REPORT ON THE STATE OF WATER MANAGEMENT IN THE CZECH REPUBLIC IN 2005

By December 2005

MINISTRY OF AGRICULTURE
MINISTRY OF THE ENVIRONMENT

REPORT ON THE STATE OF WATER MANAGEMENT IN THE CZECH REPUBLIC IN 2005

By December 2005

■ Ministry of Agriculture
■ Ministry of the Environment

FOREWORD BY MINISTER

on Report on State of Water Management of the Czech Republic in 2005

Dear readers,

You hold in your hands the „Report on the State of Water Management in the Czech Republic in 2005“, called the Blue Report for short, which has now been issued regularly for nine years. This publication is a summary of information material about all the areas and activities in water management for the year 2005 and follows on from the previous reports prepared for the years 1997 – 2004 which the Ministry of Agriculture publishes annually.

The thematically focussed chapters contain in particular a description of the state of water management and water protection in main indicators for the past year, which is augmented for the selected areas by characteristic developmental trends over the longer timescale. The report contains verified information about the overall amount of water and quantifies its most important factors in the field of rainfall, outflow conditions and the groundwater system. Following on from previous years it also includes outputs from the water management balance, watercourse management, area of public water supply and sewerage systems, sources of water pollution, water protection and the implementation of various types of financial support provided in the context of water management. The other parts of the report focus on amendments to legislative measures, international relations, water management planning, fisheries and fishpond management, including research and development in the context of water management. In an independent chapter in the Blue Report there is now an expanded overview of the reports sent to Brussels last year.

The reader will find more detailed information about the quality of surface water and groundwater, sources of pollution and water protection steps in the „Report on Protection of Water Against Pollution“, prepared simultaneously by the Ministry of the Environment, which will be published on the internet, but it is not issued in printed form as this publication is. More detailed information about the supply of drinking water from water supply systems for public need and about removal and treatment of municipal waste water is to be found in the material „Water Supply and Sewerage Systems Czech Republic 2005“ prepared by the Ministry of Agriculture in July 2006.

I hope that this now traditional and sought-after publication will once again this year be a high-quality source of information, not only for water management professionals, but that it may also help satisfy the general demand for information amongst the general public about the area of water as an irreplaceable component of the environment.

Ing. Jan Mládek, CSc.
Minister of Agriculture of the Czech Republic

CONTENT

1.	STATE OF SURFACE WATER AND GROUNDWATER	7
1.1	Hydrological balance	7
1.2	Quality of surface water	8
1.3	Quality of groundwater	16
2.	WATER BALANCE ASSESSMENT – HANDLING WATER	19
2.1	Abstractions of surface water	19
2.2	Abstractions of groundwater	20
2.3	Discharges of waste and mine water	20
3.	ADMINISTRATION OF WATERCOURSES	23
3.1	Professional administration of watercourses	23
3.2	River Board, s.e.	25
3.3	Agricultural Water Management Authority	30
3.4	Forests of the Czech Republic, s.e. – area administrations of watercourses	32
3.5	Waterways	34
4.	PRIORITY TASKS AND CORE DOCUMENTS IN WATER MANAGEMENT	37
4.1	Reporting of the Czech Republic for Brussels	37
4.2	Project of Public Administration Information System – WATER	39
4.3	Implementation of preventative measures for flood protection	40
5.	WATER SUPPLY AND SEWERAGE SYSTEMS	43
5.1	Drinking water supply	43
5.2	Removal and treatment of communal waste water	44
5.3	Development of water supply and sewerage charges	47
5.4	Selected data of asset and operational records of water supply and sewerage systems	47
6.	SOURCES OF POLLUTION AND WATER PROTECTION	49
6.1	Point sources of pollution	49
6.2	Broad area pollution	49
6.3	Accident pollution	51
7.	STATE FINANCIAL SUPPORT FOR WATER MANAGEMENT	53
7.1	Financial support of Ministry of Agriculture	53
7.2	Financial support of Ministry of the Environment	56
7.3	State Environmental Fund	57
7.4	Financial support from international sources	60
8.	LEGISLATIVE INSTRUMENTS	63
8.1	Preparation of Amendment to Act Concerning Water Supply and Sewerage Systems for Public Use and adopted amendments to the Water Act	63
8.2	Implementing regulations for the Water Act and other associated regulations	63
8.3	Implementing and internal regulations for the Act concerning water supply systems and sewerage system for public use	64

8.4 Inspection of exercise of state administration in the field of water management 64

9. PLANNING IN THE FIELD OF WATER MANAGEMENT 67
9.1 Planning in the field of water 67
9.2 Plans for development of water supply and sewerage systems for management of regions of the Czech Republic 68

10. INTERNATIONAL RELATIONS 71
10.1 International cooperation on border waters 71
10.2 International and regional cooperation in unified catchment areas of the European rivers Elbe, Odra and Danube 73

11. FISHERIES AND FISHPOND MANAGEMENT 77
11.1 Fisheries and fishpond management in 2005 77
11.2 Changes in state of fishponds 79

12. RESEARCH AND DEVELOPMENT IN WATER MANAGEMENT 81
12.1 Research and development in competence of the Ministry of Agriculture 81
12.2 Research and development in competence of the Ministry of the Environment 81

Explanation of abbreviations in text 84

1. STATE OF SURFACE WATER AND GROUNDWATER

1.1 Hydrological balance

In 2005, the long-term rainfall norm for the territory of the Czech Republic was exceeded by slightly less than 5 %. In Bohemia rainfall corresponded to 105 % of the long-term norm, on the territory of Moravia and Silesia it was approximately 103 % of the long-term annual norm. In total, 727 mm of rainfall fell on the territory of the Czech Republic, in Bohemia it was 719 mm, in Moravia 719, and in Silesia 739 mm.

From a comparison with the long-term monthly norms it is evident that on the territory of the Czech Republic in 2005 six months were above-average in terms of rainfall – January (156 % N), February (163 % N), May (116 % N), July (147 % N), August (119 % N) and December (152 % N). But the month of October, when only 21 % of the norm fell, was very dry. In the remaining months, the average rainfall was from 67 to 92 % N. In general there were no great differences between Bohemia and Moravia, Silesia. The months where there were differences were July (Bohemia – 159 % N, Moravia – 126 % N), September (Bohemia – 104 % N, Moravia – 63 % N) and November (Bohemia – 57 % N, Moravia – 83 % N). It is also worth mentioning the fact that in the course of October average rainfall in Moravia and Silesia reached only 8 mm, which represents 14 % of the long-term norm.

From the aspect of absolute rainfall totals, in 2005 the rainiest month was July with 131 mm, and the driest month was the already mentioned October, when only 12 mm of rainfall fell.

In 2005 there was no wide-scale extreme rainfall event resulting in the type of flood which repeats only infrequently and on a large area. But there were relatively many situations with local deluge rainfall.

Table 1.1.1 Renewable water sources in the years 1996 – 2005 in millions m³

Item	Annual values									
	1996	1997	1998	1999	2000	2001	2002	2003	2004	2005
Rainfall	54 890	57 809	56 153	49 291	54 733	63 960	71 298	40 695	53 629	57 730
Evapotranspiration	37 461	39 859	42 750	35 381	40 353	48 537	48 533	29 319	41 473	42 872
Annual inflow [1]	825	653	541	550	573	761	1 341	524	640	781
Annual outflow [2]	18 254	18 603	13 944	14 460	14 953	16 184	24 106	11 900	12 796	15 639
Sources of surface water [3]	7 086	6 200	4 825	4 875	4 789	6 600	6 506	3 758	4 270	5 489
Usable sources of groundwater	1 380	1 430	1 330	1 390	1 204	1 440	1 625	1 195	1 224	1 305 [4]

Source: Czech Hydro-Meteorological Institute
Note: [1] Annual inflow to the Czech Republic from neighbouring states
[2] Annual outflow from the Czech Republic
[3] Designated as flow in main catchment areas with 95 % ensuring
[4] This is a qualified estimate, detailed specification is realistic in the 2nd half of 2006

Overall 2005 was average in terms of outflow. Annual average flows were mostly from 80 to 130 % of the long-term annual average Q_a.

In 2005 the least water was in the catchment areas of the Orlice, Odra and Bečva, and the one with the most water in relative terms was the catchment area of the Olše. The month with the greatest water was indisputably March, when the average flows of all rivers were between 1-2 times the long-term monthly average Q_m. The driest periods in relative terms were June and the period from October to the end of December. In November and December the outflows from the main catchment areas mainly fell below 70 % of Q_m. The average monthly flows in the first quarter were most frequently from 50 to 150 % of Q_m, then at the end of March, in view of the flood situation, they were from 100 to 230 % of the long-term monthly norm. The flows of the monitored rivers in the catchment areas of the upper Elbe, Odra and Morava were slightly below the long-term monthly averages in January.

The first quarter of the year was characterised by a fluctuating tendency, in particular at the start of the period and at its end, and the flow maxima of the individual flood episodes had an increasing tendency. In the second quarter, from April to June, the downward trend which had begun in the last ten days of March continued. In all the catchment areas this trend was only interrupted by short episodes caused by the fluctuation of surfaces according to the daily temperature changes accompanied by rainfall or later by storms in May. In the third quarter, the previous downward trend was overtaken by the fluctuation of surface levels in the relatively cold and wet period at the end of June and start of July. This feature was maintained with a slight interruption to the end of August.

The last, fourth, quarter of the year began with the warm and dry October, and it can be characterised by its constant state up to mid November, later with a slightly fluctuating tendency with slight increase in surface levels. This applies in particular for the catchment areas of the Odra and Bečva.

2005 was not a year of significant floods on the territory of the Czech Republic. Apart from several local deluge floods on smaller rivers, the level of Q_{10} was noted as the maximum. The most significant floods on our territory were the March floods caused by a rapid thaw and melting of significant quantities of snow, in particular at medium altitudes. The events of the summer were more significant primarily in the cooler and wetter July and August, and some of them were peripheral expressions of significant rainfall situations in the Alps. At the same time there were several cases of torrential downpours. Evidently the most significant was the situation at the end of August. The warm, dry weather in October practically terminated the flood season of 2005.

The most important flood episode in 2005 was associated with the thawing of snow at the end of the second ten days in March and the start of the third ten days, and it was expressed most in the catchment area of the Morava and Dyje, in the catchment areas of the Elbe and Vltava the expressions were somewhat less marked.

The most significant of the summer flood events was in the area of Beskydy with heavy rainfalls on the days 23. to 25.8. But the afternoon of 24.8., when 100 to 150 mm of rain fell in twelve hours, was decisive. The reaction was a sharp increase in levels and many local floods in the catchment areas of the Olše and Ostravice. Problems with local flooding occurred primarily in municipal areas (Český Těšín, Ostrava and Karviná).

- **The levels of groundwater in the monitored bores and the yields of springs at the start of 2005 were generally under the long-term monthly averages, but they gradually rose.**

The increase was caused by slightly above-average rainfall in December 2004, and it was more significant in the northern half of the republic. But the rainfall during the relatively warm January had an even greater influence, and increase in the surface level accelerated after them, and it remained greatest in northern Bohemia. At most objects of the reporting network the levels and yields reached long-tem averages, but there average values were exceeded in a significant manner only occasionally. The subsequent cooling in February was expressed in the stagnation of groundwater levels and the yields of springs or in drops, mainly for objects higher above sea level. In contrast with this, in the lower-lying areas, there were slight increases. Despite the fact that February was above the norm for rainfall, during the lower temperatures the rainfall did not have a significant impact on groundwater. Only with the increase in the temperature in March did the groundwater start to increase as a result of melting snow, and at the end/ of March/start of April at almost all the monitored objects the levels of groundwater and yield of springs culminated. And at the same time in most of the monitored objects, both the annual and monthly long-term averages for the comparative period of 1971 – 1990 were exceeded, and at the same time these measured values were for the most part the highest in 2005.

After these maxima, levels and yields gradually fell, and the smooth fall lasted until July, when groundwater began to react to the intense rainfall in the middle of the month. Increases were expressed on the entire territory of the republic, and the most significant were in Šumava and the Ore Mountains, and then primarily in eastern Bohemia and in Moravia. But on most of the territory the measured values did not exceed the spring maximum. The annual maxima were attained in August and September only in the monitored objects in the south Bohemia basins, in the Giant Mountains and on the Czech-Moravian Highlands and in the southern part of Moravia. The period with increased states lasted only until October. In the following months, which had below-average rainfall, the levels of groundwater and yield of springs gradually fell. Only with the higher rainfall at the start of December did the drop come to an end, and once again the stocks of groundwater began to replenish.

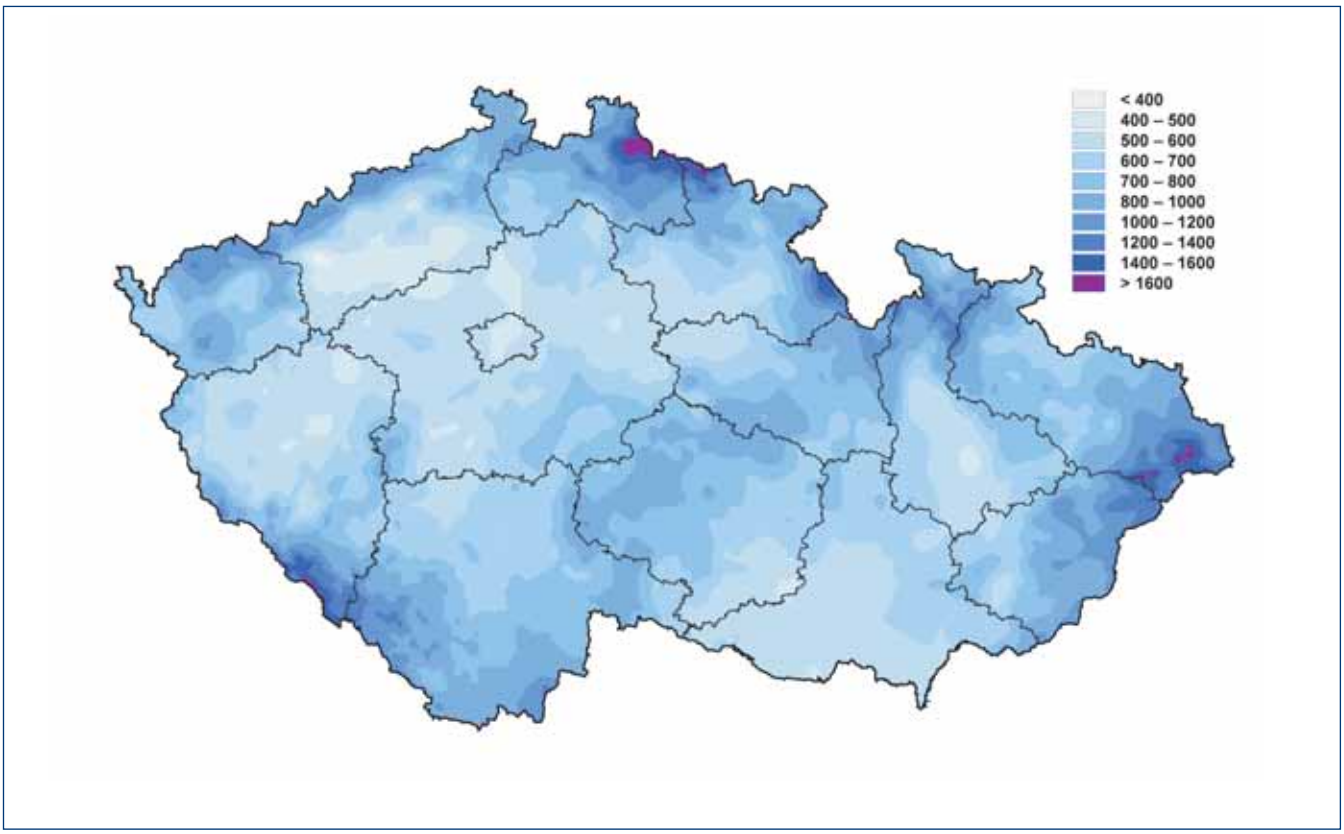
1.2 QUALITY OF SURFACE WATER

- **Overall it can be stated that from the long-term aspect, the quality of water in rivers is increasing, which also applied to the developments in previous years.**

For the evaluation of pollution, a classification of water quality was used according to ČSN 75 7221, the data is taken from the state network for the monitoring of quality of surface water operated by the Czech Hydro-Meteorological Institute (referred to hereinafter as the „CHMI“). Data for the pairs of years 1991 – 1992 and 2004 – 2005 was once again evaluated using the basic classification, this means a joint evaluation of six indicators – BCO_5, CCO_{Cr}, $N\text{-}NH_4$, $N\text{-}NO_3$, P_{total} and saprobic index of macrozoobentose.

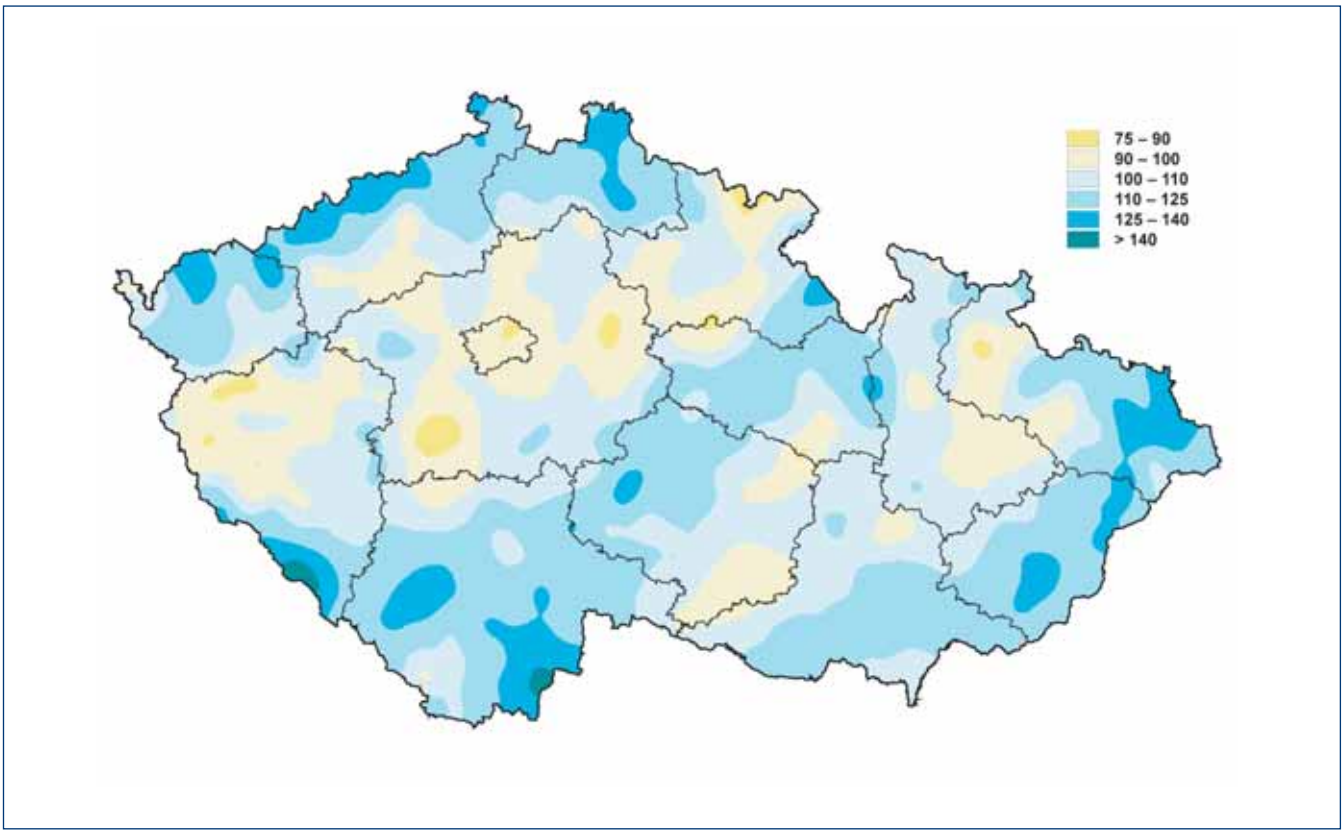
Since the beginning of the 1990s, in the context of the monitored profiles of surface water, there has been a significant drop in their number with the worst water-quality classes (V and IV). Class V (very highly contaminated water) water quality has gradually been eliminated on the main rivers (Elbe, Vltava, Morava and Odra) and on most of their significant tributaries. In the pair of years 2004 – 2005 the main rivers shown already achieve class III, apart from the section of the Elbe downstream of Lysa nad Labem and downstream of Štětí (paper mill) and Lovosice (Lovochemie), the section of the Vltava downstream of Lužnice (dam reservoir Orlík), the section of the Odra downstream of Jičínka and the Morava downstream of Uherské Hradiště. On many other rivers, since the start of the 1990s the water quality has gone from class V to class IV: Cidlina, Mrlina, Výrovka, Vlkava, Blanice (tributary of the Sázava), the upper section of the Sázava, Bystřice (tributary of the Bíli-

Picture 1.1.1 Total rainfall on the territory of the Czech Republic in 2005 in millimetres



Source: CHMI

Picture 1.1.2 Total rainfall on the territory of the Czech Republic in 2005 in % of the norm 1961 – 1990



Source: CHMI

na), Mandava, section of the Lužická Nisa before the state border, upper section of the Jihlava, Rokytná, Oslava, Jevišovka, Haná, Valová, Oskava, Ostravice, Lučina, Olše; or even to class III: Volyňka, lower section of Sázava and other sections of smaller rivers.

But in spite of the attained improvements, it is not possible to consider the current state as satisfactory; the sections of watercourses with lower water content and a high concentration of pollution sources are primarily the most problematic. One example of this is the, Bílina, a small river still heavily influenced by industrial sources of pollution, especially in the section upstream of Ústí nad Labem. Other watercourses where very heavy contamination was detected are: the Rakovnický Stream, the Litavka, the Lužnice (downstream of Veselí nad Lužnicí), the Lomnice, the Zákolanský Stream and Bakovský Stream (tributaries of the Vltava downstream from Prague), the Jičínka, the Lubina, the Olšava, the Litava, the Hvozdnice, the Trkmanka and the Bobrava. These are smaller watercourses or short sections on which it is necessary to continue focussing extraordinary attention. A case was also recorded of a deterioration of water quality in the Mže downstream of Tachov.

The long-term improvement in water quality has been caused primarily by the construction or intensification of important waste water treatment plants, cancellation or restriction of production of many industrial plants and reduction in the use of fertiliser for agricultural production. Attempts to reduce area pollution by limiting the erosive influences by grassing over, forestation and retention of water in the country also have a positive effect. It is currently possible to note a local improvement in smaller rivers, which is the result of the implemented intensification or completion of waste water treatment plants and sewer feeder pipes.

- **The microbial pollution of watercourses is a significant factor, especially in the treatment of surface water into drinking water and in the case of the use of surface water for bathing. And at the same time as this the development of algae harms the surface water for this use.**

According to reporting for the EU (sent in 2004), in the Czech Republic the percentage of adherence to mandatory and guideline values of the EU is relatively low, this being 49.4 % and 38.6 % in the order shown. In 7.4 % of cases from 176 localities, the adverse quality of water lead to a ban on bathing. In 2005, in the Czech Republic out of a total number of 176 localities a ban on bathing was issued in 17 localities (9.7 %), and in 25 cases (14.2 %) the bathing water did not correspond to the mandatory values. Data applies to both bathing areas (according to the Water Act No 159/2003 Coll., which designates surface water used for bathing by people) and natural swimming pools (on the basis of Act No 258/2000 Coll., concerning the protection of public health and amendment of certain associated acts, as amended). One of the main tasks is preventing insufficiently treated municipal waste water entering these localities (microbial pollution and phosphorous).

In cooperation with the Ministry of the Environment (referred to hereinafter as „MoE“), in 2005 the Ministry of Health (referred to hereinafter as the „MoH“) prepared an amendment to the decree which designates surface water used for the bathing of persons (previously No 159/2003 Coll., now No 168/2006 Coll. effective as of 1.5.2006). With certain exceptions these are localities at reservoirs and recreational lakes. In addition to this, the EU amended the relevant directive, previously 76/160/EEC, now 2006/7/EC concerning the management of bathing water quality, in which it emphasises protection from microbial pollution.

- **The significance of the issue of particularly dangerous and harmful substances in the aquatic environment is increasing, and the range of the monitored substances is also expanding. Preventing their leakage into water and water-associated ecosystems is an ongoing task. The seeking out of these substances in the aquatic environment in possible sources of pollution is therefore important, as is the integrated prevention of emissions.**

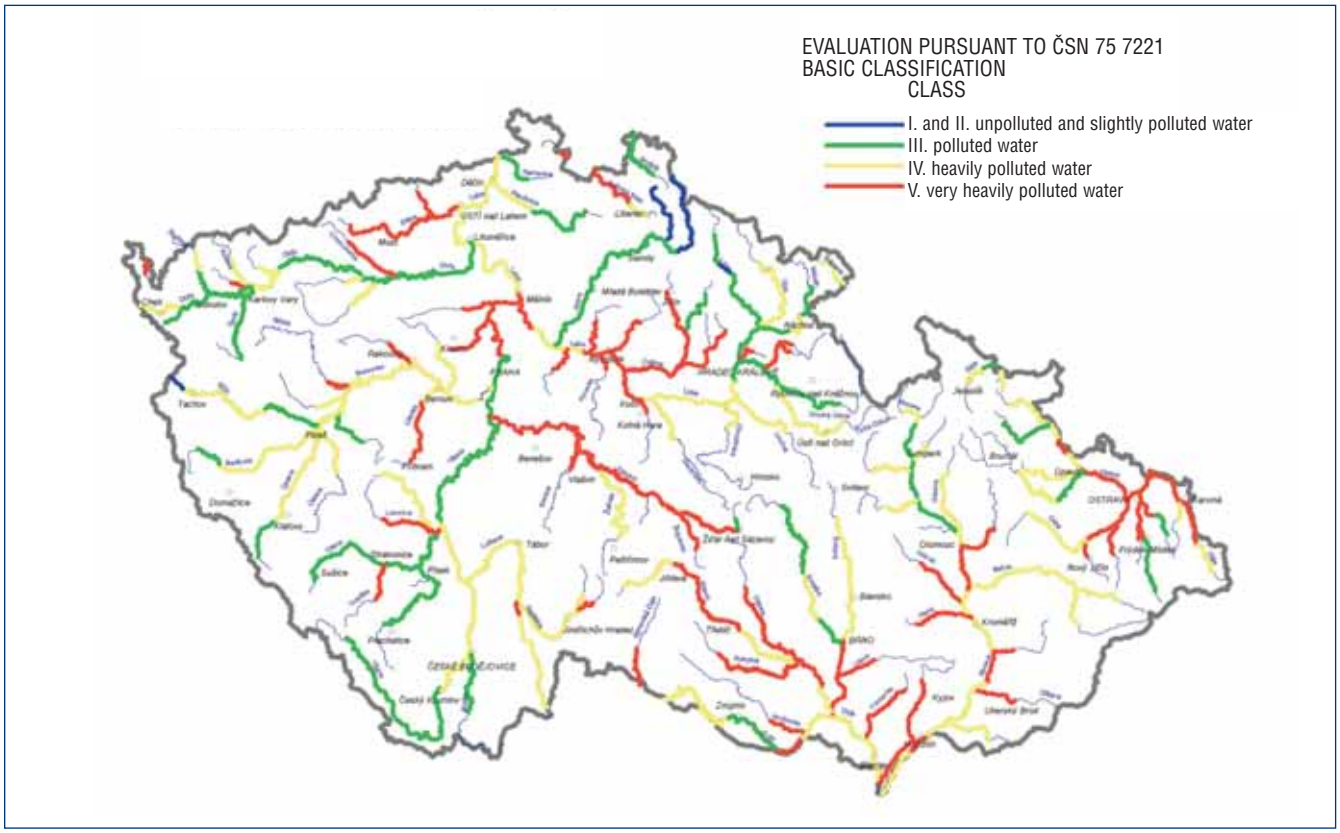
The gradual regulation of pollution of surface water by dangerous substances contained in waste water is based on emission and imission standards designated in government decree No 61/2003 Coll. The MoE is working intensely on the preparation of this amendment to the decree with the help of experts.

In the following part there is a summary of the significant concrete findings about the burdening of surface waters with dangerous substances. The content of mercury in the Bílina, which in the past was wholly unsatisfactory in the lower section of the Bílina, has reduced significantly in recent years, since the implementation of measures in Spolchemie – since 1991 it has decreased by two orders of magnitude; in 2005, satisfactory levels were achieved in the water. But the burdening of the sediments continues.

The concentration of hexachlorobenzene in the Bílina in the Ústí nad Labem profile, which on average in 2002 still exceeded the quality target of the EU (30 $ng.l^{-1}$), has decreased by degrees of magnitude as a result of the connection of the drainage system of the Spolek pro chemickou a hutní výrobu, a. s. (Spolchemie) to the WWTP in Ústí nad Labem – now the concentration complies with the quality aim. An increase has been noted in the concentration of chlorinated ethers in the international profiles on the Elbe, the pollution comes from Spolchemie. The problem is being dealt with at the level of experts from the International Commission for the Protection of the Elbe.

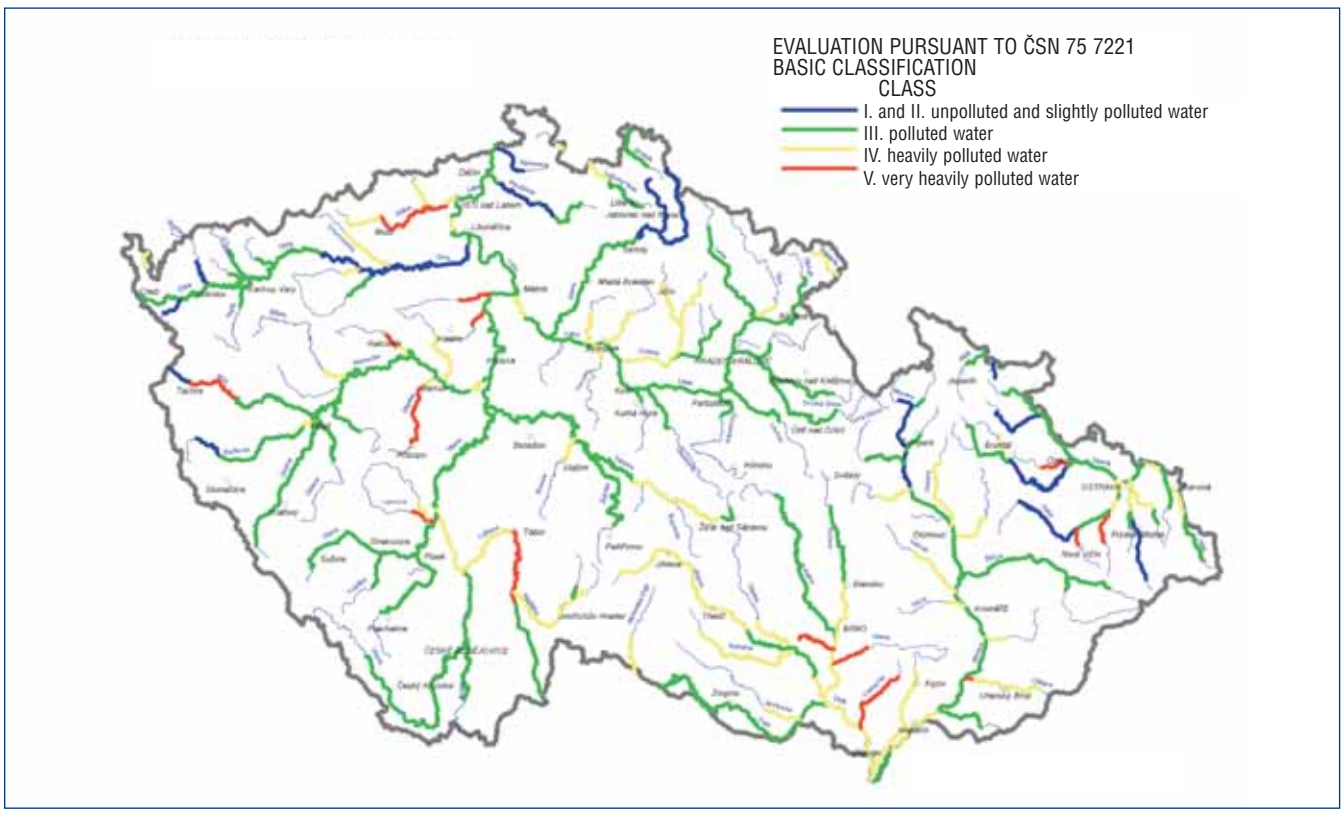
Pollution characterised by the summary indicator AOX, which primarily includes volatile chlorinated substances, typical for certain industrial agglomerations, is at its highest in the Odra, Olše and Ostravice. Pollution by polycyclic aromatic hydrocarbons (PAH), of which fluoranthene and benzo(a)pyrene may

Picture 1.2.1 Water quality in watercourses of the Czech Republic in the years 1991 – 1992



Source: WMRI T.G.M. from data of CHMI

Picture 1.2.2 Water quality in watercourses of the Czech Republic in the years 2004 – 2005



Source: WMRI T.G.M. from data of CHMI

be considered the most important, comes from the mining of coal, the coking industry and certain types of production. The most serious burdening with these substances was ascertained in the Olše, the Ostravice and in the Odra in the sections before the state border.

Despite significant improvement, which has been expressed, for example, in a reduction in mercury pollution, the Bílina is still a highly polluted watercourse, and its pollution by chlorinated substances (trichloromethane, tetrachloromethane, trichlorethene, tetrachlorethene, chlorinated benzenes and chlorinated phenols) is now characteristic; in addition the Bílina is polluted by arsenic, and the overall nitrate content is also high. The significant pollution of the Elbe with dangerous substances begins below Pardubice, where primarily chlorinated benzenes, sulfonated naphthalene, nitrotoluenes and anilines have been documented; lower downstream, below Kolín and Neratovice, pollution by 1,2-dichlorethaneme increases, and below Ústí nad Labem, the pollution from the Bílina is added to the Elbe.

The Jičínka in the Ostrava region is heavily polluted by nitrate and phosphorous and also nitrotoluene; and the Ostravice sends nitrobenzenes and adsorbable organically bound halogens (AOX) into the Odra. In addition to AOX, the Olše is also burdened from the upper section by PAH. On the section of the river Morava below Dřevnice, pollution by chlorinated phenols has a negative impact.

Other smaller watercourses are heavily polluted by certain dangerous substances, for example, the Vltava upstream of Lipno contains mercury. The Nisa, which crosses the state border, is polluted by PAH and chrome, copper and nickel. The Litavka is polluted by cadmium. Lead and zinc, and the primary source of this pollution is in old burden and mine water.

For aquatic ecosystems, one significant danger is the pollution by arsenic, which primarily originates from the burning or processing of coal (but sometimes the cause may have a geogenous background); the greatest pollution of this type is in the group of watercourses in north western Bohemia around Sokolov (the Bystřice in Ostrov nad Ohří and Chodovský Stream). For certain types of dangerous substances, the source of the pollution is primarily old burden: for example polychlorinated biphenyles (PCB) are a problem of the Elbe below Pardubice. They come from earlier burdens on the environment by these substances. Other types have their origin in agricultural use, for example atrazine in the Sázava and Blanice.

For a gradual improvement in the state of water in this direction the programme for the reduction of pollution of surface water by dangerous harmful substances and particularly dangerous harmful substances is being implemented and has been given to the European Commission. One part of this report is an evaluation of the implementation of this programme. The relevance of other dangerous substances and particularly dangerous harmful substances is verified on the basis of monitoring results.

- **One of the other important tasks is the attainment of a good water state in the sense of the Framework Water Directive. For this it is necessary to generate conditions which make it possible to attain such a state; this requires the ensuring of a certain water quality and implementation of measures for improving the morphology of rivers (revitalisation).**

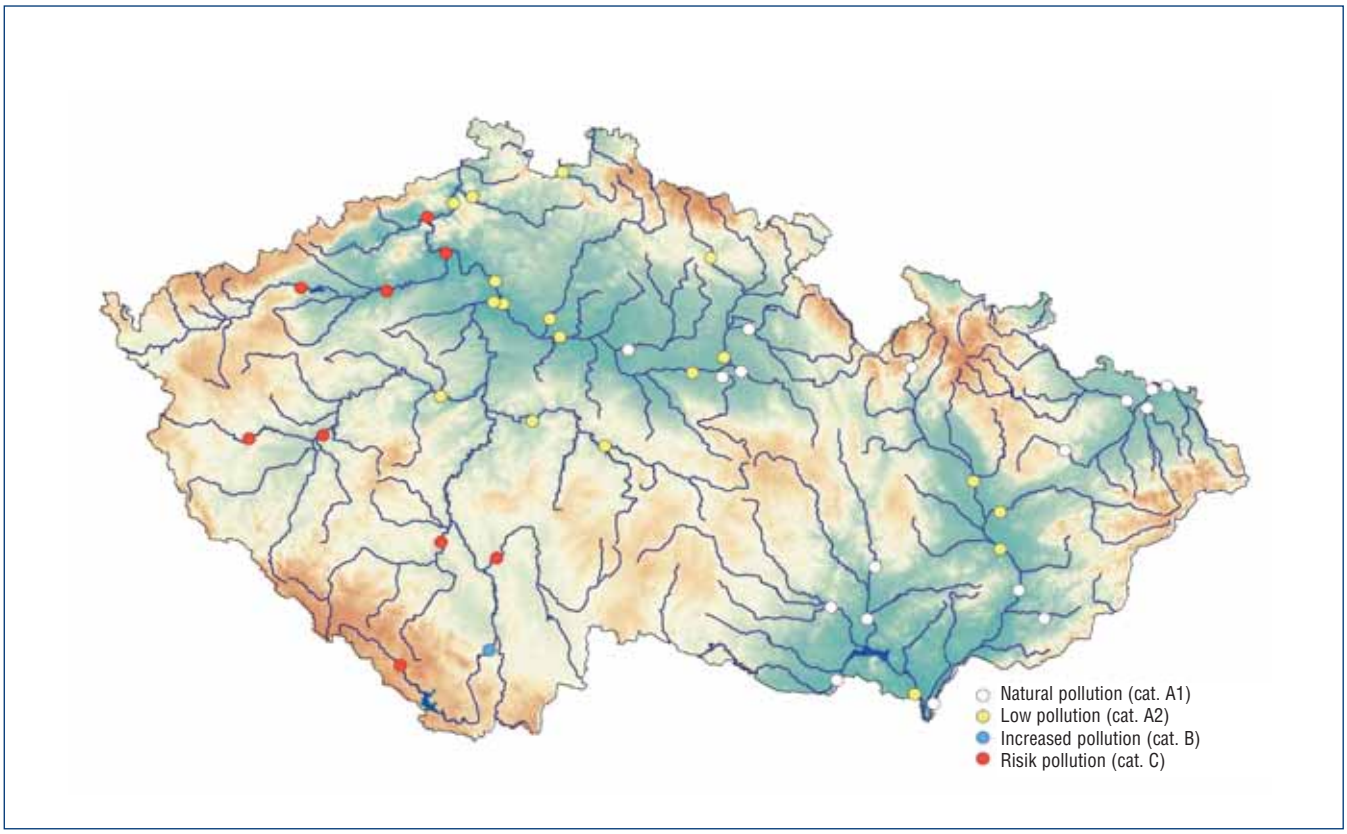
The concrete designation of the required conditions and creation of the entire system of evaluation is the subject of research and international comparison within the context of international catchment areas (Elbe, Odra, Danube). For ascertaining the current state, a monitoring programme has been prepared which will be run in test operation in 2006. In comparison with the current scope, the monitoring mainly had to be expanded to include a broader monitoring of biological components of the aquatic environment.

- **In 2005, radioactive substances were monitored in 78 profiles of the state network in indicators of overall alpha volume activity, overall beta volume activity, overall beta volume activity following ^{40}K correction, radium 226 volume activity and the concentration of natural radium. In selected profiles, in connection with the checking of the influence of nuclear facilities, the volume activity of tritium was monitored. As part of the expansion of the state network of the Czech Hydro-Meteorological Institute, in 2005 the mass activities of radionuclides in washloads and river bottom sediments were monitored in 46 profiles.**

From the results of the monitoring it is clear that the effects persist of earlier mining of uranium ores in the profiles under the mine water discharges and in sections of watercourses influenced by seepage from waste rock tips and settling ponds. Values corresponding to water quality class IV were ascertained in the watercourse Kocába in the Štěchovice profile and on the Příbramský Stream in the profiles Koněтopy and Trhové Dušníky and Brod, in the Bystřice in the profile Ostrov n. O., in the Karvin Stream at the mouth and in the Loučka in the profile Boudy. Values corresponding to class V water quality were ascertained in the river Kocába in the profile Višňová, Drásovský Stream in the profile Drásov, Dubenecký Stream in the profile Dubenec, in the Račí Stream in the profile Nekrasín and Hadůvka in the profile Skryje. In the specified profiles increased concentrations of uranium in particular were detected. When evaluating changes in the content of radioactive substances in surface waters for the period 1990 – 2005, it is possible to state that in the course of this period there was a significant improvement in the quality of water and other elements of the aquatic environment, especially in the catchment area of the Ploučnice, and at the end of the evaluated period also in the catchment area of the Mže, Litávka and Loučka.

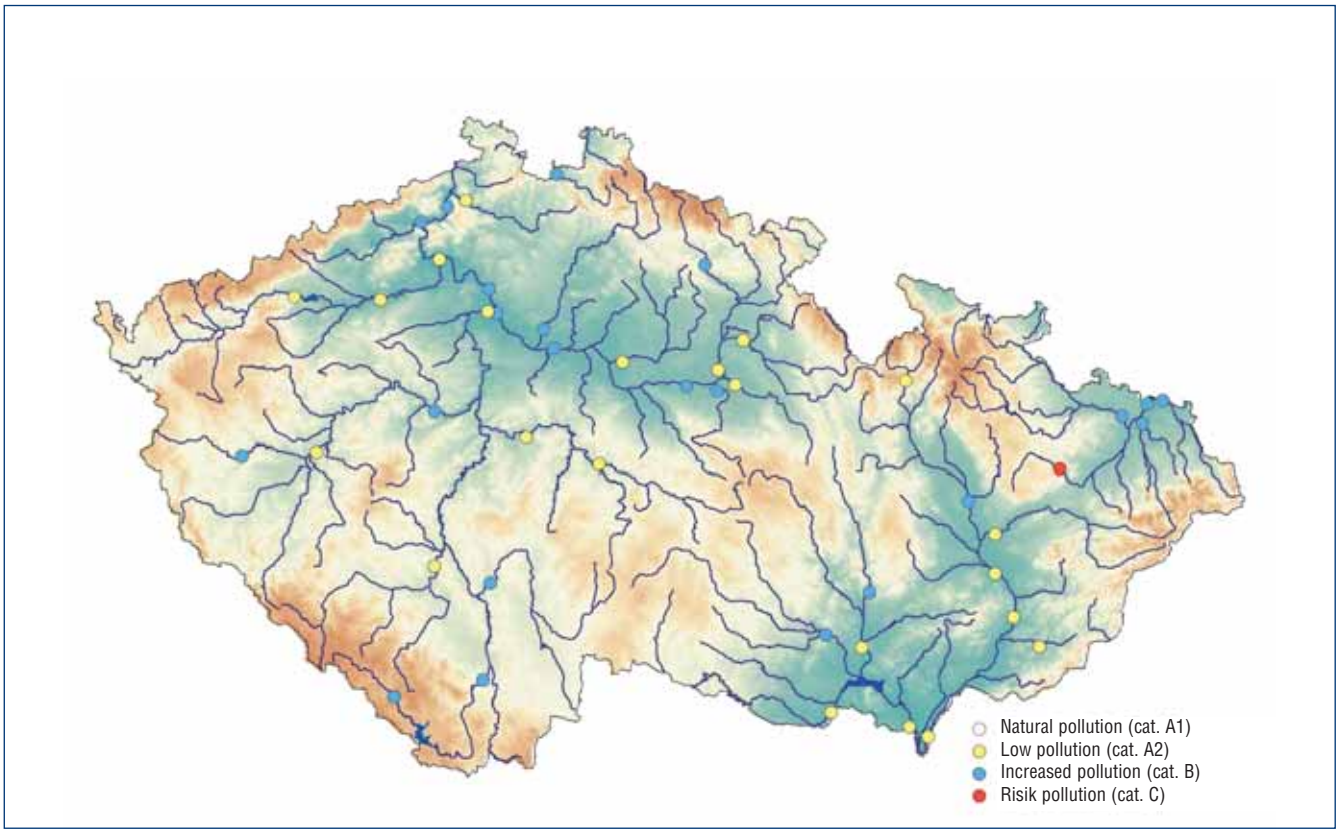
On the basis of a monitoring of the content of artificial radioactive sub-

Picture 1.2.3 Burdening of wash-load by arsenic in 2005



Source: CHMI

Picture 1.2.4 Burdening of wash-load by mercury in 2005



Source: CHMI

Elbe river, Kolínské tůně

stances in the river Jihlava below the waste water outlet from the nuclear power station Dukovany, in 2005 average volume activity of tritium of 90 Bq/l was detected, which represents 2.2 % of the imission standard for tritium designated for surface water by order of the government No 61/2003 Coll. In the Vltava in the profile of Solenice below the waste water outlet from the Temelín nuclear power station, in 2005 the volume activity of tritium did not exceed 16.3 Bq/l, which is 0.4 % of the imission standard for tritium designated according to the cited order of the government. No other activation and fission products resulting from the operation of nuclear power stations were detected.

- **In 2005, in many reservoirs, the process of water eutrophication occurred, i.e., a process caused by an increased content of mineral nutrients, primarily phosphorous and nitrate compounds in water.**

The greatest problems with water quality in reservoirs occurred in the summer in water management reservoirs and reservoirs with water-supply use: Vrchlice, Hamry, Křižanovice, Seč, Lučina, Pilská, Obecnice, Láz, Myslivny, Mostiště, Fryšták, Vír, and in the non-water-supply reservoirs: Rozkoš, Pastviny, Harcov, Mšeno, Pařížov, Les Království, České Údolí, Hracholusky, Orlík, Skalka, Slezská Harta, Vranov, Bystřička, Nové Mlýny I, II, III, Olekovice, Křetínka, Luhačovice, Plumlov, Jevišovice and Brněnská Dam. In the overall evaluation it is possible to state that the worsened quality of the water in 2005 was dealt with adequately from the operational aspect; there was no restriction on supplies of water to citizens, but there was a restriction or ban on water recreation at non-water management reservoirs (for example Harcov, Slezská Harta, Skalka, Brněnská Dam). The aerial liming carried out over several years, which eliminates the negative influence of peaty water with low alkalinity and low pH, has had a positive effect on the quality of water in the reservoir Souš.

- **Since 2001, the Agricultural Water Management Authority, as the organisational element of the state, has systematically operated a monitoring system for ascertaining and evaluating the state of surface water. This system is linked directly to the monitoring activity of the State Land Reclamation Administration from 1993 – 2000.**

In 2005 this monitoring, the aim of which is to ensure the constant improvement of water quality, was operated on the basis of monitoring networks divided up into five monitoring programmes. These are based on the current requirements for the monitoring of water quality both from the part of the state administration of the Czech Republic and from the part of the European Community (referred to hereinafter as the „EC“) for the implementation of individual directives and regulations. Profiles on small rivers were studied as part of the monitoring for the state network (CHMI) and monitoring of point sources of pollution (PSP). Selected profiles of reservoirs were monitored under the programme of small reservoirs (SRES). In order to comply with the requirements of Council Directive 91/676/EEC (nitrate directive), nitrates (NIT), which represent pollution from agricultural sources, were monitored. Hydrobiological monitoring (BIO) was also performed, which serves for evaluating the ecological state of small watercourses according to community of macrozoobentose, which was carried out on the monitoring profiles of the programme of the CHMI and BOD. In 2005, no monitoring of the chemical state of sediments (SED) was carried out in view of the volume of finances allocated.

In 2005, the monitoring network of the Agricultural Water Management Authority (referred to hereinafter as „AWMA“) included 322 profiles on small rivers and 76 profiles on small reservoirs. Samples were taken from small rivers on a monthly basis for the entire year (i.e., 12x per year), for small reservoirs only in the vegetative period (April to September) with monthly frequency of monitoring (i.e., 6 x per year). The financing of the individual monitoring programmes was ensured by the Ministry of Agriculture (referred to hereinafter as „MoA“), with the exception of the programme for the monitoring of nitrates, which is financed from EC funds. AWMA also cooperates in the field of operation and concept of monitoring with the MoE, CHMI, T.G.M. Water Management Research Institute (referred to hereinafter as „WMRI T.G.M.“), Plant Production Research Institute and Faculty of Science of Masaryk University in Brno.

Within the context of the standard monitoring of water quality, AWMA operates an on-line information system on AWMA Internet pages: (www.zvhs.cz, tab „Projects“ / „Monitoring“), which ensures access to the results of monitoring for all deputised and interested subjects and which is

also available to external users from the general public. The AWMA information system is also part of the water management portal of the public administration information system ISVS – WATER: (www.voda.mze.cz).

In 2005 the qualitative parameters of wash-load and sediments were monitored on 45 profiles of the network of comprehensive monitoring of water quality. The monitored indicators – heavy metals, metalloids and specific organic substances – were monitored in wash-loads with a frequency of 4x to 16x per year, and in sediments 2x per year.

In addition to data about the water quality, monitoring of solids in the aquatic environment – wash-loads and sediments give information about the chemical state of surface waters in the Czech Republic. The scope of their monitoring in the number of monitored profiles is somewhat restricted in view of the monitoring of water quality, and in the monitored indicators it includes a broad range of dangerous substances, including priority substances given in the list of annex X of Directive 2000/60/EC of the European Parliament and of the Council, 23 October 2000, establishing a framework for the Community action in the field of water policy.

For the evaluation of the chemical state and identification of problem (burden) regions from the aspect of pollution of wash-load and sediments, the signalling and comparative values A, B, C of the criteria of the Methodological Instruction of the department for ecological damage of the MoE „Criteria of Pollution of Soils and Groundwater" from the year 1996 as amended by Methodological Instruction of the MoE for the analysis of risks of contaminated territory No 9/2005 is used on a working basis. The exceeding of the criteria of category B of this norm is evaluated as increased pollution which could have a negative effect on the health of a person and the individual components of the environment. The environmental quality standards for solids with validity in the EU or on a national scale have not yet been designated. In the requirements of directives 76/464/EEC and 2000/60/EC, it is only stated that the contents of dangerous substances in solids must not display an upward trend over time.

The use of the specified direction of the MoE makes it possible to preserve continuity of evaluation with preceding years. It also provides reasonable limits for many substances with which it is possible to work when evaluating the chemical state of the monitored matrix.

From a comparison of the measured data on a republic-wide scale it is evident that the matrix of the wash-load contained a total of 94 substances ascertained in 14 cases of the values exceeding criterion B and indicating increased pollution. This involves in particular Mercury (13.4 %), benzo(a)pyrene (3.3 %), cadmium (2.1 %) and chlorophenols (2 %). The criterion for risk pollution (category C) was also exceeded at least once in the year for 14 substances. Most frequently this was in the content of metals, these being arsenic (8.4 %), copper (1.8 %), nickel (1.4 %), mercury (0.9 %), cadmium (0.9 %), and also for organic substances of benzo(a)pyrene (2.2 %), p-cresol (7.7 %), monochlorofenol (4.2 %) and for tetrachlorofenol (1.5 %).

In sediments, the overall number of substances in the criteria contents was lower in the long term. A total of eight substances exceeded the values of criterion B (As – 1.1 %, Be – 2.2 %, Sb – 1.1 %, Zn – 1.1 %, Hg – 1.1 %, benzo(a)pyrene – 1.1 %, p-cresol – 3 % a 2-monochlorofenol – 2.3 %. Risk concentrations above the value of criteria C were ascertained for six substances (As - 2.2 %, Ni – 2.2 %, benzo(a)pyrene – 1.1 %, 2,3,4,6,-tetrachlorofenol – 4.5 %, p-cresol – 3.2 % a 2-monochlorofenol – 2.3 %).

One positive finding of the monitoring in 2005 is the further drop in the incidence of substances in increased and risk contents. In a manner similar to 2004, there was an overall drop in the number of substances occurring in criteria contents in wash-loads, and a lower number was also recorded for cases of increased and risk pollution from mercury and substances of the group PAH in both matrices. Although there was an increase in the percentage representation of cases of above-the-limit contents of certain chlorophenols in wash-loads and nickel in sediments, in view of the frequency of incidence, the state cannot be considered a significant worsening.

Overall, contents of pollutants in the majority of cases correspond to the level of natural values (A1) or level of slightly increased pollution (category A2). In general, only maximum and high value of sets of profile data come in the category of increased and risk pollution, whereas average values are by and large at the level of very low content or slight burden (A1 and A2). One exception in this direction is the traditionally heavily influenced river of the Bílina and Ohře and the lower Elbe.

From the processing of contents of the monitored metals and organic substances in wash-loads and sediments of profiles of the state network of CHMI, there is an evident regionally different burden as a reflection of anthropogenic pressure in the individual catchment areas and their individual parts. Anthropogenic impact displayed in particular in the matrix of wash-load is somewhat clearer.

Table 1.2.1 Definition of categories for evaluation of contents of dangerous substances in wash-loads and sediments

Criteria of MoE	Categorisation	Designation
Non-attainment of criteria A	natural (geogenous or very low) contents of monitored substances	A1
Exceeding of A	slight increase in burden	A2
Exceeding of B	corresponds to increased contents, exceeding of criteria B is evaluated as pollution which may have a negative impact on human health and on the individual components of the environment	B
Exceeding of C	exceeding of criteria C represents pollution which can mean a significant risk of threat to human health and other components of the environment	C

Source: MoE

From the aspect of toxicity for aquatic organisms and man, and thus also from the aspect of good state of surface water, one may consider the still increased contents of mercury, arsenic, polyaromates (benzo(a)pyrene) and chlorofenols in solids matrixes to be unacceptable (according to the criteria used. But In contrast with previous years, this is not a general problem. The ascertained positive results are associated with the gradual limitation of emissions of the substances referred to into the aquatic environment. But in certain cases they could be influenced by the limited frequency of sampling.

- **The monitoring of contamination of biomass by harmful substances in the state network continued in 2005 in the same scope as in the previous years, i.e., at 19 conclusion profiles of main rivers of the Czech Republic.**

Within the framework of accumulation biomonitoring, there was an analysis of indicator species of macrozoobentose Asellus aquaticus, Erpobdella octoculata, Bithynia tentaculata, Sphaerium corneum, caddis fly of the genus Hydropsyche, clams (Dreissena polymorpha) and biofilm. Benthic organisms were collected twice a year, and analyses were made of the monitored pollutants. A reference population of clams was exposed once a year on floats on which eternit boards were also located in order to monitor biofilm. After two months in the river the clams and biofilm created on the boards were analysed in the laboratory. There was a continuation in the monitoring of bioaccumulation in fish, which was performed once a year.

Out of the pollutants, heavy metals were monitored (lead, cadmium, mercury and arsenic), and out of the specific organic substances, the indicator congeners PCB (PCB-28, PCB-52, PCB-101, PCB-138, PCB-153 and PCB-180) and chlorinated pesticides (p,p´ and o,p´ isomers DDT, DDD, DDE and isomers alpha, beta and gamma HCH).

In the following paragraph the total ascertained burden of concrete substances is given:

HEAVY METALS:

The highest concentrations of the monitored heavy metals were generally ascertained in biofilm.

ARSENIC:

The highest values were measured in biofilm on the profile Lužická Nisa – Hrádek (76 mg.kg^{-1}), there were also high concentrations in the Elbe in Děčín and in the Otava in Topělce.

LEAD:

Maximal values on the profile Lužická Nisa – Hrádek (80 mg.kg^{-1}), high concentrations were also ascertained in the profile of the Elbe – Děčín and Berounka – Srbsko.

MERCURY:

In contrast with the other monitored metals, maximal values for mercury occurred not only in biofilm, but primarily in fish (chub – all concentrations exceeded the hygiene limit, maximum in the Odra in Bohumín and in the Elbe at Děčín – 1.5 mg.kg^{-1}), high concentrations were also measured in benthic organisms in the Bílina.

CADMIUM:

For cadmium, maximum values were ascertained in the Elbe in biofilm (2.1 – 3.7 mg.kg^{-1}), in clams (Dreissena polymorpha 3.3 mg.kg^{-1}), and there were also high concentrations in benthic organisms.

SPECIFIC ORGANIC SUBSTANCES:

The monitored groups of substances generally displayed higher values in organisms in comparison with biofilm. For the evaluation, only data from the monitored profiles in the catchment area of the Vltava was available.

PCB (sum of 6 indicator congeners):

High concentrations were measured at the concluding profile Vltava – Zelčín (chub 1 820 ug.kg^{-1}, Dreissena polymorpha 240 ug.kg-1).

HCH (sum of alpha-HCH, beta-HCH, gamma-HCH and delta-HCH):

The vast majority of values were below the level at which analytical measures could designate them.

o,p‘ DDT (sum of o,p' isomers DDT, DDE, DDD):

High concentrations were ascertained once again in the profile Vltava - Zelčín (Dreissena polymorpha 18.6 ug.kg^{-1}).

p,p‘ DDT (sum of p,p' isomers DDT, DDE, DDD):

The highest concentration was measured in chub in the Vltava in Zelčín (630 ug.kg^{-1}).

From the aspect of accumulation biomonitoring, specific organic substances in particular, which accumulate very well in the fatty tissues of organisms, were seen to be a very significant indicator of pollution of the aquatic ecosystem. Of the metals, mercury, which displayed high concentrations, was seen to be a very significant indicator.

1.3 QUALITY OF GROUNDWATER

- **In 2005, monitoring for groundwater in the state monitoring network was performed at 462 objects, consisting of 138 springs, 147 shallow wells and 177 deep wells. In the area of groundwater quality, there was a slight improvement for shallow wells in 2005 in comparison with 2004, but in the group of deep wells and springs there was a slight worsening in the percentage representation of objects exceeding the limits B or C.**

In the state monitoring network in 2005, 462 objects were monitored consisting of 138 springs (the monitoring of springs documents the natural drainage of groundwater, in particular in the area of the crystalline complex, and the local drainage of chalk structures), 147 shallow wells (the objects are primarily concentrated in the alluvial areas of the Elbe, Orlice, Jizera, Ohře, Dyje, Morava, Bečva, Odra and the Opava – this

groundwater is highly vulnerable, with a high coefficient of filtration and rapid progress of pollution) and 177 deep wells (the objects are concentrated primarily in the areas of the Czech Chalk Basin, the České Budějovice and the Třeboň Basin, and they monitor the deep circulation of groundwater – the direct vulnerability of this water is not that great, because contamination is expressed here after a long time). A total of 150 indicators was expressed here with a frequency of twice a year in spring and autumn. The analysis of specific substances associated with agriculture was performed only for the samples collected in the spring.

In view of the requirements of the Framework Water Directive, the evaluation of results of water quality for 2005 focussed in particular on dangerous substances. In the CHMI measured values of groundwater quality indicators were compared with:

- values of determination limits,
- values of criteria A, B and C according to the methodological instruction of the MoE from 15.9.1996 „Criteria of Pollution of Soils and Groundwater“,
- limits for drinking water according to decree of MoA No 252/2004 Coll., which designates the requirements for drinking water and the scope and frequency of its checking (for indicators which do not have a limit designated in this decrees, the limit designated by the norm ČSN 75 7111 Drinking Water was used).

From the summary of results concerning the exceeding of criteria A, B and C it emerged that 26 indicators exceeded standard C at least once during 2005, and the greatest percentage exceeding was recorded in the indicator of chloride (3.8 % of all samples, 7.5 % of samples of shallow wells), ammonium ions (3.0 % of all samples, 5.1 % of samples of shallow wells) and aluminium (2.0 % of all samples, without significant differences for the individual types of objects). There was a highly infrequent exceeding for 1,2-cis-dichlorethene (0.8 % of all samples) and tetrachloroethene (0.7 % of all samples). The other 21 indicators (pesticides, volatile organic substances and metals) exceeded the norm C very sporadically (0.1 to 0.4 % of all samples). Values measured above the values of criteria B and below the values of C were ascertained in 23 substances, of which the highest percentage representation consists of chlorides (3.6 % of all samples, 9.9 % of samples of shallow wells), ammonium ions (2.9 % of all samples, 5.8 % of samples of shallow wells), boron (2.8 % of all samples, 3.2 % of samples of deep wells and springs), and aluminium (0.8 % of all samples, 1.0 % of samples of deep wells and springs), and there was also a sporadic presence of fluorides, nitrates, chrysenes, benzo(b)fluoroanthene, 1,2-cis-dichloroethene, nickel, beryllium, cadmium, vanadium, arsenic, lead, benzo(g,h,i)perylene, benzo(b)fluoroanthene, benzo(a)anthracene, benzo(a)pyrene, methidathion, metallochlorine, chlortoluron and acetochlorine. Overall the incidence of indicators exceeding the norms B and C is most frequent in groundwater and shallow wells oriented towards the alluvial areas of rivers which have the greatest anthropogenic influence.

The number of indicators occurring above the values of criteria B and C have not changed significantly in recent years. There number was higher in 2005 compared with 2004, but this is connected with the broader scope of analysed indicators.

From the aspect of comparing the quality of groundwater indicators with the requirements for drinking water, the most frequently discovered indicators in above-the-limit values were nitrates (13.0 % of above-the-limit samples), ammonium ions (11.6 % of above-the-limit samples), chemical consumption of oxygen by permanganate (9.4 % of above-the-limit samples), sulphates (8.2 % of above-the-limit samples), chlorides (7.4 % of above-the-limit samples), nickel (4.7 % of above-the-limit samples), aluminium (3.6 % of above-the-limit samples) and benzo(a)pyrene (2.8 % of above-the-limit samples). Less frequently these limits were exceeded in the indicators of arsenic (2.6 % of above-the-limit samples), fluorides (2.3 % of above-the-limit samples), atrazine (2.5 % of above-the-limit samples), desethylatrazine (2.5 % of above-the-limit samples), hexazinon (1.7 % of above-the-limit samples). All these above-the-limit substances (apart from fluorides aluminium and nickel) are represented by a greater proportion in the groundwater of shallow wells.

In view of the requirements for drinking water, virtually the same scope of substances of the basic composition of water in above-the-limit concentrations persisted in comparison with 2004. The incidence of organic dangerous substances in above-the-limit concentrations is also comparable with 2004, and there was a slight decrease in the incidence of above-the-limit concentrations which was recorded for benzo(a)pyrene.

Overall one may sum up that the most significant indicator of groundwater pollution was seen to be nitrogenous substances (in particular nitrates and ammonium ions), chlorides and metals (in particular aluminium). Organic substances contribute less to the pollution of groundwater, and they are represented to the greatest extent by volatile organic substances, which were discovered in the groundwater of shallow wells, especially in the area of Neratovice. The incidence of polyaromatic hydrocarbons (they were repeatedly found in three localities: Zábřeh, Machov and Mratín) is less significant. Increased concentrations of nitrogenous substances were ascertained in areas with increased agricultural activity.

Table 1.3.1 Overview of number of objects with exceeding of criteria B, C at least in one indicator for 2005

Objects	Number of objects	Number of objects with exceeding of B or C	% of objects with exceeding of B or C
Shallow wells	147	57	38,8 (42,2 v r. 2004)
Deep wells and springs	315	52	16,5 (13,9 v r. 2004)
All objects	**462**	**109**	**23,6 (22,9 v r. 2004)**

Source: AWMA

2. WATER BALANCE ASSESSMENT – HANDLING WATER

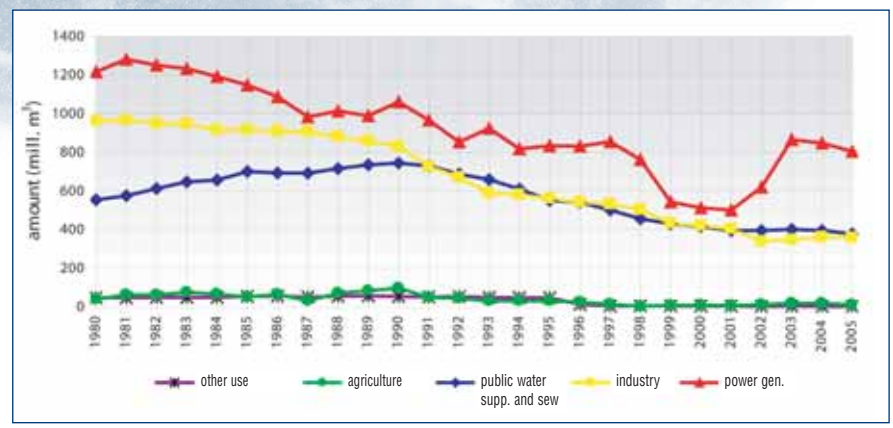
2.1 Abstractions of surface water

The year-on-year drop in abstractions of surface water in comparison with 2004 amounted to 4.5 %. In 2005, a total of 1 553.4 million m³ of surface water was abstracted. As a result of unification of data of the individual River Board, s.e., abstractions of surface water do not include transfers of water and water abstracted for fishpond systems.

There was a reduction in abstractions in all the groups of users, i.e., in all categories of abstractions. The most significant share of the overall abstractions of surface water consisted of overall abstractions for the generation and distribution of electricity, gas, steam and hot water, which reduced by 5.1 % in 2004, although it still makes up more than half of overall abstractions.

The structure of the recorded abstractions of water in the individual River Board, s.e. in 2005 is given in Table 2.1.1. The overall development of abstractions of surface water since 1980 is displayed by Graph 2.1.1.

Graph 2.1.1 Abstractions of surface water in Czech Republic in 1980 – 2005



Source: MoA

More detailed information about specified BRANCHES:		
Public WS and SS	Public water supply and sewerage systems	BCEA: 41 and 90, without 410010
Agriculture	Agriculture without fish farming	BCEA: 01 – 05, without 050200
Power generation	Generation and distribution of electricity and heat	BCEA: 401 and 403
Industry	Industry – without electricity generation and water supply	BCEA: 10 – 45, without 401, 403 and 41
Other use	Other activities – without public sewerage systems	BCEA: 50 – 93, without 90
Total	**Total data (without fishponds and transfers)**	**BCEA: 01 – 93, without 050200 and 410010**

Table 2.1.1 Abstractions of surface water in 2005 in millions m³ for consumers above 6 000 m³/year or 500 m³/month

River Board, s.e.	Group of users											
	Water supply systems		Agriculture		Power generation		Industry		Other use		**Total**	
	Amount	Number	Amount	Number	Amount	Number	Amount	Number	Amount	Number	**Amount**	**Number**
Elbe River Board, s.e.	40.1	30	7.1	39	616.4	12	115.8	112	0.4	18	**779.8**	**211**
Vltava River Board, s.e.	163.1	46	0.8	13	33.1	3	74.1	102	0.7	14	**271.8**	**178**
Ohře River Board, s.e.	53.9	29	0.3	12	52.1	5	53.7	66	0.1	6	**160.1**	**118**
Odra River Board, s.e.	76.8	16	0	0	5.3	1	88.6	66	0.5	24	**171.2**	**107**
Morava River Board, s.e.	43.8	36	2.8	25	98.0	2	25.7	117	0.2	14	**170.5**	**194**
Czech Republic	**377.7**	**157**	**11.0**	**89**	**804.9**	**23**	**357.9**	**463**	**1.9**	**76**	**1 553.4**	**808**

Source: MoA, River Board, s.e.

2.2 Abstractions of groundwater

The overall amount of abstracted groundwater in comparison with 2004 fell by 3.9 %, which indicates that the increase in the rate of drop in this category of abstractions reached its maximum in the previous period.

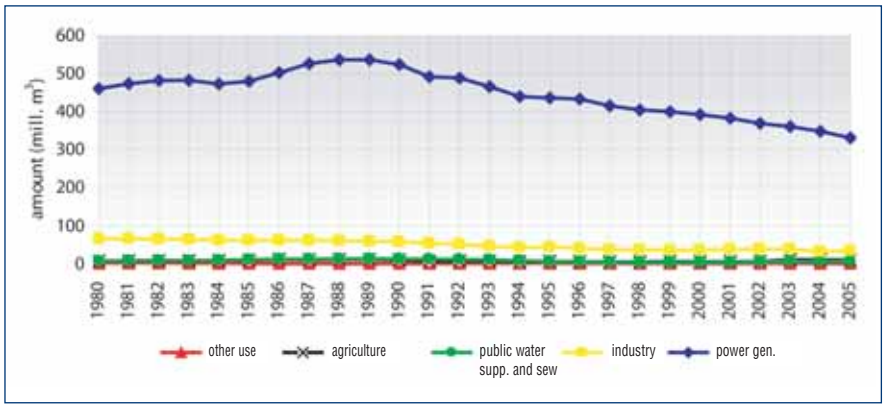
A drop was recorded in all categories, with the exception of abstractions for agriculture, where there was a slight increase in comparison with 2004. The overall difference in abstractions of groundwater consists of the category of abstractions for the treatment and distribution of water, where there was a reduction by more than 17 million m³, which in a proportional expression represents a drop of almost 5 %. In contrast with this overall drop in the amount of extracted groundwater, there was an increase in the number of overall abstractions by a total of 70 abstractions for all river board corporations.

The structure of recorded abstractions of water in the individual River Board, s.e. in 2005 is expressed in Table 2.2.1. In 2005, 3 614 abstractions of groundwater were recorded with an amount of 386.1 million m³. These were abstractions in excess of 6 000 m³ per year, or 500 m³ per month.

2.3 Discharges of waste and mine water

In 2005, 1 971.8 million m³ of waste and mine water was discharged into rivers. As a result of the standardisation of data of the individual River Board, s.e., transfers of water and water abstracted for fishpond systems

Graph 2.2.1 Abstractions of groundwater in the CR in 1980 – 2005



Source: MoA

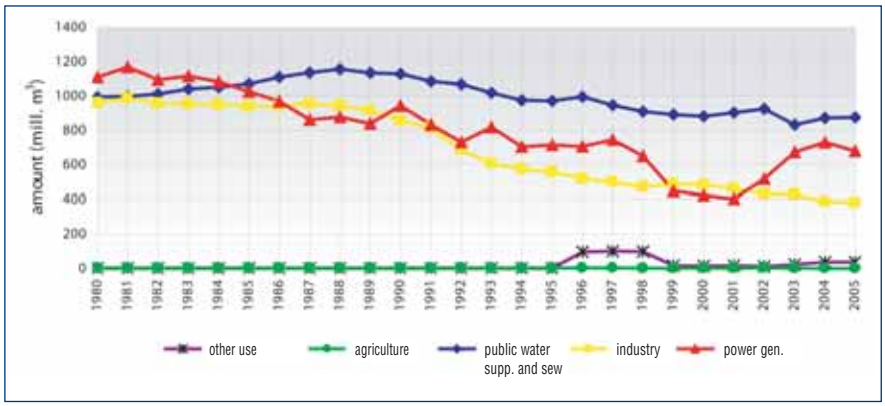
Elbe river, Pardubice

Table 2.2.1 Abstractions of groundwater in 2005 in million m³ by consumers above 6 000 m³/year or 500 m³/month

River Board, s.e.	Group of users											
	Water supply systems		Agriculture		Power generation		Industry		Other use		Total	
	Amount	Number	Amount	Number	Amount	Number	Amount	Number	Amount	Number	Amount	Number
Elbe River Board, s.e.	102.3	622	1.5	99	0.9	5	9.8	148	1.8	47	**116.3**	**921**
Vltava River Board, s.e.	38.7	721	3.1	195	0	0	8.5	126	2.5	14	**52.8**	**1 056**
Ohře River Board, s.e.	54.2	322	0.4	14	0.3	1	6.6	88	2.0	12	**63.5**	**437**
Odra River Board, s.e.	20.4	125	0.4	24	0	0	2.0	37	0.6	31	**23.4**	**217**
Morava River Board, s.e.	114.9	583	3.2	183	0	0	7.5	138	4.5	79	**130.1**	**983**
Czech Republic	**330.5**	**2 373**	**8.6**	**515**	**1.2**	**6**	**34.4**	**537**	**11.5**	**183**	**386.1**	**3 614**

Source: MoA, River Board, s.e.

Graf 2.3.1 Discharge into surface water in the Czech Republic in 1980 – 2005



Source: MoA

is not included in discharged waste and mine water. There was a turnaround in the amount of discharged waste and mine water in 2005 in comparison with 2004, and there was a reduction by 2.6 %.

Virtually the entire reduction in the discharged amount happened in one category – the generation and distribution of electricity, gas, steam and hot water, and in the other categories of users there was stagnation in the discharge of waste and mine water into surface water or there was an insignificant increase.

In 2005 there were 3 884 recorded discharges of waste and mine water into surface water in a total volume of approximately 1 972 million m³. These were sources in excess of 6 000 m³ per year or 500 m³ per month. As a result of the standardisation of data from the individual River Board, s.e., transfers of water are not recorded in the records.

The long-term drop in abstractions and discharges is slowly coming to an end, which is evidenced by the stagnation or slowing down in the rate of the drop, which is evident from the overviews shown of implemented abstractions of water and discharge of waste and mine water for the main categories of users over the longer term. The categorisation of users into individual groups is according to the instructions of the Czech Statistical Office (referred to hereinafter as the „CSO“) intended according to the branch classification of economic activities (referred to hereinafter as the „BCEA“). Above Table 2.1.1, more detailed information about the classification of abstractions and discharges into specific groups of users on the basis of classification according to BCEA is given.

Table 2.3.1 Discharges of waste and mine water into surface water in 2005 in million m³ for sources above 6 000 m³/year or 500 m³/month

River Board, s.e.	Group of users											
	Water supply systems		Agriculture		Power generation		Industry		Other use		Total	
	Amount	Number	Amount	Number	Amount	Number	Amount	Number	Amount	Number	**Amount**	**Number**
Elbe River Board, s.e.	178.6	453	0	0	578.0	21	106.6	213	1.5	59	**864.7**	**746**
Vltava River Board, s.e.	303.3	993	0.1	4	8.2	3	63.7	176	4.2	35	**379.5**	**1 211**
Ohře River Board, s.e.	82.4	258	0	0	21.9	13	124.0	167	3.7	24	**232.0**	**462**
Odra River Board, s.e.	116.1	299	0	0	2.0	1	59.4	48	23.2	115	**200.7**	**463**
Morava River Board, s.e.	194.0	789	0.1	2	68.3	3	28.1	170	4.4	38	**294.9**	**1 002**
Czech Republic	**874.4**	**2 792**	**0.2**	**6**	**678.4**	**41**	**381.8**	**774**	**37.0**	**271**	**1 971.8**	**3 884**

Source: MoA, River Board, s.e.

3. ADMINISTRATION OF WATERCOURSES

3.1 PROFESSIONAL ADMINISTRATION OF WATERCOURSES

In 2005 the amendment was completed to decree No 470/2001 Coll., which designates a list of important rivers and the method of performing activities associated with the administration of rivers, made effective as of 1.7.2005 by decree No 267/2005 Coll.

The amendment to the decree was caused primarily by the need to amend and make more specific Annex No 1 – „List of Significant Watercourses" – in connection with the updating of records of rivers according to decree No 391/2004 Coll., concerning the scope of data in the records of the state of surface water and groundwater and concerning the method of processing, storing and passing on this data to the information systems of public administration. The list was augmented with a new identifier of important rivers (CRWC IDVT), which replaces the hitherto used identifier HEIS. Seventy unnamed important rivers were also named, as were most of the important rivers which had thus far been given in this annex under the name „border stream". The amendments of certain provisions of the decree were performed in order to make more specific or to simplify the text of those provisions on the basis of the evaluation of previous experience gained from the application of the decree in practice.

From the aspect of comparison with the previous list of watercourses of importance for water management, thee list was expanded to a total of 814 watercourses.

The decisive administrators of watercourses continue to be River Board, s.e., the AWMA and Forests of the CR, s.e. in the competence of the MoA, which ensure the administration of approximately 94.5 % of the length of watercourses in the Czech Republic. Municipalities, the Ministry of Defence (district offices of military districts) and the administrations of national parks contribute approximately 5.5 % to the administration of watercourses.

Changes in the definition of significant watercourses are occurring on an ongoing basis, certain watercourses are being transferred from the administration of River Board, s.e., to the administration of AWMA, Forests of the CR, s.e. and vice versa. According to the aforementioned decree, certain spring sections and border watercourses originally recorded as small watercourses are categorised into the category of significant watercourses. These transfers are documented according to the individual administrators of watercourses in Table 3.1.1.

Table 3.1.1 Professional administration of watercourses

Category	Administrator	Length of watercourses in km	
		2004	2005
Important watercourses			
	Elbe River Board, s.e.	3 564.20	3 560.10
	Vltava River Board, s.e.	4 744.67	4 761.10
	Ohře River Board, s.e.	2 290.81	2 290.81
	Odra River Board, s.e.	1 110.80	1 111.39
	Morava River Board, s.e.	3 813.66	3 814.55
	Total competence of MoA	**15 524.14**	**15 537.95**
Small watercourses			
	AWMA	35 572.65	35 649.49
	Forests of the CR. s.e.	19 324.20	19 609.73
	Total River Board, s.e	1 382.52	1 390.87
	Total competence of MoA	**56 279.37**	**56 650.09**
	Other [1]	4 196.49	3 811.96
Total small watercourses		**60 475.86**	**60 462.05**
Total watercourses		**76 000.00**	**76 000.00**

Source: MoA
Note: [1] Includes administration of National Parks, offices of military districts, municipalities and other physical and legal persons (for example, mines)

Table 3.1.2 Book value of tangible fixed assets associated with watercourses in billions CZK

Administrators of watercourses in competence of MoA	2004	2005
Elbe River Board, s.e.	8.33	8.37
Vltava River Board, s.e.	7.35	7.39
Ohře River Board, s.e.	7.60	7.76
Odra River Board, s.e.	4.74	4.90
Morava River Board, s.e.	6.70	6.73
Total River Board, s.e.	**34.72**	**35.15**
AWMA	8.08	8.38
Forests of the CR. s.e.	2.30	2.35
Total	**45.10**	**45.88**

Source: MoA

The book value of tangible fixed assets associated with watercourses demonstrate a year-on-year increase of a total of CZK 0.78 billion, and in 2005 the value of these assets reached almost CZK 46 billion.

The year-on-year increase expresses primarily increases in tangible fixed assets (referred to hereinafter as „TFA") gained through renewal and planned development in the area of entrusted assets in the form of regular investment construction and ongoing inclusion of received assets and completed waterworks. In 2005 no waterworks which could significantly influence the indicator expressing the book value of tangible fixed assets was completed, granted permission for use and put into operation by any of the administrators of watercourses. Certain values were slightly influenced in 2005 by a change

in economic reporting (for example, reclassification of items 215, 214 and 125 113 – accesses, waterways of weirs, bridges, underpasses and stream gauge stations). Concrete values of TFA in book values for the individual watercourse administrators with year-on-year development (increases in TFA) are given by Table 3.1.2.

- **In 2005, new deeds of foundation were issued by the founder for Odra River Board, s.e., Morava River Board, s.e., Ohře River Board, s.e., and Elbe River Board, s.e. and the wording of the current statutes of the River Board, s.e. remained unchanged by the update of the deeds of foundation.**

The MoA exercises on behalf of the state the function of founder of the River Board, s.e. in the sense of the relevant legal regulations, specifically pursuant to section 1 paragraph 4 of Act No 305/2000 Coll., Concerning River Boards, and pursuant to the provisions of section 4 paragraph 1 of Act No 77/1997 Coll., Concerning State Enterprise, as amended, and thus bears responsibility for ensuring the agreement of the relevant documents of foundation, deeds of foundation or statutes of the River Board, s.e. with subsequently occurring facts. The regular updating of the deeds of foundations and statutes of the River Board, s.e. is mainly carried out in connection with changes in legislation in the area of water management, the personnel composition of the relevant supervisory boards, change in position of statutory body or change of representative of statutory body, expansion or other change of designated subject of trading, personnel or organisational changes on the part of the MoA etc.

The administration of watercourses continued to be ensured at a very high level by the AWMA and, primarily for mountain streams, by the Forests of the CR, s.e.

The supervision activity of the individual River Board, s.e. and the AWMA is performed by the founder or establisher. In 2005 the following comprehensive and tightly focussed inspections were carried out for the River Board, s.e. and the AWMA with these results:

Supreme Audit Office

In 2005, the Supreme Audit Office (referred to hereinafter as „SAO“) carried out inspections in three River Board, s.e. (Vltava, Elbe, Ohře). In all, 5 inspections were carried out concerning the drawing of state support for the renewal of territories damaged by floods, on financial resources provided as part of the programmes of the European Union (ISPA and PHARE) and on grant resources associated with protection from floods. No serious shortcomings were discovered during these inspections.

Ministry of Agriculture

The Programme Financing Department carried out in particular inspections of the fulfilment of conditions and drawing of financial resources in the context of investment and operational grants. For all the River Board, s.e. (apart from Odra), in 2005 a total of 11 of these inspections were carried out, during which no fundamental faults were discovered.

Inland Revenue Offices and Regional Inland Revenue Directorates

These bodies of state administration carried out eight inspections of River Board, s.e. in 2005 focussing on checking adherence to budgetary rules and discipline. In the case of the Regional Inland Revenue Directorates it involved checking the drawing of grant financial resources for programmes associated in particular with flood protection. No faults were discovered during these inspections.

District Social Security Administrations

In the Vltava, Ohře and Morava River Board, s.e., these carried out a total of six inspections of insurance premiums, the performance of sick-pay insurance and the performance of tasks in pension insurance. During these inspections, no serious shortcomings were ascertained.

General Health Insurance Company

It carried out an inspection of the duty of the employer in the field of the payment of premiums for health insurance by the Vltava River Board, s.e. No shortcomings were ascertained.

State energy inspectorate

Performed a check on adherence to Act No 526/1990 Coll., Concerning Prices, as subsequently amended, for the River Board, s.e. Vltava, the state river board corporation Ohře and the state river board corporation Odra. No shortcomings were ascertained during these checks.

Inspections performed by other bodies of state administration

An inspection of the Ministry of Defence in the Vltava River Board, s.e. checked the preparation and efficiency of the economic measures for crisis states. The state fund of transport infrastructure (referred to hereinafter as „SFTI“) performed an inspection of the construction for which it provided a grant in the Elbe River Board, s.e. The Agency for the Protection of Nature and the Countryside of the Czech Republic (referred to hereinafter as „APNC“) focussed on checking documents for events from the programme of revitalisation of rivers of the Odra River Board, s.e. Inspections of adherence to regulations for the protection of health and safety at work and public health were performed by the Health and Safety at Work Inspectorate (referred to hereinafter as „HSAWI“) along with the regional hygiene stations of the Olomouc and Zlín region at the Morava River Board, s.e. In most of the completed inspections, no shortcomings have been detected, and the minor shortcomings discovered in the individual cases did not discredit the correctness of the inspected procedures of the monitored companies, which adopted remedial measures immediately.

These inspections were conducted in the Agricultural Water Management Authority in 2005:

Ministry of Agriculture

The Department of Programme Financing in Water Management performed ongoing public-sector site inspections in the sense of section 13, paragraph 1 of Act No 320/2001 Coll. The subject of control was the verification of the use of financial resources for events paid for within the framework of the sub-programmes 229 113, 229 063, 229 013, 329 010 and for regular maintenance of small watercourses, reservoirs and main drainage facilities. Within the context of the inspections, no faults were discovered, and there was no breach of the criteria of Binding Rules for the provision of financial resources in the field of water in 2005 and the method of supervising its use and the conditions of utilising the costs of the state budget shown in annex No 2 to the Decision. A total of 14 events were inspected.

General Health Insurance Company

The General Health Insurance Company performed an inspection of payments of insurance premiums for public health insurance and adherence to the other duties at the head office of AWMA and AWMA - Area of Ohře River Board. No shortcomings were discovered during the inspection.

Czech Social Security Administration

The Administration performed an inspection of the health insurance payments, sick pay insurance and the performance of tasks in pension insurance for AWMA – Area of Elbe, Ohře, Morava and Dyje River Board. No serious shortcomings were discovered during these inspections.

3.2 River Board, s.e.

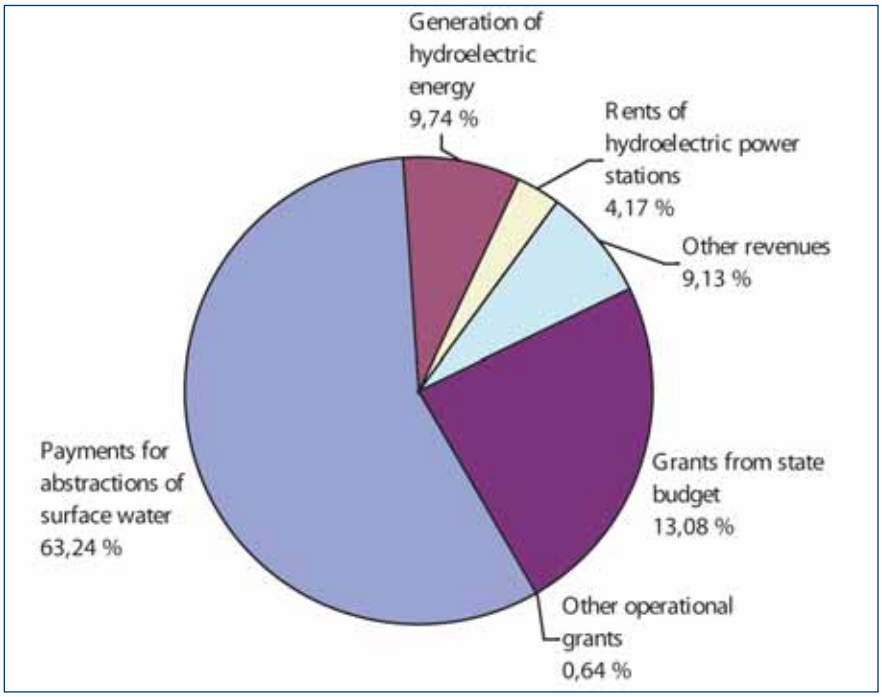
- **In 2005, the overall yields of River Board, s.e. displayed a year-on-year drop in the amount of 8.4 %. However, revenues and yields cannot be evaluated only from the aspect of overall year-on-year development, and during an overall evaluation it is necessary to eliminate from them operational grants, which are included in overall yields according to the valid methodology. After the elimination of operational grants, which fall every year with the gradual elimination of flood damages, from revenues and other yields, yields achieved a year-on-year increase of 3.8 % compared to 2004.**

Table 3.2.1 Structure of yields of River Board, s.e. in 2005 in thous. CZK

Indicator	Elbe River Board, s.e.	Vltava River Board, s.e.	Ohře River Board, s.e.	Odra River Board, s.e.	Morava River Board, s.e.	Total River Board, s.e.
Payments for abstraction of surface water	669 021	513 212	392 947	396 315	362 122	**2 333 617**
Electricity generation	30 786	115 982	157 570	31 792	23 125	**359 255**
Income from use of water storage (heading-up) facilities	13 896	132 202	2 619	0	4 956	**153 673**
Other incomes	92 256	77 430	73 068	35 656	58 411	**336 821**
Grants from state budget	89 837	150 694	57 124	0	184 819	**482 474**
Other operational grants	242	797	0	0	22 396	**23 435**
Total River Board, s. e.	**896 038**	**990 317**	**683 328**	**463 763**	**655 829**	**3 689 275**

Source: MoA, River Board, s.e.

Graph 3.2.1 Structure of yields of River Board, s.e. in 2005



Source: MoA

This slight year-on-year increase in revenues of state corporations was influenced in particular by the growth in yields for the abstraction of surface water by more than CZK 30 million, which corresponds to an annual increase in the amount of 1.3 %, and for the generation of electrical energy with a year-on-year growth in absolute expression representing an increase of almost CZK 36 million (an increase exceeding 11 %). In addition, there was a significant contribution to the increase in yields from revenues for the use of water storage (heading-up) facilities. When analysing the operational grants, which over the past two years have been distinguished by a strengthening of the allocation of financial resources from the state budget, it is evident that this source will be gradually restricted, which was already reflected in the results for 2004. The share of grants out of overall revenues is falling, which is most evident from Graph 3.2.1, where grants in 2003 represented more than 36 % of overall revenues, but in 2004 they were only somewhat less than 24 %, and in 2005 it is somewhat less than 14 %. These grant allocations, which in recent years have enabled and more than

anything influenced and accelerated the reconstruction and renewal of water management assets after the floods, were a reaction to the accelerated elimination of damages caused. They allowed the implementation of flood-prevention measures, the designation of flood land and the processing of many studies essential for systematic activity in years to come in compliance with the concept of water management policy.

The greatest part of overall yields of the River Board, s.e. in 2005 consisted of payments for abstractions of surface water, which continue to be the most important source of revenue for the payment of costs for the administration of watercourses, in particular for ensuring the conditions for the necessary abstractions of water. Their year-on-year increase exceeded CZK 30 million, and in view of the restriction of operational grants (despite the drop in overall abstractions in technical units), their proportion in 2005 in the overall revenues in contrast with 2004 grew slightly, and it exceeds 64 %. But the prevailing trend is a year-on-year drop, which is evident in particular after excluding the influence of grants with a significant attempt of the state companies to compensate for the drop by a higher growth in other yields and revenues.

In the year-on-year comparison, the revenues for electricity generation show the greatest growth (by almost 36 million), followed by revenues for the use of water storage (heading-up) facilities in the amount of almost CZK 29 million. The structure of yields of the River Board, s.e. in 2005 is expressed in Table 3.2.1 and Graph 3.2.1.

The development of overall deliveries of surface water for payment in technical units over the longer timescale is given in Table 3.2.2. The prices for the individual types of abstractions of surface water are given in Tables 3.2.3 and 3.2.4. Payments for abstractions of surface water over a ten-year period are given by Table 3.2.5.

Table 3.2.2 Deliveries of surface water for payment in the years 1998 – 2005 in thous. m³

River Board, s.e.		1998	1999	2000	2001	2002	2003	2004	2005
Elbe River Board, s.e.	a)	787 331	572 341	534 300	508 435	571 365	803 416	815 491	777 041
	b)	49 710	45 137	43 630	43 279	41 618	36 334	39 182	39 818
Vltava River Board, s.e.	a)	324 336	294 550	276 626	264 802	266 916	286 889	274 084	262 532
	b)	207 949	192 786	185 072	171 924	167 878	173 773	163 896	160 483
Ohře River Board, s.e.	a)	207 855	190 731	176 183	176 403	169 092	170 975	162 934	155 315
	b)	71 517	67 185	63 206	60 263	57 807	58 951	57 033	53 644
Odra River Board, s.e.	a)	198 122	182 515	175 883	166 799	173 275	172 795	163 874	165 044
	b)	77 245	72 108	69 434	66 255	72 167	74 183	70 729	72 682
Morava River Board, s.e.	a)	171 842	156 247	141 902	132 680	135 366	165 653	145 185	154 770
	b)	38 086	36 499	38 768	39 398	38 112	38 256	36 969	34 953
Total River Board, s.e.	**a)**	**1 689 486**	**1 396 384**	**1 304 894**	**1 249 119**	**1 316 014**	**1 599 728**	**1 561 568**	**1 514 702**
	b)	**444 507**	**413 715**	**400 110**	**381 119**	**377 582**	**381 497**	**367 809**	**361 580**

Source: River Board, s.e.
Note: a) for payment total,
b) of this, for water supply systems for public use.

Table 3.2.3 Price for abstractions for flow cooling in the years 1996 – 2005 in CZK/m³

River Board. s.e.	1996	1997	1998	1999	2000	2001	2002	2003	2004	2005
Elbe River Board, s.e.	0.33	0.45	0.53	0.61	0.67	0.67	0.65	0.39	0.40	0.40
Vltava River Board, s.e.	0.48	0.51	0.55	0.70	0.76	0.81	0.86	0.91	0.92	0.93
Morava River Board, s.e.	0.42	0.46	0.49	0.53	0.56	0.60	0.53	0.41	0.49	0.54

Source: River Board, s.e.
Note: The unit price per m³ is given without value added tax.

Table 3.2.4 Price for other abstractions of surface water in the years 1996 – 2005 in CZK/m³

River Board, s.e.	1996	1997	1998	1999	2000	2001	2002	2003	2004	2005
Elbe River Board, s.e.	0.83	0.99	1.16	1.39	1.54	1.71	1.88	2.04	2.20	2.35
Vltava River Board, s.e.	0.95	1.03	1.15	1.41	1.55	1.65	1.70	1.79	1.90	2.00
Ohře River Board, s.e.	1.43	1.52	1.67	1.87	1.99	2.11	2.23	2.33	2.41	2.53
Odra River Board, s.e.	0.94	1.18	1.40	1.59	1.74	1.80	2.01	2.08	2.12	2.40
Morava River Board, s.e.	1.76	1.92	2.10	2.27	2.53	2.66	2.89	3.06	3.12	3.26
Total River Board, s.e.	**1.08**	**1.24**	**1.39**	**1.59**	**1.76**	**1.90**	**2.10**	**2.23**	**2.44**	**2.51**

Source: River Board, s.e, WMRI T.G.M.
Note: The unit price per m³ is given without value added tax.

Table 3.2.5 Payments for abstraction of surface water in the years 1995 – 2005 in millions CZK

River Board, s.e.	1995	1996	1997	1998	1999	2000	2001	2002	2003	2004	2005
Elbe River Board, s.e.	419	448	548	556	530	532	536	566	613	669	669
Vltava River Board, s.e.	332	337	345	357	383	401	408	438	495	508	513
Ohře River Board, s.e.	288	323	343	368	375	367	397	399	427	420	393
Odra River Board, s.e.	195	221	255	273	279	294	301	347	359	347	396
Morava River Board, s.e.	256	266	273	264	266	277	287	300	368	359	362
Total River Board, s.e.	**1 490**	**1 595**	**1 764**	**1 818**	**1 833**	**1 871**	**1 929**	**2 050**	**2 262**	**2 303**	**2 333**

Source: River Board, s.e.

The overall prices of surface water in comparison with the preceding year grew on average by 2.1 %, prices for surface water in the context of other abstractions rose by almost 2.9 %. These are materially directed prices in which it is possible to include only economically justifiable costs, reasonable profit and tax according to the relevant tax regulations.

In addition to flow cooling and other abstractions, since 2003 the levels of abstractions and price of surface water for the purposes of agricultural irrigation and flooding of artificial terrain hollows were also ascertained. With the exception of the Odra River Board, s.e., in 2005 abstractions for the purposes of agricultural irrigation were made in the total scope of 1 161 thous. m³, which as a total for all state corporations represents almost a year-on-year doubling in this category, but only the Vltava River Board, s.e. contributed to it, the abstractions of which in the context of this category represented more than half of all the specified abstractions. As in 2004, abstractions of surface water for flooding of artificial terrain hollows occurred only in the Ohře River Board, s.e. and there was an exceptional year-on-year increase from 500 thous. m³ to 3 883 thous. m³.

The current prices in the current conception do not express the value of surface water, but the price of the serv-

Table 3.2.6 Own small hydroelectric power stations of River Board, s.e. in the years 2000 – 2005

River Board, s.e.	Indicator	2000	2001	2002	2003	2004	2005
Elbe River Board, s.e.	Number of SHEP	15	15	15	17	17	17
	Installed capacity in kW	2 711	2 711	2 677	4 876	4 876	4 876
	Electricity generation in MWh	7 968	10 738	9 974	7 792	15 284	19 135
	Incomes in thous. CZK	9 459	12 515	15 107	14 590	24 109	30 786
Vltava River Board, s.e.	Number of SHEP	12	14	14	15	16	16
	Installed capacity in kW	8 500	9 600	9 600	15 500	15 900	15 300
	Electricity generation in MWh	37 722	50 409	35 873	43 030	67 706	74 050
	Incomes in thous. CZK	39 840	53 217	49 992	62 363	103 649	115 982
Ohře River Board, s.e.	Number of SHEP	20	20	20	20	20	20
	Installed capacity in kW	16 750	16 750	16 750	16 750	16 677	16 677
	Electricity generation in MWh	74 494	87 539	106 363	75 560	87 465	96 967
	Incomes in thous. CZK	82 922	95 774	161 747	111 312	137 879	157 570
Odra River Board, s.e.	Number of SHEP	14	14	14	14	14	14
	Installed capacity in kW	4 750	4 750	4 750	4 985	4 985	5 103
	Electricity generation in MWh	25 168	25 896	31 019	20 250	24 292	20 649
	Incomes in thous. CZK	26 480	25 732	41 604	27 798	36 484	35 049
Morava Rivier Board, s.e.	Number of SHEP	12	13	14	14	14	14
	Installed capacity in kW	3 192	3 512	3 612	3 612	3 612	3 612
	Electricity generation in MWh	10 613	14 301	14 476	12 412	13 803	14 415
	Incomes in thous. CZK	11 839	15 716	21 603	18 324	21 221	23 125
Total River Board, s.e.	**Number of SHEP**	**73**	**76**	**77**	**80**	**81**	**81**
	Installed capacity in kW	**35 903**	**37 323**	**37 389**	**45 723**	**46 050**	**45 568**
	Electricity generation in MWh	**155 965**	**188 903**	**197 705**	**159 044**	**208 550**	**225 216**
	Incomes in thous. CZK	**170 540**	**202 954**	**290 053**	**234 387**	**323 342**	**362 512**

Source: MoA, River Board, s.e.

Table 3.2.7 Other incomes of River Board, s.e. in the years 1997 – 2005 in thous. CZK

River Board, s.e.	1997	1998	1999	2000	2001	2002	2003	2004	2005
Elbe River Board, s.e.	54 094	50 907	54 754	145 989	124 730	173 429	68 368	87 233	92 256
Vltava River Board, s.e.	26 800	56 286	49 222	55 481	79 505	191 391	136 859	85 855	77 430
Ohře River Board, s.e.	54 000	64 398	55 922	66 836	57 809	65 606	67 525	59 410	73 068
Odra River Board, s.e.	9 600	70 977	31 033	49 113	28 208	47 853	41 618	34 712	35 656
Morava River Board, s.e.	29 346	38 021	41 786	54 879	46 462	44 975	55 643	48 960	58 411
Total River Board, s.e.	**173 840**	**280 589**	**232 717**	**372 298**	**336 714**	**523 254**	**370 013**	**316 170**	**336 821**

Source: MoA, River Board, s.e.

Table 3.2.8 Grants allocated to River Board, s.e. in 2005 in thous. CZK

River Board, s.e.	Operational grants	Investment grants	Total grants
Elbe River Board, s.e.	90 079	327 575	**417 654**
Vltava River Board. s.e	151 491	122 850	**274 341**
Ohře River Board, s.e.	57 124 [1)]	162 972	**220 096**
Odra River Board, s.e.	0	160 994	**160 994**
Morava River Board, s.e.	207 215 [2)]	315 925 [3)]	**523 140**
Total River Board, s.e.	**505 909**	**1 090 316**	**1 596 225**

Source: MoA, River Board, s.e.
Note: [1)] Including refunds of MF in the amount of CZK 1 010 thous.
[2)] Including grants from SEF for waterworks Bystřička in the amount of CZK 1 929 thous. and after the deduction of CZK 163 thous. from the grant for the Bata canal transferred to 2006
[3)] True utilisation in 2005 is CZK 500 thous. lower, these resources were transferred to the year 2006

ice – i.e., allowing deliveries which the River Board, s.e. ensure for water users. These prices are subject to regulation in the form of material direction pursuant to Act No 526/1990 Coll., the Act Concerning Prices and Rules Designated by the Decisions of the Ministry of Finance (referred to hereinafter as the „MoF") Concerning the Regulation of Prices, i.e., by the relevant assessments, by which a list of goods is issued with regulated prices which are published in the Price Bulletin.

Overall in 2005, the River Board, s.e. recorded an increase in incomes for abstractions of surface water in absolute terms by CZK 30 million, which represents a year-on-year increase in this category of incomes by 1.30 %.

The Odra River Board, s.e. contributed the most to this result, where their increase in yield in this category represents in the absolute figure almost CZK 50 million. In the other River Board, s.e. there was only slight growth or stagnation in the development of trends, with the exception of the Ohře River Board, s.e., where a more marked drop, by CZK 27 million, was expressed which was compensated by higher growths in yields from other activities.

In view of the relatively favourable hydrological situation, there was an increase in yields for electrical energy from own small hydroelectric power stations by almost CZK 36 million, and overall yields in this area of revenues reached almost CZK 360 million.

Despite the fact that the number of small hydroelectric power stations owned by the River Board, s.e. did not change in comparison with 2004, the revenues of the River Board, s.e. for this category exceeded the level of CZK 360 million, their maximum level to date. With the exception of the Odra River Board, s.e., there was a year-on-year increase in all other River Board, s.e. The highest revenues for electrical energy in an amount of CZK 158 million is recorded by the Ohře River Board, s.e., which has the greatest number of own small hydroelectric power stations that it currently operates. Yields for electrical energy in an amount exceeding CZK 100 million are also recorded by the Vltava River Board, s.e. which has more than any other increased the number of own small power stations. Since 2000, their total number has increased by four, of this by two in 2001 and by one in 2003 and 2004. More detailed information about the number of own small hydroelectric power stations in the individual River Board, s.e., their installed output, generation of electrical energy and yields is given by Table 3.2.6.

The other incomes of River Board, s.e. are less significant, and these primarily come from the renting of lands, non-residential premises and water surfaces and other business activities, of which the most important are incomes from the operations of machine mechanisms and road haulage, from laboratory operations and for project and engineering activity, and the item of financial yields also plays a role in the overall level. This item is frequently significantly influence by many unplanned items such as insurance performance, increased interest received and often by the level of transfer of certain defined

yields which apply to the past but were implemented in this year.

- **The annual grants represent a significant help for the financial needs in the context of the main activities of the River Board, s.e. Without state grants, over the past four years the consequences of floods could not have been rectified nor could systematic activity be initiated making it possible to realise flood-prevention measures, designate flood territories and prepare many conceptual studies. Table 3.2.8 gives the overall operational (non-investment) and investment grants of the individual River Board, s.e., allocated in 2005. Apart from the grants via the budget of the Ministry of Agriculture, grants also consisted of financial resources of the State Transport Infrastructure Fund and the Ministry of the Environment via the funds of PHARE, and several regional authorities also contributed to anti-flood measures.**

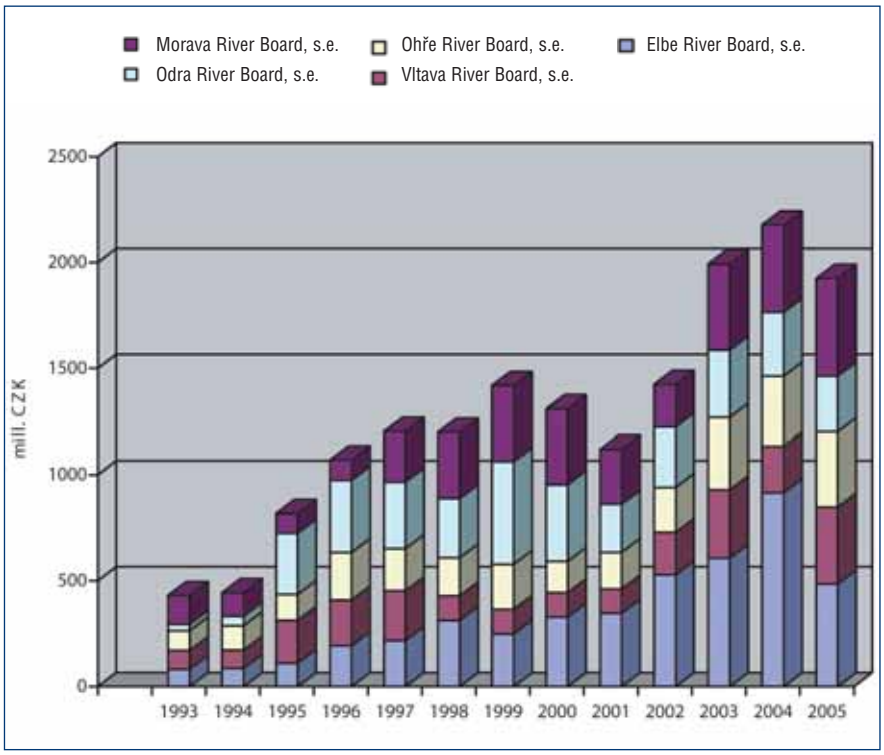
In the preceding parts, within the context of overall yields, there has already been a commentary on the year-on-year drop, especially of operational grants. Within the context of the programme measures, programmes were declared both for the prevention of floods and for the liquidation of flood damages from previous years the focus and level of which is given in detail in chapter 7, focussing on financial support in water management. For the Elbe River Board, s.e. and Vltava River Board, s.e., every year the contribution to the operation and maintenance of waterways also constituted a significant part of the operational grants, but this has not been provided to the state companies mentioned for two years, in contrast with the investment grants for the building and reconstruction of waterways, which were also allocated last year as part of the contribution from the SFTI. The sum of grants displayed in Table 3.2.8 only reached slightly less than 75 % of the previous period, and the major factor in this drop

Table 3.2.9 Costs of River Board, s.e. in millions CZK

Type of costs	Elbe River Board, s.e.	Vltava River Board, s.e.	Ohře River Board, s.e.	Odra River Board, s.e.	Morava River Board,s.e.	Total River Board, s.e.
Depreciations						
2004	142.0	156.3	169.5	96.1	105.8	**669.7**
2005	145.6	162.6	174.7	113.6	106.2	**702.7**
Repairs						
2004	358.1	717.6	195.1	77.2	116.7	**1 464.7**
2005	204.7	320.2	197.8	68.9	222.2	**1 013.8**
Materials						
2004	48.8	25.6	21.9	36.2	36.4	**168.9**
2005	49.5	24.9	20.7	36.3	37.1	**168.5**
Energy and fuels						
2004	30.1	25.4	23.3	3.6	8.2	**90.6**
2005	33.4	27.5	23.7	4.1	9.8	**98.5**
Personnel costs						
2004	312.5	273.7	214.7	149.4	216.0	**1 166.3**
2005	336.8	292.4	229.5	160.9	230.4	**1 250.0**
Services						
2004	52.7	69.9	28.3	30.4	25.0	**206.3**
2005	64.9	77.6	30.7	30.2	26.7	**230.1**
Financial costs						
2004	2.0	7.0	0.7	2.6	0.3	**12.6**
2005	1.5	4.5	0.3	1.8	0.3	**8.4**
Other costs						
2004	27.1	44.6	4.4	27.9	- 0.9	**103.1**
2005	22.9	46.2	- 11.1	31.3	10.1	**99.4**
Total costs						
2004	**973.3**	**1 320.1**	**657.9**	**423.4**	**507.5**	**3 882.2**
2005	**859.3**	**955.9**	**666.3**	**447.1**	**642.8**	**3 571.4**

Source: MoA, River Board, s.e.

Graph 3.2.2 Development of investment construction of River Board, s.e. in years 1993 – 2005



Source: MoA, River Board, s.e.

Table 3.2.10 Investments of River Board, s.e. in the years 1997 – 2005 in millions CZK

River Board, s.e.	1997	1998	1999	2000	2001	2002	2003	2004	2005
Elbe River Board, s.e.	216.8	313.4	248.4	328.5	347.1	529.1	607.6	915.2	485.2
Vltava River Board, s.e.	235.2	115.7	116.3	115.2	114.1	199.3	321.6	219.0	362.4
Ohře River Board, s.e.	200.0	180.2	212.5	148.2	173.4	212.8	339.8	329.5	354.4
Odra River Board, s.e.	314.3	279.1	484.4	361.6	226.8	282.3	316.3	301.3	260.6
Morava River Board, s.e.	236.1	311.0	357.3	356.8	257.8	200.5	407.4	411.9	462.3
Total River Board, s.e.	**1 202.4**	**1 199.4**	**1 418.9**	**1 310.3**	**1 119.2**	**1 424.0**	**1 992.7**	**2 176.9**	**1 924.9**

Source: MoA, River Board, s.e.

Table 3.2.11 Profit or loss of River Board, s.e. in thous. CZK

River Board, s.e.	1998	1999	2000	2001	2002	2003	2004	2005
Elbe River Board, s.e.	- 6 808	35 398	19 859	17 166	4 774	26 542	39 445	36 777
Vltava River Board, s.e.	14 475	16 853	37 838	48 735	- 45 525	45 752	42 008	34 376
Ohře River Board, s.e.	14 625	6 947	11 825	12 415	11 334	28 274	16 817	17 070
Odra River Board, s.e.	65 340	66 870	19 617	22 575	23 002	38 671	11 877	16 680
Morava River Board, s.e.	- 41 867	8 930	20 647	17 939	24 512	32 170	37 142	13 038
Total River Board, s.e.	**45 765**	**134 998**	**109 786**	**118 830**	**18 097**	**171 409**	**147 289**	**117 941**

Source: River Board, s.e.

Table 3.2.12 Allocation of profits for year 2004 in thous. CZK

	Allocation of profit or covering of loss						
River Board, s.e.	Profit	Reserve fund	Cultural and social need fund	Investment fund Capital funds	Social fund	Bonus fund	Accrued losses
Elbe River Board, s.e.	**36 777**	3 678	6 000	22 599	0	4 500	0
Vltava River Board, s.e.	**34 376**	1 500	6 000	20 876	0	6 000	0
Ohře River Board, s.e.	**17 070**	5 000	5 000	4 070	0	3 000	0
Odra River Board, s.e.	**16 680**	1 668	3 768	6 244	0	5 000	0
Morava River Board, s.e.	**13 038**	1 304	4 000	0	0	4 000	3 734

Source: MoA

Table 3.2.13 Number of workers (average calculated state)

River Board, s.e.	2004	2005
Elbe River Board, s.e.	939.4	939.2
Vltava River Board, s.e.	807.0	811.7
Ohře River Board, s.e.	618.3	618.9
Odra River Board, s.e.	462.4	463.2
Morava River Board, s.e.	739.3	736.7
Total River Board, s.e.	**3 566.4**	**3 569.7**

Source: River Board, s.e.

Table 3.2.14 Average salary in CZK achieved in the individual River Board, s.e.

River Board, s.e.	1999	2000	2001	2002	2003	2004	2005
Elbe River Board, s.e.	14 675	15 641	16 565	17 941	18 750	20 125	21 781
Vltava River Board, s.e.	14 875	15 819	16 526	18 444	19 073	20 556	21 909
Ohře River Board,s.e.	14 545	15 704	17 085	18 435	19 420	20 661	22 091
Odra River Board, s.e.	13 999	14 717	15 811	17 516	18 362	19 656	21 050
Morava River Board, s.e.	14 007	14 663	15 820	16 216	16 899	17 975	19 233
Total River Board, s.e.	**14 468**	**15 330**	**16 396**	**17 724**	**18 505**	**20 072**	**21 243**

Source: River Board, s.e.

was operational grants, which in 2005 only reached 53 % of the level of the year 2004, whereas for investment grants the drop was a little over 7 %.

- **The year-on-year drop in overall costs by 8 % was expressed most of all in the item of external repairs, which dropped by almost 30 % in comparison with 2004, which in absolute terms represents an amount of more than CZK 450 thous. In the total costs, this significant difference is reduced by about a quarter by the increase in other cost items. This development of costs is a reflection in particular of the lower allocations in the context of grant titles (operational grants). The current trend of significant increases of external repairs in 2002 – 2004 was the result of the attempt to ensure as quickly as possible operational safety at waterworks after extreme floods and to minimise damage to property managed by water management organisations.**

For the Vltava River Board, s.e. and Elbe River Board, s.e. in particular, there was a significant drop in costs in the item of repairs in connection with the gradual elimination and billing of flood damages. An overview of the costs of state river board corporations in 2005 and their comparison with the preceding year is given in Table 3.2.9.

- **Last year the River Board, s.e. spent CZK 1925 million on the implementation of investments, of which CZK 807 million was drawn from own sources, and a total of almost CZK 1118 million was from investment resources not covered by own sources.**

Over the past ten years, the River Board, s.e. have put almost CZK 15 billion into investments. Table 3.2.10 and Graph 3.2.2 give a clear overview of the utilisation of investment resources over the longer term. From the data it is evi-

Chrudimka river, Hlinsko

dent that even in the context of investment work, in a manner similar to that in the operational field, there is a gradual decrease. This turning point from significant increases to a year-on-year drop in investment construction is expressed with a far greater delay, because the preparation and implementation of overall renewal and reconstruction in the form of investment work (in contrast with repairs and maintenance) is more demanding in terms of time and implementation.

In 2005 all the River Board, s.e. recorded a profit which represents financial resources in the amount of CZK 117.9 million. The greatest share of this result, representing an amount exceeding CZK 34 million, belongs to the Vltava River Board, s.e. and Elbe River Board, s.e., which attained a profit in excess of CZK 36 million.

The share of the individual River Board, s.e. in the overall economic result and development of the profit over the last eight years is documented by Table 3.2.11. The allocation of attained profits to the individual funds and proposal for covering of loss in the concrete River Board, s.e. is given in Table 3.2.12.

The gradual slow growth in the number of calculated employees over the last three years is closely associated with the increasing tasks of watercourse administrators which arise from the Water Act, in particular in connection with planning in the area of water. The average calculated state of employees in the River Board, s.e. in 2005 increased by a further four employees, which represents a growth in the total state in the past year to 3 570.

The situation in the development of labour in the context of significant watercourse administrators is displayed by Table 3.2.13, from which it is evident that last year the number of employees in the individual River Board, s.e. stabilised, and it remains at approximately the same level as in 2004, with the exception of the Vltava River Board corp., where an overall year-on-year growth is expressed.

In 2005, the average monthly salary in the River Board, s.e. represented an amount of CZK 21 243, see Table 3.2.14, and in 2005 it displayed a year-on-year increase by a little less than 6 %, which is slightly below the republic-wide average In absolute figures, the year-on-year increases are from CZK 1 171 for the Morava River Board, s.e. to CZK 1 656 for the Elbe River Board, s.e. The Morava River Board, s.e. continues to record the lowest average salary.

Table 3.3.1 Utilisation of individual non-investment financial resources of AWMA in 2005 in millions CZK

Activity	Source	Budget	Reality
Maintenance and repair of watercourses	State budget	90.147	90.143
Operation of watercourses and associated waterworks	State budget	18.996	18.938
Countryside care programme	State budget	0.153	0.152
Flood prevention	State budget	–	–
Maintenance of MDF	State budget	17.466	17.464
Operation of MDF	State budget	8.315	8.097
Other non-investment expenses	State budget	20.000	19.976
Total		**155.077**	**154.769**

Source: AWMA (Non-investment expenses for the elimination of flood damage are given in separate tables).

Table 3.3.2 Covering of expenses of AWMA for maintenance and repair of watercourses and waterworks in millions CZK in the years 2001 – 2005

Source for covering expenses	2001	2002	2003	2004	2005
Budget of MoA – VT and VN	77.0	119.7	122.4	102.4	90.1
Countryside care programme	–	–	–	–	17.5
Countryside care programme	2.4	0.6	0.3	0.2	0.2
Flood prevention measures	5.7	8.9	26.1	24.2	0
Total state budget	**85.1**	**129.2**	**148.8**	**126.8**	**107.8**
State land reclamation fund	3.8	0	0	1.5	1.5
Total	**88.9**	**129.2**	**148.8**	**128.3**	**109.3**
Elimination of flood damage from resources of Land Fund of the Czech Republic	0	0	0	0	0
Maintenance and repair of main land reclamation equipment from resources of Land Fund of the Czech Republic	59.8	54.9	59.9	54.8	0
Total expenses	**148.7**	**184.1**	**208.7**	**183.1**	**109.3**

Source: AWMA

Table 3.3.3 Non-investment expenses for watercourses, maintenance and repairs of main drainage facilities administered by AWMA in 2005 according to regions in millions CZK

Catchment area	Maintenance and repair of watercourses	Operation	Rectification of flood damage	MDF Maintenance	MDF operation	Total
Vltava	31.357	0.821	19.750	7.393	0.933	**60.254**
Elbe	22.159	3.158	–	4.506	1.749	**31.572**
Ohře	5.191	1.528	–	1.080	–	**7.799**
Morava	26.156	9.839	5.619	3.205	5.271	**50.090**
Odra	5.280	3.592	–	1.280	0.144	**10.296**
Total	**90.143**	**18.938**	**25.369**	**17.464**	**8.097**	**160.011**

Source: AWMA

3.3 Agricultural Water Management Authority

In 2005 the Agricultural Water Management Authority took over from the Land Fund of the Czech Republic (referred to hereinafter as „LF CR“) the right to trade with main drainage land reclamation equipment in a total book value of CZK 3.056 billion. These assets include a total of 11 603 km open and pipe water channels, 120 pumping stations, 13 reservoirs associated with drainage systems and 800 culverts.

The activities ensured by the AWMA are to a decisive extent publicly beneficial acts of a non-profit-making nature, services for care of state assets and departmental interests in the areas of water management in the individual catchment areas of the agriculturally utilised countryside and the ensuring of their protection, and generation and ecological stability.

In 2005, the AWMA ensured, in compliance with the provisions of

Table 3.3.4 Composition of revenues of AWMA in millions CZK in the years 2001 – 2005

Revenues	2001	2002	2003	2004	2005
Payments for consumption of water	3.8	2.5	2.6	2.7	3.9
Rents of water management constructions	3.5	5.2	5.3	5.0	5.2
Other revenues	3.4	1.4	1.0	1.4	5.1

Source: AWMA

Table 3.3.5 Rectification of flood damage from the years 2000 and 2002 on watercourses administered by AWMA in 2005 in million CZK

Source – programme	Investment costs	Non-investment costs	Total
Programme 229 112	0.543	–	**0.543**
Programme 229 113	134.424	25.369	**159.793**
Total	**134.967**	**25.369**	**160.336**

Source: AWMA

Table 3.3.6 Structure of investments and financial sources of AWMA in millions CZK in the years 2002 – 2005

Structure of investments	Financial sources	2002	2003	2004	2005
Repair of watercourses	State Budget – MoA	47.4	52.2	36.7	41.5
	Special-purpose fund (replacement	0.9	0.1	0.04	0
	recultivation) State fund for cultivation of land	0	0	0	0
Studies of outflow conditions	State Budget	0	4.7	3.3	0
Revitalisation of watercourses	State Budget	30.7	41.6	24.8	22.3
Flood prevention measures	State Budget	63.1	54.4	81.3	58.6
	EIB	–	66.8	53.0	129.0
Rectification of flood damage from the year 1997	State Budget	29.2	0.5	0.08	0
	EIB	0	0	–	–
Rectification of flood damage from the year 1998	State Budget	0	0	0	0
Rectification of flood damage from the year 2000	State Budget	1.6	3.8	17.2	0.5
Rectification of flood damage from the year 2002	State Budget	0	0.3	7.5	21.3
	EIB	0	8.3	41.7	113.1
Total		**172.9**	**232.7**	**265.62**	**386.3**

Source: AWMA

the foundation deed, of Act No 254/2001 Coll., Concerning Water and Concerning the Amendment of Certain Acts (the Water Act), as subsequently amended, of Act No 219/2000 Coll., Concerning Assets of the Czech Republic and their Representation in Legal Relations, as subsequently amended, the exercise of administration of small watercourses with a total length of 35 649 km (of which 14 319 km were adjusted watercourse) and 480 reservoirs (of which 17 were in category III). The total book value of these administered tangible fixed assets was CZK 8.375 billion.

The activities and trading of the AWMA in 2005 focussed primarily on tasks from the aspect of ensuring the administration, operation and maintenance of water management assets of the Czech Republic, the acquisition and technical renewal of investment assets administered by the MoA, programme solutions and financing, elimination of flood damage, implementation of flood-prevention measures, building a public service information system within MoA, ensuring and evaluating monitoring of surface water, monitoring of foreign substances in surface water and approximation strategy (Council Directive 91/676/EEC).

In its activities, the AWMA managed to combine the requirements from the aspect of protection of nature and the countryside with its intentions via the landscape generation programmes of the MoE. The implementation of constructions within the Programme for the Revitalisation of River Systems was one of the organisation's priorities in the past year. The primary aim was an improvement in the hydrological regime in the countryside, increase in the land's retention capacity and renewal of a nature-like state in aquatic ecosystems.

In activities is also to a considerable extent contributed to solutions focussing on flood prevention. In 2005, flood-prevention measures of an investment nature were implemented on AWMA assets as part of the programme 229 060 – Flood Prevention – in the volume of CZK 188 million. The aim of the programme is to regulate the outflow conditions in the catchment area of the watercourse in such a manner that there should be a reduction or alleviation of a flood wave as a result of torrential or persistent rain. The subject of the measure was in particular the construction of reservoirs and protective dykes and an increase in the flow capacity of watercourses. In the course of 2005, preparation was performed for the 2nd stage of the programme Flood Prevention. AWMA presented a total of 136 projects with a financial volume of approximately CZK 1 billion to strategic experts for evaluation.

In order to ensure the proper functioning and operability of watercourses

Doubrava river, Chittusibo údolí

and waterworks, financial resources of CZK 90 147 thousand were allocated to the AWMA to ensure maintenance, repairs, the elimination of emergency states and flood damage. During 2005 flood damage of a local character in a total volume of CZK 50 million was incurred on the minor watercourses administered by AWMA. This damage was partially eliminated during regular maintenance. In the context of non-investment expenses, in 2005, the AWMA also drew on financial resources for the operation of watercourses and waterworks from the Programme for Countryside Care and Elimination of Flood Damage. For the maintenance of main drainage land reclamation facilities, the AWMA was allocated financial resources in the amount of CZK 17 466 thous. CZK, and for operation in the amount of CZK 8 315.

A summarised overview of the true utilisation of these financial resources is given by Table 3.3.1.

In 2005, the maintenance of watercourses focussed mainly on weed cutting, cleaning, repairs to objects ensuring flood protection, liquidation of non-native invasive species of plants (giant hogweed, Japanese knotweed) and the maintenance of bank vegetation. As part of the maintenance of MDF, the cutting of weeds and cleaning of channels for ensuring the outflow of water from drainage systems was performed in particular. As part of operation, in particular ensuring the operation of 120 pumping stations which ensure the pumping of water from lower-lying areas to main watercourses.

An overview of the financial resources used in recent years out of the individual financial sources for maintenance and repairs of watercourses and waterworks is given by Table 3.3.2.

The allocation of non-investment expenses to watercourses and main drainage facilities in the administration of AWMA according to the individual areas is given by Table 3.3.3.

The incomes of AWMA have the character of incomes from own activities, and other incomes consist of additional, incidental and other incomes. The attained incomes in 2005 come to a total of CZK 14.2 million, of this payments for the abstraction of surface water amounted to CZK 3.9 million. The price of surface water for the year 2005 was designated in the amount of CZK 1.14/m^3, it remained unchanged from 2004, in 2003 it was CZK 1.00/m^3. This is the price excluding VAT, because as an organisational unit the AWMA does not bill this tax.

The price composition of revenues of the AWMA is given in Table 3.3.4.

One of the most important activities of the AWMA as part of the programme financing of the MoA was the implementation of projects via the programme 229 110 – Rectification of the consequences of floods to state water management assets. In 2005, the elimination of flood damage from the year 2000 was completed (sub-programme 229 112) and to a significant extent the elimination of flood damage from the year 2002 continued (sub-programme 229 113). Construction work of all projects was completed, and only for 22 projects has the purchase of lands not yet been resolved.

An overview of financial resources drawn for the elimination of flood damage from the year 2000 and 2002 is given in Table 3.3.5.

In the AWMA in 2005, investment construction at a total level of CZK 3 863 million CZK, including the programme of flood-prevention measures in the amount of CZK 187.6 million and the elimination of flood damage from 2000 and 2002 in the amount of CZK 135.0 million was implemented. An overview is given in Table 3.3.6.

In the field of the monitoring of the state of surface water, as in previous years, the AWMA actively participated in the implementation of the Water Framework Directive, in particular in the field of monitoring and evaluating the ecological state of water. In all, in 2005 AWMA ran five monitoring programmes, of which the most extensive was monitoring for the needs of the Nitrate Directive. The transformation of AWMA information systems and the completion of their technological support registered a significant shift.

3.4 Forests of the CR, s.e. – area administrations of watercourses

As of 1.1.2005, the territorial competence of administrations of watercourses of Forests of the CR, s.e. were adapted to conform to the areas of the river boards (administrations of watercourses of the river board areas of the Elbe, Vltava, Berounka, Ohře, Odra, Morava and Dyje). This regional arrangement is based on the legislative regulations valid for water management. One of the many important activities is the administration of approximately 19.6 thousand kilometres of

designated small watercourses and mountain streams.

Forests of the CR, s.e. also administers mountain streams outside the territory intended for the performance of the function of a forest, because in the case of care for the entire catchment areas of watercourses they flow through agricultural land and the intravilan area of municipalities. The exercise of administration of watercourses contains activities designated by the Water Act and implementing regulations. In the case of the performance of the duty of regulating mountain streams, this is a public, non-commercial service with the aim of stabilising the outflow conditions in the catchment area. Care for watercourses in the context of Forests of the CR, s.e. contains administration of fixed assets associated with watercourses in the book value of CZK 2.3 billion (in particular, alterations to watercourses, objects, flood-prevention measures, reservoirs). The administration of watercourses is methodologically managed by the section of investments, department of water management. The administration of watercourses is ensured by a total of 72 employees at the 7 aforementioned administrations of watercourses.

Measures on watercourses in the administration of the Forests of the CR, s.e. are financed from own resources and grant resources. The grants principally involved measures carried out in the state interest through section 35 of the Forestry Act, from a loan of the European Investment Bank (referred to hereinafter as „EIB“) – programme of flood prevention and rectification of damage caused by the floods in 2002 – and from the funds of the EU – operational programme of agriculture. Activities carried out in connection with the administration of watercourses are of a non-commercial nature, and in relation to the overall expended financial resources they bring Forests of the CR, s.e. practically no profit.

In 2005, activity in the section of water management primarily focussed on:

- exercising the administration of designated small watercourses as directed by Act No 254/2001 Coll. in the valid wording and associated regulations,
- implementation of investment and non-investment events focussing on the rectification of flood damage and also on events focussing on prevention and flood protection and also events in the public interest pursuant to section 35 of the Forestry Act,
- the following larger events were implemented: flood-prevention measures in the locality of the Skorošický Stream in the municipality of Skorošice, the Oborenský Stream in Oborná near Bruntál, repairs to the Bystrý Stream in the municipality of Trojanovice u Frenštát pod Radhoštěm, Vápenka in the cadastral territory of Jimramov, Besének in the cadastral territory of Broumov, Petrůvka near Kunštát, Litavský Stream in Skryje near Tišnov, tributary No 2 Chrudimka in the Hlinsko area, the Višňovský Stream in Višňov, the tributary of the Bělá in Deštné in the Eagle Mountains from the Jelení Meadows in the municipality of Bílý Kostel n. N., the Lovětínský Stream in Ronov n. D., the tributary of the Metuj – Pořící, Desinka III and IV near Poříče near Litomyšl, the rectification of flood damage in the Kokotínská Ravine near Český Krumlov, on the Zlatý Stream in the Kašperské Mountains, the Čižický Stream in Čižice near Plzeň and the tributary of the Kornatický Stream in Kornatice near Rokycany, the reconstruction of the retention reservoir Nad mlýnem near Tachov, rectification of flood damage on the Liščí, Skalní and Nerudový Stream in Dubí near Teplice, rectification of flood damage on the Bouřlivce in the Javorová Ravine in Mikulov in the Ore Mountains, the Popovický Stream in Popovice near Uherské Hradiště, the reconstruction of the Semetínka in Semetín, repairs to the Rokytenka in Šanov and the Dolnopasecký in v Rožnova pod Radhoštěm, rectification of flood damage to the barriers of the mountain stream Nedašovka II in Nedašová Lhotá, the retention object of the Hlavničkova Well in Luhačovice, flood-prevention measures on the Pozlovický Stream in Pozlovicích, the damming of the mountain stream Salaška in Salaše.
- Performance of the 1st stage of an inventory of watercourses in the context of the programme applications of central records of watercourses (CRWC),
- Ensuring project and engineering preparation of events (investments, repairs and maintenance) prepared for implementation in 2006 and following years.

In 2005 there was no significant damage to watercourses in the competence of Forests of the CR, s.e. as a result of increased flows of water.

In connection with the administration of watercourses, Forests of the CR, s.e. expended a total of CZK 358.9 million, of which expenses of an investment character came to CZK 168.0 million. Out of this volume, CZK 96.9 million represents own resources. The investments of Forests of the Czech Republic, s.e. focussed on preventative measures and, in particular, on the construction and reconstruction of objects for regulating mountain streams in areas impacted by floods. The measures are primarily implemented for the creation of retention spaces for catching wash-loads and the stabilisation of longitudinal gradients of watercourses with transverse objects and the ensuring of flood protection by increasing the capacity of riverbeds. CZK 190.9 million was used for the repair and maintenance of basic resources for regulating mountain streams, of which CZK 179.1 million was from own resources. Costs associated with the administration of watercourses are included in the volumes shown.

One significant part of the activity of Forests of the Czech Republic, s.e. in the area of water management was the rectification of flood damage. This primarily involved increasing the capacity of riverbeds, eliminating wash loads

and repairs to retaining walls, paving, transverse objects and weirs. A total of CZK 62.2 million was expended on the rectification of flood damage, of which CZK 29.0 million was from own resources.

The following graphs 3.4.1 and 3.4.2 give an overview of the overall annual investment expenses and resources expended on repairs and maintenance over the longer timescale.

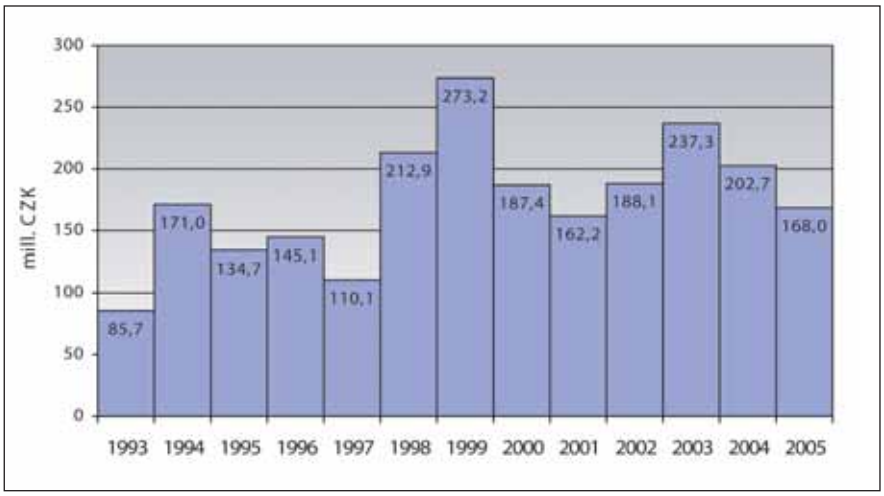
The development of incomes of Forests of the Czech Republic, s.e. for abstractions of surface water and unit prices is given in Table 3.4.2.

3.5 Waterways

- **Competence in the field of care for the development and modernisation of waterways of importance for transport continued to be exercised in 2005 by the Ministry of Transport. The most important system of waterways in the Czech Republic is the Elbe-Vltava waterway.**

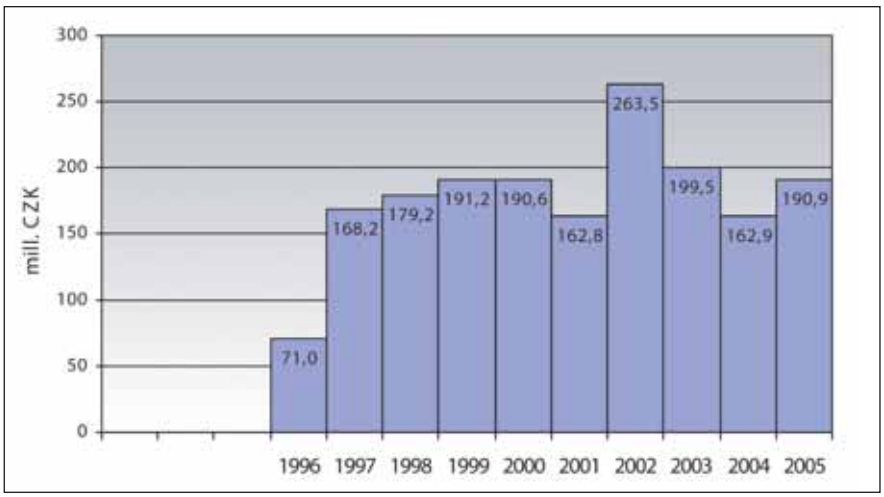
According to the „European Agreement on Inland Waterways of International Significance" (AGN), the Elbe is included on the list of inland waterways of international significance under designation E 20, and the Vltava is included as branch E 20-06. The Elbe is also a waterway of international transport significance and is the only water connection of the Czech Republic to the western European network of waterways. In contrast with most of the Elbe-Vltava waterway, on the 40 km regulated section from Střekov to the state border of the Czech Republic with Germany navigation operation depends on the state of the water according to the flow of the time. In 2002, the August floods caused exceptional damage to the constructions of the waterways on the Elbe and the Vltava. And as a result, the Ministry of Transport (referred to hereinafter as the „MoT"), in addition to the planned development of waterways, ensured resources from the state budget for work on the renewal of constructions of water transport on the Elbe-Vltava waterway. This work was implemented on an ongoing basis from 2003 to the end of 2005.

Graph 3.4.1 Investment expenses of Forests of the Czech Republic, s.e. in the years 1993 – 2005 in millions CZK – watercourses



Source: Forests of the CR, s.e.

Graph 3.4.2 Expenses of Forests of the Czech Republic, s.e. in the years 1996 – 2005 in millions CZK – repairs and maintenance of watercourses (full costs)



Source: Forests of the CR, s.e.

Table 3.4.1 Structure of financing of Forests of the CR, s.e. – administrations of watercourses in 2005 in millions CZK

Forests of the CR, s.e.	Total own resources	Total grants	Of this flood damage	
			Grants	Grants
Investments	96.9	71.1	29.7	6.8
Non-investments	179.1	11.8	3.5	22.2
Total	**276.0**	**82.9**	**33.2**	**29.0**

Source: Forests of the CR, s.e.

Table 3.4.2 Income Forests of the Czech Republic, s.e. for surface water in the years 1999 – 2005 in thous. CZK

Year	1999	2000	2001	2002	2003	2004	2005
Incomes	7 896	7 876	8 639	9 790	9 390	10 530	9 483
Price per m^3 *)	0.99	1.06	1.17	1.23	1.24	1.33	1.35

Source: Forests of the CR, s.e.
Note: *) The unit price for 1 m^3 is given without value added tax.

- **As part of the sub-programme of the Ministry of Transport No 227 824 „Renewal of Water Transport Constructions after the Floods of 2002", from 2003**

to 2005 work was completed in a total amount of almost CZK 760 million.

The damage caused by the August flood in 2002 and to constructions of waterways of transport significance enumerated by the Elbe River Board, s.e. and the Vltava River Board, s.e. as an amount in excess of CZK 700 million, was gradually rectified over the years 2003 to 2005. Renewal projects registered in the programme of the Vltava River Board, s.e. were completed in 2004, and in the Elbe River Board, s.e. in 2005. Apart from the expended resources of the MoA and own resources of the participants of the programme, work was implemented as part of the programme from the budget of the MoT for a price of CZK 748.4 million CZK, of which by the Elbe River Board, s.e. for CZK 405.4 million by the Vltava River Board, s.e. for CZK 343.0 million. After the end of work, the specified programme is evaluated, and it is stated that the registered parameters have been met and exceeded.

- **In 2005, work associated with the reconstruction, modernisation and construction of waterways to a value exceeding CZK 302 million of invested resources was performed and paid for from the resources of the State Transport Infrastructure Fund.**

As part of the programme 327 520 „Support for the Development of Water Transport“ work to the value of CZK 302.2 million was expended on reconstruction, modernisation and construction of waterways from the resources of the SFTI in the field of the care of the MoT for the development of waterways. In comparison with the preceding year, this expenditure represents a drop of 3.2 %. The reason is the further delay in the implementation of two priority constructions of the programme on the Elbe waterway as a result of the non-resolution of objections from the part of environmental protection bodies. These are the constructions „Improvement in Navigation Conditions on the Elbe in the Section Ústí nad Labem – State Border of the Czech Republic/Germany“ and the Construction of „Lock Přelouč II“ for the extension of the range of navigability of the Elbe to Pardubice. During 2005, during the discussion of the standpoints and needs of the transport and environment departments, the standpoints came together on a compromise solution for the construction on the Lower Elbe, which would be, instead of the original variant of two locks, the construction of only one lock in the area of the town of Děčín, which allows year round economic connection of the Děčín port to the network of European waterways whilst preserving the natural localities of protected flora and fauna, which are of European significance. In 2005 a town and country planning decision was issued for the construction of the navigation object in Přelouč, and this promises the continuation in the set of constructions for extending the range of navigability of the Elbe to Pardubice.

Out of the CZK 302.2 million from the resources of the SFTI specified, the following investments were made; by Elbe River Board, s.e., CZK 64.8 million, and by the Vltava River Board, s.e., CZK 42.0 million. Other resources were implemented by the state investor the MoT – Directorate of Waterways of the Czech Republic in the amount of CZK 1922 million, and also by private investors in the amount of CZK 3.2 million.

Last year preparatory and construction work on associated constructions for the completion of navigability of the Elbe to Pardubice were ensured, and study materials for the programme development of support for recreational and sports navigation were processed. Many constructions were implemented, in particular constructions for the flood protection of craft in harbours and on waterways, with support from the structural funds of the EU – Operational Infrastructure Programme. The first CZK 64.4 million was used thus in the framework of pre-financing from the budget of the SFTI.

4. PRIORITY TASKS AND CORE DOCUMENTS IN WATER MANAGEMENT

4.1 Reporting of the Czech Republic to Brussels

As part of the performance of tasks arising from the implementation plan for the area of the environment and directly from the requirements of the Framework directive, in 2005 the preparation and processing of reports for the individual EU directives for the European Commission was conducted.

At the start of the year work was completed associated with the processing of the resultant form of the Report of the Czech Republic (Report 2005) pursuant to article 15 of the Directive 2000/60/EC of the European Parliament and of the Council, establishing a framework for the Community action in the field of water policy (national report 2005) concerning the performance of the requirements of the Framework Directive (the ministry responsible for the implementation of the Framework Directive is the MoE). The preparation and making out of this report was the first stage in the process of preparing plans for river catchment areas according to the material and time requirements of the framework directive. This stage focussed on the definition and inventorisation of water units, evaluation of the impacts of human activity on their state, the first phase of economic analysis of the use of water and the establishment of a register of protected territories. The report contains the results of all these activities. One significant output from this stage is then the identification of so-called risk water units, i.e., those water units which will probably not achieve a good state by 2015 unless the relevant measures are taken.

The National Report 2005 was sent as of the date 22.3.2005 with a statement that the Czech Republic is fully prepared for further work arising from the directive 2000/60/EC. The results of this stage serve as a significant basis for further work leading to the conclusion of the first implementation cycle, i.e., to the issue of the first plans of the river catchment areas and programmes of measures. The important steps of the stage to come can be summarised as follows:

- preparation and initiation of programmes for monitoring the state of water to the end of 2006,
- publication of working timetable for processing of plans for river catchment areas by the end of 2006,
- making accessible a provisional overview of significant problems in water management in every river catchment area by the end of 2007,
- making accessible copies of first plans of river catchment areas for comments by the public by the end of 2008,
- issuing first plans of river catchment areas and programmes of measures by the end of 2009.

In parallel with the processing of the National Report 2005, the Czech Republic participated in the preparation of reports for the international river catchment areas within the framework of international commissions. From this aspect there was coordination of the approach at the international level within the context of complete river catchment areas. The reports for entire international river catchment areas were sent to the European Commission at the start of 2005 as the result of international cooperation of participating states.

The report of the Czech Republic concerning the implementation of Council Directive 75/440/EEC concerning the quality required of surface water intended for the abstraction of drinking water in the member states was sent by the required deadline, i.e., by 30.9.2005. The department responsible for the directive is the MoA.

Council Directive 75/440/EEC applies to the qualitative parameters with which sweet surface water intended for the abstraction of drinking water must comply after the corresponding treatment. This directive was fully transposed into accompanying decree No 428/2001 Coll. to Act No 274/2001 Coll., i.e., the separation of sources of raw water into three categories A1 to A3 according to standard methods of treatment and according to indicators of water quality was adopted, and this was expanded to include the indicator of the microscopic picture. For the new classification of surface waters used for abstrac-

tions and treatment into drinking water, a specific monitoring was performed on 153 sources of raw water, and after its evaluation an additional monitoring was performed for 62 sources where the ascertained qualities put them in category A3 and worse. In the final phase, eleven of the most problematic sources were selected for the processing of plans for improvement in the quality of raw water. On the basis of the results of monitoring for the period 2002 – 2004 the European Commission was given information about the sources of water management reservoirs Mostiště, Vír and Myslivny, and abstractions from the watercourse Klabavy. The period of 2002 to 2004 was the first when there was a verification of the quality of surface water intended for abstractions of drinking water in the scope of all indicators according to the aforementioned decree. The data gained is gradually being evaluated, and in certain cases it is necessary to continue in monitoring. The quality of surface water collected for treatment into drinking water was influenced in the relevant period for which the report is submitted by hydrometrological and climatic occurrences in 2002 (large floods) and 2003 (extreme drought).

The report of the Czech Republic concerning the implementation of Council Directive 78/659/EEC of 18 July 1978 on the quality of fresh waters needing protection or improvement in order to support fish life was processed and sent to the European Commission within the required period by 30.9.2005. The department responsible for the directive is the MoA. By order of the government No 71/2003 Coll., in compliance with the requirements of Council Directive 78/659/EEC, the Czech Republic designated 305 areas of surface water suitable for the life and reproduction of native species of fish divided up into 174 salmonid and 131 caprinid watercourses with a total length of 33 240 km. As a result of the non-existence of natural conditions for the creation of natural lakes, it was not possible to designate these lakes in the Czech Republic as suitable for fish life. The Czech Republic also designated indicators and values for surface water quality suitable for the life and reproduction of native species of fish and other aquatic creatures. All the indicators given in column I annex I of Council Directive 78/659/EEC were fully transposed into the legal system of the Czech Republic. The values given in column G annex I of Council Directive 78/659/EEC were transposed in the same manner, with the exception of nitrites, the target value of which was amended on the basis of the specific conditions of the Czech Republic. No other indicators were introduced. There was ongoing coordination of standard monitoring of water quality for the indicators required by government order No 71/2003 Coll. In the Czech Republic there have still not been reviews of the designated waters. It is assumed that the review will be performed in the upcoming period for which a report will be submitted.

In 2005 a decision was taken to update government order No 71/2003 Coll., the subject of the adjustment of this government order should be the designation of a programme to reduce the pollution of surface water which are (or should become) permanently suitable for the life and reproduction of native species of fish and other aquatic creatures, and for attaining the levels of permissible pollution of these waters. One part of the programme for reducing the pollution of these surface waters should be the processed programme of investment measures for selected sources of pollution and Programme of Measures for ascertaining the state of selected waters and control measures. The completion of the legislative work is assumed in the first half of 2006.

The most recent report processed in 2005 was the Report of the Czech Republic concerning the implementation of Council Directive 76/160/EEC concerning the Quality of Bathing Water (the department responsible for the directive is the MoH). The report on the quality of bathing water and its most important characteristics for the recreation season 2005 was given to the European Commission in December 2005. Natural recreational waters used for bathing in the countryside are divided up in the Czech Republic into natural swimming pools (total of 128 places) and surface water used for bathing (i.e., bathing areas – the number of which is not constant). In view of adversity and the great changeability of the weather, the 2005 recreational season was atypical, and many natural swimming pools were closed in certain regions before the season ended. The most frequent problems with water quality were associated with the mass incidence of algae, which in certain areas lead to the declaration of a ban on bathing. In the bathing season 2005, for this reason a total of 14 bans on bathing were declared (of which 3 were at natural swimming pools and 11 in bathing areas). As the limit values for the indicator „algae“, the recommendation of the World Health Organisation (WHO) was adopted, i.e., a three-step evaluation of water quality, where a ban is issued if a visual inspection gives rise to an evaluation of the presence of aquatic bloom. Three bathing bans were issued last year as a result of the microbiological quality of water – one at a natural swimming pool (swimming pool Rolava – Karlovy Vary) and two in bathing areas (Divoká Orlice – Kostelec nad Orlicí and Tichá Orlice – Borohrádek). In the bathing season 2005, a total of 17 bathing bans were issued.

In view of the requirements of Czech legislation, non-compliant water quality was ascertained in certain bathing places and during certain periods of the bathing season caused by the excess reproduction of algae, which was caused, in addition to the higher water temperature, principally by an increase in the content of nutrients (in particular phosphorus). Specific measures focussing on specific bathing places have not yet been adopted in view of the character of the pollution. If after the evaluation of the systematically collected data a need is seen to augment the aforementioned blanket measures with certain remedial measures of a specific character, such measures will be incorporated into programmes as part of the plan of the relevant river catchment areas. Over the evaluation period, the microbiological or physical-chemical quality of water in bathing places in the Czech Republic met the requirements of Council Directive 76/160/EEC concerning the quality of bathing water.

4.2 PROJECT OF PUBLIC ADMINISTRATION INFORMATION SYSTEM – WATER

The Ministry of Agriculture and the Ministry of the Environment offer the general public a set of information about water in the Czech Republic on the internet addresses www.voda.mze.cz and www.voda.env.cz. This is clear, easily accessible and comprehensible data which is or can be not only interesting but also very important for all citizens of the Czech Republic.

The MoA and the MOE are obliged to guarantee and publish data from the field of water management in the context of the public service information system [Act No 254/2001 Coll., concerning water and concerning the amendment of certain acts (the Water Act), as subsequently amended]. The aim of the interdepartmental project called „Public Administration Information System – WATER" is the unified presentation of information about water management in the responsibility of all central water-management authorities of the Czech Republic [section 108 of Act No 254/2001 Coll., concerning water]. At present only the Ministry of Agriculture and Ministry of the Environment have a legal duty to publish selected data about water management in the context of the public administration information system. The remaining central water-management authorities (the Ministry of Defence, the Ministry of Health and the Ministry of Transport) do not currently have this duty. Despite this, their active participation in the creation of uniform rules of the project is necessary. The actual implementation of the project called Public Administration Information System – WATER is planned for the years 2005 – 2010.

The actual Public Administration Information System – WATER has already been constructed in a targeted manner, and there is a gradual publication of the individual applications on the Water Management Information Portal – WATER www.voda.mze.cz or www.voda.env.cz. Via these pages, the MoA and MoE offer interesting data from the area of water in the Czech Republic.

The subject of the tab called „Current Information" is so-called „above-standard" data, which is provided from its data sources by the administrators of river catchment areas, and the presentation of which is not based on any valid regulations of the Czech Republic. The public therefore has at its disposal ongoing information about water states and flow rates in watercourses which allow everyone during flood situations to gain an impression of how the situation is developing on these watercourses, and whether a flood wave is rising or falling. All of this on an up-to-date basis, because the data is updated hourly. At the same time, the degree of flood danger is designated. On a concurrent presentation information is also added about the amount of rainfall over the past 24 hours, which is measured continuously in almost 180 places on the territory of the Czech Republic. This information can give an impression of how saturated the river catchment area is with water and how it may have an influence on the rising levels of watercourses. All this information is provided from water-measurement or rain-measurement stations operated by the CHMI and state river board corporations. Information about the amount and flow of water in our reservoirs is also presented in a highly interesting manner. Information is thus available, and not only during flood situations, about the amount of water in a reservoir, including values about the amount of water flowing into the reservoir and at the same time flowing out of it. Everyone thus has the opportunity to see an up-to-date and graphically interesting overview of the level of water in a reservoir, which is clearly very important for any noting of a possible flood wave in a period of increased flows in watercourses. One no less important indicator which characterises the quality of water in a reservoir is that of transparency. The data, which is available 2x per week allows everyone to gain an impression of how clean the water is at any given moment in a reservoir. Along with water temperature, the value of which is monitored daily, we thus have at our disposal information which will significantly influence our visit to reservoirs.

In addition to this frequently updated information, which is highly popular with the public, detailed information is also available on the internet pages referred to which the individual departments are obliged to publish within the framework of the public administration information system. This information constitutes the content of the tab called „Records of PAIS". Everyone may thus get a picture of the responsibilities for administration and maintenance of a specific watercourse, overview of reservoirs, quality of surface water and permitted abstractions and discharges, sources of drinking water, flood areas, vulnerable and sensitive areas or protected belts of water sources.

All the detailed information about implementation of the interdepartmental project called „Public Administration Information System – WATER", including approved material, organisational structures of project and records of the individual discussions between the teams of the project constitute the content of the tab called „Project PAIS – WATER".

In conclusion one can say that this Water Management Information Portal is intended both for employees of public administration and for the general public and professional community. The pages are becoming an interesting and sought-after source of information for those participating in water sports, anglers and holidaymakers. It is of no little interest that the portal is also of use for the purposes of the Central Crisis Team when extraordinary flood situations occur.

Today this portal is one of the truly professional ones with a water management theme, with a number of hits (number of daily unique visitors) running into the tens of thousands. At present, in a period of fluctuating weather associated with climate change, this public service is of inestimable value.

www.voda.mze.cz
www.voda.env.cz

4.3 IMPLEMENTATION OF PREVENTATIVE MEASURES FOR FLOOD PROTECTION

- **The priority in the area of flood prevention is the planning of principles for increasing the retention effects of river catchment areas. But this is a long-term matter, and so the relevant attention is given to it in the conceptual materials of the individual departments within the context of permanently sustainable development.**

The principles have become one of the conditions for gaining state grants from the programmes of flood prevention and the programme for the revitalisation of river systems. In connection with the planned requirements of the framework directive, in the planning process the Czech Republic has also dealt with the issue of flood protection, so the prepared plans for the river catchment areas will deal with the attainment of ecological goals in water protection also in connection with ensuring the necessary retention effect of the river catchment area. The principles are elaborated in the Plan of Main River Catchment Areas under the direction of the Ministry of Agriculture and the Ministry of the Environment, which the government should approve at the end of 2006 after discussion with the impacted departments, regional authorities and the public.

At the start of 2005, the last regional flood plans were completed (Prague region, Liberec region and Olomouc region), as was the process ensuring their compliance with the Flood Plan of the Czech Republic. Certain regions have already used modern resources and processed digital flood plans, selected parts of which are available to the public, and they can be updated by responsible employees via the internet (for example, the composition of the flood committee and telephone number).

There was a continuation in the modernisation of the measuring network of CHMI as part of two programmes of the Ministry of the Environment – programme for Modernisation of the Forecasting and Warning Service of the CHMI and sub-programme Flood Protection Warning System. Water measuring stations connected to the flood warning service system were built or reconstructed and equipped with technical instruments. In addition to this, the water management control centres of state river board corporations are modernising their measuring network which serves for the operational needs of these corporations, especially for managing the operation of water management systems.

Preventative flood protection is not only a matter for water managers, but it requires interdisciplinary and cross-border solutions to the flood risk and danger. To a significant extent, town and country planning, including the relevant tools, also contributes to this. This approach is part of the European policy of territorial development. In the Elbe catchment area, one significant contribution in the field of preventative flood protection within the framework of the programme INTERREG III B was the creation of the international project ELLA, which reinforces the cooperation of territorial planning bodies and cooperation with the relevant water management authorities in the Elbe river catchment area. The project was initiated in July 2003 and will be completed in December 2006. The Czech participation is coordinated by the Ministry for Local Development, and regional authorities are actively involved. The aim of the project ELLA is to develop and unify a common strategy for territorial planning in the interest of preventative flood protection in the Elbe river catchment area, to make accessible data and information about potential risks, the requisite measures, effects of the given measures, steps leading to their implementation (maps of flood danger, retention territories, use of territory etc.), to review and improve the tools of territorial planning, to implement pilot projects: modelled development of selected regional plans and plans of development via innovation integration of the area in the interest of flood prevention (risks, utilisation of territory, urbanisation etc.). Similar international activities as part of the programme INTERREG III B are ongoing in the Odra river catchment area under the name OderRegio.

- **In 2005, the Ministry of Agriculture continued in the ensuring of programmes focussing on the implementation of preventative measures for flood prevention . In compliance with the „Flood Prevention Strategy for the Territory of the Czech Republic“ the priority intention is the increase in the level of protection in threatened areas of the Czech Republic in contiguously built-up territories from Q_{20} to min. Q_{50}.**

The aim of programme 229 060 – Flood Prevention is to improve the level of flood protection by the implementation of the following measures in areas with increased threat of flooding:

- construction and renewal of polders (dry reservoirs) and reservoirs for increasing accumulation capacity of river catchment areas,
- construction of protective dykes in the urban areas of towns and municipalities,
- increasing flow capacity of riverbeds,
- preparing proposals of watercourse managers for designation of currently absent flood areas on all significant watercourses,
- processing studies of outflow conditions with recommendation for most effective flood prevention.

The basis for the protection of territory is ensuring new retention areas in river catchment areas which enable the transformation of the flood wave. The protection of urban areas is increased by the construction of protective dykes and increasing the flow capacity of riverbeds. The designation of flood areas along important watercourses and their updating is also significant. Programme 229 060 is divided up into the sub-programmes:

Sub-programme 229 062 Construction and Renewal of Polders, Reservoirs and Dykes contains the construction, reconstruction, modernisation and repairs of water management structures serving for flood prevention. This primarily involves reservoirs with retention space, check dams on mountain streams for catching sediment, polders (dry dams), managed inundation (spill areas) and protective dykes ensuring protection of towns and municipalities lying in the inundation area.

Sub-programme 229 063 Increasing Flow Capacity of River Beds includes measures leading to an increase in the capacity of riverbeds or increase of the resilience of riverbeds with the aim of improving outflow conditions, limiting the bursting of banks and ensuring stable banks by means of reinforcements. In addition, the hardening of river bottoms is ensured by the construction of sills and steps.

Activities leading to the designation of flood areas on all significant watercourses are included in sub-programme 229 064 Designation of Flood Areas. The aim is the identification of the scope of floods with subsequent inputting to maps. The defined flood areas are an essential precondition for the high-quality processing of proposals for solutions for flood measures, the evaluation of their effectiveness and for deciding on the selection of effective measures. On the basis of the proposal of watercourse managers, the flood areas of water management authorities are then designated.

Sub-programme 229 065 Study of Outflow Conditions includes the mapping and evaluation of outflow conditions in the river catchment area and the therewith associated processing of concept variants of solutions for measures for increasing flood protection, including evaluation of flood risks, this means designating the depth and speed of flow in flood areas.

The output from sub-programme 229 066 Designation of Scope of Territory Threatened by Exceptional Floods is a designation of the scope of territories threatened by floods which occur as a result of the faults or collapses of dykes of waterworks accumulating or holding back surface water. One part is a calculation of the spread of an exceptional flood on the alluvial plain with the use of findings from mathematical modelling.

Table 4.3.1 Financing of programme 229 060 in years 2002 – 2005 in breakdown according to sub-programmes (in CZK mill.)

Programme number		2002	2003	2004	2005	Total 2002 – 2005
229 062	State budget	56.8	222.4	465.6	522.5	1 267.3
	total costs	84.6	273.4	558.3	563.6	1 479.9
229 063	State budget	118.8	378.1	308.0	352.2	1 157.1
	total costs	126.8	414.1	359.0	392.5	1 292.4
229 064	State budget	7.4	29.5	11.8	4.6	53.3
	total costs	7.9	37.5	22.9	12.0	80.2
229 065	State budget	3.5	9.1	7.5	6.1	26.2
	total costs	3.5	9.8	8.3	9.2	30.7
229 066	State budget	0	4.0	1.8	2.0	7.8
	total costs	0.8	4.6	3.6	4.5	13.5
celkem 229 060	State budget	186.4	643.1	794.7	887.5	2 511.7
	total costs	223.6	739.4	952.0	981.7	2 896.7

Source: MoA

In 2002, programme 229 060 was approved by the MoF for the period 2002 to 2005, and then extended to the year 2006. As a result of the complicated preparation of the two most significant constructed flood prevention measures, the programme was once again extended – until 2007. The overall costs of the programme are approved in the amount of CZK 4.150 billion. The financing of the programme is ensured by using national resources reinforced by a loan to the Czech Republic from the EIB. National resources are provided from the state budget, from the account of State Financial Activities in compliance with section 135 of Act No 254/2001 Coll., concerning water and concerning the amendment of certain acts (the Water Act), as amended, also from own resources of investors and possibly from other resources (for example, territorial budgets). The loan to the Czech Republic from the EIB in the amount of CZK 60 million (approx. CZK 1.8 billion) was approved by Act No 123/2002 Coll.

In the years 2002 – 2005, under the programme 229 060, 312 construction events were completed or initiated, and in the sub-programmes with survey content a further 160 events were implemented.

With the grant contribution of programme 229 064 Designation of Flood Areas, in the years 2003 – 2005 the administrators of watercourses defined the flood areas along watercourses in a total length of 2 392.6 km, of which along important watercourses it was 2 335.0 km, and along small watercourses it was 57.6 km.

In sub-programme 229 066 Designation of Extent of Territory Threatened by Extraordinary Floods, there was a limitation of the scope of threatened territory along watercourses downstream of waterworks in a total length of 1 607.1 km.

The provided financial resources from state and foreign resources in the form of grants, and more detailed information about material performance of the individual grant titles associated with the aforementioned and with other programmes of the MoA is given in chapter 7.1 in the framework of financial support. But not inconsiderable financial resources were drawn for these programmes in 2005 from the own resources of investors, which we give in Table 4.3.2.

Table 4.3.2 Own resources of investors in the context of programme financing in CZK mill.

Record number of programme	Name of programme	Own resources of investors for financing of programmes
229 060	Flood prevention	86.389
229 110	Elimination consequences to state water management assets	21.308
229 210	Renewal, dredging and reconstruction of fishponds and reservoirs	57.127

Source: MoA

5. WATER SUPPLY AND SEWERAGE SYSTEMS

5.1 Drinking water supply

In 2005, 9.38 million inhabitants, i.e., 91.6 % of the entire population of the Czech Republic were supplied from water supply systems.

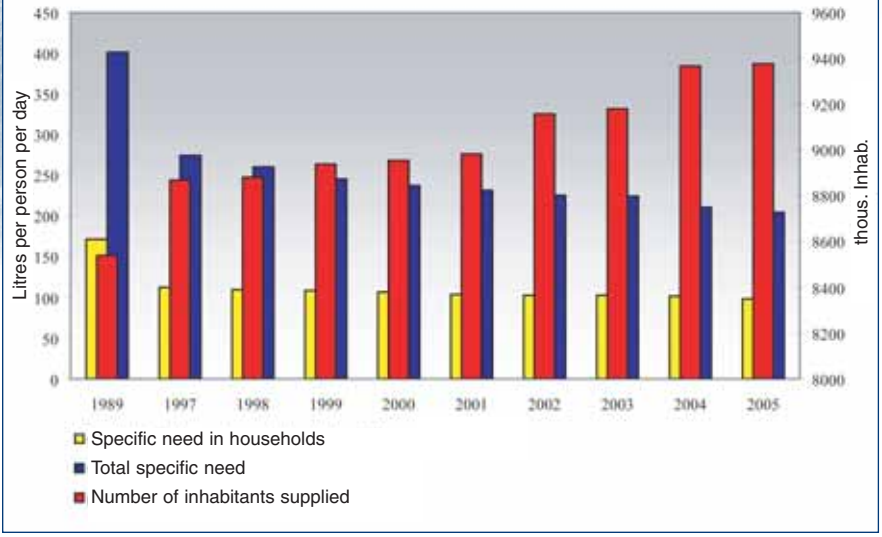
In all water supply systems 698.9 mill. m³ of drinking water was produced. 531.6 mill. m³ of drinking water was delivered for a charge (invoiced), of which 338.6 mill. m³ of drinking water was for households. Drinking water losses reached 146.1 mill. m³, i.e., 20.9 % of the water intended for implementation.

Data supplied by the CSO was acquired on the basis of set 210 (234 – overlaps of regions) so-called professional observers (not municipalities) and 902 municipalities which operate water supply and sewerage systems themselves (the questionnaire was sent to 1 463 municipalities, and of them 561 municipalities are operated by a professional operator). Thus overall the CSO set consists of the data of 1 112 operators augmented with data gained by expert statistical methods.

At the same time, for 2004 all data was corrected in compliance with the expanded set of units from last year included in the statistical monitoring.

Trends and development indicators in the field of drinking water supply are displayed in Table 5.1.1 and Graph 5.1.1.

Graf 5.1.1 Development in the number of supplied inhabitants and specific need of invoiced water in the years 1989 and 1997 – 2005



Source: CSO

Table 5.1.1 Supply of water from water supply systems in the years 1989 and 1998 – 2005

Indicator	Unit of measurement	1989	1999	2000	2001	2002	2003	2004	2005
Inhabitants (median state)	thous. inhab.	10 364	10 283	10 273	10 287	10 201	10 201	10 207	10 234
Inhabitants truly supplied with water from water supply systems	thous. inhab.	8 537	8 936	8 952	8 981	9 156	9 179	9 346	9 376
	%	82.4	86.9	87.1	87.3	89.8	89.8	91.6	91.6
Water produced from water supply systems	million m³/year	1 251	800	778	754	753	751	720	699
	% k 1989	100.0	63.9	62.2	60.3	60.2	60.0	57.55	55.88
Total invoiced water	million m³/year	929.4	564.2	554.1	535.6	545.3	547.2	543.5	531.6
	% k 1989	100.0	60.7	59.6	57.6	58.7	58.9	58.48	57.2
Specific need from produced water	l/person day	401	245	237	231	225	224	211	204
	% k 1989	100.0	61.1	59.1	57.5	56.1	54.7	52.6	50.9
Specific amount of water invoiced in total	l/person day	298	173	169	164	163	163	159	155
	% k 1989	100.0	58.1	56.7	54.9	54.7	54.7	53.4	52.0
Specific amount of water invoiced for households	l/person day	171	109	107	104	103	103	102	98.9
	% k 1989	100.0	63.7	62.6	60.7	60.2	60.2	59.6	57.8
Loss of water per 1 km of piping	l/km day	16 842*	10 704*	9 706*	9 141*	8 358*	7 783*	6 113	5 770
Loss of water per 1 supplied inhabitant	l/person day	90*	63*	60*	57*	53*	52*	45	43

Source: CSO
Note: * data for water supply systems of main operator

In 2005 there was a continuation in the trend of the drop of volume of manufactured drinking water, and the volume of water manufactured decreased by 21 mill. m³ in comparison with 2004. The specific amount of water invoiced per one supplied inhabitant was 155 l/person/day, the specific consumption of drinking water in households was 98.9 l/person/day.

- **The greatest proportion of inhabitants supplied with drinking water from water supply systems in 2005 was in the Capital Prague (99.5 %) and in the Karlovy Vary region (98.1 %), the lowest proportion of inhabitants supplied with drinking water is in the Plzeň region (81.2 %) and the Central Bohemia Region (82.0 %).**

The length of the water supply system in 2005 was extended by a total of 1 199 km and reached a length of 69 358 km.

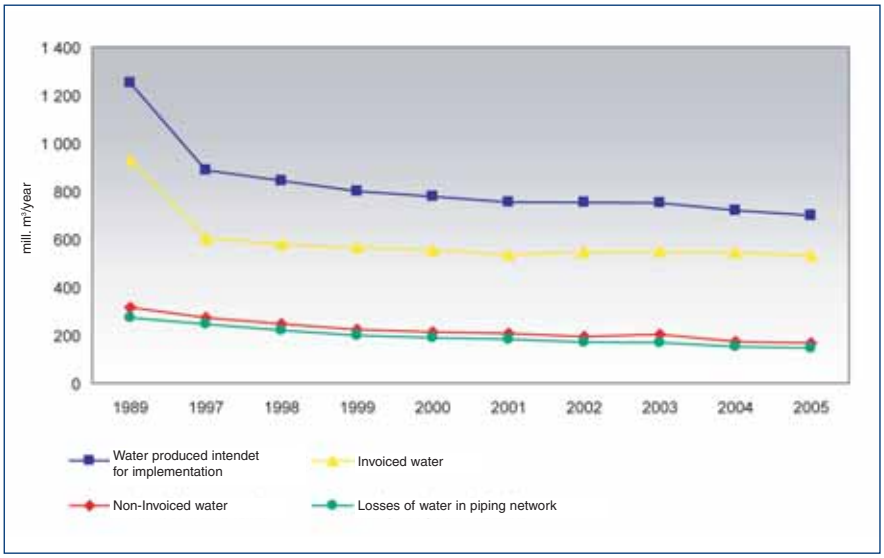
The number of water supply systems increased by 292 and reached the number of 4 454.

The number of water supply connections increased by 71 294 and reached the number of 1 781 970.

The length of water supply connections increased by 1 667 km and reached a length of 18 707 km.

The number of installed water meters increased by 68 785 and reached the number of 1 787 633.

Graf 5.1.2 Development of values for volume of water produced from water supply systems and total invoiced water in the years 1989 and 1997 – 2005



Source: CSO

Table 5.1.2 Supply of inhabitants, production and delivery of water from water supply systems in 2005

Region, territory	Inhabitants		Water produced from water supply system	Water invoiced	
	Truly supplied water from water supply system	Proportion of inhabitants supplied with water out of total number		Total	Of this for households
	(number)	(%)	(thous m³)	(thous m³)	(%)
Capital Prague	1 170 000	99.5	132 264	86 695	54 148
Central Bohemia region	942 739	82.0	49 479	46 881	31 665
South Bohemia region	567 116	90.5	38 090	29 404	19 213
Plzeň region	446 860	81.2	34 190	28 254	16 683
Karlovy Vary region	298 759	98.1	23 771	17 692	11 225
Ústí nad Labem region	788 152	95.8	64 549	45 855	28 403
Liberec region	378 055	88.3	32 067	21 249	13 151
Hradec Králové region	497 822	90.9	36 167	26 540	16 760
Pardubice region	487 003	96.3	32 320	25 806	16 018
Vysočina region	460 222	90.2	26 810	25 782	14 958
South Moravia region	1 057 927	93.6	70 305	55 831	36 309
Olomouc region	555 809	87.0	32 726	27 779	18 244
Zlín region	520 526	88.2	33 537	25 922	16 268
Moravia-Silesia region	1 205 309	96.3	92 576	67 932	45 520
Czech Republic	**9 376 299**	**91.6**	**698 850**	**531 620**	**338 564**

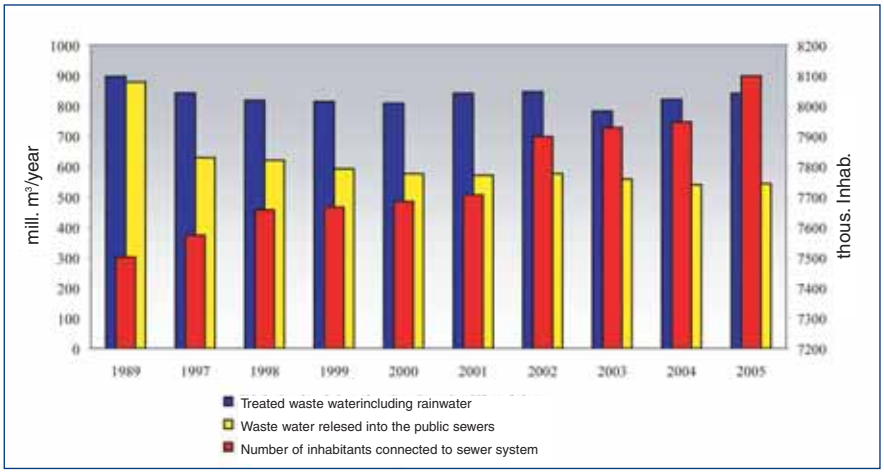
Source: CSO

5.2 Removal and treatment of communal waste water

- **In 2005, 8.099 mill. Inhabitants of the Czech Republic lived in houses connected to sewerage systems. A total of 543.4 mill. m³ of waste water was discharged into sewerage systems. Of this amount of waste water, 94.6 % (not including rainwater) was treated, which represents 513.9 mill. m³.**

The trends of development in sewerage and the treatment of waste water are documented over the longer timescale by Table 5.2.1 and Graph 5.2.1.

Graf 5.2.1 Development of number of inhabitants living in houses connected to a sewerage system and amount of discharged and treated waste water in the years 1989 and 1997 – 2005

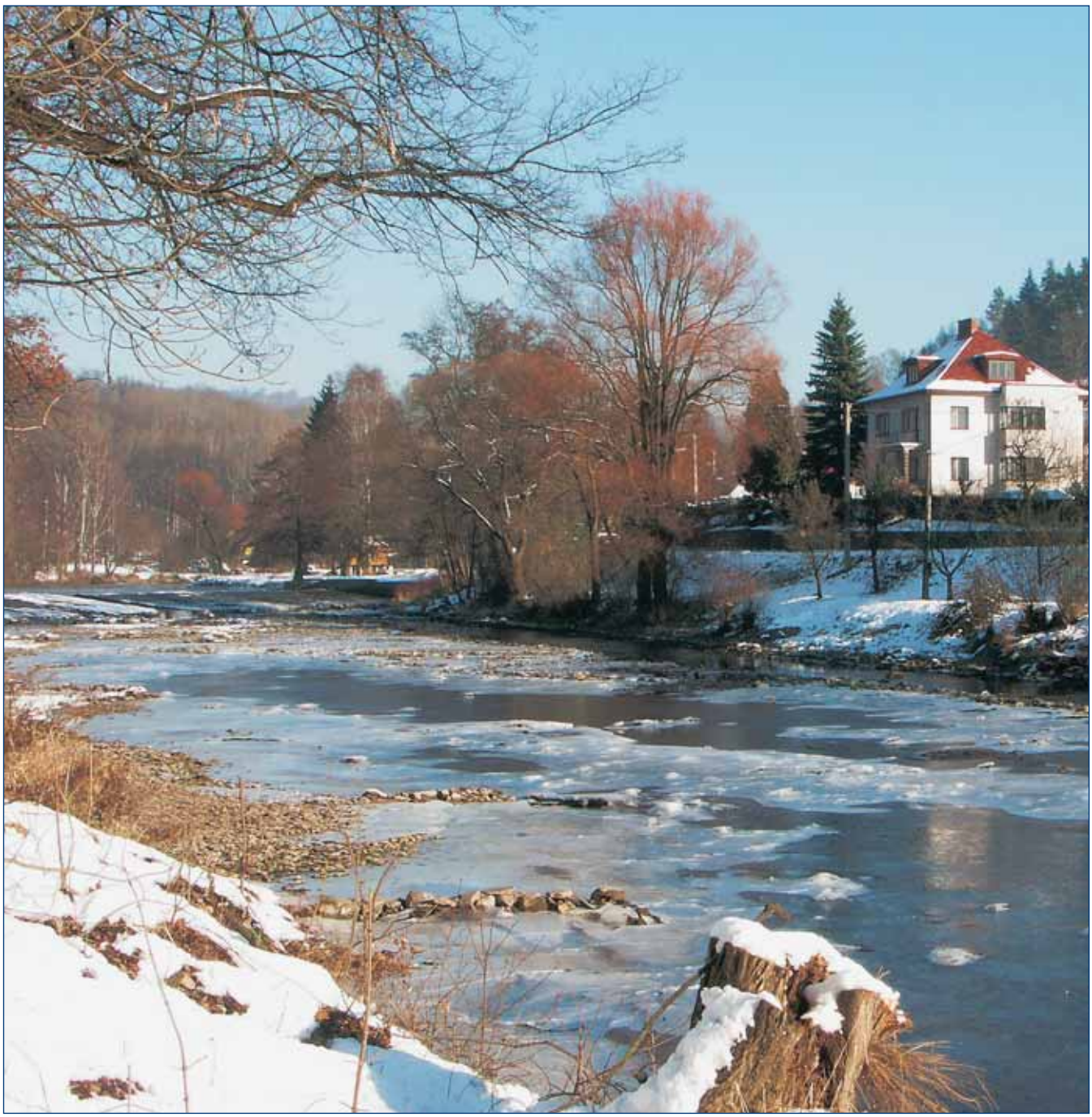


Source: CSO

Table 5.2.1 Removal and treatment of waste water from sewerage systems for public need in the years 1989 and 1999 – 2005

Indicator	Unit of measurement	Year							
		1989	1999	2000	2001	2002	2003	2004	2005
Inhabitants (median state)	thous. inhab.	10 364	10 283	10 273	10 287	10 201	10 201	10 207	10 234
Inhabitants living in houses connected to sewerage systems for public need	thous. inhab.	7 501	7 666	7 685	7 706	7 899	7 928	7 947	8 099
	%	72.4	74.6	74.8	74.9	77.4	77.7	77.9	79.1
Waste water discharged into sewerage systems for public need (without rainwater) total	mill. m^3	877.8	592.2	576.0	570.7	576.3	558.1	539.7	543.4
	% k 1989	100.0	67.5	65.6	65.0	65.7	63.6	61.5	61.9
Treated waste water including rainwater [1]	mill. m^3	897.4	814.6	808.8	841.4	846.2	782.7	821.5	841.5
Total treated waste water excluding rainwater	mill. m^3	627.6	562.9	546.1	544.8	533.6	527.4	509.7	513.9
	% as of 1989	100.0	89.7	87.0	86.8	85.0	84.0	81.3	82.0
Proportion of treated waste water without rainwater	%	71.5	95.1	94.8	95.5	92.6	94.5	94.4	94.6
Ratio of treated waste water to untreated waste water without rainwater	–	2.51	19.20	18.30	21.21	12.50	17.18	16.98	17.44

Source: CSO
Note: [1] In 1989 and 1999 to 2003 it involved data for sewer systems of main operators
[2] Involves share of water discharged into sewer system



Jizera river, Malá Skála

■ **The greatest proportion of inhabitants connected to sewerage systems is in the Capital Prague (99.2 %) and the Karlovy Vary region (91.5 %), the lowest proportion is in the Central Bohemia region (63.6 %), followed by the Pardubice region (68.2 %).**

The length of the sewerage system was extended by 3 015 km and exceeded the length of 36 233 km.

The length of sewerage system connections grew by 1 642 km and reached a length of 12 676 km.

■ **According to the data of the Czech Statistical Office, the number of waste water treatment plants dropped by 12 in comparison with 1994. The reduction was caused by the influence of methodology. In the investigation of 2004, the set of units of the statistical survey also included household waste water treatment**

Table 5.2.2 Number of inhabitants living in houses connected to sewerage systems and amount of discharged and treated waste water in 2005 in the individual regions

Region, territory	Inhabitants living in houses connected to sewerage systems for public need		Waste water discharged into sewerage systems for public need	Treated waste water without rainwater	
	total	proportion out of overall number of inhabitants	total	total	proportion
	(number)	(%)	(thous. m³)	(thous. m³)	(%)
Capital Prague	1 167 000	99.2	83 845	83 845	100.0
Central Bohemia region	730 978	63.6	51 839	50 527	97.5
South Bohemia region	527 354	84.1	38 494	34 083	88.5
Plzeň region	427 010	77.6	34 352	30 801	89.7
Karlovy Vary region	278 563	91.5	16 769	16 732	99.8
Ústí nad Labem region	666 600	81.0	39 719	39 452	99.3
Liberec region	293 215	68.5	19 577	19 494	99.6
Hradec Králové region	407 195	74.3	26 152	24 694	94.4
Pardubice region	344 554	68.2	21 056	19 887	94.4
Vysočina region	426 236	83.6	24 088	18 727	77.7
South Moravia region	939 071	83.1	52 221	49 829	95.4
Olomouc region	470 015	73.6	28 900	27 484	95.1
Zlín region	472 313	80.0	30 342	28 582	94.2
Moravia-Silesia region	949 053	75.8	76 025	69 774	91.8
Czech Republic	**8 099 157**	**79.1**	**543 379**	**513 911**	**94.6**

Source: CSO

Table 5.3.1 Prices for water supply and sewerage charges in 2005 (including VAT)

Indicator	Unit	Water supply systems	Sewerage systems
Weighted arithmetical average for Czech Republic	CZK/m³	23.94	20.56
	%	100.00	100.00
Minimum value	CZK/m³	8.72	8.40
	% of average for Czech Republic	36.42	40.86
Maximum value	CZK/m³	33.39	30.45
	% of average for Czech Republic	139.47	148.10

Source: MoA

Jizerka river

plants. The result was thus a significant year-on-year increase.

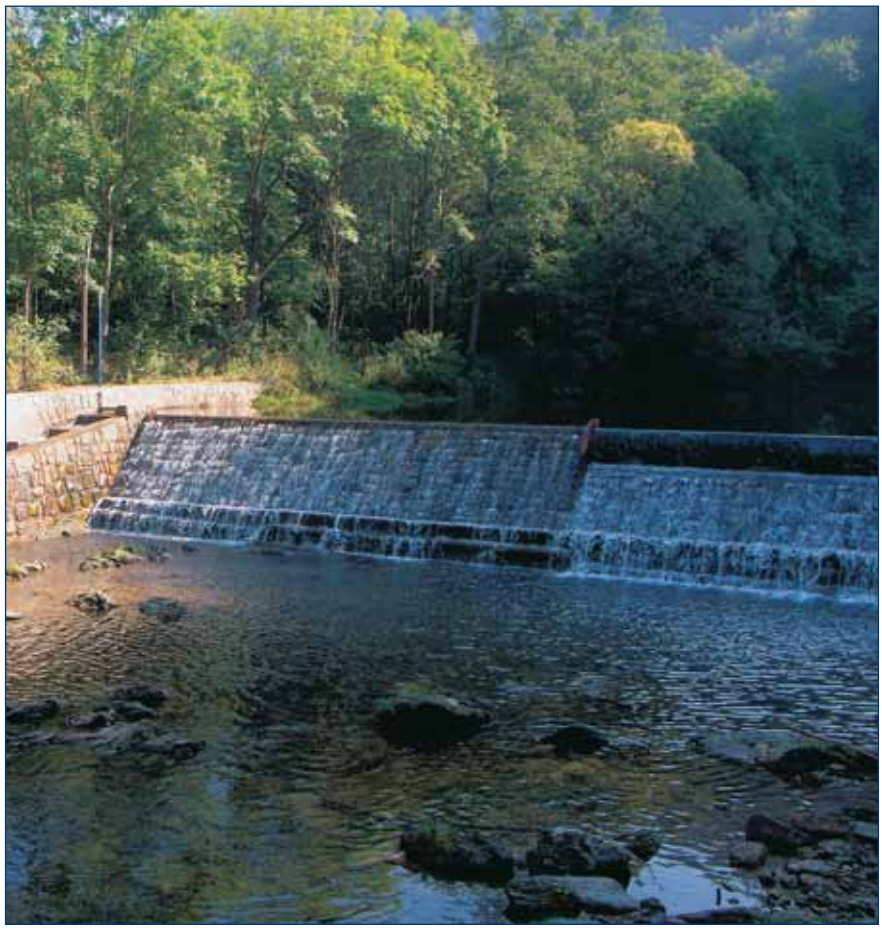
5.3 Development of water supply and sewerage charges

- **In comparison with 2004, the price of supplied water increased by an average of 5.2 % and the price of removed waste water rose by an average of 6.0 %.**

In 2005 the average value of the price for water supply charges in the Czech Republic (including VAT) calculated according to implementation prices was CZK 23.94/m^3, and the average value of the price for removed waste water (including VAT) was CZK 20.56/m^3.

The differentiation in the price of drinking water and price of removed waste water between the individual subjects operating water supply and sewerage systems is given by the conditions of operation in the given region, for example, location disposition of consumption areas, degree of utilisation of water supply and sewerage capacity etc.

The price differences between the individual regions in terms of the average values of the Czech Republic (100 %) in 2005 ranged from 36.42 % for water supply charges and 40.86 % in the price for sewerage charges for the lowest prices, and up to 139.47 % for water supply charges and 148.10 % for sewerage charges for the highest prices. Year on year this represents a very slight drop in the span.



Jizerka river, Poniklá

5.4 Selected data of asset and operational records of water supply and sewerage systems

Table 5.4.1 Volume of assets of water supply and sewerage systems in 2004

Indicator	Volume in thous. CZK in book price of year 2002
Water supply systems	208 040 277
Structures for water treatment	54 379 306
Sewer network	208 706 758
WWTP	73 211 893
Total	**544 338 234**

Source: MoA

Table 5.4.2 Selected data from operational records of water supply systems in 2004

Indicator	Values in specified technical units
Total length of water supply piping	63 377 km
Length of water supply piping up to DN 100	33 186 km
Length of water supply piping from DN 101 do DN 300	24 836 km
Length of water supply piping from DN 301 do DN 500	3 204 km
Length of water supply piping greater than DN 500	2 151 km
Length of water supply piping made of metals	32 770 km
Length of water supply piping made of plastics	27 272 km
Length of water supply piping made of other material	3 335 km
Number of supplied inhabitants per 1 km of water supply	141 osob
Length of water supply piping in metres per 1 supplied inhabitant	7.1 m

Source: MoA

- **For the first time, this year this report contains selected data of asset records of water supply and sewerage systems and also selected data of operational records of water supply and sewerage systems ascertained on the basis of the provision of section 5 of Act No 274/2001 Coll., concerning water supply and sewerage systems for public use and concerning the amendment of certain acts, as subsequently amended, which provides data beyond the framework of the Czech Statistical Office investigation.**

With regard to the verification of data of the basic reports provided by the large number of owners and operators, the presented prepared and verified data from the specified records is for the time period of 2004.

6. SOURCES OF POLLUTION AND WATER PROTECTION

6.1 Point sources of pollution

- **In the years 1990 to 2005 there was success in reducing the discharged amounts of dangerous and especially dangerous substances and the discharged amount of AOX (adsorbable organically bound halogens). There was also a significant drop in macronutrients (nitrogen, phosphorous) as a result of the fact that the biological removal of nitrogen and biological or chemical elimination of phosphorous is being applied in a targeted manner in the technology of waste water treatment in new and intensified waste water treatment plants.**

The level of protection against pollution is most frequently evaluated according to the development of produced and discharged pollution. Produced pollution is the amount of pollution contained in produced (untreated) waste water. In the context of the requirements of the EU and OECD, in recent years the development of produced pollution has received increased attention in the Czech Republic. There has mainly been an expanded collection of measured data from a greater number of subjects. This expands and makes more accurate the data about produced pollution. In 2005 the production of organic pollution according to the biochemical consumption of oxygen (BCO_5) in comparison with 2004 rose by 3 180 t (by 1.2 %), and in the indicator of dissolved inorganic salts (DIS) by 22 258 t (by 2.4 %). In the indicator of chemical consumption of oxygen designated by the dichrome method (CCO_{Cr}) in comparison with 2004 there was a reduction by 15 507 t (by 2.6 %), and for suspended substances (SS) by 11 615 t (by 4.0 %).

Discharged pollution is the pollution contained in waste water discharged into surface water. In comparison with 2004, discharged pollution in 2005 decreased in the indicators: BCO_5 by 626 t (by 6.1 %), CCO_{Cr} by 4 471 t (by 7.8 %), and SS by 461 t (by 2.6 %), for DIS the reduction was by 37 364 t (by 4.1 %). The falling trend of discharged pollution according to BCO_5, CCO_{Cr} and SS continued in 2005. The reduction occurred in almost all river catchment areas. The development of discharged and charged for pollution since 1990 is displayed by Graph 6.1.1.

In the industrial sphere in 2005, in comparison with 2004 there was a significant drop in discharged pollution for the joint WWTP for ALIACHEM Synthesie Pardubice and the city of Pardubice (by 721 t CCO_{Cr} and 54 t BCO_5), paper mill Bělá (by 281 t CCO_{Cr} and 162 t BCO_5), Tanex – glue works Vladislav (by 276 t CCO_{Cr} and 136 t BCO_5), paper mill Štětí (by 258 t CCO_{Cr}) and BIOCEL Paskov (by 242 t CCO_{Cr}).

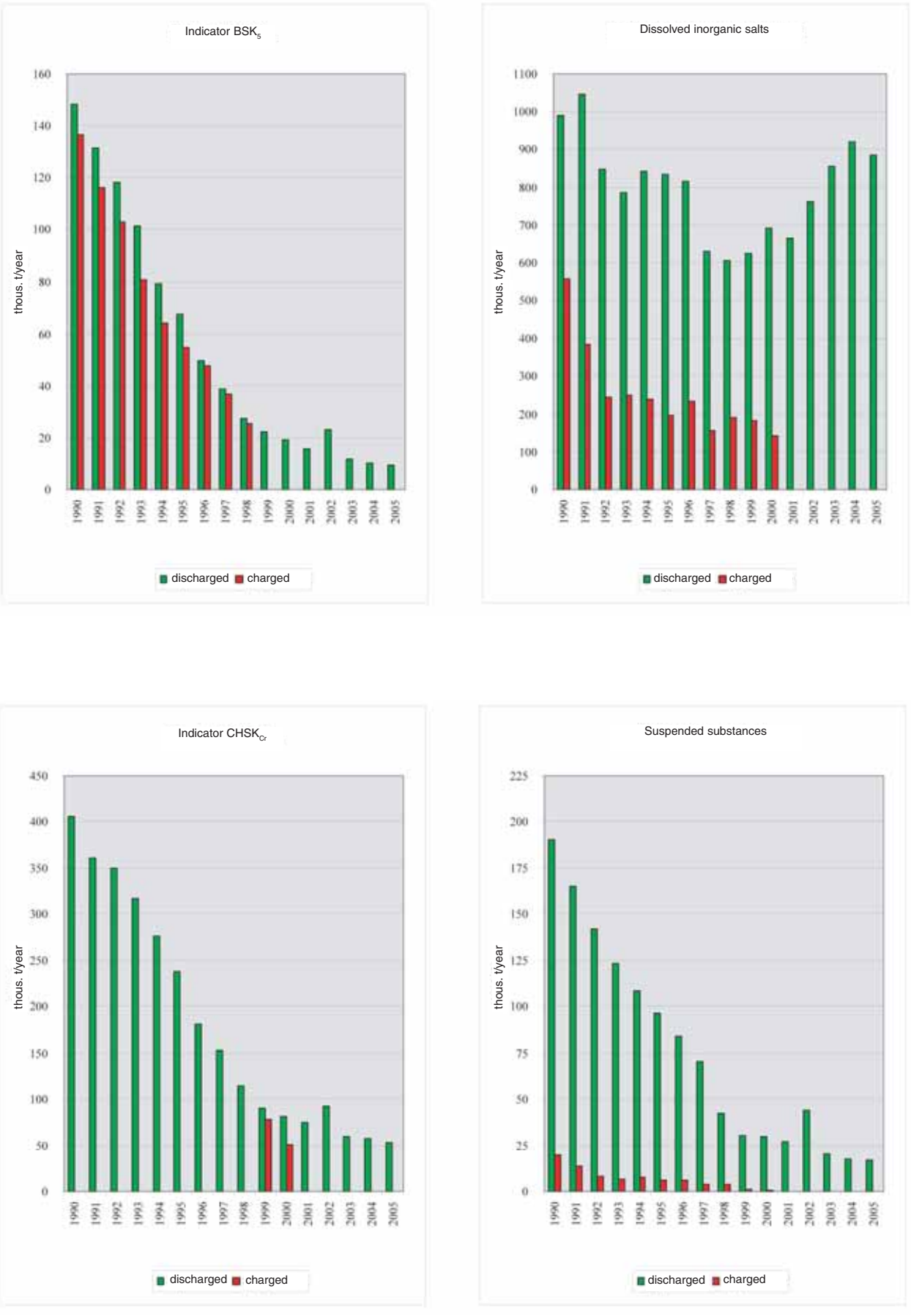
Between the years 1990 and 2005 there was a drop in discharged pollution BCO_5 by 93.5 %, CCO_{Cr} by 87.0 %, SS by 91.0 % and DIS by 10.7 %.

6.2 Broad area pollution

- **The quality of groundwater and surface water is also significantly impacted by broad area pollution. For a long time now the most serious types of broad area water pollution have included water pollution with nitrogenous**

Chrudimka river, Hamry

Graph 6.1.1 Discharged and charged for pollution 1990 – 2005



Source: WMRI from data of CSO, River Board, s.e.

substances, in particular nitrates, which get into the water as a result of farming.

From the evaluation of monitoring profiles which monitor the areas with a predominance of agricultural land, it is evident that overall there have been positive changes over the past 10 – 15 years, and pollution is gradually dropping. But despite this, in some intensively farmed areas the pollution of surface water and groundwater is stagnating or even slightly increasing. The measures adopted in connection with the implementation of the so-called Nitrate Directive, collectively referred to as action programmes, primarily focus on these areas, which are all included in the vulnerable areas defined according to Government Order 103/2003 Coll.

Another significant type of broad area pollution is the input of nitrogen and sulphur or other pollutants which find their way into water from atmospheric depositing. Since 1989 there has been a significant drop in atmospheric depositing and the burdening of water with acidifying substances because there has been a reduction in sulphur emissions from large combustion plants. The drop in nitrogen has been significantly less, and in the past few years it has been seen that as a result of the growing number of cars and also evidently the more widespread use of natural gas, the atmospheric depositing of nitrogen is becoming a serious problem for the environment of the Czech Republic.

Highly dangerous types of broad area pollution also include pollution of the water by pesticides. In addition to the old burden of the water and soil by chlorinated pesticides, in certain places in the water there are also increased concentrations of certain still permitted pesticides the harmfulness of which is currently the subject of expert debates at the level of the European Union, the USA and other states where they are regularly applied. One example is atrazine, which is banned in certain neighbouring EU states, whereas in the Czech Republic its application is still permitted.

The last significant type of broad area pollution is by phosphorous, which primarily comes from being washed out from soils threatened by erosion. Its proportion can be very significant in areas without large communal waste water treatment plants and also where lands are naturally highly susceptible to erosion. At the present time an evaluation is being conducted on the transfer of non-erosion soluble phosphorous into water from farmed lands, because it could have a direct effect on the eutrophisation of water, with all its negative consequences.

As part of the implementation of Council Directive 91/676/EEC (Nitrate Directive), vulnerable areas were defined which drain into waters polluted or threatened by nitrates from agricultural sources. Vulnerable areas represent approximately 46 % of the area of agricultural land, and along with the Action Programme they are declared in Government Order No 103/2003 Coll. The Action Programme, which has applied since 2004, represents a set of statutory measures of an agricultural character in vulnerable areas which are intended to reduce the risk of nitrates being washed out into surface water and groundwater.

Chrudimka river, Horní Bradlo

6.3 Accident pollution

Accident pollution also negatively impacts the quality of surface water and groundwater. In 2005, the Czech Environmental Inspectorate recorded a total of 264 cases of accident pollution or threat to water quality, of this 8 cases in groundwater, on the territory of the Czech Republic.

In comparison with 2004, the number of accidents on water is 42 cases less. The most frequent group of pollutants continue to be oils (51.1 % of the overall number of recorded cases), followed by waste water (12.5 %). In a breakdown according to sources of accidents, the most common were accidents caused by transport (14.8 %), followed by accidents during the elimination of waste water and solid waste (9.1 %). The source could not be ascertained in 62.1 % of cases. In 2005, the Czech Environmental Inspectorate (CEI) imposed a total of 712 fines, of which 625 have become legally valid, the overall amount was CZK 27.150 million.

7. STATE FINANCIAL SUPPORT FOR WATER MANAGEMENT

7.1 Financial support of Ministry of Agriculture

In 2005, as part of the programmes of the Ministry of Agriculture 229 030 „Construction and Technical Renewal of Water Supply Systems and Water Treatment Plants“ and 229 040 „Construction and Technical Renewal of Waste Water Treatment Plants and Sewerage Systems“ focussing on the implementation of measures to fulfil the directives of the EU in the field of water supply systems and sewerage systems, and for the actual development of the field of water supply systems and sewerage systems, support was provided at an overall level of approximately CZK 1.9 billion.

This support was provided to investors both in the form of a grant and in the form of interest-free loans from sources of loan resources from the European Investment Bank. Within the context of the programme of the MoA 229 030, in 2005 a total of 172 events were supported from the state budget at an overall level of approximately CZK 537 million, and in the context of the programme of the MoA 229 040, in 2005 a total of 95 events in the total amount of approximately CZK 602 million were supported.

Under the programme 229 810 „State Assistance for Renewal of Territory Affected by Flood of the Year 2002 Provided by the MoA“ focussing on the renewal and securing of water management infrastructure of water supply systems and sewerage systems, in 2005 support in the form of grants was provided to a total of 48 events at an overall level of approximately CZK 608 million.

In 2005, the successful drawing of the loan provided to the Czech Republic from the EIB on the basis of the loan contract „Czech Republic – Framework Loan for Water Management Intended for the Reconstruction, Improvement, Modernisation and Expansion of Water Management Systems in the Czech Republic“ continued, which was imple-

Table 7.1.1 Financial resources of state budget provided in the context of the programmes of the MoA 229 030, 229 040 and 229 810 in 2005 in millions CZK

Form of support	water supply systems and water treatment plants	sewerage systems and waste water treatment plants	Renewal of water supply systems and sewerage systems after flood of 08/2002	MoA total
Refundable financial assistance	0	0	0	**0**
Grants	537.192	601.669	607.519	**1746.380**
Total	**537.192**	**601.669**	**607.519**	**1746.380**

Source: MoA

Table 7.1.2 Development of state support for construction of water supply systems, treatment plants, sewerage systems and waste water treatment plants in the context of the MoA in the years 2002 – 2005 in millions CZK

Financial source	2002	2003	2004	2005
Refundable financial assistance	53	6	4	0
Grants of state budget	1 328	1 531	1 563	1 746
Support of state budget	**1 381**	**1 537**	**1 567**	**1 746**
EIB	616	619	653	754
Support – total	**1 997**	**2 156**	**2 220**	**2 500**

Source: MoA

Table 7.1.3 State financial resources provided by the MoA for capital and ongoing expenses in the context of programme financing in the programmes 229 060, 229 110 and 229 210 in millions CZK

Registration number of programme	Name of programme	Expenditure on financing of programmes
229 060	Flood prevention	887.506
229 110	Rectifying consequences of flood on state water management assets	876.389 [1)]
229 210	Renewal, dredging and reconstruction of fishponds and reservoirs	219.487

Source: MoA
Note: [1)] Transfer to the chapter of MoE is not included

Table 7.1.4 Non-investment support for other measures in water management provided by MoA in millions CZK

Name of support	Level of provided support	Recipient of support
Administration of small watercourses	90.143	Agricultural Water Management Authority
Renewal of constructions for water management land reclamation	0	Trading legal and natural person

Source: MoA

mented on the basis of Ruling of the Government of the Czech Republic No 1179 from the year 1999. In 2005, a total of 83 events were supported from the aforementioned loan to a total extent of CZK 754 million.

- **In 2005, the Ministry of Agriculture continued in the implementation of many other programmes outside the area of water management infrastructure of water supply systems and sewerage systems the aim of which was in particular the renewal of water management assets of administrators of watercourses in the context of the rectification of the consequences of floods from previous years and implementation of flood-prevention measures.**

The utilisation of state financial resources for capital and ongoing expenses is shown in Tables 7.1.3 and 7.1.4.

- **In the context of the programme 229 060 „Flood prevention", in 2005 141 investment constructions were implemented or worked on. In addition, a total of 38 studies of outflow conditions, of flood areas and studies of special catchment areas were completed.**

In the following overviews, certain of the most important events carried out in the context of the aforementioned programme 229 060 are given:

Morava River Board, s.e.

- Repair to breach of dyke of waterworks Mostiště

  Time of implementation 7/05 – 8/06
  Total costs: CZK 51.228 mill.
  Invested
  by year 2005: CZK 45.118 mill.

The waterworks Mostiště is a multipurpose reservoir on the river Oslava ensuring minimal flows on the Oslava, abstractions of water for water management purposes, energy use and the reduction of flood flows. When the levels in the reservoir were high, the amount of water seeping into the grout gallery gradually increased. The proposed repair should eliminate the fault of the sealing core. In 2005 the repair of the dyke was completed, as was the repair of the safety spillway.

Table 7.1.5 Utilisation of financial resources for flood prevention within the programme 229 060 „Flood prevention" in millions CZK

Owners and administrators	Utilisation in 2005	
	Investments	Non-investments
Elbe River Board, s.e.	181.922	0
Vltava River Board, s.e.	8.811	0
Ohře River Board, s.e.	20.471	0
Odra River Board, s.e.	149.988	0
Morava River Board, s.e.	278.306	39.618
Forests of the Czech Republic, s.e.	14.999	2.422
AWMA	187.573	0
Administrators of small watercourses – municipalities	3.396	0
Total	**845.466**	**42.040**

Source: MoA

Table 7.1.6 Utilisation of financial resources in the context of the sub-programme 229 112 „Rectifying Consequences of Flood of 2000" in millions CZK

Owners and administrators	Utilisation in 2005	
	Investments	Non-investments
AWMA	0.543	0
Total	**0.543**	**0**

Source: MoA

- Morava, Olomouc – 1st stage

  Time of implementation 11/02 – 6/08
  Total costs: CZK 266.196 mill.
  Invested
  by year 2005: CZK 18.639 mill.

During the flood in 1997, 1/3 of the urban built-up area of Olomouc, which had gradually been built in history and had caused a significant restriction of the space for the river Morava, was flooded. The purpose of this construction is the flood protection of the city, designed in such a way as to fit in with the concept for the solution of the flood prevention measures of the entire river Morava catchment area upstream and downstream of Olomouc.

- Moravian Sázava, polder Žichlínek

  Time of implementation 6/02 – 4/08
  Total costs: CZK 297.953 mill.
  Invested
  by year 2005: CZK 20.304 mill.

The polder Žichlínek is part of the system of polders and revitalisation measures designed for the upper part of the river catchment area, the effects of which are expressed by the transformation of flood flows in the lower lying areas by a reduction in flow of 20 % – 30 % of total volume, which results in a strengthening of flood protection in the associated territories, municipalities and towns such as Olomouc and Litovel.

Elbe River Board, s.e.

- Elbe, Pardubice, channel dredging, weir Loučná

  Time of implementation 4/05 – 12/06
  Total costs: CZK 66.944 thousand
  Invested
  by year 2005: CZK 52.300 mill.

The construction is an integral and necessary part of the implementation of the set of constructions and measures which are to ensure the flood protection of Pardubice from Q_{100} of the rivers Elbe and Chrudimka by increasing the capacity of the Elbe riverbed in the section from the weir Pardubice, i.e., from the confluence of the Elbe with the Chrudimka to the confluence of the Elbe with the Loučná.

Agricultural Water Management Authority

- Flood protection of watercourse Porubka and left-bank tributary

  Time of implementation 7/04 – 12/06
  Total costs: CZK 21.850 mill.
  Invested
  by year 2005: CZK 21.198 mill.

The construction deals with flood protection on the territory of the watercourse Porubka, in particular in the section Horní Lhota – Vřesina – Poruba, where the stream had frequently burst its banks, resulting in damage to the surrounding lands, the creation of a gully and the flooding of the lower part of the Porubka catchment area. The performance of technical and revitalisation measures on the watercourse leads to the elimination of these negative phenomena and thus at the same time increases the ecological stability of the watercourse and adjacent areas, which significantly increases the protection of adjacent lands.

- **In the context of the programme 229 110 „Rectifying Consequences**

Table 7.1.7 Utilisation of financial resources in the context of the sub-programme 229 113 „Rectifying Consequences of Flood of 2002“ in millions CZK

Owners and administrators	Utilisation in 2005	
	Investments	Non-investments
Elbe River Board, s.e.	39.470	51.169
Morava River Board, s.e.	22.619	111.804
Ohře River Board, s.e.	142.501	56.114
Vltava River Board, s.e.	108.207	150.694
Forests of the Czech Republic, s.e.	29.634	3.841
AWMA	134.424	25.369
WMRI T.G.M.	22.307 [1)]	2.171 [1)]
Total	**499.162**	**401.162**

Source: MoA
Note: [1)] Performed by transfer from chapter of MoA to chapter of MoE.

of Flood on State Water Management Assets“, in 2005 two sub-programmes were implemented. These are sub-programme 229 112 „Rectifying Consequences of Flood of 2000“ and sub-programme 229 113 „Rectifying Consequences of Flood of 2002“.

In the context of the sub-programme 229 112, in 2005 a total of 6 events were realised. This involved investment events of the Agricultural Water Management Authority where purchases of lands were completed.

In the context of the sub-programme 229 113, in 2005 180 events were implemented or partially constructed, of which more than 157 were completed. The greatest number of events was ensured by the Agricultural Water Management Authority, these being 32 non-investment and 35 investment events, of which 60 % were completed, and also by the Vltava River Board, s.e., these being 3 investment events and 44 non-investment events, which were all completed. In the following overview we give some of the most important events in sub-programme 229 113:

Elbe River Board, s.e.

- Waterworks Pařížov – reconstruction of outlet
  Total costs: CZK 32.184 mill., up to 2005 investment of CZK 31.493 mill.
- Doubrava, Záboří – Žehušice, repair and dredging, r.km. 1.470 – 5.200
  Total costs: CZK 22.792 mill., event completed in 2005.

Morava River Board, s.e.

- Jihlava, Příbice, alteration of riverbed
  Total costs: CZK 13.030 mill., event completed in 2005.
- Jihlávka, Jihlava – reconstruction of riverbed
  Total costs: CZK 18.549 mill., event completed in 2005.

Ohře River Board, s.e.

- Dubská Bystřice, reconstruction of mountain stream at r.km 12.318 – 13.350
  Total costs: CZK 29.887 mill., event completed in 2005.
- Elimination of flood damage, Petrovický Stream, r.km. 1.200 – 4.700
  Total costs: CZK 25.081 mill., up to 2005 investment of CZK 16.030 mill.

Vltava River Board, s.e.

- waterworks Soběnov – repair of breached dyke on river Černá, r.km. 6.400
  Total costs: CZK 49.558 mill., event completed in 2005.
- Vltava, waterworks Orlík – r.km. 144.650 – repair of navigation facilities
  Total costs: CZK 43.555 mill., event completed in 2005.

Agricultural Water Management Authority

- Elimination of flood damage Býkovský Stream
  Total costs: CZK 12.059 mill., up to 2005 investment of CZK 12.049 mill.
- Elimination of flood damage Ejpovice
  Total costs: CZK 11.169 mill., up to 2005 investment of CZK 11.024 mill.
- Elimination of flood damage Merklínka
  Total costs: CZK 11.364 mill., up to 2005 investment of CZK 11.361 mill.
- Elimination of flood damage Mlýnský Stream
  Total costs: CZK 15.983 mill., up to 2005 investment of CZK 15.973 mill.

Forests of the Czech Republic, s.e.

- Elimination of flood damage Bouřlivec – Javorová Gully (P1)
  Total costs: CZK 6.34 mill., event completed in 2005.
- Elimination of flood damage Liščí Stream
  Total costs: 7.361 mill., event completed in 2005.

■ **In 2005, under programme 229 210 a total of 49 events were financed. Out of this number, 16 events had already been commenced in 2004 and they carried forward to 2005. In 2005, a total of 33 new events were initiated within programme 229 210, and five of these events had been issued a promise in 2004 for the year 2005.**

Out of this sub-programme 229 212 31 events were commenced, of which two were completed in 2005, and the remaining 29 events were carried for-

Table 7.1.8 Utilisation of financial resources in the context of programme 229 212 in millions CZK

Owners and administrators	Utilisation in 2005	
	Investments	Non-investments
Legal persons	9.480	127.900
Natural persons	7.901	61.266
Total	**17.381**	**189.166**

Source: MoA

Table 7.1.9 Utilisation of financial resources in the context of programme 229 218 in millions CZK

Owners and administrators	Utilisation in 2005	
	Investments	Non-investments
Legal persons	5.529	7.411
Natural persons	0	0
Total	**5.529**	**7.411**

Source: MoA

ward to 2006. In sub-programme 229 218, with a character focussing on the elimination of flood damage from the year 2002, in 2005 a total of two events were initiated, of which one was completed in that year, and one is carried forward to 2006.

With regard to the character of many of the events which consist of an investment and non-investment part, it is not possible to separate the above number of events strictly as events of an investment or non-investment nature.

■ **In the context of the programme 329 010 Acquisition and technical renewal of**

investment assets administered by Ministry of Agriculture, in 2005 Agricultural Water Management Authority implemented or partially built on minor watercourses 15 investment constructions. A total of CZK 12.657 million was expended from the state budget. The programme 329 010 was terminated in 2005.

In the following overview we give some of the more important events completed in programme 329 010:

- Alteration of watercourse Kyjanka
  Total costs: CZK 15.927 mill.
- Lužanka
  Total costs: CZK 7.779 mill.
- Mitrovický Stream
  Total costs: CZK 6.768 mill.
- Reservoir Libuň
  Total costs: CZK 7.257 mill.
- Alteration of watercourse in Dešenice
  Total costs: CZK 4.796 mill.
- Left-bank tributary of Osecký Stream
  Total costs: CZK 7.572 mill.

SUB-PROGRAMME 229 013 SMALL WATERCOURSES ADMINISTERED BY THE AGRICULTURAL WATER MANAGEMENT AUTHORITY

Within the context of the sub-programme 229 013 Small watercourses administered by the Agricultural Water Management Authority, in 2005 the Agricultural Water Management Authority partially constructed 12 investment constructions, of which two were completed in that year. In addition, the implementation of eight constructions was prepared, the processing of 16 sets of project documentation was ensured for repairs to minor watercourses, reservoirs and polders, and six sets of project documentation were prepared for the revitalisation of river systems, and land was purchased for 29 events with an area of 94 328 m^2. In total in this sub-programme state budget resources of CZK 26.284 million were expended in 2005.

In the following overview we give some of the most important partially constructed events in the sub-programme 229 013:

- Alteration of watercourse Luha
  Total costs: CZK 17.732 mill., up to 2005 investment of CZK 4.346 mill.
- Alteration of watercourse Kolonka
  Total costs: CZK 8.319 mill., up to 2005 investment of CZK 4.521 mill.
- Střítežský Stream
  Total costs: CZK 7.616 mill., up to 2005 investment of CZK 3.289 mill.
- Reconstruction of Hať, 2nd structure
  Total costs: CZK 12.212 mill., up to 2005 investment of CZK 3.000 mill.

ADMINISTRATION OF SMALL WATERCOURSES – MAINTENANCE OF WATERCOURSES, SMALL WATERCOURSES AND DRY RESERVOIRS

Within the context of this support, i.e., for maintenance, repair, care for assets on minor watercourses, water and dry reservoirs and associated objects, in 2005 state budget resources of CZK 90.143 million were expended. The AWMA implemented and completed 892 non-investment measures with the maintenance of 633 km of minor watercourses.

OPERATION OF MINOR WATERCOURSES, WATER AND DRY RESERVOIRS AND ASSOCIATED OBJECTS

In the context of this support, in 2005 state budget resources in the amount of CZK 18 938 million were expended. AWMA implemented and completed 300 non-investment measures.

MAINTENANCE OF MAIN DRAINAGE FACILITIES

Within the context of this support, i.e., for maintenance, repair and care for state assets on main drainage facilities and associated objects, in 2005 resources were expended from the state budget in the amount of 17.464 mill. The AWMA implemented and completed 198 non-investment measures with maintenance of 141.6 km of MDF.

OPERATION OF MAIN DRAINAGE FACILITIES

Within the context of this support, in 2005 resources from the state budget were expended in the amount of CZK 8.097 mill. The AWMA implemented and completed 94 non investment measures.

7.2 FINANCIAL SUPPORT OF THE MINISTRY OF THE ENVIRONMENT

The aim of the programme for the revitalisation of river systems is to create the conditions for the renewal of the natural environment and resources used by man. The programme assumes the gradual fulfilment and implementation of measures which lead to the maintenance and systematic increase in bio-diversity, positive arrangement of water conditions and such arrangement of the functional use of the territory as ensures the protection of the natural and cultural values of the landscape.

The water system is one of the most sensitive and also significant elements of the landscape. Human activity impacts on the natural water cycle, deteriorates the quality of surface water and groundwater and thus threatens the state of the natural environment. Since 2003, the programme for the revitalisation of river systems (referred to hereinafter as the „PRRS“) has included solutions to problems with the removal and treatment of waste water. The rules for the provision of financial resources for the year 2005 were designated by Directive of the MoE No 3/2005 from 17.2.2005.

In 2005, financial resources were provided for the implementation of revitalisation measures in the context of these sub-programmes:

a) revitalisation of natural function of watercourses (sub-programme 215 112),
b) establishment and revitalisation of elements of the system of ecological stability linked to the water system (sub-programme 215 113),
c) removal of transverse obstacles on watercourses and support for such technical solutions as do not contain them (addition and construction of fish ladders) – (sub-programme 215 114),

d) revitalisation of retention ability of landscape (sub-programme 215 115),
e) reconstruction of technical elements and dredging of production fishponds (sub-programme 215 116) – this sub-programme has already been completed,
f) construction and renewal of WWTP and sewerage systems, including establishment of artificial wetlands (sub-programme 215 117 – for events with a decision concerning the allocation of grants in 2003 and earlier and events approved by the Minister of the Environment),
g) revitalisation of natural function of watercourses with revitalisation of retention ability of landscape (sub-programme 215 118).

The revitalisation programme is ensured by the department for the administration of programmes and assets in the section of nature and countryside protection of the MoE, where the Committee for Evaluation of Investment Intentions, Applications and Recommendations for Decisions has been established. The Department for Ecology of the Countryside and Forests guarantees the ordering of the processing of revitalisation studies and expert reports in order to ensure the agreement of revitalisation measures with the interests of nature and countryside protection, and in this sense the locally competent centres of the APNC and regional advisory boards methodologically guide the activity. The organisational ensuring is entrusted to the head office of the APNC. At the regional level, events are evaluated by the locally competent centres of the APNC and advisory boards, which are organisationally managed by the department for the administration of programmes and assets.

Financial resources for the implementation of PRRS events are released from the budget chapters of the ministry and provided according to the rules of the MoE in the form of specific purpose grants in addition to the own resources of the applicant after discussion and recommendation by regional advisory boards and after the issue of a Decision on Participation of the State Budget in the Financing of an Event.

For the provision of resources for the sub-programme 215 117, the criteria for the year 2005 were designated independently. Owners of land or water management constructions, administrators of watercourses, the APNC or the administration of a national park or non-governmental non-profit-making organisation can be an applicant for financial resources for revitalisation measures (sub-programmes No 215 112 – 215 116 and 215 118). Only organisations established by a ministry and non-governmental non-profit making organisations may receive a contribution towards the processing of project documentation. Municipalities, federations of municipalities and joint-stock companies of water supply systems and sewerage systems with limited transferability of shares (or with established right of lien) may be an applicant for support from the sub-programme No 215 117. As of 2004, investment intentions are approved by the Minister of the Environment.

7.3 State Environmental Fund

The State Environmental Fund (referred to hereinafter as the „SEF“) is one of the basic economic tools for performing the liabilities arising from membership of the Czech Republic in the EU, from international agreements on environmental protection and for the implementation of state environmental policy. The SEF was established by Act of the Czech National Council No 388 of the date 10.9.1991, and in the sense of this act it provides support to measures in the individual elements of the environment according to the programmes declared by the MoE in the form of a grant, loan and contribution for the partial payment of interest.

The basic approaches for the provision of financial resources are regulated by the Directive of the MoE No 2/2005 valid from 1.1.2005, and the annexes to this Directive specify the form and focus of support. The administrator of the SEF is the MoE.

Under the law, the Minister of the Environment decides on the use of resources of the Fund. According to the Statute, the Board of the SEF is the advisory body to the minister. Decisions of the minister concerning support from the SEF are issued for the support of the individual ecological projects. The work associated with the activity of the SEF is ensured by the Office of the SEF. This primarily involves consultancy and advisory activity, the receipt and evaluation of requests, the preparation of proposals for the discussions of the Board of the SEF and Decisions of the Minister, the contractual ensuring of loans, the release of financial resources and the monitoring of their use and any designation and enforcement of sanctions for non-adherence to contractual conditions or breach of budgetary rules. As of the end of the year 2005, 23 applications had been registered in the national programme for support in the area of water protection in an amount of CZK 552 715 thousand: this involved a loan of CZK 107 365 thousand and grant in the amount of CZK 445 350 thousand for measures with total costs of CZK 747 183 thousand. As of 1.4.2005, the SEF suspended the

Table 7.2.1 Utilisation of grants according to type of measure supported in 2005

Sub-programme	Number	Number of measures	Grants thousand
Revitalisation of natural function of watercourses	215 112	33	32 782
Establishment and revitalisation of elements of system of ecological stability bound to the aquatic system	215 113	5	4 249
Elimination of transverse obstacles on watercourses and support for such technical solutions as do not contain them (addition and construction of fish ladders	215 114	3	16 503
Revitalisation of retention ability of countryside	215 115	102	125 471
Construction and renewal of WWTP and sewerage systems, including establishment of artificial wetlands	215 117	45	151 167
Revitalisation of natural function of watercourses with revitalisation of retention ability of countryside	215 118	20	24 941
Total		**208**	**355 113**

Source: MoE, WMRI T.G.M.

Bečvárka river

receipt of request as a result of the requests greatly exceeding the current financial capabilities of the SEF and the participation in the co-financing of European funds. The receipt of requests was restarted on 15.3.2006.

On the basis of Government Ruling No 149 from the date 14.2.2001 for the coordination and implementation structures of the Instrument for Structural Policies for Pre-accession (ISPA), from 2001 until the date of accession of the Czech Republic to the European Union, the Fund was the implementation agency in the context of the implementation of ISPA projects. Membership in the EU gave the Czech Republic a right to utilise grants from the Cohesion Fund (referred to hereinafter as „CF"). The framework for the provision of assistance was designated on the basis of Government Ruling No 125/2004. No project of the ISPA had been completed as of the date 1.5.2004, and so these projects are considered to be projects of the CF. The designation „ISPA" differentiates projects approved by the European Commission before 1.5.2004.

The costs for the implementation of projects of the CF must not be lower than EURO 10 million (ISPA EURO 5 million), and the applicants are from the public sector. The SEF participates not only in the preparation and implementation of ISPA projects and projects of the CF, but also in the financing of pre-project costs and for the co-financing of the implementation of these projects. The level of support is designated according to the Directives of the MoE from 1.6.2001 and No 8/2003 concerning the provision of financial resources from the SEF for the co-financing of projects of the ISPA programme and Directives of the MoE No 13/2003, No 7/2004 and No 4/2005 concerning the provision of and utilisation of financial resources from the SEF for investment projects implemented within the context of the FS.

For the co-financing of the programme ISPA/CF in the component „water", the SEF provided a grant in 2002 and 2003 in the amount of CZK 10 516 thousand and CZK 11 287 thousand, and in 2004 a grant of CZK 27 995 thousand and a loan in the amount of CZK 489 thousand, and in 2005 a total of CZK 135 278 thousand (grant CZK 107 812 thousand, loan CZK 27 466 thousand). The receipt of requests for European funds continued in the context of the FS for all of 2005.

The SEF is the brokering subject and payment unit for the Operational Programme of Infrastructure (OPI), which is financed from the European

Table 7.3.1 Overall support of SEF implemented in 2005

Subject of support	Grants		Loan		Total support	
	thousand CZK inc. ISPA	proportion (%)	thousand CZK inc. ISPA	thousand CZK inc. ISPA	thousand CZK inc. ISPA	proportion (%)
Entrepreneurial subjects - legal persons	47 192	2.8	19 949	6.3	**67 141**	**3.4**
Subjects otherwise not classified	6 596	0.4	0	0	**6 596**	**0.3**
Churches	1 584	0.1	0	0	**1 584**	**0.1**
Non-profit-making and similar organisations	1 200	0.1	0	0	**1 200**	**0.1**
Municipalities	1 402 985	84.0	266 798	84.1	**1 669 783**	**84.0**
Public budget	211 640	12.7	30 594	9.6	**242 234**	**12.2**
Total	**1 671 197**	**100.0**	**317 341**	**100.0**	**1 988 538**	**100.0**

Source: SEF, WMRI T.G.M

Regional Development Fund. In the context of Priority 3 – Improvement of Infrastructure in Water Management – in 2005 requests were received in the framework of the first and third calls, but as a result of a great excess of requests this category was not declared in the framework of the second call. In the file „water", in 2005 the SEF provided financial resources for this project in the amount of CZK 26 173 thousand (grant CZK 22 173 thousand, loan CZK 4 000 thousand).

In 2004 the European Commission approved the project of technical assistance (OPI, priority 4), under which the Czech Republic was provided with technical assistance for the preparation and implementation of the projects ISPA and FS. The fund ensures the requisite level of co-financing (25 %) for projects financed from Technical Assistance.

By the Ruling of the Government of the Czech Republic No 617 from the date 23.6.2003, the utilisation was approved of resources from the sources of the Housing Guaranty Programme (administered by Municipální finanční společnost, a.s. – MUFIS) up to the level of CZK 500 million with an interest rate of 2.5 % for financial support for projects contributing to the protection and improvement of the environment. Resources were used exclusively for the financing of loans in the years 2003 and 2004. Since the start of 2005, the loan has been paid off. In 2005, as of 31.12.2005, the SEF had paid off CZK 50 000 thousand in instalments and the amount of CZK 12 435 thousand in interest.

the monitored period, the SEF ensured the continuous provision of financial resources for events of contractual support according to internal rules (so-called invoicing principle), including covering the operating costs of the Office of the SEF and mandatory expenses.

The income of the Fund consists primarily of payments and charges for pollution of the environment and repayments of loans. As of 31.12.2005, the income part of the budget was realised to the extent of 105.7 %. True incomes of the Fund in the amount of CZK 2 867.7 million as opposed to budgeted incomes (CZK 2 713.9 million) rose by CZK 153.8 million. The positive development of performance was caused primarily by the higher collections of charges in the area of waste water and nature, but in the area of water they were lower. For charges for the discharge of waste water, the difference between the budget (CZK 420.0 mill.) and true yields (CZK 370.3 mill.) was CZK 49.7 mill., i.e., performance to the extent of 88.2 %; yields from payments for the abstraction of groundwater were fulfilled to the extent of 98.6 % (budget CZK 420.0 mill., reality CZK 414.1 mill.). In the expenditure part of the budget, Ruling of the Government No 942 from the date 20.7.2005 designated an expenditure limit of CZK 4 371.9 mill.

Žebrovka river

In 2005, yields in the area of „water" reached a level of CZK 1 464 547 thousand, and expenses were CZK 1 988 538 thousand, including co-financing of the projects ISPA/FS in the amount of CZK 135 278 thousand (grant CZK 107 812 thousand, loan CZK 27 466 thousand) and Operation Programme of Infrastructure in the amount of CZK 26 173 thousand (grant CZK 22 173 thousand, loan CZK 4 000 thousand).

Out of the implemented support from the SEF in 2005 (without the Office of SEF), 60.9 % of financial resources went on water protection (CZK 1 988 538 thousand, including co-financing of the projects ISPA/FS and Operative Programme of Infrastructure). The greatest volume of financial resources in the field of water protection was routed to the regions of South Moravia and Central Bohemia. The greatest support for water protection, in the amount of CZK 1 669 783 thousand was received by municipalities (84 % of total support), the next highest amount was received by the public budgets (CZK 242 234 thousand , i.e., 12.2 %). The most important recipients of support from the aspect of the released resources as of the end of 2005 include SVAK Ivančice (intensification of waste water treatment plant Tetčice and completion of construction of sewerage system – grant CZK 49.6 mill.), the town of Brušperk (sewerage system of town and waste water treatment plant, I stage, 1st part– grant CZK 41.6 mill.), town of Budišov nad Budišovkou (construction of sewerage system and waste water treatment plant – grant CZK 28.1 mill., loan CZK 10.5 mill., total CZK 38.6 mill.), municipality of Novosedly (sewerage system and waste water treatment plant Novosedly, Nový Přerov – grant CZK 27.0 mill., loan CZK 10.0 mill., total CZK 37.0 mill.), municipality of Velké Popovice (expansion of foul drain – grant CZK 33.8 mill.), municipality of Křižanov (sewerage system and waste water treatment plant – grant CZK 27.6 mill.) and municipality of Těšany (drainage of Těšany-waste water treatment plant (grant CZK 19.2 mill., loan CZK 7.1 mill., total CZK 26.3 mill.). In the year 2005, 33 positive decisions were issued (national programmes) for the support of construction of waste water treatment plants and sewerage systems, of which in the programme 1.1. – Central Sources – it involved 7 decisions, and in the programme 1.2 – Protection of Sources on Territory of National Parks, Protected Countryside Areas and their Protective Belts there were 18 Decision, and in programme 1.5. – Expansion of Sewerage Systems – eight decisions were issued. Total costs for the implementation of the individual events came to CZK 906.3 mill. The provided support in the amount of CZK 657.8 mill. (grant CZK 534.0 mill. and loan 1.5% interest CZK 123.8 mill.) allows the liquidation of pollution to the extent of 986.83 t of CCO and 493.23 t of solid substances per year.

Bílá Desná river

The awarding of definitive support in the first half of 2005 and implementation of 117 events brought a reduction in pollution in the amount of 3 490.1 t CCO, 998.7 t BCO_5 and 1 976.8 t of solids. The true reduction in solids and BCO_5 in comparison with the support contracts was lower by 2.9 % and 5.5 %, and for CCO higher by 1.0 %. The ecological effects given in the contracts are based on the capacity of the constructed facilities for the liquidation of pollution discharged into surface water. During the conclusion of the final evaluation of the event, the SEF requires the meeting of the specified value to the extent 80 %, a 20 % reserve is considered for the future expansion of the municipality.

Table 7.3.1. shows support implemented from the SEF in the water item in 2005.

7.4 Financial support from international sources

Many investments of a water management character were implemented in 2005 in a decisive manner from foreign resources via European funds. Support was always made conditional on concurrent co-financing (from national sources), both from the own sources of investors and the possibilities of utilising other support from the state budget.

In 2005 work continued on projects funded from the resources of the EU, initially from the programme ISPA, and then after the entry of the Czech

Republic to the EU from the CF. In 2005, a total of EURO 4 905.5 (i.e., more than CZK 148.5 million) was provided for the expansion of the sewerage system in Ostrava. Last year a total of EURO 2 939.3 thousand, i.e., almost CZK 86.4 million, was utilised for extensive events in the context of the Brno sewerage system in contrast with the requirement, which was CZK 14 815 thousand higher, but by this amount it exceeded the level of 80 % of the prescribed and approved allocation.

The fund PHARE – CBC (referred to hereinafter as „CBC") contributed significantly to investment events where several projects were financed in the framework of cross-border cooperation. In 2005, the financing of the sewerage system in Litoměřice in the amount of EURO 1 333.5 thousand (CZK 41.3 mill.) continued from the CBC programme 2001, as did the reconstruction of the waste water treatment plant in Aš, including the completion of the sewerage system with a contribution in 2005 in the amount of EURO 784.3 thousand (CZK 24.3 mill.), and in addition in framework of improving Euroregions, EURO 1 445.3 thousand (CZK 44.8 mill.) was provided for treating communal waste water in the locality of Praděd and the greatest contribution in the amount of EURO 2 017.1 thousand EUR (CZK 62.5 mill.) went to Horní Benešov for the building of a sewerage system.

Within the framework of CBC – programme 2002, a grant scheme programme for the environment and regional development was financed in a total amount for events of a water management character of EURO 611.0 thousand, which represents a contribution of almost CZK 19 mill. This group included events ranging from the dredging of fishponds in Kladenská Rovná, through the completion of the sewerage system in the municipality of Díly, the reconstruction of the waste water treatment plant in Železná Rudá, drainage of municipal residential quarters in Nýrsko, 2nd stage of the sewerage system in Hazlov, expansion of the sewerage collector for the waste water treatment plant Strážný to an audit.

Water reservoir Pastviny

Cross-border cooperation with Poland and Germany was conducted in the framework of CBC – programme 2003. In the case of cooperation on borders with Poland it involved the construction of a waste water treatment plant and sewerage system in Mosty u Jablunkova with annual expenses exceeding EURO 1 023.8 thousand (CZK 31.7 mill.), and for the Grant Scheme Germany, EURO 158.9 thousand (CZK 4,9 mill.), which represented financial ensuring and the possibility of implementing the 2nd stage of the sewerage system in the municipality of Vysoká Pec, was paid for the environment and regional development.

In the context of the Operational Programme „Development of the Countryside and Multifunctional Agriculture", in sub-measure 2.1.2 – Renewal of Potential and Preservation of Agricultural Landscape – in 2005 a total of 28 requests were registered. Out of this number, 21 requests were approved in an amount of public co-financing of CZK 37.242 mill. (this is a contribution from the EU and Czech Republic). Under this sub-measure, projects are supported for the renewal of the agricultural production potential and flood prevention. Under sub-measure 2.1.3 – Management and Ensuring of Functionality of Agricultural Water Sources – in 2005 a total of 79 requests were registered. Out of this number, 45 requests were approved in an amount of public co-financing of CZK 241.807 mill. (this was a contribution from the EU and Czech Republic). Projects were supported relating to the reconstruction of fishponds and agricultural reservoirs, the reconstruction of safety spillways and outlet facilities, including the appurtenances of these objects, and also projects focussing on the acquisition and renewal of constructions for the water management reclamation of land. Under this sub-measure support was provided in the amount of 100 % of acceptable expenses. These resources were provided to the implementers up until the completion of the events in the subsequent years. During 2005, four projects relating to water management in a total amount of CZK 24 million were implemented and paid for the under Operational Programme of Agriculture.

8. LEGISLATIVE INSTRUMENTS

8.1 Preparation of Amendment to Act Concerning Water Supply and Sewerage Systems for Public Use and Adopted Amendments to Water Act

■ **In the course of 2005, work was conducted on the amendment to Act No 274/2001 Coll., Concerning Water Supply and Sewerage Systems for Public Use.**

- Approval by government: by Decision of the Government No 360, date 30.3.2005.
- Passed by Chamber of Deputies: October 2005. Was debated in the Chamber of Deputies before the second reading in the Agriculture Committee, which proposed fourteen amendments. All were passed.
- Approval by Senate: December 2005. In the Senate the bill was debated by three committees. 1. Committee for Regional Development, Public Administration and the Environment, 2. Committee for Economics, Agriculture and Transport and 3. Committee for European Integration. The Senate as a whole had 33 suggestions, of which 6 were material and the rest were legislative amendments associated with them.

■ **In 2005 there were two amendments to Act No 254/2001 Coll., concerning water and concerning the amendment of certain acts (the Water Act), as subsequently amended.**

These were the following minor alterations performed via the specified laws:

- by Act No 413/2005 Coll., concerning the amendment of laws in connection with the passing of the act on the protection of secret information and concerning safety competence, by which the word „facts“ was replaced by the word „information“ in the provision of section 21, paragraph 5 of the Water Act, and
- by Act No 444/2005 Coll., which amends Act No 531/1990 Coll., concerning territorial financial bodies, as subsequently amended, and certain other acts, which occurred as a result of the transfer of competencies in matters of charges according to chapter ten of the first part of the Water Act from the relevant inland revenue offices to the relevant customs offices.

8.2 Implementing Regulations for the Water Act and Other Associated Regulations

■ **As of 1.1.2005, two decrees to the Water Act issued by the Ministry of Agriculture in cooperation with the Ministry of the Environment became effective.**

- Decree No 619/2004 Coll., which amends Decree No 7/2003 Coll., concerning water records and
- Decree No 620/2004 Coll., which amends Decree No 432/2001 Coll., concerning documents of request for decision or expression and concerning the particulars of permits, consents and expressions of a water authority, as amended by Decree No 195/2003 Coll.

In the course of 2005, these implementing regulations for the Water Act processed by the individual ministries were issued in the Collection of Statutes:

By the Ministry of Agriculture:

- Decree No 367/2005 Coll., which amends Decree No 590/2002 Coll., concerning technical requirements for waterworks, with date of effectiveness as of 1.11.2005.

By the Ministry of the Environment:

- Decree No 110/2005 Coll., which amends Decree No 293/2002 Coll., concerning charges for the discharge of waste water into surface water, with date of effectiveness from 1.4.2005 and
- Decree No 450/2005 Coll., concerning particulars for the handling of harmful substances and particulars of the emergency plan, method and scope of reporting accidents, their elimination and the elimination of their harmful consequences, with date of effectiveness from 1.5.2006.

By the Ministry of Agriculture in cooperation with the Ministry of the Environment:

- Decree No 142/2005 Coll., concerning planning in the field of water, with date of effectiveness from 1.5.2005 and
- Decree No 267/2005 Coll., which amends Decree No 470/2001 Coll., which designates a list of important watercourses and method of performing activities associated with the administration of watercourses, as amended by Decree No 333/2003 Coll., with date of effectiveness from 1.7.2005.

In the course of 2005 there was also continuation in the preparation of the government order which amends Government Order No 71/2003 Coll., concerning the designation of surface waters suitable for the life and reproduction of native species of fish and other aquatic organisms, and concerning the ascertainment and evaluation of the state of quality of these waters, with the aim of completion of the full transposition of Council Directive 78/659/EEC about the quality of freshwater requiring protection or improvement for the support of fish life.

By the resolution of the government from the date 2.11.2005 No 1401 about the identification of problem areas of selected legal regulations for the protection of the environment in relation to the production and entrepreneurial sphere, inter alia there was a requirement in the course of 2006 for the amendment to Government Order No 61/2003 Coll., concerning indicators and values of permissible pollution in surface waters and waste water, the particulars of a permit for the discharge of waste water into surface waters and into the sewerage system in sensitive areas.

For the activities of water authorities, managers of watercourses and users of water, in 2005, the following methodological instructions were issued:

By the Ministry of Agriculture:

- methodological instruction ref. No 28181/2005-16000, for the ordering of photogrametric activity for the purposes of defining flood areas in connection with the application of the provision of section 66 paragraph 1 of Act No 254/2001 Coll., concerning water and the amendment of certain laws (Water Act), as subsequently amended, and Decree No 236/2002 Coll., concerning the method and scope of processing a draft and designation of flood areas and
- methodological instruction ref. No 36069/2005-16000, for the processing of evaluations for the inclusion of a waterworks into a category from the aspect of technical-safety supervision.

The MoA, in connection with the publication of the annotated version of the Water Act issued in 2004, has issued for the purposes of public administration a two-part publication of 26 accompanying regulations for the Water Act in the full wordings as of 30.9. 2005 with commentary and with 12 of the most significant methodological instructions.

On the basis of eight discussions of the interpretation committee for the Water Act and associated legal regulations in the competence of the MoA, in 2005 the water management section published on the internet pages of the MoA (www.mze.cz) 22 explanations relating to the matter of the Water Act.

8.3 Implementing and internal regulations for the Act concerning water supply systems and sewerage system for public use

- **In relation to the procedure of the passing of the law, which amends and augments the Act concerning water supply systems and sewerage systems, in the second half of 2005 work commenced on an extensive amendment of decree No 428/2001 Coll., which implements the Act concerning water supply and sewerage systems for public use.**

It is assumed that the decree, which amends and augments Decree No 428/2001 Coll., will be debated in the firs half of 2006 in an interdepartmental comments procedure, and in the second half of 2006 it will be passed.

In 2005 there were 5 discussions of the interpretation committee for Act No 274/2001 Coll., concerning water supply and sewerage systems for public use and associated legal regulations in the competence of the MoA. At these meetings, 4 interpretations were approved. In 2005 no internal regulation (methodological instruction) was issued.

8.4 Inspection of exercise of state administration in the field of water management

- **Control and supervision activity ensured by employees of Ministry of Agriculture was implemented in 2005 in such a manner that on the one side it corresponded to the requirements announced in Government Ruling No 554 + P from the date 4.6.2003 and in the „Plan of Inspections of Regional Authorities for the Year 2004 and 2005“ and on the other hand in order to mean the ensuring of effective methodological assistance, not only for water authorities at the regional level, but also at the municipal level, primarily for municipalities with expanded competence.**

For this reason, in the monitored period a series of inspections was commenced on randomly selected municipal authorities of municipalities with expanded competence, when in 2004 four municipal authorities were inspected, and nine were inspected in 2005. The aim of this programme of inspections of municipal authorities, which most recently is also implemented in active cooperation with regional authorities, is the guaranteeing of the fault-free exercise of state administration by lower water authorities and the starting of mutually beneficial communication between the central water authority and those administrative bod-

Table 8.4.1 Inspection of exercise of state administration carried out by MoA in 2005

Region	Date of inspection
Liberec	14. 1. 2005
Pardubice	21. 3. 2005
Moravia-Silesia	31. 3. 2005
Vysočina	28. 4. 2005
South Bohemia	23. 5. 2005
Capital Prague	22. 6. 2005
Karlovy Vary	28. 6. 2005
Zlín	21. 11. 2005

Source: MoA

Table 8.4.2 Inspection of exercise of state administration performed by the MoA in 2005

Municipality	Date of inspection
Říčany	16. 3. 2005
Dobříš	19. 7. 2005
Sedlčany	19. 7. 2005
Ostrov	27. 7. 2005
Sokolov	27. 7. 2005
Příbram	9. 8. 2005
Soběslav	16. 8. 2005
Rumburk	18. 8. 2005
Písek	24. 11. 2005

Source: MoA

ies of lower instance and also the greater extent of involvement of regional authorities in the inspections activities of municipalities in their area of interest. The MoA will continue in this activity in the years to come, despite the fact that this work means further factual demands which are limited primarily by the finite number of working hours.

From the aspect of the material focus of inspections, it can be stated that the inspections focussed primarily on the proper application of the individual provisions of the Water Act, the Act concerning water supply and sewerage systems and associated implementing legal regulations in the competence of the MoA. Because the work of the water authorities is significantly associated with the exercise of state administration performed in the form of managing administrative proceedings, it was also essential to ensure adherence to the legal norms of the Administrative Code. In connection with waterworks and the provision of section 115 paragraph 1 of the Water Act, the procedure according to the provisions of the Building Act and its implementing legal regulations was also inspected.

From the aspect of the individual inspected areas, the emphasis was placed primarily on adherence to administrative deadlines, the actual conducting of administrative proceedings, including the procuring of evidential source data, and the construction of administrative decisions and also the performance of supervision, both technical-safety supervision of waterworks and water-authority supervision of adherence to legal regulations and administrative decisions by natural and legal persons.

If it is possible to summarise the conclusions of the inspections performed at regional authorities, the exercise of state administration in the section of water management ensured by these administrative bodies can be evaluated as being of very high quality and essentially good. No remedial measures had to be imposed in any of the inspected cases because the extent of the seriousness of any ascertained shortcomings did not warrant it. In most of the named (minor) errors not directly causing the unlawfulness of the issued decisions, there was always a material discussion which ensured the future elimination of any repeat of such an approach.

Despite minor shortcomings or individual mistakes, it is possible to evaluate the management of water proceedings, associated activities and the keeping of introduced records as being very good. Any shortcomings could be identified in the performance of supervisory and methodological activities in the direction of the subordinate water authorities at the municipal level. And primarily the methodical assistance of municipalities, especially in the period of the introduction of the new administrative legislation from 1.1.2006, should become one of the pillars of the relationship in the axis of regional authorities – municipal authorities (municipalities with expanded competence).

Act No 129/2000 Coll., concerning regions, as subsequently amended, in the provisions of section 93a lays out the rights and duties of regions (and according to the provisions of section 31 paragraph 1 of Act No 131/2000 Coll., the capital Prague is also governed by them) in transferred competence to inspect the exercise of transferred competence by municipalities.

The subject of the inspection activities of the regional authorities and the City Council of the capital Prague was the exercise of state administration in the section of water management performed at the level of municipal authorities by a municipality with expanded competence and authorised municipal authorities. From the inspection findings it is evident that the municipalities exercise the transferred competence in the field of water management as far as they are able, but they are limited by a shortage of expertly equipped employees. Although the running of state administration is not disturbed, for a faster progress of administrative proceedings and for higher quality of the issued decisions it would be necessary to increase the number of employees of the municipal authorities focussing on the legal system and on the matter of water management. This increase in personnel would also allow better supervisory activity of municipalities and thus a better overview of the adherence to conditions of issued decisions and legal regulations. The material equipping of municipal authorities is generally at a good level, but the municipal authorities of smaller municipalities in particular deserve better equipment.

Despite that mentioned above, one must evaluate the exercise of state administration in the area of water management in the Czech Republic by all grades of water authorities, including the actively cooperating military area authorities and other central water authorities, as being of very high quality which even in the previous years, i.e., before the „new“ Administrative Code (Act No 500/2004 Coll.) became effective, fully complied with the requirements for adherence to the principles of performing public administration in a manner which could predominantly be described as a service for the public.

9. PLANNING IN THE FIELD OF WATER MANAGEMENT

9.1 Planning in the field of water

In 2005 preparatory work continued on the plans of the individual catchment areas which had begun in 2004 pursuant to the provisions of section 24 and 25 of Act No 254/2001 Coll., concerning water and the amendment of certain acts (the Water Act), as amended by Act No 20/2004 Coll. and according to Decree No 142/2005 Coll., concerning planning in the field of water.

For the coordination of the procedure of work, as in the previous year a Methodological Instruction was issued from the department of water management policy of the MoA and department of water protection of the MoE for the procedure of those acquiring plans for catchment areas and other subjects participating in the process of planning in the field of water in 2005. Further coordination took place at the meetings of the Committee for Planning in the field of water with state-wide competence (three meetings were held: 31.3.2005, 15.9.2005 and 8.12.2005) and the individual Committees for plans of the catchment areas.

In March 2005, the Report was handed to the European Commission pursuant to article 15 of Directive 2000/60/EC (Water Framework Directive), including the characteristics of catchment areas, results of evaluation of human activity, and economic analysis of water use in the sense of article 5 and register of protected territories in the sense of article 6 of the Framework Directive.

In September 2005 the European Commission was given the Report on the Introduction of Council Directive 78/659/EEC on the quality of fresh waters needing protection or improvement in order to support fish life and Council Directive 75/440/EEC concerning the quality required of surface water intended for the abstraction of drinking water in the Member States, including Council Directive 79/869/EEC concerning the methods of measurement and frequencies of sampling and analysis of surface water intended for the abstraction of drinking water in the Member States. Plans were prepared for the improvement of quality of raw drinking water of the selected abstraction profile of waterworks Mostiště on the Oslava and waterworks Vír on the Svratka.

Preparatory work on the plans for the catchment areas in 2005 focussed on the augmentation and updating of information for characterising the catchment areas and a proposal for an alteration to the definition of water units in connec-

Loučná river, Sezemice

tion with the spread of information about the influences and impacts of human activity in the catchment areas. In 2005 the project RaD 650/4/02 „Hydrogeological Zoning“, started in 2002, was completed. Using the outputs from this project, there was an updating of the definition of water units of groundwater. For resolving the matter of protection from the negative impacts of water, analyses were prepared of territories insufficiently protected from floods in the individual catchment areas, and on the basis of a study of the estimate for the volume of reservoirs necessary to compensate the drop in outflow as a result of climate change an analysis was performed of prospective localities of surface water accumulation for inclusion in the Plan of Main Catchment Areas of the Czech Republic for proposals of measures for the elimination of possible impacts of climate change in the long term. Another important methodological work for the preparation of plans of catchment areas is the so-called „Catalogue of Measures“, which contains recommendations of measures, including their technical, operational and economic evaluation, for the most frequent problems identified when characterising a catchment area.

One integral part of the entire process of planning in the area of water is the involvement of the public. For every part of a catchment area, the catchment area administrators processed informative publications about results characterising the catchment area. Also for each part of the catchment area a Strategy was processed for involving the public and water users in the planning process, and a draft Time Plan and programme of work for processing the plan of the part of the catchment area was submitted for the opinion of the MoA and MoE, which at the end of 2005 was submitted in electronic form to the public for comments on the Public Administration Portal.

The matter of the methodologies for ascertaining and evaluating the state of water and preparation of the relevant decree for monitoring was dealt with in the MoE during the implementation of the Framework Water Directive. Attention was given mainly to the matter of monitoring biological and hydromorphological elements of the ecological state of water and the system solution of evaluation and overall administration of monitoring data. The individual activities were dealt with in the form of individual projects, and their outputs were presented on an ongoing basis on the internet pages of the Water Protection Department of the MoE.

As part of the preparation of the Plan of Main Catchment Areas of the Czech Republic, a process was initiated for evaluating the environmental impact of the Plan of Main Catchment Areas of the Czech Republic. At the end of 2005, a Notification of Concept was processed and submitted to the MoE pursuant to section 10c of Act No 100/2001 Coll., concerning the evaluation of environmental impacts. The MoE initiated inquiry proceedings, which were terminated with the issue of the conclusions of the inquiry proceedings in February 2006.

9.2 Plans for development of water supply and sewerage systems for management of regions of the Czech Republic

Plan for Development of Water Supply and Sewerage System for the Czech Republic will be the strategic document of state policy in the field of water supply and sewerage systems exceeding the measures of resort policies of central water authorities with share competence. PDWSSS CR will be the concept for the development of water supply and sewerage systems of the Czech Republic connecting up with other strategic documents, in partic-

ular the Concept of Water Management Policy of Ministry of Agriculture of the Czech Republic for the Period After the Accession of the Czech Republic to the European Union (2004 – 2010).

Work on the processing of the Plan for the Development of Water Supply and Sewerage Systems of the Czech Republic (referred to hereinafter as the PDWSSS CR) began on the basis of section 29 letter d) of Act No 274/2001 Coll., concerning water supply and sewerage systems for public need and concerning the amendment of certain associated laws, in the second half of 2005. The completion of the work is assumed at the end of 2006.

In the general part, the PDWSSS CR designates the outline goals, main principles and fundamentals of state policy for ensuring long-term public interest in the field of water supply and sewerage systems for the territory of the Czech Republic, i.e., for the permanently sustainable use of water resources and managing water whilst ensuring the requirements for the water management service – supply of drinking water and removal and treatment of waste water.

The PDWSSS CR will include information and solutions which are in compliance with the general goals of the prepared (and, in the period of September 2004 to May 2005, approved by the councils of the individual regions) Plan for the Development of Water Supply and Sewerage Systems for the territories of the regions of the Czech Republic (referred to hereinafter as „PDWSSSR"), which are the basic element for planning in the field of water supply and sewerage systems.

The PDWSSS CR will be a summary of information from the individual regions, with emphasis on supra-regional intentions with a view up to 2015, just as the PDWSSSR, and it will contain in particular:

- Preparation of demographic data for the individual regions and for group water supply systems for the individual regions, water systems and supra-municipal sewerage systems,
- Descriptions and evaluation of group water supply systems, water systems and supra-municipal sewerage systems,
- List of agglomerations according to addendum No 1 ref. No 7 869/2004-7000 for the Methodological Instruction of the MoA for the processing of the PDWSSSR,
- Crisis supply of water (drinking water and non-potable), including relations between regions.

Within the framework of the PDWSSS CR, a state administration information system will be created for the field of water supply and sewerage systems of all degrees, which will consist of a program and a database of the Plan of Development of Water Supply and Sewerage Systems of the Czech Republic.

The PDWSSS CR will be, in the same way as the PDWSSSR, the basis for the processing of town and country planning documentation according to Act No 50/1976 Coll., concerning town and country planning and the building system, as amended, for the activity of the municipal authority of a municipality with expanded competence (water authority), building authority and for the activity of a municipality in independent and transferred competence.

PDWSSS CR is classified as a concept which is subject to the evaluation of environmental impacts pursuant to Act No 100/2001 Coll., concerning the evaluation of environmental impacts and concerning the amendment of certain associated acts (Environmental Impact Assessment Act), as amended by Act No 93/2004 Coll., and also pursuant to Act No 114/1992 Coll., concerning protection of nature and the countryside, as subsequently amended. For this reason it also takes into account in a commensurate manner the requirements arising from these laws.

Elbe river, Poděbrady

10 INTERNATIONAL RELATIONS

10.1 International cooperation on border waters

International cooperation on border waters continued successfully in 2005 with Germany, Austria, Poland and Slovakia. In the same way as in previous years, as part of cooperation on border waters, common preparation was ensured for water management constructions, common monitoring of water and sharing of hydrological data, which had been found to be beneficial during the floods of August 2002. Activities were conducted according to the approved plans of work and in coordination with the activities of the relevant permanent border commissions of the Czech Republic and neighbouring states.

In 2005, in cooperation with the MoA and other ministries – interior, finance, local development, transport, trade and industry, health, and foreign affairs – the MoE ensured, as in previous years, the performance of the following bilateral treaties and agreements about cooperation on border waters:

- Agreement between the government of the Czech Republic and the government of Slovakia about cooperation on border waters,
- Treaty between the Czechoslovak Socialist Republic and the Republic of Austria on the regulation of water management questions on border waters,
- Convention between the government of the Czechoslovak Republic and the government of the Polish People's Republic concerning water management on border waters,
- Treaty between the Czech Republic and the Federal Republic of Germany concerning cooperation on border waters.

Within the framework of the specified treaties and agreements, in 2005 discussions were held of the bilateral commissions for border waters with Slovakia, Austria and the Federal Republic of Germany, and there were discussions between the representatives of the government of the Czech Republic and the government of Poland for cooperation on border waters.

Výrovka river

The Czech-Slovak Commission for Border Waters

On the days 29. – 31.3.2005, in Modra-Harmónia, Slovakia, the fifth meeting was held of the Czech-Slovak Commission for Border Waters, at which the minutes were approved from the international approval for use proceedings for construction measures and the billing of work performed on Czech-Slovak border waters since the previous meeting of the commission, and construction measures which were planned or already performed were discussed. The commission also approved the directive for the forecasting, reporting and warning service on Czech-Slovak border watercourses, which designates the basic rules of the warning service during floods, danger of ice floes and extraordinary changes in outflow conditions caused by releasing water from a reservoir.

In addition to the matters already referred to, the commission discussed concrete measures relating to the repair and maintenance of border watercourses, maintaining the cleanliness of border watercourses, hydrology, navigation and border questions, and water management studies and planning. The results of the meeting of the commission were given in the „Protocol from 5th Meeting of the Czech-Slovak Commission for Border Waters“, which were approved by the minister of the environment on 25.5.2005.

The Czech-Austrian Commission for Border Waters

On the days 25. – 29.4.2005, in Weitra, Austria, the 13th meeting of the Czech-Austrian Commission for Border Waters was held. At this meeting, the commission evaluated the activities from the area of the maintenance and repair of border watercourses, international approval for use procedures of construction measures and billing of work, maintenance of cleanliness of border waters, hydrology, navigation matters, border measures and water management studies and planning which had taken place on the Czech-Austrian border waters in the period since the 12th meeting of the commission.

Chrudimka river, Seč reservoir

Special attention was once again given to the quality of water in Czech-Austrian border watercourses. As a result of the attempts of both parties, in the river Lužnice there was an improvement in the water quality in comparison with the values ascertained in the past. The quality of water in other monitored border watercourses (the Morava, the Dyje, the Pulkava, the Malše, the Polní Stream), had not changed significantly since 2003. Only during a comparison of the results of investigations in the watercourses Dyje and Pulkava determined by both parties were deviations discovered. The commission therefore entrusted experts of both parties with discovering the causes of these deviations. For the investigation of water quality on Czech-Austrian border watercourses, the commission approved the Joint Methodology processed in compliance with the current international norms.

In addition, the Commission updated the directive for the warning service on Czech-Austrian border waters which designates the basic rules of the warning service during floods and the danger of ice floes, warning service for dams, sharing of necessary hydrological and metrological data and the warning service in the case of extraordinary pollution of border waters. Detailed results from discussions were given in the „Protocol from the 13th Meeting of the Czech-Austrian Commission for Border Waters“, which were approved by the Ministry of the Environment on 12.7.2005.

The Czech-Poland Commission for Border Waters

On the days 12. – 14.10.2005, in Prague, the seventh meeting was held between the representatives of the government of the Czech Republic and government of Poland for cooperation in the field of water management on border waters. At this meeting the was discussion and approval of the activities of the working groups associated with water management planning, alterations to border watercourses, water supply, land reclamation in border areas, hydrology and the flood service and water management questions influencing the common state border. The working groups of both parties to the treaty were given tasks in the individual areas of cooperation, and plans of work for the further period were approved.

At the meeting of the representatives, there was approval of the fundamentals for processing the proposal of the new system for the monitoring of border waters. The new system of this monitoring will be based on the national monitoring networks amended according to the requirements of the EC Framework Water Directive 2000/60/EC. During the discussion of the matter of the border meanders of the river Odra, the joint project „Free Space for the River“

was presented, which should be implemented in the area of interest.

The representatives were acquainted with the annual „Report on State of Quality of Border Waters in 2004“, from which it is seen that the quality of water in 2004 in the monitored border profiles in most of the monitored indicators (84 %) ranged from between quality class I to III, i.e., very clean water to very slightly polluted. In connection with the discussion of the influence of activity of the Polish mine Turów on ground water in the Czech Republic, the representatives were presented with a concluding report of a temporary working group of hydrogeologists stating that as a result of the activity of this mine there is a change in the groundwater regime on Czech territory. The Polish representative was asked for a solution to the resulting situation with representatives of the mine Turów and to inform the Czech representative of the results.

Concrete results from the discussions were given in „Protocol Concerning the 7th Discussion of the Representatives of the Government of the Czech Republic and Poland for Cooperation in the Field of Water Management on Border Waters“, which was approved by the minister of the environment on the date 14.12.2005.

The Czech-German Commission for Border waters

On the days 14. – 15.11.2005 in, Bonn, Federal Republic of Germany, the eighth meeting of the Czech-German Commission for Border Waters was held, which discussed and approved the results of the seventh meeting of the Standing Committee Bavaria and the seventh meeting of the Standing Committee Saxony. The commission also discussed current questions of cooperation on border waters, in particular the principles relating to the individual areas of cooperation, the lists of border waters and the urgent points of cooperation with the Standing Czech-German Border Commission.

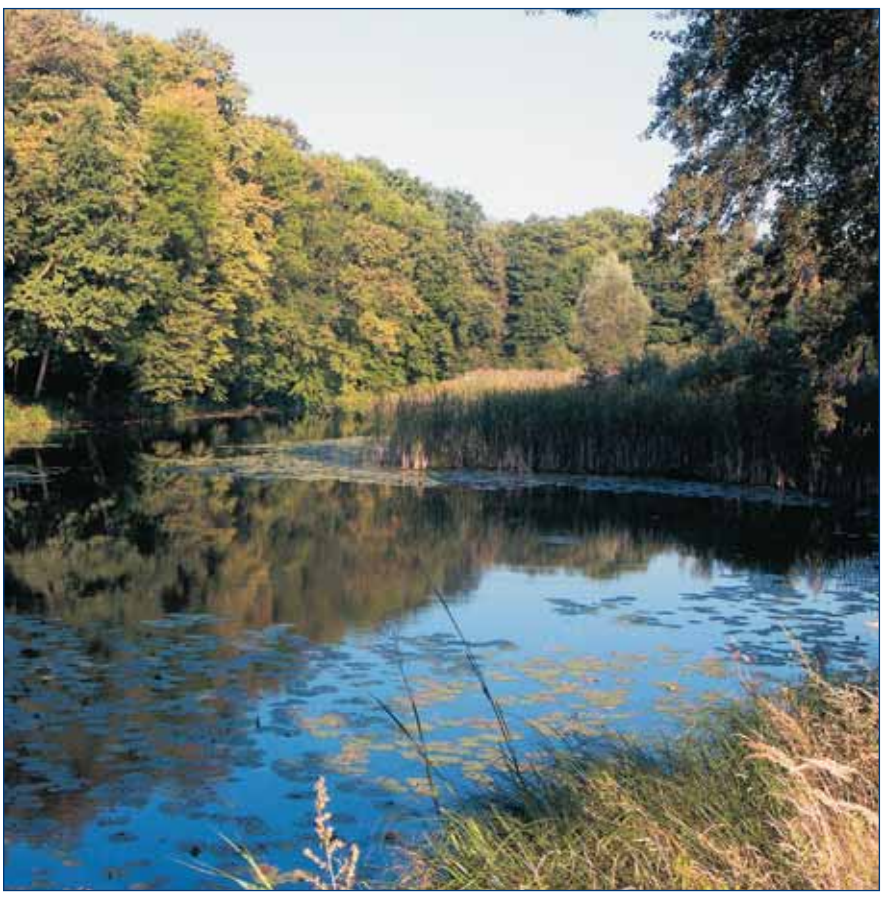
The discussions of the commission also dealt with the discussion of „Principles for Direct Cooperation of the Relevant Bodies and Expert Sites“, the implementation of the EC Framework Water Directive 2000/60/EC on border waters, and fuel filling station Pavlův Studenec/Bärnau. In addition, the intention of the financing and construction of a stable emergency profile Elbe in the border profile with Germany, which should prevent the spread of oil pollution from the Czech Republic to Germany, was also dealt with. The results of the discussions of the commission were given in „Protocol Concerning Eighth Meeting of the Czech-German Commission for Border Waters“, which was approved by the minister of the environment on 18.1.2006.

10.2 International and regional cooperation in unified catchment areas of the European rivers Elbe, Odra and Danube

The active participation of the Czech Republic in international commissions for the protection of the international catchment areas of the Elbe, Danube and Odra continued successfully in 2005 on the basis of the Agreement on the International Commission for Protection of the Elbe, Convention on the Protection and Acceptable Utilisation of the Danube, and Agreement on the International Commission for the Protection of the Odra from Pollution. In the International Commission for the Protection of the Elbe, in 2005 the Czech Republic chaired the commission for the first time.

Agreement on International Commission for Protection of the Elbe

On 3.3.2005 in Dresden there was an international meeting of environment ministers of the states on the Elbe catchment area (Czech Republic, Germany, Poland and Austria). Important representatives of the individual states and European Commission participated in the meeting. There was a presentation of the main results of an analysis of the characteristics of surface water and groundwater, evaluation of conse-



Elbe river, Veletov

quences of human activity, economic analysis of water use and procedure when implementing the framework directive in the Elbe catchment area, and there was approval of the „Report 2005 for the International Area of the Elbe Catchment Area“, prepared in compliance with the requirements of article 5 of the Framework Directive. The report is a part of the statutory reporting of EU member states for the European Commission for the Elbe catchment area in 2005. In connection with the meeting of ministers, on the days 3. – 4.3.2005 there was a seminar in Dresden for this report for the broader professional public.

On the days 6. – 7.10.2005, in Prague, in the building of the MoE, the 18th meeting of the International Commission for the Protection of the Elbe (ICPE) was held. The meeting was held on the occasion of the fifteenth anniversary of the foundation of the ICPE. The Agreement on the International Commission for the Protection of the Elbe was signed on 8.10.1990 in Magdeburg. In connection with the 18th meeting of the ICPE, a press conference was held with the participation of the minister of the environment of the Czech Republic. The ICPE is today the most important board of Czech-German cooperation in the field of water protection in the Elbe catchment area. Its activity focuses on reducing the pollution of the Elbe and its tributaries, programmes for the measuring and monitoring of water quality, improving the state of water and aquatic associated ecosystems, preventing accident pollution and, in recent years, primarily the coordinated performance of requirements of the framework directive and the improvement of flood protection. At the 18th meeting of the ICPE, there was a discussion of the further procedure for the implementation of the Framework Directive in the international catchment area of the Elbe. It was recommended that the draft of the „First Report on the Performance of the Action Plan of Flood Protection in the Elbe Catchment Area“ be submitted to a meeting of heads of ICPE delegates in May 2006, and that the „4th Report on the Performance of the Elbe Action Plan“ be approved. It was stated that the publication „The Elbe and its Catchment Area“ had been issued. In addition to this, the „International Programme of Measuring for 2006“ was approved, the process for the optimisation of the structure and means of work of the ICPE was concluded, and there was discussion the matter of the stable profile of the Elbe and of the preparation of the 12th Magdeburg seminar on water protection, which will be held in October 2006 in Český Krumlov.

Convention on the Protection and Acceptable Utilisation of the Danube

In March 2005, the International Commission for the Protection of the Danube (ICPD) was definitively completed, and the European Commission was sent the „Summary Report for the Danube Catchment Area 2004“ (Roof Report 2004), which is prepared in compliance with article 5 of the framework directive and is part of the reports of the individual Danubian countries for the European Commission.

In 2005, Danube Day was celebrated for the second time in all Danubian states, including the Czech Republic. The date is designated as the date of the signature of the convention, i.e., 29.6. One part of the celebrations was, as in previous years, an international school art competition „Young Artists for the Danube“. The winners of the competition from the individual countries were invited on 14. – 16.10. to Budapest, where the chairing country (Hungary) had arranged an interesting programme for them. Upon this occasion, the prize was presented to the absolute winner from Germany. Upon the occasion of

Lužická Nisa river, Machnín

Danube Day, the Union for the River Morava, with the support of the MoE, organised an excursion to the intervale of the river Morava in the Czech Republic, Austria and Slovakia with a focus on the values of the bottomland threatened by the construction of the Danube-Odra-Elbe canal. Special attention was also given to the localities of Natura 2000. The celebration of Danube Day has become a tradition in the Danube catchment area and will continue in the years to come.

In connection with the attempt to involve the public in the decision-making process during planning in the Danube catchment area according to the Framework Directive, on the days 28. – 29.6. 2005, upon the occasion of Danube Day, the ICPD organised a Stakeholder Conference which focussed on discussing the Summary Report for the Danube Catchment Area Danube 2004. The conference allowed NGOs, professional associations and others from the public from the Danube catchment area to comment on these summary characteristics of the Danube catchment area. Output from the conference will be used for the further work of the ICPD, For the purposes of the public, the ICPD published a short extract from the Summary Report for the Danube Catchment Area 2004, which was also translated into Czech. The eighth meeting of the ICPD was held on the days 12. – 13.12.2005 and was chaired by Hungary. The meeting was attended by delegations from all the parties to the Convention on the Protection and Acceptable Utilisation of the Danube, of which there are currently 14 (including the EU), the chair people of the individual expert groups, the representatives of observer organisations, of which there are 12, and the employees of the ICPD office. There was discussion of the activities of the individual expert groups for the previous period, which focus mainly on fulfilling the Framework Directive in the Danube catchment area and the further procedure when involving the public in this process. In connection with the discussion of questions of the budget, there was discussion of the possibility of ensuring resources for Joint Survey of the Danube, GIS software and for studies and activities paid for up to now from the Regional Project UNDP/GEF. The new structure of the ICPD and its office, which will better conform to the coordinating role of the ICPD when fulfilling the Framework Water Directive, was approved. The structure was also expanded to include expert groups for cooperation in the individual catchment areas of the Tisa, Prut, Danube delta and separate commission for the catchment area of the river Sáva. The mandates of the new expert groups were approved.

Agreement concerning International Commission for the Protection of the Odra from Pollution

The preparation of „Report 2005 for the International Catchment Area of the Odra“ was made more difficult by the fact that the work at the national levels in the individual countries was carried out in different periods of time. At the meeting of the editorial group consisting of heads of the delegations, chair people and certain experts from the individual groups, they managed to complete the report and submit it for discussion and approval at the first extraordinary meeting of the International Commission for the Protection of the Odra (ICPO) by the planned deadline of 16.3.2005. The report was later sent on 22.3.2005 to the European Commission. The report is part of the reporting duty of EU member states which are also parties to the Agreement on the ICPO from pollution, thus also the Czech Republic.

At the seminar of the heads of delegations of the ICPO on the days 11. – 12.5.2005, there was discussion of the change of organisational structure of the ICPO in the context of the tasks arising from the Water Framework Directive. A new group, the steering group for the Framework Directive, was established, which was transformed from the previous group for coordination of introduction of the Framework Directive. This group gained the competence to coordinate the work of five new sub-groups, for performing individual tasks of the next stage of introducing the Framework Directive: subgroups for planning in the area of water, for monitoring, for data management, for economic analysis and for reports. The working groups ensure other tasks, i.e., flood protection, prevention and protection from accident pollution and the resolution of legal questions. They remained unaltered both in terms of focus and personnel. The new structure of the ICPO was approved in June 2005.

The eighth plenary session of the ICPO from pollution was held on the days 15. – 16.12.2005 in Vratislav. At the meeting, due note was taken of the reports about the activities of the working groups. The working group of accident pollution regularly updated the „International Warning and Alarm Plan of the Odra“, verified the plan of connection and performed a practical terrain international accident exercise with the cooperation of rescue units. It updated and augmented the list of potential sources of accident pollution, which constitute, in the same way as the „International Warning and Alarm Plan of the Odra“, the basic component of the prepared „International Accident Plan of the Odra“. The flood working group focuses long-term on the monitoring of implementation of the „Action Programme of Flood Protection“, initiated cooperation with the project OderRegio; works closely with the World Wildlife Fund (WWF), and has initiated pilot projects on two border sections of the Odra for verifying the flood GIS.

At its eighth meeting, the ICPO resolved that the informing of the public pursuant to article 14 of the Framework Directive will be performed in the form of information on the web pages of the ICPO, participation of NGOs at meetings of the working groups, the issue of brochures and leaflets, and the organisation of workshops and conferences. It approved the conclusion of a contract for the preparation of map data with the firm GIS Partner, the mandates of newly created working groups and the plans of work for the working groups. It discussed the forms of cooperation with the Helsinki Committee for the Protection of Human Rights and bilateral commissions for cooperation on border waters.

11. FISHERIES AND FISHPOND MANAGEMENT

11.1 Fisheries and fishpond management in 2005

By virtue of its nature, fishery is necessarily an integral part of water management. From the aspect of the production of fish meat, it remains one of the successful areas of agricultural production.

The other area of fishery, management on running water not only ensures the existence of the historical local fish species, but most importantly it preserves the balance of fish communities in the individual watercourses and water units. But in addition to biological functions, it ensures entertainment and outdoor recreation for approximately 400 thousand anglers. Many other branches are associated with angling. Many production firms, shops and entrepreneurs in tourism depend on the purchase of their products by anglers.

Historically, the most significant area of fishery with an irreplaceable landscaping function is fishpond management. Under our conditions, approximately 24 thousand fishponds with a total area of approximately 52 thousand hectares farm fish. These produce an average of 20 thousand tons of fish per year (in 2005, 20.5 thousand tons). Out of this production, roughly one half goes to foreign markets (in 2005, 9.3 thousand tons). The predominant farmed fish is the carp (approximately 87.1 %), in several recognised forms, herbivorous fish, specifically silver carp and white amur (5 %), and salmonid fish are also farmed, especially rainbow trout and American char (3.5 %), glasseyed pike, northern pike, common tench (1.2 %), catfish and other types of fish (3.2 %).

Our market has not yet adapted to the very high quality offer of fish products made by 15 fish processing plants. Most of them have an opportunity to export to the EU, where they also sell most of their products. But the semi-finished products and, mainly, finished products intended for direct consumption represent only about 10 % of the total production of freshwater fish. An overview of production of fish from fishponds and other fish farming facilities intended for direct consumption is given in the Table 11.1.1.

Table 11.1.1 Overview of production of fish intended for direct consumption in the years 2001 – 2005

Indicator of production and consumption of fish	2001	2002	2003	2004	2005
Production in thousand tons	20.1	19.2	19.7	19.4	20.5
Of this: export in thousand tons	9.9	9.2	9.6	9.9	9.3
Catches in reservations in thousand tons	4.8	5.1	5.3	4.7	5.0 [1]
Consumption per person in kg/year	1.47	1.43	1.49	1.46	1.48 [2]

Source: MoA and Fishery Association of the Czech Republic
Note.: [1] Qualified estimate
[2] Corrected for consumption including import of freshwater fish

Orlice river

The data on consumption is calculated from market fish sold in the Czech Republic, fish intended for processing and catches in all fishing reservations. In 2005 the year-on-year export of live freshwater fish dropped by 6.1 % to 9.3 thousand tons, of which the export of live carp dropped to 8.3 thousand tons. Carp was exported primarily to Germany, Poland and Slovakia, where 76 % of total exports went.

Throughout the republic, today more than 2000 professional fishermen are employed. The most important subject federating the fishing subjects is the Fisheries Association CR, with its head office in České Budějovice. This is an association of legal and natural persons trading in fisheries and fishing federations where in 2005 there were 63 registered members. It coordinates the interests of producers and users of reservations during negotiations with state administration, during legislative activity and in the context of trade policy, including the export of fish.

One problem is the fact that recently our market has come to prefer sea fish and other seafood. Their consumption in comparison with freshwater fish is approximately 4x higher.

Another very important part of fisheries is fishing on running water, better known as angling. This is carried on by the exercise of fishing rights in more than 3 000 angling reservations. Reservations are either managed as non-trout, which account for the majority both in terms of area and number, and trout reservations. This hobby of angling is enjoyed by approximately 400 thousand anglers, including youth, and these sportsmen catch approximately five thousand tons of fish per year. Thus they contribute to the overall annual consumption of freshwater fish, which with their catches and imported freshwater fish came to 1.48 kg per person in 2005.

In a state with a population density of 132 people per km^2 and the associated intensity of industry, agricultural production, housing agglomerations and other forms of burden on the landscape, one must necessarily assume a large group of problems in this area. The first of them is the conversion of fishponds to dry land, where despite

Vrchlice river, Velký rybník

significant investments in this area it is not possible to halt the trend of fishponds being filled in. This situation is often exacerbated by the approach of nature protection bodies. Swamps which were formed in the place of former fishponds are preferred as a result of protection of wetlands and the riverbank areas, and so it is often not permitted to renew or dredge fishponds. And significant damage is caused by fish predators such as the common cormorant, otter, mink and heron recorded at fish farms and fishery reservations, which in 2005 caused a calculated CZK 896 million worth of damage, which is a significant year-on-year increase on 2004, with damages recorded in a total of CZK 569.8 million.

In our country today there are more than 60 species of fish living in the wild. The largest is the catfish, the most widespread the roach, the rarest documented fish is the common salmon (previously the Atlantic salmon), and the smallest is the tubenose goby. Some of our native species exist only as a result of artificial breeding and release, which experts from the fishery federation mostly participate in. These are also relatively common fish, such as the common trout, pike, glasseyed pike, brook minnow, ide, asp, European grayling and others.

On the territory of the Czech Republic, 90 artificial hatcheries and breeding sites are registered. But approximately 30 of these have only been in operation for a short time. They are involved in the breeding of species which at present would not have the conditions for natural reproduction and would gradually disappear from the majority of biotopes used today.

It is of interest that in addition to the consumable species of fish such as carp, tench, pike and pikeperch, stocks of common trout, European grayling, common pike and glasseyed pike are being exported. But stocks for running water are being imported to our country, such as the common fish rudd, asp, roach or gudgeon.

11.2 Changes in state of fishponds

- **The financial source for improving the state of the fishpond fund in 2005 was the programme 229 210 „Renewal, dredging and reconstruction of fishponds and reservoirs“. The aim of this programme of the Ministry of Agriculture is the improvement of water management and non-production functions of fishponds and small reservoirs, with emphasis on reinforcing the retention abilities an safety of operation.**

Under the sub-programme 229 212 „Renewal, dredging and reconstruction of fishponds and reservoirs“, CZK 206.547 million was drawn from financial resources. The renewal of the fishpond Novosedelský Horní and renovation of the dyke of the Rožmberk fishpond were some of the events with the largest volume of state budget resources in 2005 from sub-programme 229 212.

The floods in August 2002, caused significant damage to fishponds, and the elimination of this damage continued in 2005. Under the sub-programme 229 218 „Rectification of damage to fishponds and reservoirs following the floods of August 2002“, CZK 12.94 million was drawn from financial resources. Amongst the most significant events financed from the sub-programme in 2005 were the renovation of the fishpond Šternberk, fishpond Labuť and repair to the dyke and objects of the Buzický fishpond.

In 2005, the available resources and quality of submitted requests allowed the financing of a total of 49 events, of which 16 events had already been initiated in 2004. As part of the events included in programme 229 210 and completed in 2005, 1499.2 thousand m^3 of sediment was removed, and 31 safety spillways or safety facilities were reconstructed or built as new, and 19 outlet facilities were reconstructed.

12. RESEARCH AND DEVELOPMENT IN WATER MANAGEMENT

12.1 Research and development in the competence of the Ministry of Agriculture

In 2005, the Ministry of Agriculture financed specific purpose research and development in the field of water management as part of research projects with almost CZK 16 million.

Overall in 2005, financial resources were expended on water management research and development under the Research Programme of the MoA 2003 – 2007 and the National Research Programme – provider MoA – in a total of CZK 15 976 thousand. During 2005, no research projects were completed. Resources in a total amount of CZK 13 793 thousand were expended on ongoing projects, of which CZK 8 368 thousand went on projects started in 2003, and CZK 5 425 thousand went on projects started in 2004. A total of CZK 2 183 thousand was released for projects started in 2005.

In material terms the projects focus on the protection of soil and water with permanently sustainable development of the agrarian sector, the generation, revitalisation and protection of the cultured landscape, forests and water units, improving the effectiveness of managing water in the landscape with the aim of improving water quality and preventing or ameliorating the consequences of hydrological extremes such as floods and droughts in general, and the development of technology for the treatment and cleaning of water.

An overview of the research and development projects individually dealt with and initiated is summarised in Table 12.1.1. All the publicly accessible data is available on the internet pages of the Council for Research and Development (www.vyzkum.cz) in the Central Records of Projects (CRP) and also on the internet of the MoA, National Agency for Agricultural Research (www.nazv.cz).

The research aim Ameliorating the adverse natural and anthropogenic impacts on the soil and water is dealt with by the Research Institute of Ameliorations and Soil Conservation.

The investigation of the research aim will last from 2004 to 2008. Its aim is the evaluation of the consequences of possible natural extremes and long-term impacts of human activity on water and soil, including the submission of instructions for possible measures to limit these influences or for their total elimination, with a focus on alternative sources of irrigation water, hydrogeological functions of drainage systems (including correction of functions and parameters of these systems), amelioration of adverse influences caused by water and wind erosion, evaluation of efficacy of protection of watercourse from the harmful effects of surface runoff by measures of land alterations, influence of targeted grassing over of selected localities on the nitrate burden of water in the catchment areas of water supply reservoirs, including monitoring the changes in water quality in the watercourses of the submontane area of Šumava and peat bogs as indicators of environmental burden. In 2005, this research aim was supported with financial resources of CZK 26 545 thousand.

In addition to the described participation in research projects financed by the MoA, the Research Institute of Ameliorations and Soil Conservation participated in a project of the Grant Agency of the Czech Republic Influence of Macropores in Lands in the Czech-Moravian Highlands on the Leaching of Nitrates into Groundwater (2004 – 2006); in the year 2005 to the extent of CZK 481 mill., in the project of the MoE – Development of Methods for Predicting Drought States and Flood Situations on the Basis of Infiltration and Retention Properties of Soil Cover of the Czech Republic (2005 – 2007); in 2005 to the extent of CZK 694 mill., and in the project of the 5th framework programme of the EU – Fert organic (2003 – 2006); in 2005 to the extent CZK 286 mill., the aim of which is to support the use of various types of organic fertilisers in agriculture and to create a new strategy for farming with these fertilisers which would lead to an improvement in the effectiveness of water and nitrogen use and thus a reduction in environmental pollution.

12.2 Research and development in the competence of the Ministry of the Environment

In 2005, the main research organisation in the competence of the

Ministry of the Environment dealing with the issue of water protection was the Water Management Research Institute T. G. M.; other significant tasks were dealt with by (or they significantly contributed to their solving) Czech Hydrometeorological Institute and other institutions. A total of CZK 63.1 million was spent in the competence of the Ministry of the Environment on researching projects of science and research in the field of water protection in 2005.

The year 2005 was the first year of the implementation of the research intention of the MoE 0002071101 – Research and Protection of the Hydrosphere – research into relations and processes in the water component of the environment, focussing on the impact of anthropogenic pressures, its permanent use and protection, including legislative instruments. The provider of the grant is the Czech Republic – MoE, Ing. Pavel Labounek, undersecretary of state, became the authorised representative of the minister, and the expert guarantor of the ministry for 2005 was Ing. Josef Reidinger. The recipient of the grant was the WMRI T.G.M.

Under the direction of the MoE, in 2005 scientific and research projects were researched in the field of water protection (including associated areas) as part of the programme of the Government Research and Development Board. It involved the following SaR projects, outside the basic projects Elbe IV, Morava IV and Odra III:

- 1C/4/44/04 Damages Caused by Natural Disasters, researcher: Prof. Ing. Jiřina Jílková, CSc., recipient: University of Economics in Prague, provider: MoE, project research period: 2004 – 2005, main field: AH Economics,
- SK/640/6/03 Evaluation of Functions of Landscape Elements and Segments from the Aspect of Possibility of Protection from Harmful Consequences of Floods and their Reflexes in Ecology, researcher: Prof. Ing. Václav Tlapák, CSc., recipient: Mendel Agricultural and Forestry University in Brno, provider: MoE, project research period: 2003 – 2005, main field: DO Protection of Landscape Territory,
- 1D/1/5/05 Development of Methods for Predicting Drought States and Flood Situations on the Basis of Infiltration and Retention Properties of Soil Cover of the Czech Republic, researcher: Ing. Pavla Řičicová, recipient: CHMI, provider: MoE, project research period: 2005 – 2007, main field: DA Hydrology and Limnology,
- SA/650/4/02 Hydrogeological Zoning, researcher: RNDr. Hana Prchalová, recipient: WMRI T.G.M., provider: MoE, project research period: 2002 – 2005, main field: DB Geology and Mineralogy,

Table 12.1.1 Research and development projects in the field of water management financed from the chapter of the Ministry of Agriculture in 2005

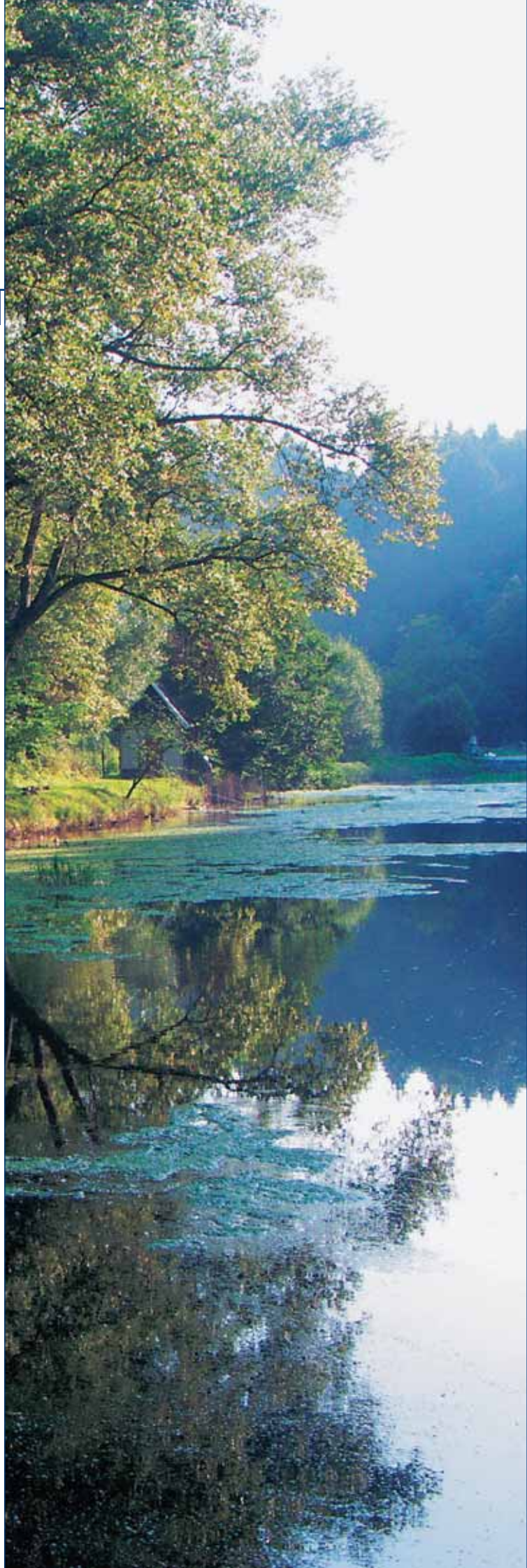
Project No	Name of project	From To	Coordinator	Financial resources (thous. CZK)
QF3013	Development of hydric effect of forests of small mountain catchment areas	01.01.2003 31.12.2007	Research Institute of Forestry Management and Hunting	932
QF3028	Development of new technologies for the breeding of economically significant river species of fish and crayfish threatened by the degradation of the natural environment	01.03.2003 30.11.2007	South Bohemia University in České Budějovice	1 409
QF3094	Changes in properties of drained and long-term irrigated soils and impacts on soil and water protection	02.01.2003 31.12.2007	Research Institute of Ameliorations and Soil Conservation Prague	960
QF3095	Rationalisation of use, maintenance and repairs of drainage constructions	01.02.2003 31.12.2006	Research Institute of Ameliorations and Soil Conservation Prague	950
QF3098	Increasing anti-erosion effectiveness of crops grown	01.01.2003 31.12.2007	Research Institute of Ameliorations and Soil Conservation Prague	1 314
QF3100	Evaluation of growth of climatic drought in agriculture and lessening its consequences by irrigation	01.03.2003 31.12.2007	Research Institute of Ameliorations and Soil Conservation Prague	1 550
QF3301	Diagnostics, monitoring and revitalisation of drainage systems for agricultural soils from the aspect of protection of water quality	01.03.2003 31.12.2006	Research Institute of Ameliorations and Soil Conservation Prague	1 253
QF4061	Landscape plans for microregions in connection with the resolution of landscape measures of a significant watercourse	01.02.2004 30.12.2007	Research Institute of Ameliorations and Soil Conservation Prague	1 170
QF4062	Verifying influence and extent of adding grass cover to land and land reclamation in selected localities on the nitrate burden of surface water and groundwater as the basis for measures in Action Programmes	01.04.2004 31.12.2007	Research Institute of Ameliorations and Soil Conservation Prague	1 661
QF4124	Protection of water in drained source areas	01.02.2004 31.12.2007	Research Institute of Ameliorations and Soil Conservation Prague	714
1G46036	IInnovations of process for water treatment and ensuring high quality of drinking water in distribution systems	01.04.2004 31.12.2008	Czech University of Technology in Prague, Construction Faculty	1 080
1G46040	Monitoring and evaluation of extreme outflow conditions in catchment areas of small watercourses from the aspect of prevention and lessening of flood damage	01.04.2004 31.12.2008	Research Institute of Ameliorations and Soil Conservation Prague	800
1G57016	Rainfall-outflow conditions of mountain forests and their possibilities for ameliorating extreme hydrological situations – floods and droughts	01.02.2005 31.12.2008	Mendel Agricultural and Forestry University in Brno	914
1G57040	Methodology for designing and building optimal variants of flood-prevention and anti-erosion measures (FPAEM) for ameliorating extreme hydrological situations – floods and droughts in the landscape	01.02.2005 31.12.2008	Czech Agricultural University in Prague	720
1G57071	Integrated approach for resolution to the use of rainwater in the urban area accumulation	01.02.2005 31.01.2008	University of Technology in Brno	410
1G58052	Research into solution for degradation of drinking water quality during its	01.12.2005 31.12.2008	Water Management Research Institute T.G. Masaryk Prague	80
1G58095	Forecasting soil – agrohydrological models of soil water retention in the Czech Republic and their integration into the database of EU countries	01.12.2005 30.11.2009	Czech Agricultural University in Prague	59
Total				**15 976**

Source: MoA

- SA/650/4/03 Research into Relationship between Meteorological Causes of Development of Heavy Rainfall and Hydrological Reaction of Catchment Area, researcher: Ing. Pavla Řičicová, recipient: CHMI, provider: MoE, project research period: 2003 – 2005, main field: DA Hydrology and Limnology,
- SA/650/2/03 Establishing Register of Protected Territories, Including Maps of Register Content, researcher: Mgr. Pavel Rosendorf, recipient: WMRI T.G.M., provider: MoE, project research period: 2003 – 2006, main field: DJ Pollution and Water Control,
- SA/650/5/02 Proposal of Methodology for Designating Flood Risks and Damages in the Flood Territory and its Verification in the Catchment Area of the Elbe, researcher: Ing. Karel Drbal, Ph.D., recipient: WMRI T.G.M., provider: MoE, project research period: 2002 – 2005, main field: DN Influence of Environment on Health,
- SE/620/9/03 Monitoring, Protection and Expansion of Species of Fish and Large Clams Protected in the EU in the Catchment Area of the Upper Lužnice, Blanice, including Preparation of Revitalisation Measures, researcher: Doc. Ing. Petr Hartvich, CSc., recipient: South Bohemia University in České Budějovice, provider: MoE, project research period: 2003 – 2005, main field: CE Biochemistry,
- SK/610/2/03 Landscape-Ecological, Water Management, Economic and Legislative Evaluation of Intent of Construction of Canal Danube – Odra – Elbe, researcher: Mgr. Michal Krátký, recipient: Sagittaria – association for protection of nature and the landscape of Central Moravia, Olomouc, Lazecká 31/19, provider: MoE, project research period: 2003 – 2005, main field: DO Protection of Landscape Territory,
- SL/1/13/04 Rainfall-Outflow and Riverbed-Formation Processes in Catchment Areas of Watercourses, researcher: Ing. Aleš Havlík, CSc., recipient: Czech University of Technology in Prague, provider: MoE, project research period: 2004 – 2006, main field: DA Hydrology and Limnology,
- SL/8/53/04 Monitoring Interaction of Abiotic Components of Aquatic Ecosystems and Plants from the Aspect of Their Contamination by Heavy Metals, researcher: Ing. Michaela Kalová, recipient: GEOtest Brno, a. s., provider: MoE, project research period: 2004 – 2006, main field: DJ Pollution and Water Control,
- SL/8/59/04 Research into Aquatic Ecosystems in Catchment Areas, researcher: Ing. Miloš Rozkošný, recipient: WMRI T.G.M., provider: MoE, project research period: 2004 – 2006, main field: DO Protection of Landscape Territory,
- SL/1/6/04 Dynamics of Rivers in Alluvial Areas of the Czech Republic. Strengthening the Retardation of Outflow of Water in the Landscape and Management of Processes for Transformation of Nutrients in the Catchment Area, researcher: RNDr. David Pikhart, CSc., recipient: Institute of Systems Biology and Ecology of the Institute of Science of the Czech Republic, České Budějovice, provider: MoE, project research period: 2004 – 2006, main field: DO Protection of Landscape Territory,
- SL/1/21/04 Inventory of Interventions in the Aquatic Regime of Peat Bogs on the Territory of the Šumava National Park and Evaluation of Success of Revitalisation Measures Performed, researcher: RNDr. Ivana Bufková, recipient: Administration of National Park and Protected Landscape Area Šumava, provider: MoE, project research period: 2004 – 2006, main field: DO Protection of Landscape Territory,
- SM/650/6/03 Influence, Analysis and Possibilities of Use of Protective Function of Valley Reservoirs for Flood Protection in the Elbe Catchment Area, researcher: Ing. Ladislav Kašpárek, CSc., recipient: WMRI T.G.M., provider: MoE, project research period: 2003 – 2005, main field: DA Hydrology and Limnology,
- SM/620/18/03 Faunic and Ecological Evaluation of the Ichtyofauna of the Czech Republic (Including Evaluation of Historical Development) and Research into the Forms of their Optimum Protection, researcher: Doc. RNDr. Lubomír Hanel, CSc., recipient: Czech Association for Nature Preservation – ZO Vlašim, Pláteníkova 264, provider: MoE, project research period: 2003 – 2005, main field: EG Zoology,
- SM/3/4/04 Research and Development of Technology for the Area of Treatment of Toxic Waste Water from Industrial Activities and from Old Ecological Burdens, with Emphasis on Elimination of Heavy Metals, researcher: Ing. Luboš Víšek, recipient: Research Institute of Organic Syntheses, joint-stock company, Rybitví 296, provider: MoE, project research period: 2004 – 2006, main field: DJ Pollution and Water Control,
- SM/6/3/05 Genetic Diversity of Endangered Species of Fish – Essential Basis for Effective Protection of Biodiversity researcher: Doc. Ing. Stanislav Lusk, CSc., recipient: Institute of Biology of Vertebrates of the Academy of Science of the Czech Republic, provider: MoE, project research period: 2005 – 2007, main field: EH Ecology – Communities,
- SM/2/57/05 Long-term Changes in Riverine Ecosystems on Alluvial Plains of Watercourses Affected by Extreme Floods, researcher: RNDr. Jakub Langhammer, Ph.D., recipient: Charles University in Prague, provider: MoE, project research period: 2005 – 2008, main field: DO Protection of Landscape Territory.

EXPLANATION OF ABBREVIATIONS IN TEXT

AGN	**European Agreement on Main Inland Waterways of International Importance**
AOPK	**Agency for the Protection of Nature and the Countryside of the Czech Republic**
AOX	**adsorbable organic halogens**
AWMA	**Agricultural Water Management Authority**
BCE	**Branch classification of economic activity**
BCO	**biochemical consumption of oxygen**
BCO_5	**five-day biochemical consumption of oxygen**
CBC	**Cross Border Co-operation**
CCO	**chemical consumption of oxygen**
CCO_{cr}	**chemical consumption of oxygen, oxidation by potassium dichromate**
CEI	**Czech Environmental Inspectorate**
CF	**Cohesion fund**
CHMI	**Czech Hydro-Meteorological Institute**
CRWC	**central records of watercourses**
CSO	**Czech Statistical Office**
CSNF	**Cultural and social needs fund**
DDD	**1,1,dichloro-2,2-bis(p-chlorophenyl) ethane**
DDE	**2,2-bis(p-chlorophenyl)1,1-dichloroethylene**
DDT	**1,1,1-trichloro-2,2-bis(p-chlorophenyl) ethane**
DIS	**dissolved inorganic salts**
EC	**European Community**
ECE	**Economic Commission for Europe**
EEC	**European Economic Community**
EIB	**European Investment Bank**
EU	**European Union**
EUR	**common currency of European economic and monetary union (euro)**
Gamma HCH	**isomer hexachlorocyklohexane**
GEF	**Global Environmental Facilities**
GIS	**Geographic Information System**
HEIS	**Hydro-Ecological Information System**
ICPD	**International Commission for the Protection of the Danube**
ICPE	**International Commission for the Protection of the Elbe**
ICPO	**International Commission for the Protection of the Odra**
ISPA	**Instrument for Structural Policies for Pre-Accession**
LF CR	**Land Fund of the Czech Republic**
MDF	**Main Drainage Facility**



MoA	**Ministry of Agriculture**
MoE	**Ministry of the Environment**
MoF	**Ministry of Finance**
MoH	**Ministry of Health**
MoT	**Ministry of Transport**
N-NH_4	**Ammoniac Nitrogen**
N-NO_3	**Nitrite nitrogen**
OECD	**Organisation for Economic Co-operation and Development**
Q_a	**long-term average flow**
Q_{ma}	**long-term average monthly flow**
Q_N	**maximum flow attained or exceeded once every N years**
P_{total}	**total phosphorous**
PAH	**polycyclic aromatic hydrocarbons**
PCB	**Polychlorinated biphenyls**
PDWSSSR	**Plan for the Development of Water Supply and Sewerage Systems for the territories of the regions**
PDWSSS CR	**Plan for the Development of Water Supply and Sewerages Systems for the Czech republic**
PHARE	**Pologne-Hongrie Actions pour la Reconversion Economique**
PRRS	**Programme for Revitalisation of River Systems**
RaD	**Research and Development**
S	**solids**
S.E.	**state enterprises**
SB	**state budget**
SEF	**State Environmental Fund of the Czech Republic**
SHEP	**small hydroelectric power station**
STIF	**State Transport Infrastructure Fund**
TFI	**tangible fixed assets**
UNDP	**United Nations Development Programme**
UNEP	**United Nations Environment Programme**
VAT	**Value Added Tax**
WMRI T.G.M.	**Water Management Research Institute T.G. Masaryk**
WSSS	**water supply and sewerage systems**
WWTP	**waste water treatment plant**

REPORT
ON THE STATE OF WATER MANAGEMENT IN THE CZECH REPUBLIC IN 2005

By December 2005

Text

Department of State Administration of Water Management and River Basins

Editor-in-Chief

Ing. Daniel Pokorný

Ing. Ladislav Sýs

Ing. Alena Medunová

Ing. Václav Pešek

Production

AMSTERDAM – Paris – Praha, s.r.o.

Print

Europrint Praha, a.s.

Unsalable

ISBN 80-7084-544-9

Published by Ministry of Agriculture

Prague 2006

Notes:

Notes:

MINISTRY OF AGRICULTURE