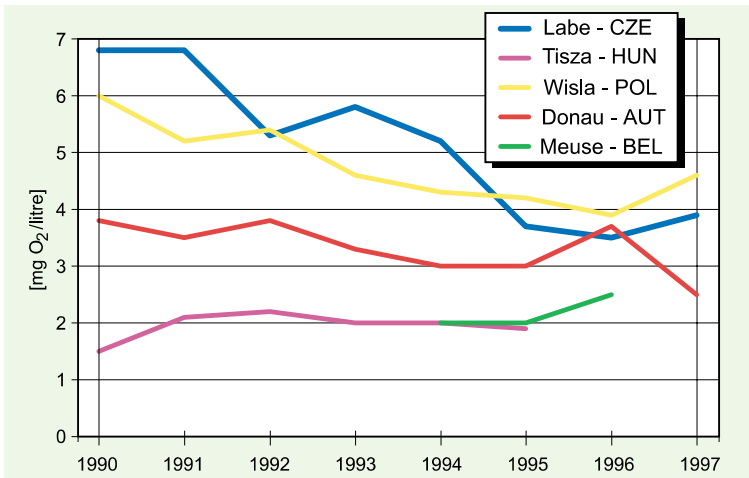


Box 3.8. Biochemical oxygen demand (BOD) - annual mean concentrations, selected major rivers, 1990-97



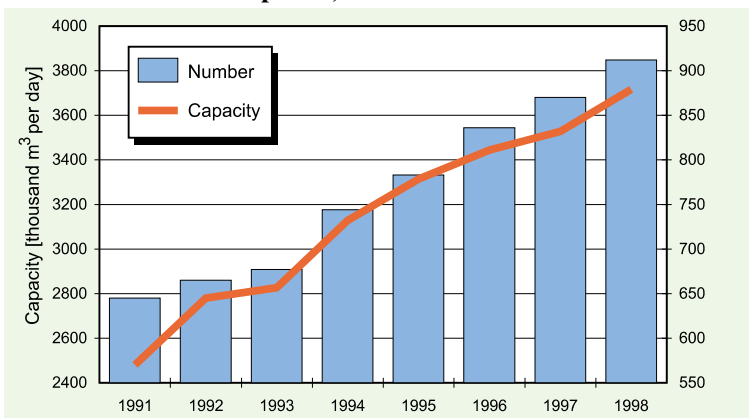
Source: OECD

Note: Since measurement methods vary by country, the comparison of trends is more reliable than the comparison of absolute values

Waste water treatment

A total of 592 million cubic metres of wastewater was discharged into the public sewer system in 1999, 95 percent of which was treated in some way. The comparable figures for 1989 were 878 mil.m³, of which 71 percent was treated. From 1990-99, 333 new municipal wastewater treatment plants were built (and of these, 47 new plants were built in 1999, as well as 14 being reconstructed). The total number of municipal WWTPs was 959 in 1999.

Box 3.9. Municipal wastewater treatment plants in the Czech Republic, 1991-99



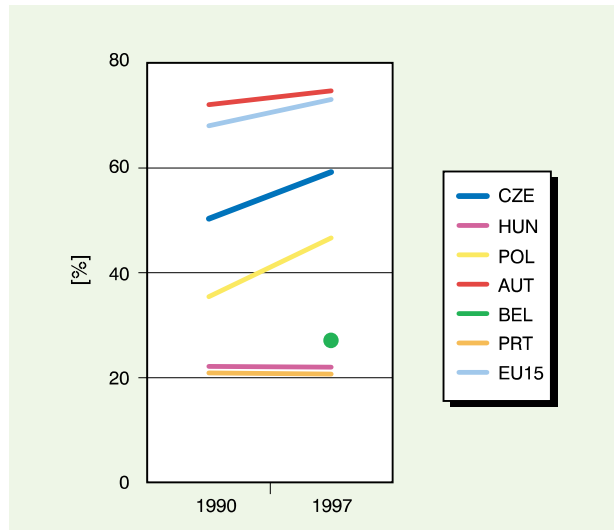
Source: Ministry of Environment

Between 1990 and 1999 the proportion of the population connected to the sewerage network rose

from 72.6 to 74.6 percent (7.67 million people), whilst the share connected to wastewater treatment plants increased from 50.3 to 59.2 percent (from 1990-97). The share of population connected to wastewater treatment plants in the Czech Republic now equals the OECD average (59 percent in the mid-1990s) but is lower than in the EU (73 percent in 1998).

The fact that many sewage systems are not yet connected to wastewater treatment plants, and that many major wastewater treatment facilities are not yet equipped with nitrogen and phosphorus removal, is a serious problem for the Czech Republic.

Box 3.10. Share of population connected to municipal wastewater treatment plants, international comparison, 1990-97



Source: OECD

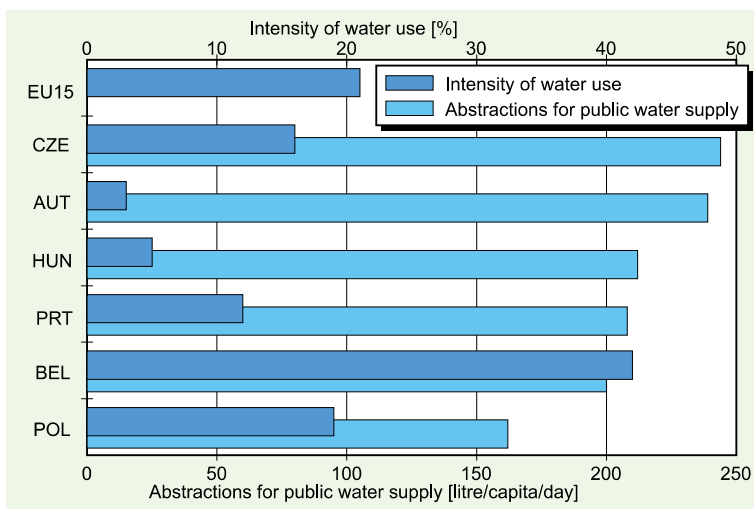
EU legislation requires that all municipalities with more than 2000 population equivalent must be equipped with suitable wastewater treatment plants. This represents a large investment requirement because of the pattern of urbanisation in the Czech Republic, where most of the population lives in settlements of a few thousand inhabitants.

Water use

The trend in wastewater discharge is reflected to a large extent in the trend in water abstraction. Decreases in water abstraction from 1990 to 1999

were as follows: about 88 percent in agriculture, 47 percent in industry, 48 percent in the electricity generation industry and 34 percent for public water supply.

Box 3.11. Water abstractions for public water supply, mid-1990s, and intensity of water use, 1998; international comparison



Source: OECD

Note: Intensity of water use is withdrawal as % of available resources

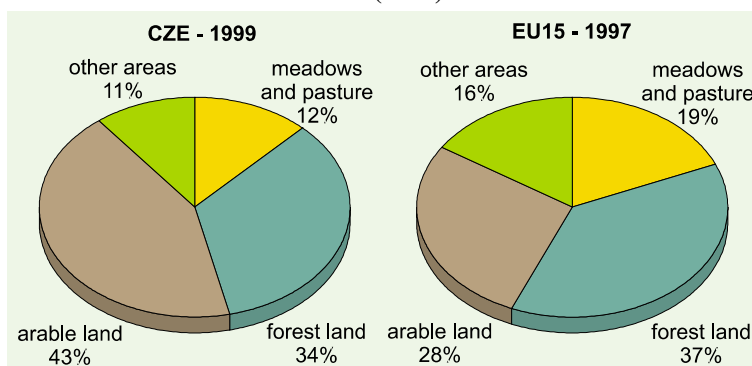
Per capita water consumption from the public water supply is now among the lowest in the OECD. Processed water consumption decreased from 343 l/capita/day in 1993 to 245 l/capita/day in 1999. Household water use decreased from 137 l/capita/day to 109 l/capita/day over the same period, and is now among the lowest in the OECD. A gradual decline in public water consumption may be ascribed to the increase in water supply and sewage disposal charges. The Achilles' heel of the water supply system is the state of the supply network: nationally, about 30 percent of water produced for consumption is lost in distribution.

The Czech Republic is subject to moderate water stress as annual freshwater withdrawals represent 12.9 percent of available resources (1999 figures). The corresponding value for the EU was 20.7 percent (1997).

Land use

The Czech landscape has been influenced by man for centuries. Over the past ten years, the main forms of land use have been largely stable, but two positive long-term trends can be observed: the share of arable land in total agricultural land decreased from 75.1 percent to 72.3 percent (but still remains one of the highest in Europe) and the share of meadows and pastures has slightly increased. After 1990, the area of uncultivated land (i.e. arable land left fallow and unsown) increased significantly - from 4 thousand hectares in 1990 to 62 thousand hectares in 1999 - and together with fallow meadows and pastures accounted for about 3 percent of total agricultural land (117 thousand hectares) in 1999. This land will need greater attention in the future in relation to the danger of soil degradation, water regime, invasive weed species etc.

Box 3.12. Land use in the Czech Republic (1999) and EU (1997)

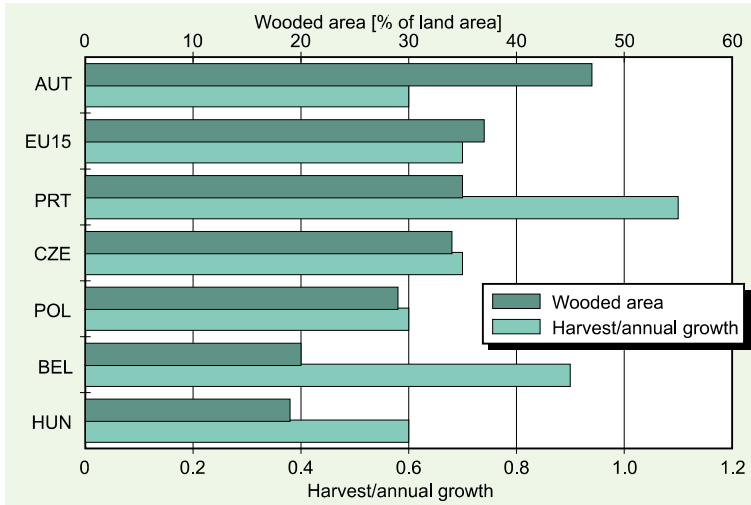


Source: Ministry of Environment; OECD

Forest resources

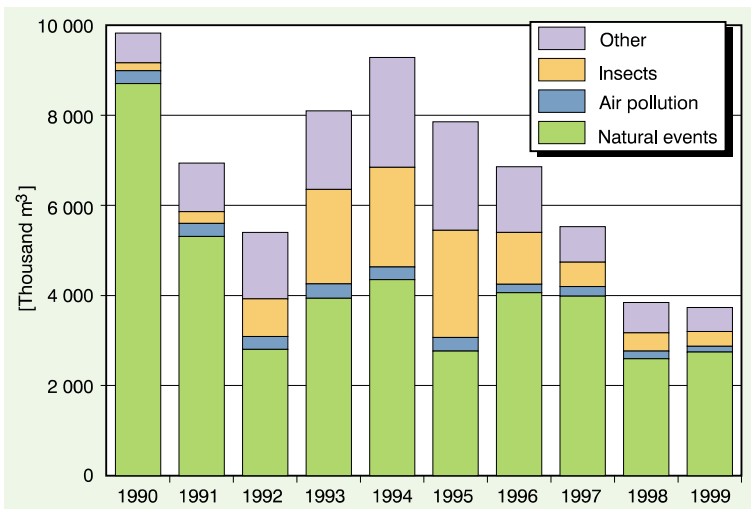
Attitudes to forests in the Czech Republic have been gradually changing, with more focus being placed on their non-productive functions for water management, nature protection, health and recreation, etc. Key indicators of forest resources and use are close to the EU15 figures for 1998: the area of forested land was 33.4 percent of the country (0.26 ha/person), and the intensity of use was 0.7 (i.e. harvesting was at 70 percent of the annual forest increment, so forests were being used within the limits of their productivity).

Box 3.13. Forest resources and use, international comparison, 1997



Source: OECD

Box 3.14. Salvage felling of forests by cause in the Czech Republic, 1990-99



Source: Ministry of Environment

54 percent of the wooded area of the Czech Republic was recently reported damaged by air pollutants to some extent and the country's woods are therefore ecologically instable - although this must be understood in the wider European context where only about 35 percent of forests are in good health. Salvage felling - felling of damaged trees and removal of fallen and dead standing trees - fell to roughly one third over the past ten years.

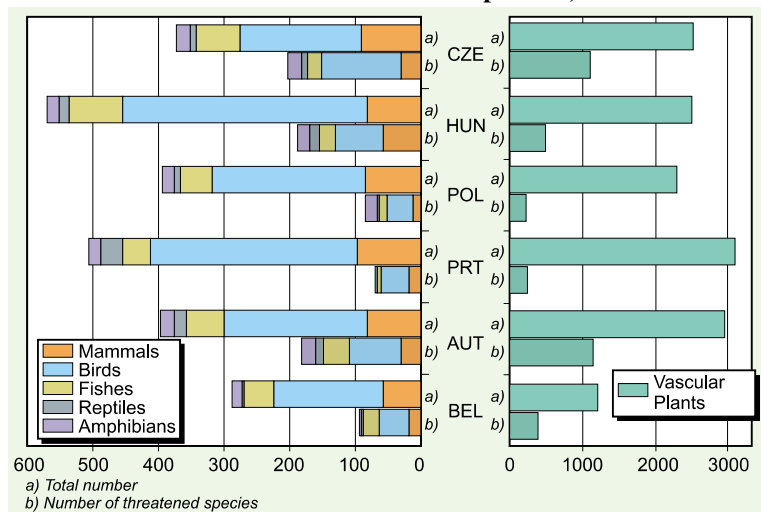
Forests in the Czech Republic are mostly monocultures with spruce and

pine the most common species; the proportions of forest area accounted for by coniferous and deciduous species are 77 and 23 percent respectively. Since 1990, afforestation programmes have supported a near-natural mix of species, i.e. higher proportions of deciduous trees (beech and oak especially) and fir. The profile of forests in terms of species, age and spatial diversity can therefore be expected to improve in the long term.

Nature conservation

Nature and landscape in the Czech Republic have been heavily affected by human activities (agriculture, mining etc.) and their associated pollution, and one of the consequences of these activities has been a decrease in biodiversity. There are an estimated 47 thousand plant and animal species in the Czech Republic. In spite of some improvements over the last decade (the return of the butterfly *Papilio machaon*, the newly-abundant bat *Myotis daubentoni*, the beaver *Castor fiber* or poplar *Populus nigra*), substantial changes could not be expected to occur on this timescale - supporting natural processes in ecological systems is a long-term task.

Box 3.15. Total number of animal and plant species (A) and number of threatened species (B), international comparison, 1997



Source data for the above chart

Share of Threatened Species of total number (%)						
	Mammals	Birds	Fish	Reptiles	Amphibians	Vascular Plants
CR	33,3	57,4 *	29,2	90,9 *	85,7 *	43,7
HU	71,1	18,8	32,1	100	100	19,8
POL	15,5	16,6	27,1	33,3	100	9,8
PRT	17,3	13,7	18,6	8,8		8,2
AUT	35,4	37	65,5	87,5	100	39,2
BEL	31,6	27,5	54,3	50	30,8	31,9

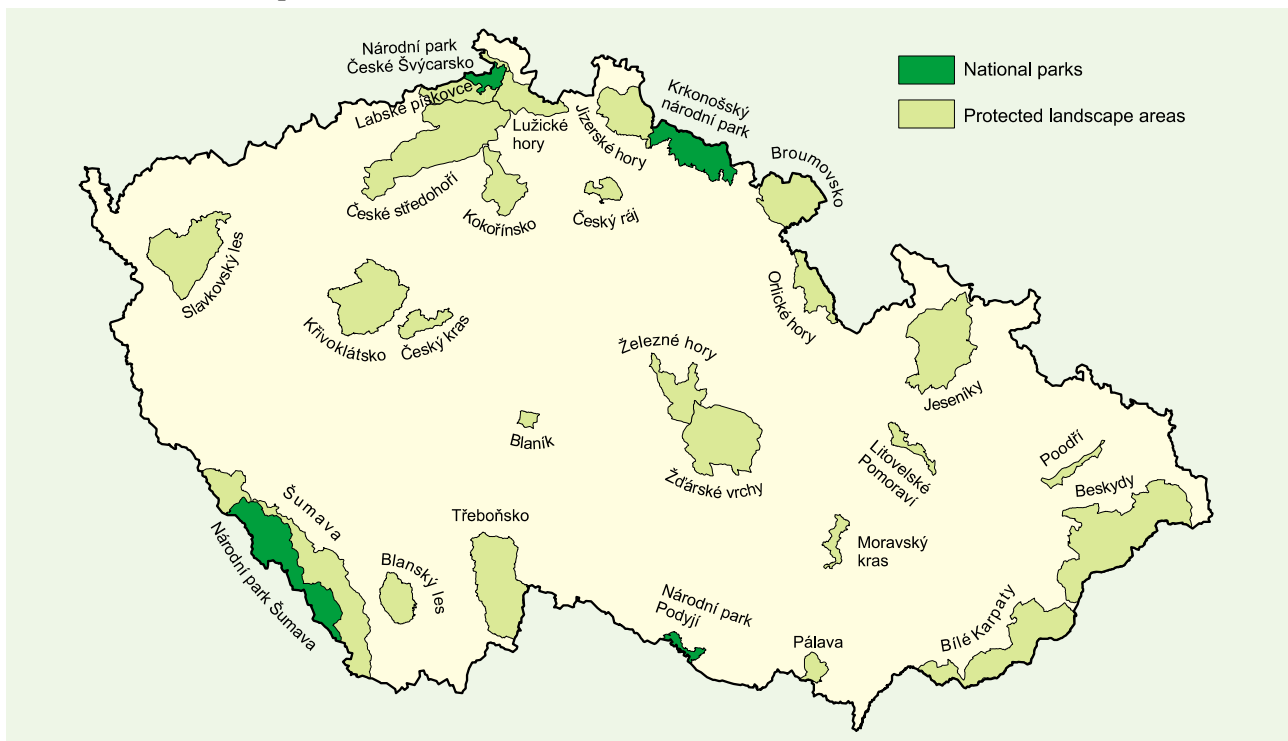
Source: OECD, European Environmental Agency

Note: The 'threatened' category refers to species categorised as 'critically endangered', 'endangered' or 'vulnerable' (based on the IUCN classification). Data marked * by Ministry of Environment, 1999

Water Management Projects provides financial assistance for the (re)construction of sewage systems and wastewater treatment plants. The Conservation of Specially Protected Areas programme provides for technical measures to safeguard protected areas and caves, clean-up of landfills etc. The Conservation of Species programme represents an integrated approach to the preservation of biodiversity and support to revitalisation

processes in ecosystems and the landscape. Financial support by the Ministry of the Environment for programmes of landscape protection increased from 117 million CZK in 1993 to 593 million CZK in 1998.

Box 3.16. Map of large-scale protected areas in the Czech Republic, 1999



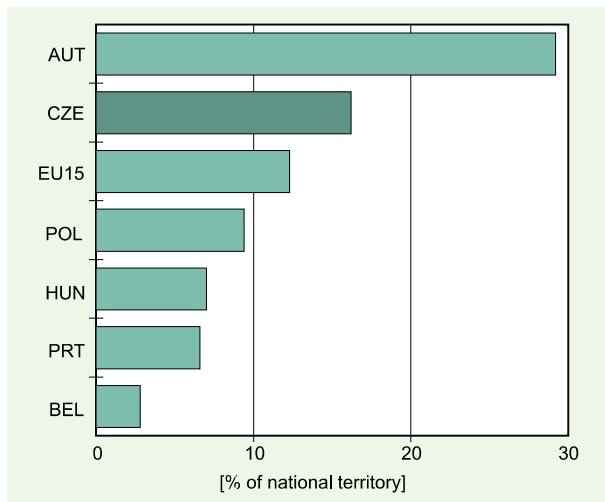
Source: Ministry of Environment

Since for many threatened species the most important requirement for their survival is protection of their habitats, several programmes focused on habitats of different types have been launched. The Landscape Programme provides for protection and renewal of the basic functions of the landscape. Territorial Systems of Ecological Stability are mutually interconnected sets of near-natural ecological systems that help to maintain natural equilibrium. The River System Restoration Programme aims to increase the ability of the landscape to retain water. The Programme of Small

All types of protected area in the Czech Republic, taken together, amount to 16.2 percent of the country's land area, of which 14.6 percent is accounted for by large-scale protected areas. Three National Parks (NP) have been established in the Czech Republic since 1990 - the Šumava NP (with an area of 68,330 ha), the Podyjí NP (6,052 ha) and the České Švýcarsko NP (7,900 ha). The total area of all four NPs corresponds to 1.4 percent of the country's land area (the Krkonoše NP has been in existence since 1963). Besides national parks, there are also 24 Protected Landscape Areas (ma-

king up 13.2 percent of land area) and a system of 1,921 small-scale protected natural areas (making up 1.3 percent of land area). The priority task for nature protection in 1999 was preparation for the implementation of EU legislation, notably inclusion of selected areas into the system of protected areas of European significance, the Natura 2000 network.

Box 3.17. Major protected areas as a share of total national land area, international comparison, 1997



Source: OECD; Ministry of Environment

Note: Data for the Czech Republic refer to 1999

The Czech Republic is close to the EU average in another indicator also - the size of protected areas relative to the country's population. This figure was 123 ha/1000 population in the Czech Republic in 1999, compared to 130 ha/1000 population in the EU in the mid 1990's.

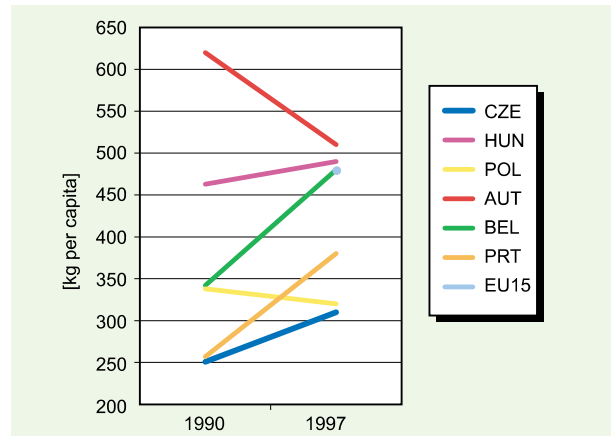
Another approach in nature conservation is represented by Biosphere Reserves. These are areas of terrestrial and coastal or marine ecosystems that are precious for their biodiversity as conservation units internationally recognised under UNESCO's Man and the Biosphere (MAB) Programme. They are used for educational and research purposes and human activities there have to be reported. The numbers of Biosphere Reserves in selected countries are: 7 in Poland, 6 in the Czech Republic, 5 in Hungary, 4 in Austria and 1 in Portugal.

Waste management

The current situation in waste management in the Czech Republic is characterised by a relatively

small amount of municipal waste generated: 441 kg per capita in 1998 and 400 kg per capita in 1999 (these figures are not comparable with the 1997 data due to a change in the OECD classification of waste).

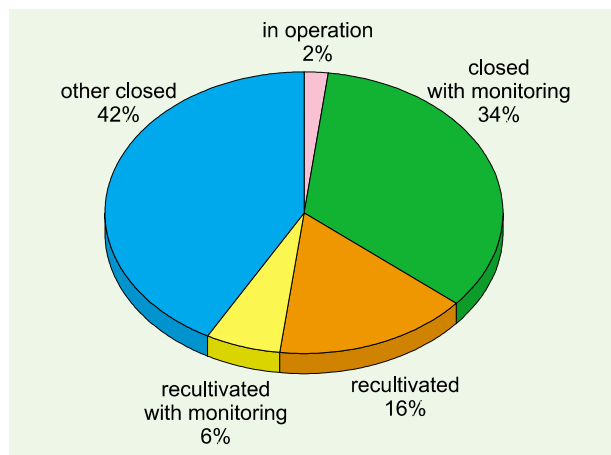
Box 3.18. Generation of municipal waste, international comparison, 1997



Source: OECD

Note: When interpreting national figures, it should be borne in mind that definitions of municipal waste and survey methods vary across countries

Box 3.19. State of landfills in the Czech Republic, 1998



Source: Czech Environmental Management Centre

The total amount of waste produced in the Czech Republic in 1999 was 35.4 million tonnes, of which 6.8 percent was classified as 'hazardous'. This high share of hazardous waste is (at least partly) the result of the classification of hazardous waste under current Czech legislation, which is stricter than under EU law. About 30 percent of waste was used as a source of secondary materials

and energy in 1999. At present the Czech Republic has adequate capacity in installations for waste disposal. Landfilling is the most extensively used method of waste disposal: A low percentage of waste - 2.6 percent - was incinerated with energy recovery. Recycling of waste is still inadequate, although separation of glass, plastics and paper in household waste is improving. A total of 344 landfills were in operation in 1999, which is sufficient (an average of five landfills per District). Consi-

derable difficulties are associated with decontamination and reclamation of old landfills that were closed due to non-compliance with new regulations. Currently only landfills of a high technical standard are in operation, with parameters in line with EU requirements.

Besides landfilling, there are 79 hazardous waste and three municipal waste incinerators. In 1999, about 3 percent of hazardous waste was incinerated.