard of the quality of the environment. The Czech Republic is faced with the problem of extending and improving the ability of the state administration to implement the new environmental legislation. The new tasks following from implementation of EC environmental legislation will require an increase in the number of personnel in 9 sectors and 25 institutions in the period 2001 - 2005 by 1 450 new employees (an increase by 1 376 employees in the period 2001 to 2003). The costs of the state budget connected with optimum implementation of the state administration (increase in personnel, analysis, monitoring) are estimated for the 2000 to 2003 period at about 160 million EUR, i.e. about 5.55 bil. CZK (for 2001 to 2003 estimated costs equal about 147 mil. EUR, i.e. about 5.13 bil. CZK). Requirements on additional personnel are given as approximate numbers and will be refined for the individual years according to the capabilities of the state budget.

Systematic Up-Dating of State Environmental Policy of the Czech Republic

SEP constitutes an on-going process and cannot be the result of a once-off initiative. Effective implementation of environmental policy must react to the dynamics of domestic and international developments in the environment and sustainable development and must confront actual trends with various developmental scenarios. Non-governmental organizations, and the professional and general public have an important role in monitoring and up-dating the SEP. Motivation, inspiration and co-operation based on partnership and increased education in environmental protection are becoming the most effective methods and instruments in improving the environment and the quality of life of the population of the Czech Republic.

GLOSSARY OF TERMS

(Czech abbreviations given in brackets)

ANPLC (AOPK) Agency for Nature Protection and Landscape Conservation
B+R Bike and Ride System (combined system of bicycle and public transport)
BAT Best Available Technique
BATNEEC Best available technique not entailing excessive costs
Best available technique in planning, construction, operation, maintenance and disposal of installations after the end of their lifetimes, which can be employed in the industrial sector under economically and technically acceptable conditions

CBD Convention on Biological Diversity
CEU/SEU (Czech) Centers of Environmental Education
CEU Czech Environmental Institute
CITES Convention on International Trade in Endangered Species of Wild Fauna and Flora
CFC chlorofluorocarbons
CLRTAP Convention on Long-Range Transboundary Air Pollution
CEI (ÈI®P) Czech Environment Inspection
CR (the) Czech Republic
EC European Communities
EEA European Environmental Agency
EEC European Economic Community
EECONET European Ecological Network
EEEPA Environmental Education, Enlightenment and Public Awareness
EHAPE Environment and Health Action Plan for Europe
EIA Environmental Impact Assessment
EIONET European Information and Observation Network
EMAS Eco-Management and Audit Scheme
EMS Environmental Management System
EPR OECD OECD Environmental Performance Review
EU European Union
EUR European Union currency - Eur
EURATOM European Atomic Energy Association
GDP Gross Domestic Product
GEF Global Environment Facility
GMO genetically modified organism
ICRP International Commission for Radiation Protection
IAEA International Atomic Energy Agency
IEA International Energy Agency
IFOAM International Federation of Organic Agriculture Movements
IPPC Integrated Pollution Prevention and Control
IPR (IRZ) Integrated Pollution Register
ISO International Standardization Organization
ISPA Instrument for Structural Policies for Pre-Accession
LCA Life Cycle Assessment
MRD Ministry for Regional Development
MIT Ministry of Industry and Trade
MH Ministry of Health
MA Ministry of Agriculture
ME Ministry of the Environment
MEYPT Ministry of Education, Youth and Physical Training
NATURA 2000 European ecological network of protected areas
NEHAP National Environment and Health Action Plan
NPF National Property Fund
NPK combined fertilizers containing nitrogen, phosphorus and potassium
OECD Organization for Economic Co-operation and Development
P+R Park and Ride System (combined system of automobile and public transport)
PAH (PAU) polycyclic aromatic hydrocarbons
PCB polychlorinated biphenyls

PCR Parliament of the Czech Republic
PHARE (Phare) Poland and Hungary Assistance in Restructuring their Economies
Program of assistance from the EU to the countries of Central and Eastern Europe
PLA Protected Landscape Area
PNWAA protected natural water accumulation area
POP persistent organic pollutants
PRRS Program for Recovery of River Systems
PRTR Pollution Release and Transport Register
retail creation of a wholesale and retail network for preferential purchase and sale of environmentally friendly products
RESAP (REZZO) Register of Sources of Air Pollution
SAPARD Support for Pre-Accession Measures for Agriculture and Rural Development
screening screening of the legislation of candidate countries from the standpoint of harmonization with EC legislation
SEA Strategic Environmental Impact Assessment
SEVESO II Directive for prevention of serious industrial accidents
SEF CR the State Environmental Fund of the Czech Republic
SEP CR State Environmental Policy of the Czech Republic
SD Sustainable Development - satisfying the needs of the present generation without limiting the ability of future generations to satisfy their needs. Development that
harmonizes economic, social and environmental viewpoints
SLRA State Land Reclaimation Authority
SMW solid municipal waste
STRILH Silva Tarouca Research Institute for the Landscape and Horticulture
TEMPUS EU Educational program of the EU
TGM WMRI T.G. Masaryk Water Management Research Institute
UN CED United Nations Conference on Environment and Development
UN CSD United Nations Commission for Sustainable Development
UNECE United Nations Economic Commission for Europe
UNEP United Nations Environment Program
UN FCCC United Nations Framework Convention on Climate Change
UNSCEAR United Nations Scientific Committee on the Effects of Atomic Radiation
TPD territorial planning documents
TSES territorial systems of ecological stability
VOCs volatile organic compounds
VÚSC higher regional self-governing unit
5EAP 5th Environment Action Plan
6EAP 6th Environment Action Plan

STATE ENVIRONMENTAL POLICY

JANUARY 2001

State Environmental Policy

Prague 2001
ISBN 80-7212-171-5