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CONCLUSIONS AND RECOMMENDATIONS*

Over the review period (1998-2005), the Czech Republic's economy grew relatively slowly (+16%), and underwent further structural changes and integration in the European economy. The country acceded to the European Union in May 2004. Imports and exports of goods and services represent more than two-thirds of GDP, and more than 75% of the economy has been privatised. In percentage of GDP, the country has been the leading recipient of foreign direct investment among OECD countries. While the service sector share in the economy has grown to 58.2%, agriculture has declined to 3.4% and industry still represents 38.4%.

Further to rapid environmental progress during 1990-98, the review period saw consolidation of this progress and transposition of EU environmental Directives, but also reduction of environmental efforts, with indicators of pollution, energy and material intensities still remaining among the highest of OECD countries. In 2002, exceptionally severe floods and related very large damages (on the order of 4% of GDP) affected the country again. Priority environmental challenges include: i) nature conservation, protection of the landscape and biodiversity; ii) sustainable use of natural resources (including water), material flows and waste management; iii) environment and the quality of life; and iv) protection of the earth's climate system and prevention of long-range transport of air pollution. Overall, the road towards environmental convergence within the EU will be a long one, on a number of issues.

To meet these challenges, the Czech Republic will need to: i) strengthen its environmental efforts in infrastructure building (e.g. for waste and waste water treatment) and in implementation of environmental policies; ii) further integrate environmental concerns into economic and social decisions; and iii) reinforce international co-operation on environmental issues.

This report examines progress made by the Czech Republic since the latest OECD Environmental Performance Review in 1998, and evaluates the extent to which the country's domestic objectives and international commitments are being met. It also reviews progress in the context of the OECD Environmental Strategy.** Some 53 recommendations are made that could help strengthen the Czech Republic's environmental performance in the context of sustainable development.

* Conclusions and Recommendations reviewed and approved by the Working Party on Environmental Performance at its meeting on 19 May 2005.

** The Objectives of the "OECD Environmental Strategy for the First Decade of the 21st Century" are covered in the following sections of these Conclusions and Recommendations: maintaining the integrity of ecosystems (Section 1), decoupling of environmental pressures from economic growth (Sections 2.1 and 2.2), and global environmental interdependence (Section 3).

1. Environmental Management

Strengthening the implementation of environmental policies

After a first wave of changes to environmental legislation in the early 1990s, the EU accession process led, during the review period, to intensive work to transpose EU environmental legislation into Czech environmental legislation (e.g. the Act on Integrated Pollution Prevention and Control, the Act on Environmental Impact Assessment, the Act on the Protection of the Air, the Water Act, the Act on Waste and many others). In May 2004, the Czech Republic joined the EU, with transition exceptions for only three European Directives: the Directive on Packaging and Packaging Waste, the Directive on Urban Waste Water Treatment, and the Directive on the Limitation of Emissions of Certain Pollutants into the Air from Large Combustion Plants. A new State Environmental Policy was adopted for the period 2004-10. As recommended in the first OECD review, the Ministry of the Environment has strengthened both its monitoring capacity and its economic analysis; a wide range of economic instruments (e.g. pollution charges and fines, water charges) is in use and broadly in line with the polluter pays principle. Environmental management systems are being promoted (ISO 14001 and EMAS) as well as eco-labelling and green purchasing.

While economic changes and environmental legislation and investments rapidly reduced emissions of pollutants in the 1990s, environmental investment dropped sharply over the review period, falling from 2.5% of GDP in 1997 to 0.7% in 2002. This partially explains the lack of progress in reducing the high levels of pollution and energy intensity. Expenditure for pollution abatement and control (estimated at 1.3% of GDP in 2003) will need to be increased to implement new legislation and EU-related commitments. Overall, EU accession requirements related to the environment are expected to necessitate EUR 9 billion between 2004 and 2010, with a large part for water issues. This is despite important support expected from the EU through the European Cohesion Fund and Structural Funds. It is therefore essential for the Czech Republic to improve the cost-effectiveness of its environmental policies. The rates of economic instruments, which have in many cases been eroded by inflation, will need to be strengthened to help finance environmental investment, continue to remediate past damage and dissuade potential polluters. Further use of technologies that prevent pollution, rather than end-of-pipe technologies, should be considered. Land-use planning needs to integrate environmental concerns. Regional and municipal administrations should strengthen their environmental capacities.

Recommendations:

- take steps to adjust existing pollution charges for inflation and to increase their rate of collection; consider adopting product charges and work toward more internalisation of external costs;
- increase environmental expenditure to levels needed to implement the EU environmental *acquis*, including by use of revenues from economic instruments and EU financing;
- develop the use of economic analysis of environmental projects and policies (e.g. cost-benefit analysis);
- develop public-private partnerships (e.g. among national authorities, local authorities, industry, NGOs) and strengthen environmental capacities at regional and municipal levels to ensure environmental progress; monitor this progress through appropriate targets and indicators;
- strengthen enforcement of laws and regulations at national, regional and local levels; further ensure that polluters are effectively sanctioned.

Air

During the review period, SO₂ concentrations in ambient air were significantly reduced. Emissions of SO₂ and VOCs decreased by 48% and 16% respectively, dropping below the 2010 ceilings of the Convention on Long-range Transboundary Air Pollution and related European Directives. Monitoring and reporting of air quality has improved, notably for heavy metals and persistent organic pollutants. The Czech Republic is one of the few OECD countries with a national legal basis for combating light pollution. During the review period, the Czech Republic reformed the institutional framework for the energy sector. It enacted two new energy laws, created new institutions, adopted an energy policy with energy efficiency and environmental objectives, and partially opened up energy markets. Energy companies were restructured and partially privatised. Price distortions among different types of energy (including direct subsidies to producers) were generally reduced and prices paid by end-users are now much closer to the cost of supply, while prices paid by industry for electricity and oil remain well below the OECD average.

Several of the strongly positive trends that characterised the early 1990s slowed, stalled or even reversed during the review period. The steady reduction of NO_x emissions that began in 1985 continued until 1999, but emissions have hovered around the same level since. Particle emissions reversed their downward trend and rose after 2000, partly as a result of changes in measurement methods. GHG emissions were decoupled from economic growth, but stayed broadly constant during most of the review period at about three-quarters of their 1990 level. The decline in heavy metal (Cd, Hg, Pb) emissions that began in 1990 continued during the early part of the review period, but appears to have halted in the latter part. The Czech economy remains pollution intensive: its SO₂ and NO_x intensities (i.e. emissions per unit of GDP) remain about double those of the OECD Europe average as well as the EU-15 average, and its CO₂ intensity is the highest in the OECD area. This partly reflects its energy supply (with predominance of solid fuels) and its economic structure (with energy intensive industries). But it also reflects a strong decline (during the review period) in air pollution abatement expenditure and insufficient energy savings efforts. The energy intensity of the Czech economy (i.e. energy use per unit of GDP) has stayed broadly constant since 1999 and remains well above the OECD Europe average. Ambient air quality problems persist across the country (e.g. Prague, industrial areas in northern Bohemia, Silesia and northern Moravia). Particles and ground-level ozone are of particular concern as two-thirds of the Czech population live in areas where current or future health standards are not always met. Polycyclic aromatic hydrocarbons (PAHs), nickel, benzene, cadmium and arsenic are problem pollutants. Important health and economic benefits thus remain to be obtained.

Recommendations:

- strongly implement measures to achieve ambient air quality standards, especially for PM₁₀, NO₂, ozone and toxics in and near large cities;
- give renewed impetus to measures for further reducing air emissions, to capture health and related economic benefits (e.g. reduced health expenditure, increased productivity) including special attention to implementation of such measures for small sources of pollution;
- maintain the incentive value of air emission charges by regularly reviewing their rates;
- improve energy efficiency by vigorously implementing and adequately funding the national programme for the promotion of energy savings;
- review the environmental and economic performance of the energy sector, and revise accordingly energy taxes and prices.

Water

The return of long-absent fish species to the Elbe is a sign of the distinct improvement in the quality of Czech rivers over the review period. The hotspots of “very highly polluted” river reaches have all but disappeared and some reaches are now classified in the two top quality classes. The connection rates for sewerage and waste water treatment are above the OECD and OECD Europe averages. Point discharges from urban agglomerations and industry have continued the downward trend established since 1990, thanks to the commissioning of new, and the rehabilitation of existing, sewerage networks and waste water treatment plants. The authorities have put in place a comprehensive strategy to minimise the risk of further catastrophic flooding (about 3.5% GDP damage in 1997 and 3.2% in 2002). Czech water legislation has been brought into line with EU Directives, water management institutions have been reformed, and correct water pricing has been established. A comprehensive set of economic instruments is in place and contributes towards financing further environmental investment.

Although a few river reaches are now in the two highest quality classes, the predominant share of rivers and streams remain classified as either “polluted” or “highly polluted”, while lakes, reservoirs and aquifers showed little improvement over the review period. Concentration limits for dangerous substances (AOX, chlorinated organic compounds, PAHs, heavy metals) were exceeded during the review period at a number of measuring stations. The legacy of the past persists in the form of highly contaminated sediments in rivers. Quality control and benchmarking systems to ensure the efficient operation and adequate maintenance of the large amount of new water infrastructure have yet to be put in place. More than half of sewage sludge does not meet quality standards for use in agriculture. Implementation of measures to reduce the impact of agriculture on surface and ground waters has only just begun. Some of the artificial reservoirs and recreational fishponds do not meet EU microbiological standards. The national flood control strategy needs to be adjusted to ensure it provides the right balance of incentives and sanctions for stakeholders at national and local levels, in order to achieve the optimal mix of active and passive flood protection. Important health, recreational and economic benefits thus remain to be obtained.

Recommendations:

- carry out the planned construction and rehabilitation of sewerage systems and waste water treatment plants to meet the deadlines under the transition period agreed for the EU Urban Waste Water Directive;
- monitor and report on the performance of waste water treatment utilities; encourage the use of benchmarking methods to continuously improve management at treatment stations;
- implement the action plan to reduce nitrate pollution from agriculture;
- formulate and implement action programmes to prevent the discharge of dangerous substances into water;
- make further efforts to improve compliance with microbiological bathing water standards;
- deal with floodplain management as part of the EU Water Framework Directive implementation; use various EU funding mechanisms to reduce exposure to flood risks.

Waste

The annual volumes of total waste and hazardous waste fell by 18 and 55% respectively during the review period. A modern waste management framework was put in place. The requirements of the EU waste legislation and other international commitments were incorporated into a new Waste Act and Packaging Act approved in 2001. A national Waste Management Plan and 14 regional plans were adopted with many long- and medium-term quantitative targets. A nationwide system for the recovery and recycling of packaging waste was established and the 2001 targets of the EU Packaging Directive were

met. Many below-standard landfills and waste incinerators were closed down. Landfill fees were steadily increased and further economic instruments were introduced. The promotion of cleaner production became a prominent feature of government waste policies. A specialised agency (Centre for Waste Management in the Water Research Institute) now manages a national waste information database. Further progress has been made on cleaning up contaminated sites.

However, the production of municipal waste began to increase again after 2001. Production of hazardous waste per unit of GDP remains two to three times that of most other EU countries. The results of waste prevention efforts have so far been disappointing, possibly due to a lack of information on the costs and benefits of waste prevention options. Recovery and recycling lag behind the rates achieved in other countries for many waste streams. About 60% of municipal waste is still landfilled, partly because landfill fees remain too low to encourage the use of more environmentally sound waste management techniques. The economic sector dealing with waste management is to be further constructed. The clean-up of the contamination burden of the past is far from complete. Perhaps most important of all, business and citizenry have not yet sufficiently taken the waste prevention message on board.

Recommendations:

- make further efforts to bolster the waste prevention ethic in business, for example by providing information about the costs and benefits of various options and promoting cleaner technology;
- pursue with determination the 22 implementation programmes of the national and regional waste management plans;
- further develop separate collection and recycling of municipal waste, by encouraging the development of markets in recycled products and by introducing economic instruments as incentives; encourage citizen participation in municipal separate collection systems;
- move towards greater cost-recovery in waste management services and gradually increase the incentive value of waste-related economic instruments;
- further develop and improve the necessary facilities for proper disposal of hazardous waste and take the necessary regulatory and economic measures to ensure these facilities are used;
- continue to remediate contaminated sites.

Nature and biodiversity

During the review period, good progress was made with legislation and institutions. The EU accession process was the driving force behind a revision of the legislative framework for biodiversity protection and nature conservation. Improvements in administrative capacity, including inspection and enforcement, were also made. A network of protected areas was established, within the national ecological network of protected areas (including landscape sites and monuments, elements of the Territorial System of Ecological Stability). The list of Natura 2000 sites under the Habitat and Bird directive (SCI and SPA) was adopted by the government. The return of some fish species was observed. The natural renewal of the forests increased. Land-use planning and land-use mapping helped bridge the gap between the management of landscape and protected areas and the use of natural resources. Environmentally sound agriculture developed. Ecological restoration of landscape was supported at all administrative levels.

However, direct destruction or gradual disappearance of valuable ecosystems continues. On-site monitoring of target species and habitats is inadequate. While several rescue programmes for selected protected species have been launched, there are no action plans at the scale of the challenge. Implementation of the CITES agenda needs to be greatly improved, with co-operation among inspectors, police investigators and courts. The landscape outside protected areas has been dramatically affected by

extraction of mineral resources, urbanisation, industrial facilities and related pollution damages. The fragmentation, isolation and destruction of dominant habitats are important issues. Consumption of fertiliser and pesticides is slowly increasing, though the intensity of their use is relatively low. The integration of biodiversity and nature protection concerns into sectoral policies is to be improved, including by use of EU Cohesion and Structural Funds and other financial resources (State or non-State) for specific projects. In particular, the service functions provided by nature (e.g. protection against flooding and climate change, recreational and tourism services) and the economic and health benefits of recreational activities (e.g. reduced obesity) should be recognised. A strategy for sustainable tourism should be prepared. Scientific and technical capacities for protecting biodiversity and nature conservation are not commensurate to the pressures from development.

Recommendations:

- finalise, adopt and implement the national biodiversity strategy and related action plans;
- establish the Natura 2000 network and related management, with appropriate co-ordination and consultation among national, regional and local authorities, and participation of civil society;
- further integrate biodiversity concerns in agriculture, forestry and tourism; evaluate the impact of agricultural chemicals (fertilisers, pesticides) on ecosystems; take measures against soil erosion; promote natural processes in the forest restoration activity; develop the strategy for sustainable tourism for protected areas;
- consistently apply nature and biodiversity criteria in the environmental impact assessment and strategic environmental assessment of development projects and programmes, especially for land use and transport infrastructure projects;
- enhance the service functions provided by nature and biodiversity, and the economic assessment of these functions (e.g. protection against the impacts of flooding and climate change, support of recreational and tourism services);
- improve funding for nature conservation and biodiversity; ensure consistency in financial assistance (e.g. in the agricultural sector).

2. Towards Sustainable Development

Integration of environmental and economic decisions

Over the review period, some progress was made in decoupling environmental pressures from economic growth with respect to SO_x and VOC emissions, water withdrawals, and waste generation from the energy, manufacturing and agriculture sectors, although often at a slower rate than in the early and mid-1990s. Integration of environmental concerns into sectoral policies (e.g. transport, industry, mining) also progressed, with the least success in the energy sector. The restructuring process initiated in the 1990s to rationalise coal production and reduce subsidies is still underway and cross-subsidies to households from industrial consumers in the energy sectors are ended. A National Strategy for Sustainable Development of the Czech Republic was approved at the end of 2004 and monitoring of its implementation has been proposed. An ecological tax reform is currently under consideration.

Although economic growth was relatively modest during the review period, decoupling was not achieved for several important indicators. Pollution intensities are well above the OECD average (e.g. SO_x, NO_x and CO₂ emissions per unit of GDP). The use of fertilisers and pesticides has increased over the review period, although, per hectare of agriculture land, it remains lower than the EU-15 average. Energy intensity is the second highest among OECD countries. Further efforts are needed to decouple environmental pressures from economic growth to capture consequent health, economic and environmental

benefits. High priority should be given to improving the energy efficiency and resource efficiency of the Czech economy. Environmental impact assessment as well as strategic environmental assessment should be made more influential. More focus is needed at the planning level; the confusion between targets and instruments should be eliminated. Contradictions between governmental targets (e.g. between the State Environmental Policy and the State Energy Policy) should be addressed. At the strategic level, Czech authorities may wish to consider whether EU targets are sufficient in scope and level, and whether additional benefits could be captured beyond the EU targets, given the country-specific conditions (e.g. floods).

Recommendations:

- further decouple environmental pressures from economic growth, including by reducing the energy and material intensities of the economy, making the maximum possible use of the EU greenhouse gas trading system;
- foster the introduction of an ecological tax reform within a context of fiscal neutrality;
- continue to eliminate environmentally harmful subsidies;
- ensure consistency between the State Environmental Policy and other State policies; strengthen the integration of environmental concerns into energy policies;
- strengthen the use of environmental impact assessment and strategic environmental assessment;
- increase the involvement of relevant ministries and agencies in implementing the Strategy for Sustainable Development of the Czech Republic and monitoring its implementation.

Integration of environmental and transport decisions

The transport sector plays an increasingly important role in the Czech economy. Institutional integration of environmental concerns in transport policies has progressed at strategic, project, regulation and local transport planning levels. Environmental sustainability is part of the proposed State Transport Policy. Strategic environmental assessment of transport policies and environmental impact assessment of transport projects have been extensively used. Concerning vehicle and fuel quality standards, the process of harmonisation with EU regulations is completed. The ban on importing cars more than eight years old, the import duties on used cars and the vehicle emission inspection programme have contributed to the renewal of the car fleet. Lead gasoline was phased out in 2001 and limits on fuel sulphur content were introduced in 2003. Financial and fiscal incentives are provided for LPG, CNG and biofuel. Public transport networks in urban areas are well developed, integrated transport systems are in place in major cities, and sustainable mobility plans are being introduced in some municipalities. Overall, the review period has witnessed a steady decline in transport emissions of carbon monoxide, volatile organic compounds and lead, a slight decrease in emissions of nitrogen oxides, and a recent decrease in sulphur dioxide emissions. Some progress has also been made in preventing noise from air transport.

Despite this progress, the transport sector is an important and growing source of environmental concerns. Freight and passenger transport volumes have been steadily rising and are likely to continue to rise. The share of road transport in the modal split is increasing and is a major and growing source of air pollution (e.g. emissions of CO₂, PM, NO_x and other precursors of ozone) and noise pollution. Ambient particulate matter and ozone concentrations are high in cities (e.g. due to the relative old age of freight vehicles and passenger buses) and threaten the health of inhabitants. A large population is exposed to high noise levels. With heavy investments in new road infrastructure, the quality of the rest of the road network remains poor, and the railway system has not progressed significantly. The renewal of the vehicle fleet has been mainly driven by restrictive measures rather than by market-based incentives. Fuel price adjustments have not managed to moderate road transport demand. Road taxes and fees are not differentiated on the

basis of distance travelled. In large urban areas, the use of public transport has fallen and demand management is still not adequate to influence car use.

Recommendations:

- increase the consistency between transport infrastructure investment programmes and environmentally sustainable transport objectives, giving higher priority to road network quality, railways and combined transport, as well as to efficient use of EU funds; increase the use of cost-benefit analysis and the effectiveness of environmental impact assessment;
- further develop traffic management in urban areas, (e.g. traffic restrictions in city centres, parking and road pricing, incentives to commute by public transport, establishing mobility managers in major companies and government departments);
- improve institutional co-ordination of transport and land use plans among the State, regions and municipalities, especially in developing and managing the road network; develop the infrastructure for cycling;
- enforce vehicle inspection and maintenance obligations, to better control emissions from older vehicles and to stimulate renewal of cars, lorries and bus fleets;
- review transport prices and taxes to better internalise external costs; create incentives to influence transport decisions by firms and individuals (e.g. gradually extend the road tax to passenger vehicles and link it to distance travelled, introduce highway electronic tolls, implement measures to compensate for rail VAT and price increases).

Integration of environmental and social decisions

Environmental information is generally of high quality and easily accessible. Annual national reports on the state of the environment have been available since 1993, supported by annual reports for the 14 regions. Acts on the access to environmental information have been in place since 1998, and the Aarhus Convention was ratified in 2004. The Government Council for Sustainable Development, created with the participation of civil society representatives, has established several working groups, including for the promotion of Local Agenda 21. Good inter-ministerial co-operation led to adoption of the National Programme on Health and Environment. An ongoing survey evaluates contamination levels in several products, materials and environmental media, and monitors public health. A National Programme on Environmental Education benefits from co-operation among the Ministry of the Environment, the Ministry of Education, Youth and Sports and the regional authorities. Environment is taught at all educational levels, and a network of 100 Environmental Education Centres works with NGOs on its management.

As access to courts in environmental matters was regulated only in 2003, an effort must be made in preparing the justice system for this new challenge, with appropriate environmental training programmes. Neither the administration nor the representatives of civil society were able to quantify the impacts on employment of environmental policy or of the large investments made to clean up black spots and to upgrade old technologies. The public's concern about global environmental issues is not reflected in consumption patterns, probably due to a certain lack of awareness of national issues.

Recommendations:

- continue to establish objectives and targets for public health and the environment, building on annual health and environment surveys;
- evaluate the effects of environmental policy on employment;
- promote the role of the not-for-profit sector in environmental employment, especially in environmentally sensitive areas;
- continue to develop the system for providing environmental information and implement the principles of free and easy access to this information; support citizen participation in environmental decision-making and access to justice in environmental issues; implement the OECD Council Recommendation on Pollutant Release and Transfer Registers;
- reinforce public participation in the context of environmental impact assessment licensing processes;
- continue to promote the Local Agenda 21 among municipalities, building on support schemes such as the Healthy Cities and Environmental Education Centres;
- further develop the environmental training of elected officials, civil servants and teachers, and establish a training system for justice officials.

3. International Co-operation

The Czech Republic has managed its international and European action concerning the environment both rigorously and efficiently. It has been timely in preparing and adopting documents with precise objectives and deadlines for ratifying and implementing multilateral environmental agreements (MEAs) and in preparing for accession to the European Union. It has also satisfactorily negotiated the environmental acquis, transposing numerous EU Directives into national law and negotiating transition periods for just three Directives that are particularly expensive to implement. The Czech Republic has fulfilled or is on its way to fulfilling its international obligations, especially with regard to the Montreal Protocol, the Geneva Convention on Long-range Transboundary Air Pollution (CLRTAP) and the Kyoto Protocol. Lastly, the Czech Republic has taken active steps to increase its development assistance and foster bilateral co-operation.

However, despite these very significant results, much remains to be done. The extent of the Czech Republic's contribution to reducing acidity in the region remains questionable: the Czech Republic still has very high emissions of SO₂ and NO_x per capita and per unit of GDP compared to other OECD countries. It also has very high emissions of CO₂ per capita and per unit of GDP. As an upstream country, and despite real progress, much remains to be done about transboundary water pollution. It is not certain that the National Strategy for Sustainable Development of the Czech Republic will offer a transition to different modes of production and consumption, a decoupling of energy use from economic growth, or the responses needed for participation in the single European market, especially as regards transport. There have been delays in adopting a national biodiversity strategy. The current environmental enforcement system may not be able to guarantee effective monitoring of offences relating to trade in endangered species and the Washington CITES.

Recommendations:

- implement the measures in the national programme to abate the climate change impacts so as to get closer to the European average for greenhouse gas emissions per capita and per unit of GDP; use economic analysis to increase the efficiency of policies and measures to reduce the economy's carbon intensity;
- improve the capacity to absorb European environmental support (e.g. Cohesion and Structural Funds);
- continue to reduce air emissions (e.g. NO_x emissions) to meet the 2010 targets of relevant EU Directives and CLRTAP protocols;
- continue to reduce the pollution of transboundary rivers (e.g. Elbe, Oder, Morava rivers and tributaries);
- strengthen the implementation of the Washington Convention on International Trade in Endangered Species of Wild Fauna and Flora;
- continue to increase development assistance and environmental development assistance;
- continue to ensure that foreign direct investment in the Czech Republic strictly conforms to environmental law.