



REPORT ON THE STATE OF WATER MANAGEMENT

IN THE CZECH REPUBLIC

2002



BY DECEMBER 31, 2002



Dear readers,

You hold in your hands the “Report on the State of Water Management in the Czech Republic in 2002”, described in brief as the Blue Report 2002, which records the changes during the first period from the start of the effectiveness of the new legal regulations which are central from the aspect of water management.

This publication follows on from the similar material processed for the years 1997 – 2001 which the Ministry of Agriculture publishes every year. It represents comprehensive information material about all the areas of activity in water management for the year 2002, and it contains, in particular, a description of the state in main indicators, which is augmented for selected areas with developmental trends. The report gives a summarised description of the state of surface water and groundwater, following on from the previous years it summarises the output of the water management balance, administration of watercourses, measures to ameliorate the harmful effects of water, especially floods, area of public water supply and sewerage systems, sources of water pollution and protection of water, financial support for investments into water management and improving the state of the countryside, legislative measures, international relations, fisheries and fishpond management and research and development within the context of water management.

In view of the catastrophic floods in August last year, in the Blue Report 2002 there is an increased emphasis on describing the newly established antiflood programmes within the context of programme financing and a recapitulation of implemented measures in flood prevention, including information about the securing of financial resources, in particular from the sources of the European Investment Bank.



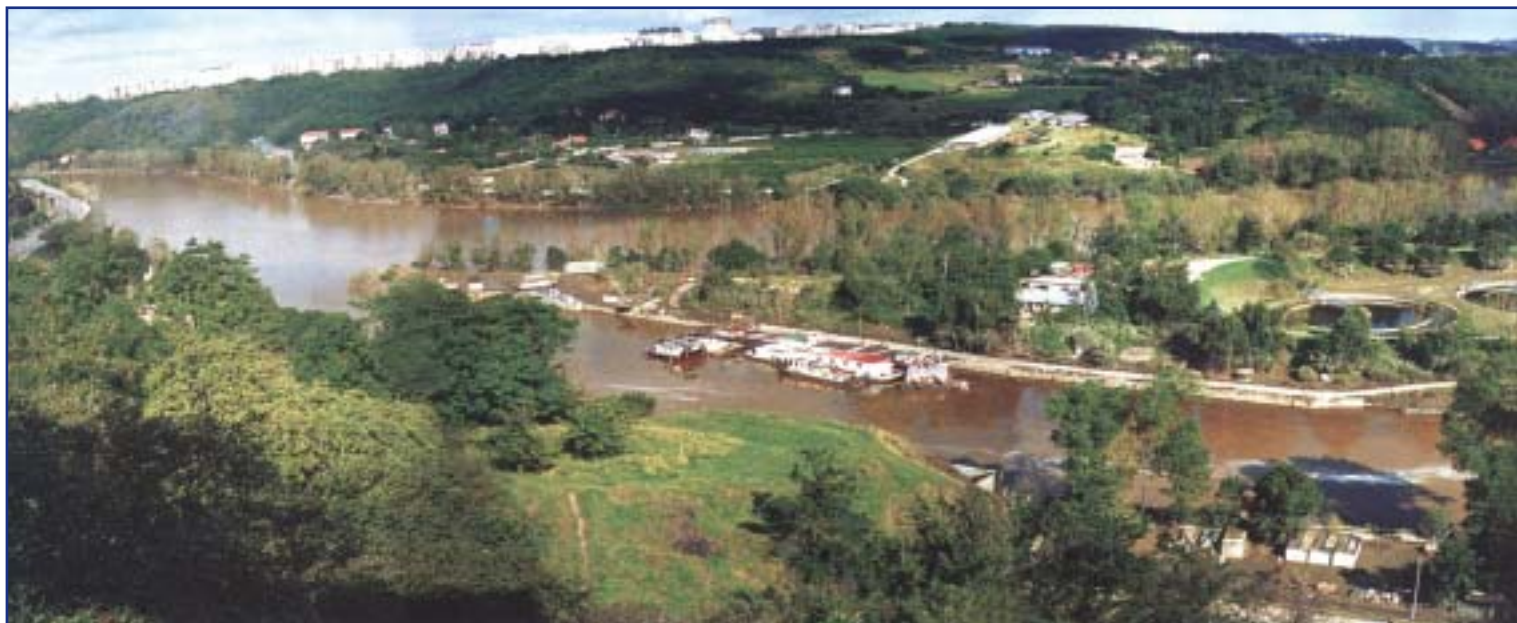
The aim of the report is to provide aggregate data following on in a time sequence and summarised information providing the most precise overview of all activities included in the system of water management.

The reader will find detailed information about the supply of drinking water from water supply systems for public need and the channelling and treatment of municipal waste water in the material "Water Supply Systems and Sewerage Systems in the Czech Republic 2002" prepared by the Ministry of Agriculture. Information about the quality of surface and groundwater, sources of pollution and measures for water protection is to be found in the "Report on the State of Protection of Water from Pollution" prepared by the Ministry of the Environment.

I hope that this now traditional and sought-after publication will constitute a high-quality source of information this year, and not only for water management experts, but that it will also help to satisfy the general demand for information about this important component of the environment amongst the general public.

A handwritten signature in blue ink, appearing to read 'Jaroslav Palas'.

Mr. Jaroslav Palas
Minister of Agriculture Czech Republic



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1.

STATE OF SURFACE WATER AND GROUNDWATER



1.1 Hydrological balance

■ The total rainfall in the year 2002 was the heaviest for the past thirty years.

In the year 2002 an average of 864 mm of rain fell on the territory of the republic, which with regard to the long-term average for 1961-1990 corresponded to 130% of the norm. Overall it was an above-average year for rainfall, and the rainfall was the heaviest for the past thirty years. On average, 55 mm more of rain fell on the territory of the Czech Republic, but in Moravia and Silesia the rainfall was approximately 50 mm less in comparison with 2001, whereas in Bohemia rainfall in the year 2002 was 100 mm higher than in 2001.

■ For the course of outflow during 2002, for most flows three main outflow periods were characteristic. In the first, above-average water states predominated until mid April. The second period was drier and warmer and there was a predominance of below-average water states. In contrast with this, the third, five-

Table 1.1.1 Renewable sources of water in years 1993 – 2002 in millions of m³

Item	Annual values									
	1993	1994	1995	1996	1997	1998	1999	2000	2001	2002
Rainfall	53 391	52 287	61 514	54 890	57 809	56 153	49 291	54 733	63 960	71 298
Evapotranspiration	43 792	37 683	43 950	37 461	39 859	42 750	35 381	40 353	48 537	48 533
Annual inflow ¹⁾	486	553	645	825	653	541	550	573	761	1 341
Annual outflow ²⁾	10 085	15 157	18 209	18 254	18 603	13 944	14 460	14 953	16 184	24 106
Sources of surface water ³⁾	4 554	4 247	5 840	7 086	6 200	4 825	4 875	4 789	6 600	6 506
Useable sources of groundwater	980	1140	1400	1 380	1 430	1 330	1 390	1 204	1 440	1 625

Source: Czech Hydro-Meteorological Institute

1) Annual inflow to the Czech Republic from neighbouring states

2) Annual outflow from the Czech Republic

3) Designated as flow in main basins with 95% ensuring

month, period from August to the end of the year was distinguished by above-average water states with frequent floods. The year 2002, with a greater number of smaller floods in the spring, autumn and winter period was remarkable primarily because of the catastrophic August flood. The August flood in the Czech Republic affected 8 regions and was caused by two waves of intense rain which fell on virtually the entire Vltava basin as well as the Elbe basin, part of the Ohře basin and most of the Dyje basin.

days 11th to 12th August, 2.77 km³ fell in the Vltava basin, and 3.91 km³ of water fell in the entire Elbe basin.

The first wave of the flood was most marked in the basin of the Malše, the upper Lužnice and the middle Otava with the tributaries of the Volyňka and Blanice. The repetition period for culmination flows in the Malše exceeded 500 years, and the culmination flow of the Vltava below the Malše was at the level of 500-year to 1000-year flows. In the upper reaches of the Lužnice the maximum flow was at fifty-year levels. The middle and lower Otava with tributaries culminated at the 20-year flow levels. In the basin of the Sázava the first wave of rainfall impacted only the basin of the Želivka, but this was eliminated by the system of reservoirs in the basin. The first wave of rainfall on the days 6th – 7th August caused 5-year to 10-year flows in the upper reaches of the Dyje basin in south-western Moravia, but these were held back by the Vranovská dam. The second, main, flood wave began with the onset of the second rainfall incident from 11th to 18th August. Culminations occurred in the Vltava basin most frequently

The catastrophic August flood occurred in two waves from 5th to 7th August and from 11th to 18th August 2002. The volume of rain which fell on the territory of the Czech Republic in the period from 6th to 15th August was huge. According to the Czech Hydro-Meteorological Institute (referred to hereinafter as the CHMI), it was 6.95 km³ on the entire territory belonging to the Elbe basin (up to the state border), of this 4.98 km³ in the Vltava basin. And on the days 6th to 7th August 1.87 km³ fell in the Vltava basin, and 2.02 km³ fell in the entire Elbe basin. On the



on 13th August. On the Vydra, upper Blanice, Volyňka, middle Otava and the Vltava upstream of the water structure Lipno culminations occurred on 12th August, on the middle and lower Lužnice it occurred on 15th to 16th August. From the aspect of the frequency of repetition, the flows on the Vltava were most significant from Český Krumlov, but especially below the mouth of the Malše in České Budějovice, where the periodicity for repetition of maximum flow is estimated at more than 1000 years. In the river network of the Malše there was an overall incidence of maximum flows with a periodicity of repetition of 200 – 500 years, in the concluding profile, even here the period of repetition exceeded 1000 years. The periodicity of repeat of culmination flows of the second wave on the middle and lower Lužnice greatly exceeded the 500-year value. On the Otava the flood was exceptional from Sušice downstream, with an increasing periodicity of repeat in the direction downstream to the mouth into the Vltava. The periodicity of repeat for the culmination flow on the lower Blanice has been estimated by the CHMI to be more than 1000 years. The second wave of rainfall also caused catastrophic flooding of the Berounka from Plzeň to the confluence with the Vltava. The Berounka in Liblín and Beroun exceeded the 500-year periodicity of repetition, and on the middle and lower flow there was the second greatest recorded flood (the greatest occurred in 1872). As a result of the spills into the inundation in the sector upstream of Prague, the flood wave in the lower part of the flow was transformed, and the periodicity of repetition of the culmination flow upstream of the confluence with the Vltava fell to a value of a 200-year to 500-year flow. The flood wave on the Berounka had a fundamental impact on the shape and size of the flow wave in the lower section of the Vltava because the culminations of the flood waves on the Berounka and Vltava met at the same time. The flows on the Vltava in its central and lower flow were influenced by the Vltava sequence of weirs. Its influence will be examined in detail as part of the project for the evaluation of the flood. According to current information, 3900 m³s⁻¹ flowed into the Orlík reservoir at the time of the culmination, which is a flow with a periodicity of repeat exceeding 1000 years. The culmination flow was reduced by



the transforming effect of the reservoir by 800 m³s⁻¹, but the maximum allowable level in the reservoir was exceeded by approximately 1.5 m. The flows in the Vltava in Prague and on its lower reaches arose through a combination of flood waves from the Berounka, the Sázava and the outflow from the Vltava sequence of weirs. The flows on the lower Elbe were given to a decisive extent by the inflow from the Vltava (the inflow from the central Elbe was relatively insignificant). The Vltava in Prague culminated on 14th August at 12 noon with a flow of 5 160 m³s⁻¹, which corresponds to a periodicity of repetition of 500 years. It was the highest ever evaluated flow in the Vltava in Prague in the history of standard observations. The spread of water and reverse surge of the Elbe from Mělník caused by the high water level of the Vltava were characteristic for further progress of the wave. The spread of water downstream of Mělník, especially at Litoměřice, had a highly significant impact for the transformation of the culmination flow. This means that the inflows from the central Elbe and Ohře no longer had practically any influence on the increase of the culmination flow of the lower Elbe. The size of the transformation of the culmination flow of the flood from Prague to Ústí nad Labem is estimated on the basis of balance calculations of CHMI as being 1 000 m³s⁻¹. Downstream of Litoměřice, the Elbe flows into the relatively narrow valley of the Czech Central Uplands. Other possibilities

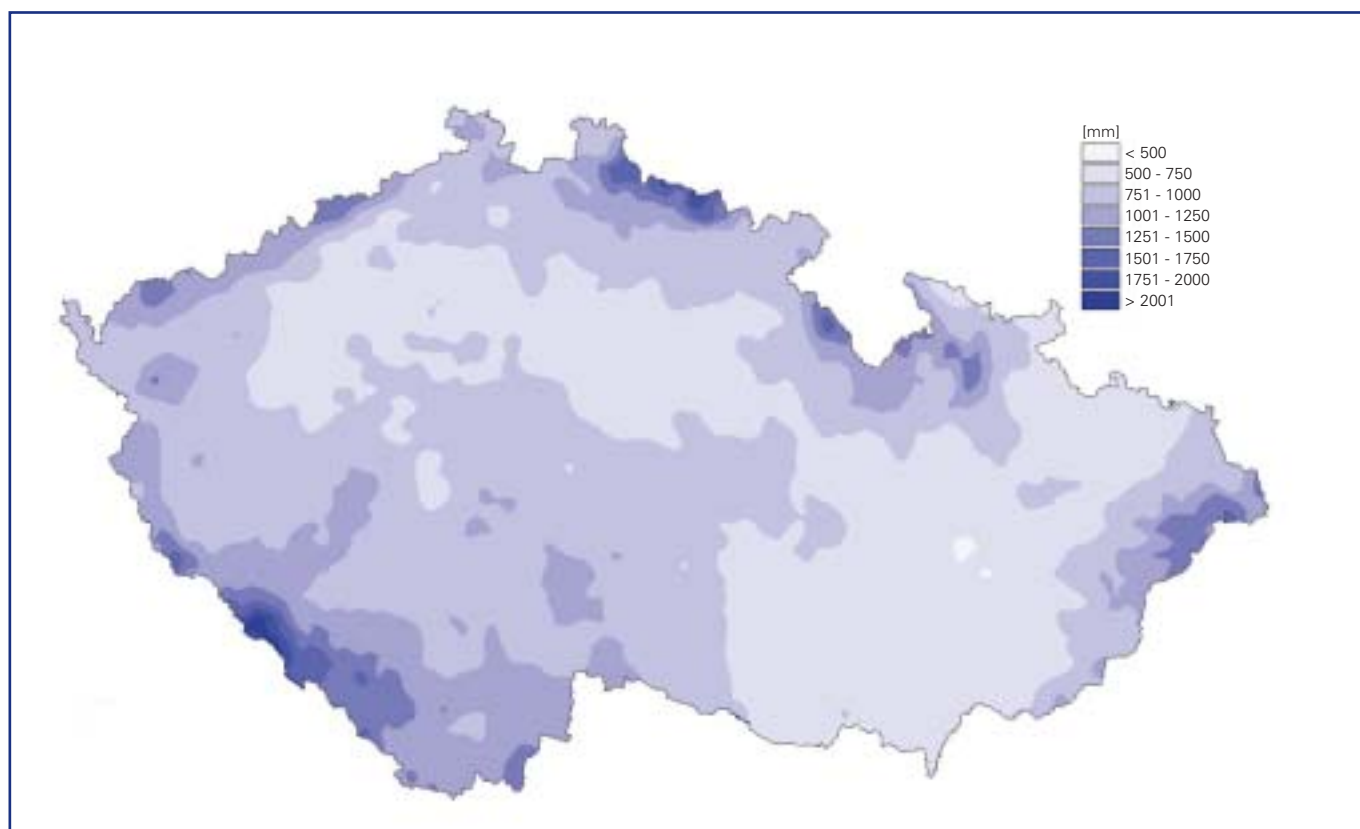
of the transformation of the flood wave up to the state border with Germany are limited, and the progress of the flood wave accelerated. The periodicity of repeat of the culmination flow of the flood on the lower Elbe (along the state border with Germany) reached a value of 100 to 200 years, and so there was a gradual reduction in the extremity of the flood. On the days 11th to 13th August a second significant wave of rainfall followed in the basin of the Dyje centred above the basin of the German Dyje and southern Bohemia.

Upstream of the Vranovská dam the greatest flow on 13th August was at the level of a 100-year 200-year culmination flow.

■ The groundwater regime had a unified character up to July 2002 on the entire territory of the Czech Republic. After culmination in February there was a gradual drop in the levels and yields of springs. But in August there was significant regional differentiation as a result of the uneven rainfall.

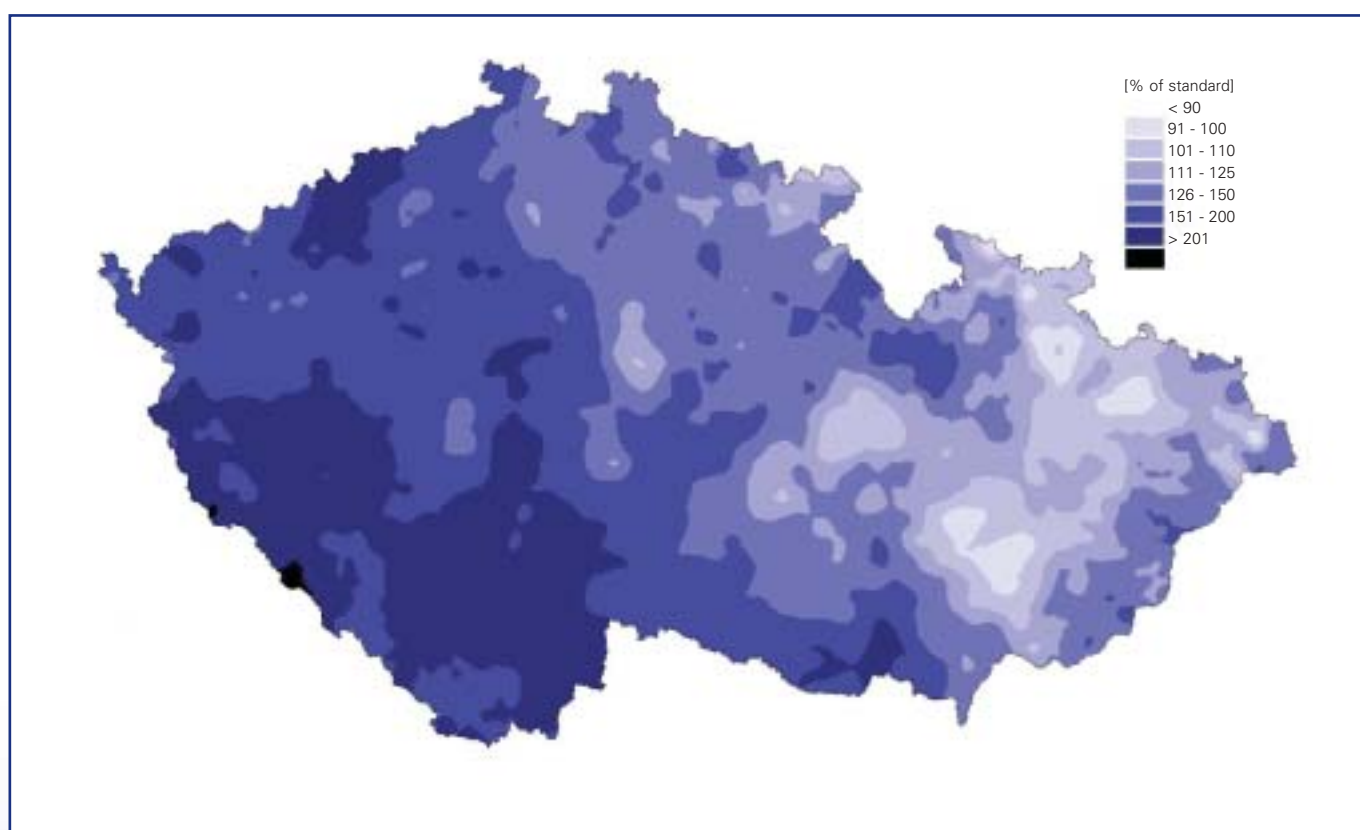
In the west and in southern Bohemia, including parts of south west Moravia, as a result of extreme rainfall reserves of groundwater were topped up to the maximum of several years. In the remaining parts of the territory, a rise in levels and yields of springs was also recorded, but they did not generally exceed the usual level or even the spring maximum.

Picture 1.1.1 Total rainfall in the Czech Republic in 2002 in millimetres



Source: VÚV T.G.M. from data of CHMI

Picture 1.1.2 Total rainfall in Czech Republic in 2002 in % of average 1961 – 1990



Source: VÚV T.G.M. from data of CHMI



The yield of springs reflects the filling of reserves of groundwater outside the riverine zone. In 2002, a blanket distribution of rainfall, properties of hydrogeological structure and local position of springs was manifested. Overall the average yield of springs reached 112% of the long-term average. The spring culmination occurred for most springs in the period from February to March. It generally reached 130-160% of the long-term average, and the long-term monthly average was exceeded by 20-50%. The subsequent drop lasted until July, and the yield at the end of the period was approximately 20% below the long-term monthly average. The reaction to the rainfall in August was given by the position of the spring on the territory of the Czech Republic and the characteristics of the hydrogeological structure. The increase generally culminated in November, and the yield of the springs exceeded the long-term monthly average by 70%. The annual average reached 130% of the long-term average.

Overall in the second half of 2002 the reserves of groundwater were filled after an approximately four-year period above the long-term average. The overall basic outflow, which characterises the proportion of groundwater in the overall outflow from the territory, reached 120% of the long-term average, and reserves of groundwater were estimated to be 122% of the long-term average.

1.2 Quality of surface water

■ In the course of the past decade, the quality of water in watercourses has improved significantly.

The results of the evaluation of the quality of surface water for the two-year periods 1991-1992 and 2001-2002 in the so-called basic classification are given in the appended maps of water quality on Pictures 1.2.1 and 1.2.2. Overall it is possible to state that in the

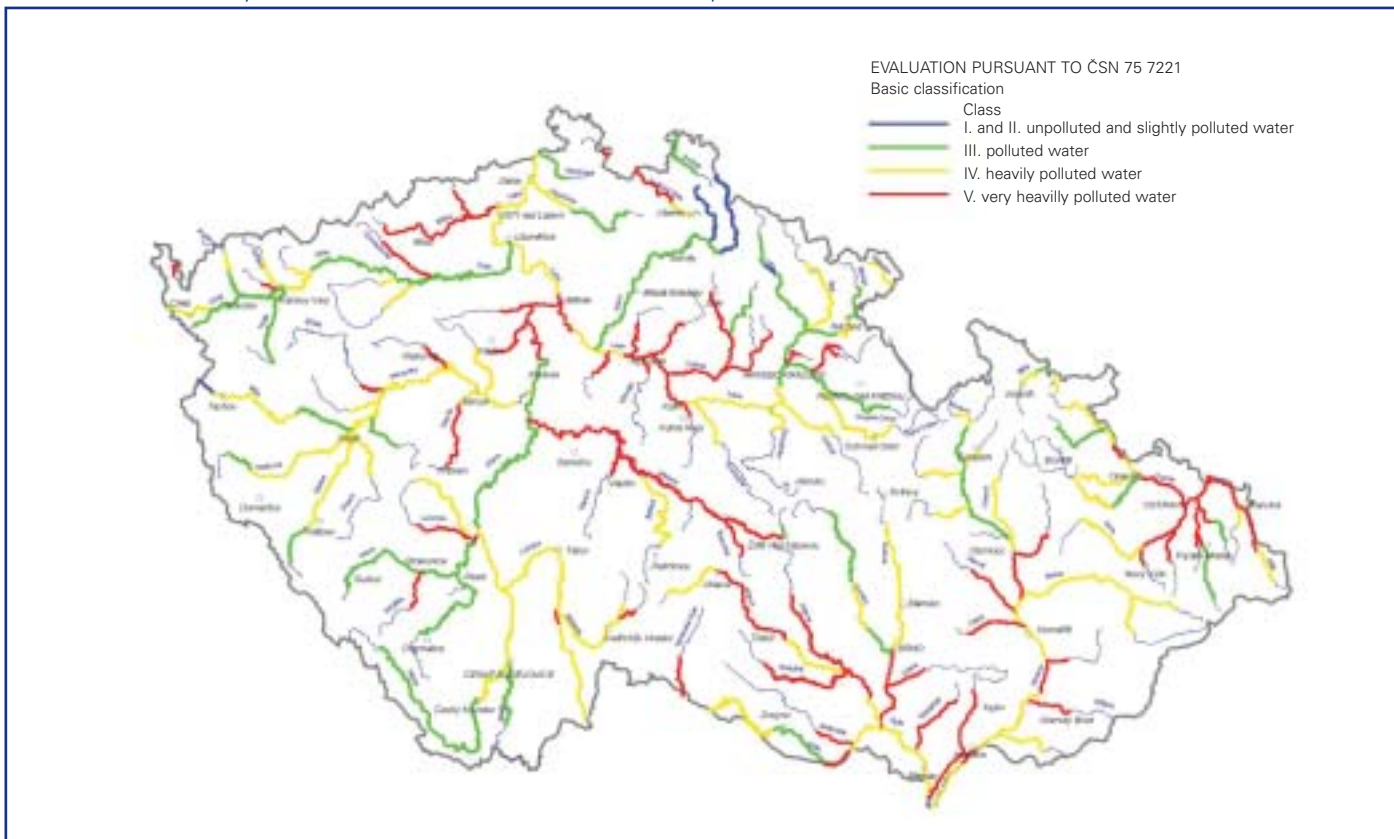
course of the past decade the quality of water in watercourses has increased significantly.

Since 1991 V. class water quality (very heavily polluted water) has been eliminated both in the main watercourses (Elbe, Vltava, Morava and the Odra) and on most of their significant tributaries. In the course of the period 1991 – 2002 there was a changeover from class V. to class IV. (heavily polluted water) to class III. (polluted water) and on some sections of other rivers (the Úpa, Tichá Orlice, Chrudimka, Doubrava, Mže, Úhlava, Úslava, Berounka, parts of the Sázava, the Želivka, Volyňka, Lužnice downstream of Veselí nad Lužnicí, Olše downstream of Karviná, Ostravice, Bečva, Oskava, Svitava downstream of Blansko, the lower part of the Jihlava and other small sections of rivers). On the Ohře, water of class II. (slightly polluted water) has been achieved for approximately half of its length.

In August 2002, a wholly exceptional flood situation affected the rivers of the Vltava basin, the Ohře basin and the Elbe basin downstream of the confluence with the Vltava. As a result of high water levels, waste water treatment plants were flooded; 120 WWTPs were put out of action, of which 29 were large and had a capacity above 10,000 EI, treatment of waste water was interrupted. The operation of the WWTPs was renewed gradually, most of them being put back into action within six weeks after the flood, and others (for example CWWTP Prague) by the end of 2002. The flood situation made necessary in the affected rivers exceptional monitoring of water quality, on which the following cooperated: the Ministry of the Environment (ME), Vltava River Board Corporation, Elbe River Board Corporation, and the T.G.M. Water Management Research Institute (referred to hereinafter as the VÚV. T.G.M.). The procedure for putting the WWTPs into operation was monitored by the Czech Environmental Inspectorate (referred to hereinafter as the "CEI"). Both the stoppage in the operation of WWTPs and the leakage of substances from industrial enterprises had only a temporary negative impact on water quality in watercourses and did not influence the long-term overall positive state and development of water quality in watercourses.

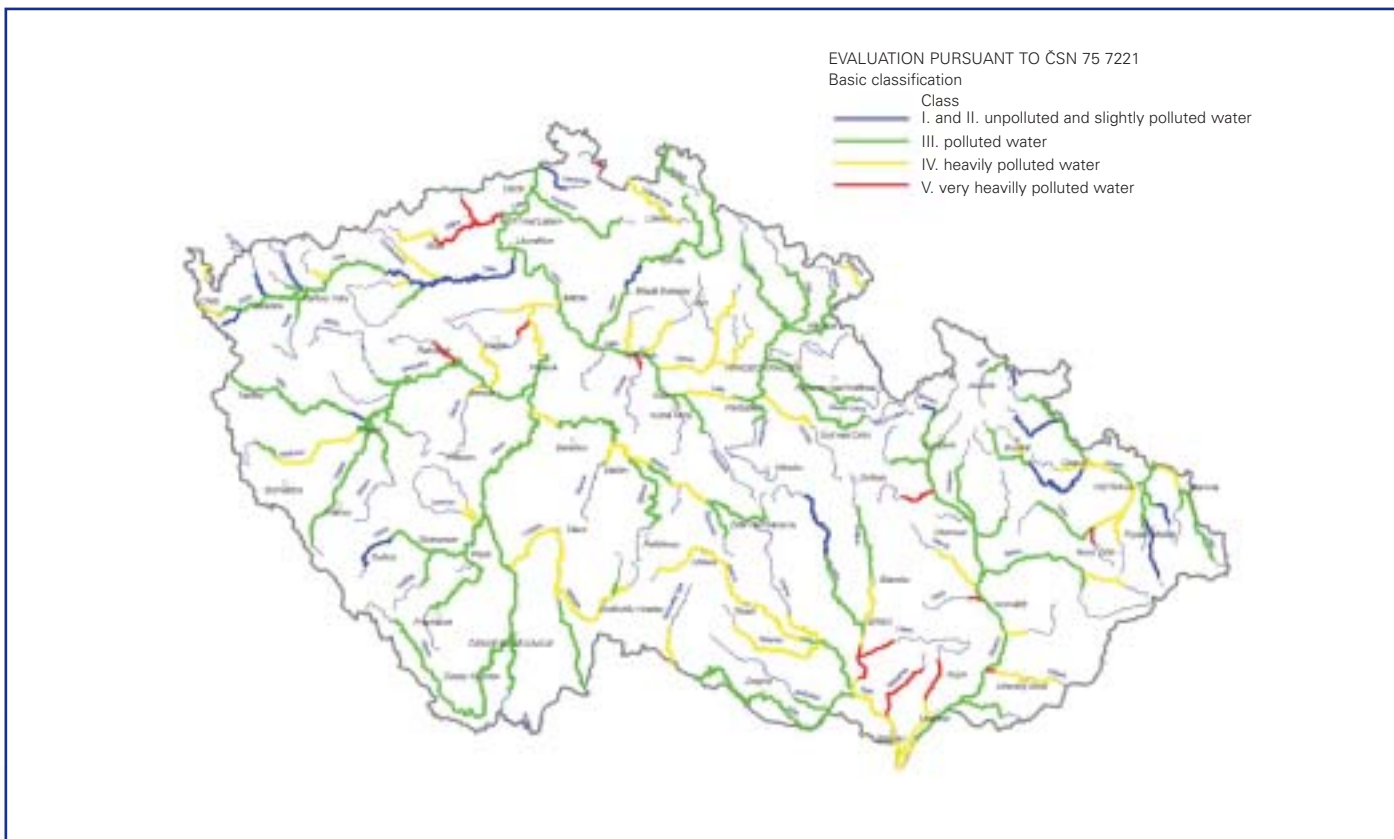
■ The long-term improvement in water quality was due primarily by the construction or intensification of decisive

Picture 1.2.1 Quality of water in watercourses of the Czech Republic 1991 – 1992



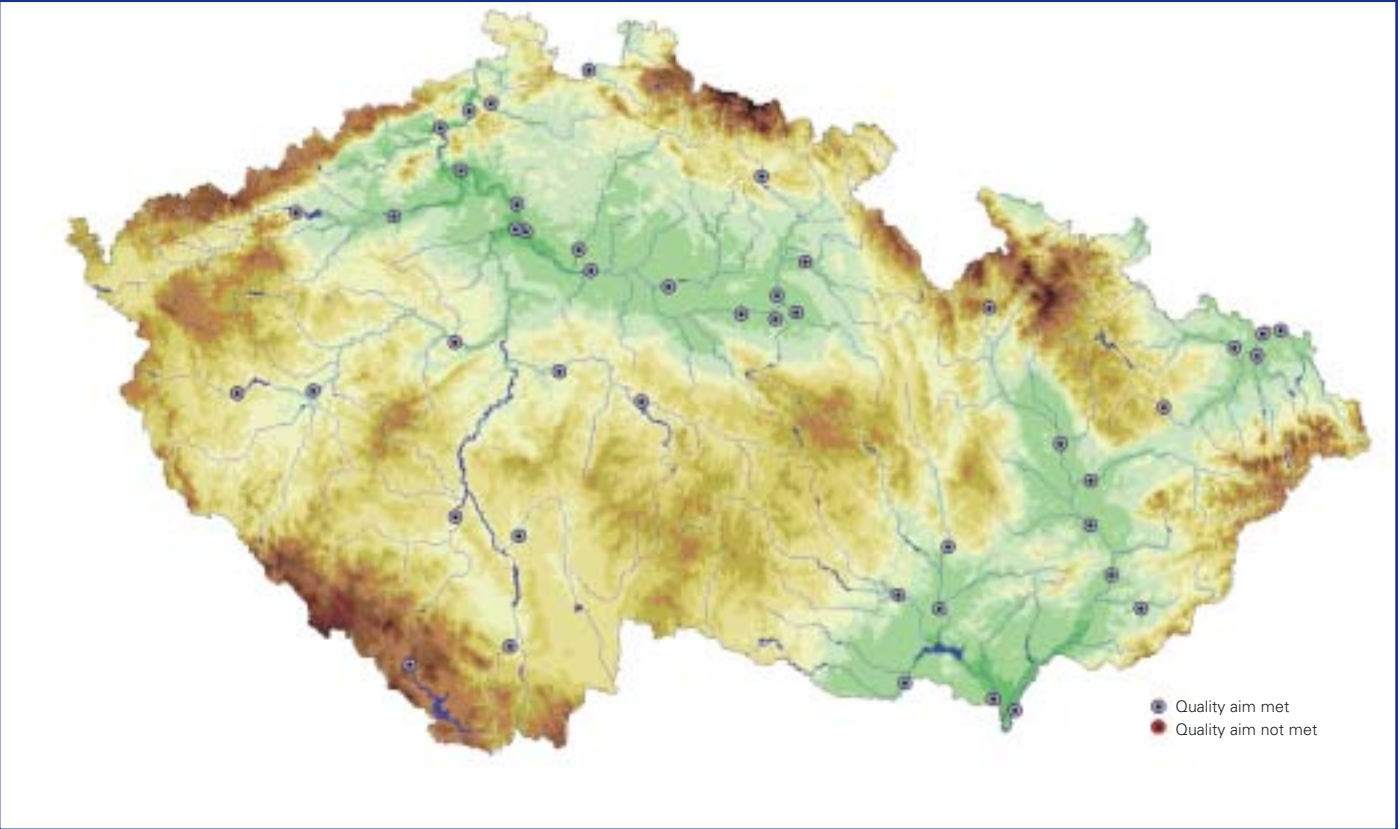
Source: CHMI

Picture 1.2.2 Quality of water in watercourses of the Czech Republic 2001 – 2002



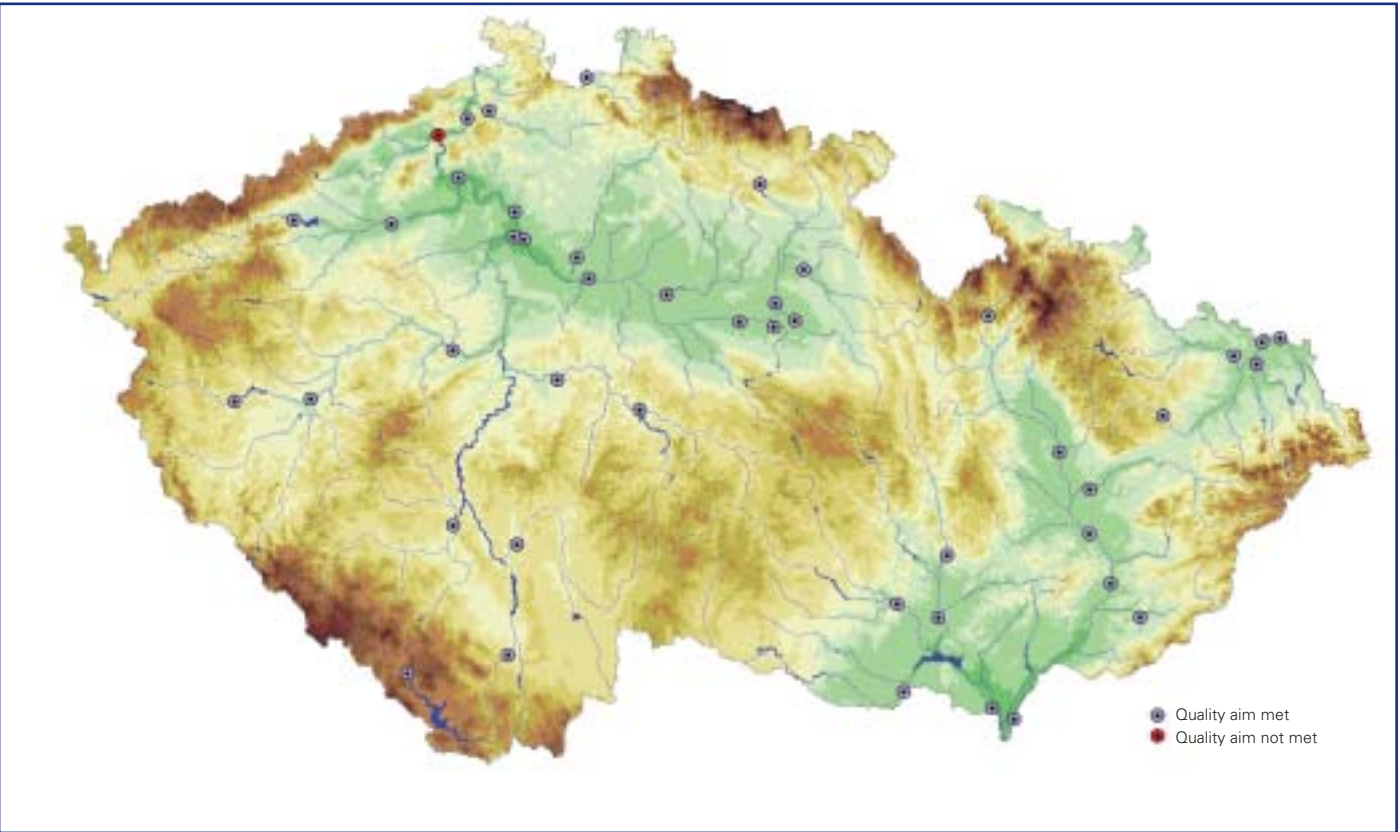
Source: CHMI

Picture 1.2.3 Comparison of average annual concentrations of mercury (82/176/EU) in water in 2002 with quality targets of EU



Source: CHMI

Picture 1.2.4 Comparison of average annual concentrations of hexachlorobenzene (86/280/EU) in water in 2002 with quality targets of the EU



Source: CHMI

waste water treatment plants and by the halting or limiting of production on the part of many industrial enterprises and a reduction in the use of fertilisers in agricultural production.

Despite the improvement attained, it is not possible to consider the current state as being wholly satisfactory. Those sections of rivers with lower water states and with a heavy accumulation of pollution sources remain problematic in particular. The worst water quality was recorded in the Bílina; this small watercourse was mainly affected by the industrial source Chemopetrol, a. s. and Litvínov a Spolek pro chemickou a hutní výrobu, a. s., Ústí nad Labem (Spolchemie). It is possible to anticipate an improvement in water quality in the Bílina in the section before the mouth into the Elbe, because in the 4th quarter of 2002 the waste water from Spolek pro chemickou a hutní výrobu was connected to the municipal WWTP in Ústí nad Labem.

■ After the August floods there was a temporary worsening of the state of microbiological burden in the affected rivers, especially downstream of the temporarily out of action WWTPs.

Microbial pollution of rivers is a significant factor, especially when treating surface water to make it potable and when using surface water for swimming. In cooperation with the Ministry of the Environment, the Ministry of Health has prepared a draft decree for section 34 of the Water Act (Act No. 254/2001 Coll.) which designates surface water for swimming; these are usually localities at reservoirs or recreational fishponds. The monitoring of microbiological pollution has a fundamental significance for abstractions of water for water management, of which the following are most significant on free watercourses: Úhlava – Doudlevice (Plzeň), Jizera – Předměřice (Káraný) and Vltava – Podolí (Prague).

■ Work continued on the implementation of many measures to eliminate especially dangerous substances on significant watercourses.

The following in particular are considered to be the most important in this group of



substances: organohalogens and other compounds, mercury, cadmium, nickel and lead.

For pollution characterised by the summary indicator AOX (absorbable organic halogens), the target emission standard (appendix 3 of Government Order No. 61/2002 Coll.) is 30 mg.l⁻¹. In the Bílina at the mouth to the Elbe, Olše and Ostravice, in the year 2002 values for the concentration of AOX running into hundreds of mg.l⁻¹ were found. In the Odra before the state border, in the Elbe from Pardubice to the state border and in other watercourses (primarily in the Nis, Svratka, Jihlava and Dyje) in the year 2002 values for AOX concentrations above the emission standard were found.

In the course of the flood in August 2002, short-term increased values for AOX were detected in the Elbe as a result of an acci-

dental spill of chlorine from Spolana Neratovice. Chlorinated organic substances (1,2-dichlorethane, trichlormethane, trichlorethene, tetrachlorethene and hexachlorobenzene) come primarily from the chemical industry releasing waste water into the Bílina or directly into the Elbe or the burden comes from older burdening.

Polychlorinated biphenyls (referred to hereinafter as "PCB") and dichlorodiphenyltrichloroethane (referred to hereinafter as "DDT") also come from earlier burden on the environment. Their monitoring continued to a great extent in the formerly identified sections of rivers. PCBs are a problem in the Elbe downstream from Pardubice and in the Olšava (Uherský Brod) and the Morava. DDT contamination at the mouth of the Bílina is caused by polluted soils from the complex of Spolek pro chemickou a hutní výrobu, a. s. in Ústí nad Labem.

Table 1.2.1 Number of monitored profiles of the individual monitoring programmes of the AWMA in the individual areas of the basin

Area of basin						
AWMA	CHMI	POINT	SR	NIT	BIO	SED
Elbe	11	62	21	157	73	32
Vltava	33	93	13	241	126	46
Ohře	4	25	7	57	29	11
Odra	5	19	6	39	24	11
Morava	16	41	30	146	57	46
Total AWMA	69	240	77	640	309	146

Source: AWMA



Pollution with polyaromatic hydrocarbons (PAH), of which fluoranthene and benzo(a)pyrene may be considered the most important, come from coal mining, the coking industry, certain types of production (such as the impregnation of wood with creosote oil (sleepers, posts) and motor traffic. The most serious burden of a watercourse with these substances was discovered in the Úhlava and Jizera (water-management abstractions), in the Elbe before the state border and in the Odra before the state border.

The content of mercury in the Bílina, which in the past was wholly unsatisfactory in the lower part, has dropped significantly in recent years as a result of the implementation of measures in Spolek pro chemickou a hutní výrobu, a. s. Ústí nad Labem (Spolchemie). An increased concentration of cadmium was ascertained in the Ostrava region in the Olše and in the Ostravice and Odra, and it comes primarily from industrial sources of the Ostrava agglomeration. In the Litavka the cadmium pollution comes primarily from older burden, mine water and the metallurgical industry.

In 2002 radioactive substances were monitored in 81 profiles of the state network in

the indicators of overall volume alpha activity, overall volume beta activity, overall volume beta activity after correction ^{40}K , volume activity of radium 226 and concentration of natural radium. For the evaluation of changes in the content of radioactive substances in surface waters for the period 1990 – 2002 it is possible to state that in the course of this period there was a significant improvement in the quality of water and of the other elements of the environment, especially in the basin of the Ploučnice, and at the end of the evaluation period also in the basins of the Mže, the Příbram stream, and the Litávka and in the Loučka.

■ Eutrophication of surface water in reservoirs remains a serious problem.

This involves an increased content of mineral nutrients, principally compounds of phosphorous and nitrogen in water in con-

nection with water temperature. There were great problems with water quality in the summer in many water-management reservoirs, and there was a slight worsening in the period of the August floods, when tributaries contained a significant amount of organic substances which were washed into reservoirs. In some reservoirs there was a significant incidence of blue-green algae. In an overall evaluation it is possible to note that the worsened state of quality was managed, suppliers of water for citizens were not affected, and there was only a significant restriction of water recreation.

■ The quality of surface water is monitored not only in significant watercourses but also on small ones as part of the monitoring of the Agricultural Water-Management Administration.

The monitoring of surface water of the Agricultural Water-Management Administration (referred to hereinafter as the "AWMA") takes place throughout the entire Czech Republic. In 2002 it was carried out on the basis of the monitoring networks of six monitoring programmes.

The profiles on minor watercourses were monitored in the monitoring for the state network of water quality of CHMI and the monitoring of significant point sources of pollution (POINT). The new monitoring activities were the monitoring of nitrates for the purposes of the directive of the Council 91/676/EEC (NIT) and hydrobiological monitoring (BIO), which was carried out on the monitoring profiles of the programmes of CHMI and BOD. The selected profiles of selected reservoirs were monitored in the programme monitoring of small reservoirs (SR). Monitoring of the chemical state of sediments (SED) included monitoring programmes of CHMI and SR.

In the samples of water taken from the relevant profiles, 43 indicators were desig-

Table 1.3.1 Overview of numbers of subjects with exceeded standards B, C at least in 1 indicator For the year 2002

Subjects	Number of subjects	Number of subjects with exceeded B or C	% of subjects with exceeded B or C
Shallow wells	146	57	39.0 (38.6 in the year 2001)
Deep wells and springs	315	53	16.8 (18.4 in the year 2001)
All subjects	461	110	23.9 (25.0 in the year 2001)

Source: AWMA



ding to the methodological instruction of the ME from 15. 9. 1996 part 2 – Criteria of pollution of soil and groundwater) it is evident that 15 indicators exceeded standard C at least once last year, and the highest percentage of exceeding was recorded in indicators for chloride, aluminium and ammonium ions. There are less frequent cases of exceeding for benzo(k)fluoranthene, benzo(a)pyrene, benzo(b)fluoranthene, atrazine, cis-1,2-dichlorethene. For other indicators there was merely a sporadic exceeding of standard C. Values measured above limit B and below limit C where ascertained for 10 substances, primarily for toluene and boron, and there was also an incidence of tetrachlormethane, 1,1,2-trichlorethane, pentachlorobenzene, cadmium, ethylbenzene and m-xylene. The exceeding of standards B and C is most frequent in the groundwater of shallow wells oriented towards alluvial rivers (most heavily influenced by anthropogenic activity).

nated for monitoring of the state network of CHMI, 20 indicators for the monitoring of point sources of pollution (POINT), 25 indicators for monitoring small reservoirs (SR), 8 indicators for monitoring of nitrates (NIT) and 57 indicators for monitoring sediments (SED). The evaluation of the results of the laboratory analyses of samples taken was carried out on the basis of a summarisation of selected statistical parameters and their comparison with valid legislative regulations (ČSN 75 7221, NV No. 82/1999). The results of the monitoring of sediments were evaluated according to the methodological instruction of the ME No. 8/1996. Hydrobiological monitoring is based on an evaluation of the ecological state from the aspect of the community of macrozoobentos (directive of Council 2000/60/EU).

Following the extensive floods in August 2002, 51 samples of deposited sediments were taken in areas of the Vltava and Ohře basin. The results of the laboratory analyses were evaluated according to the methodological instructions of the ME No. 8/1996. The measured values fall within category B at most (insignificant pollution). One example given below is Graph 1.2.1. with results of analyses of heavy metals in sediments.

1.3 Quality of groundwater

■ **The quality of groundwater has not changed significantly in recent years. In comparison with 2001 it is possible to state that there was a slight improvement in the shallow wells, whereas there was a slight deterioration in the group of deep wells and springs.**

In 2002, in the state monitoring network of groundwater quality, 461 subjects were monitored consisting of 137 springs, 146 shallow wells and 178 deep wells. From the exceeding of standards A, B and C (accor-

From the aspect of comparing the quality indicators of groundwater with requirements for drinking water, in the above-limit values the most frequently ascertained pollution was in indicators of the chemical consumption of oxygen by dichromate, nitrates, chemical consumption of oxygen by permanganate, ammonium ions, chlorides and aluminium. There were less frequent cases of exceeding in indicators for humic substances, phenols escaping with water vapour, fluranthene, benzo(a)pyrene, pyrene, nickel and atrazine. All of these substances are represented in the groundwater of shallow wells to a greater extent.





2.

WATER BALANCE ASSESSMENT HANDLING WATER



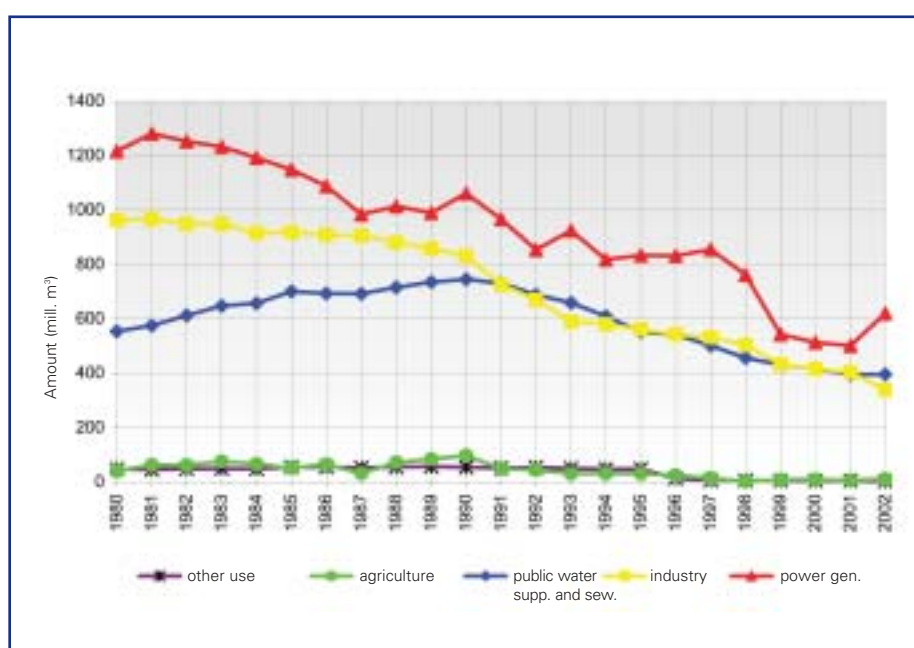
2.1 Abstractions of surface water

■ The overall long-term fall in abstractions of surface water came to a halt in 2002, and in comparison with the year 2001 there was an increase of 4.5%.

In the year 2002, 825 abstractions of surface water were recorded from watercourses and reservoirs with an abstraction of 1,368 million m³. These were abstractions above 6,000 m³ per year or 500 m³ per month. As a result of the integration of data from the individual river board corporations, the transfers of water in the Elbe River Board are not included, which came to 47 million m³ in 2002, neither were the abstractions for the complexes of fishponds under the Odra River Board in the amount of 18.8 million m³. The structure of recorded abstractions in the year 2002 is given in table 2.1.1.

Overall abstractions of surface water in 2002 were higher by 4.5% in comparison with the previous year (2001) for the first time since 1990. There was a significant increase in the category of abstractions for the energy sector caused by the increase in abstraction for through-flow cooling of the

Graph 2.1.1 Abstractions of surface water in the Czech Republic in the year 1980 - 2002



Source: VÚV T.G.M.

condensers of the steam turbines in the Opatovice power station of 98.8 million m³. In the category of abstractions for agriculture there was an increase by 65.2%. The category of abstractions for water supply systems was virtually stagnant. There was a decrease in the category of abstractions

for other users and industry. With reference to the changes mentioned, it should be noted that in the years 1998 – 2001, the generation of heat was included in the category of industry (according to the OECD), whereas up to 1998 and now in 2002 it is included in the energy sector category.

Table 2.1.1 Abstractions of surface water in 2002 in millions of m³

Group of users												
River	Water supply systems		Agriculture		Electricity generation		Industry		Other		Total	
Board Corp.	Amount	Number	Amount	Number	Amount	Number	Amount	Number	Amount	Number	Amount	Number
Elbe	42.2	31	6.3	34	409.9	12	122.8	124	0.2	9	581.4	210
Vltava	171.4	53	0.3	10	38.7	14	60.0	100	1.5	24	271.9	201
Ohře	57.9	29	0.2	12	55.7	7	44.1	65	0.0	3	157.9	116
Odra	77.3	17	0.0	3	10.8	8	93.1	70	0.3	12	181.5	110
Morava	47.0	41	4.5	20	104.6	13	18.7	101	0.5	13	175.3	188
Czech Republic	395.8	171	11.3	79	619.7	54	338.7	460	2.5	61	1368.0	825

Source: ME, VÚV T.G.M., River Board Corps.

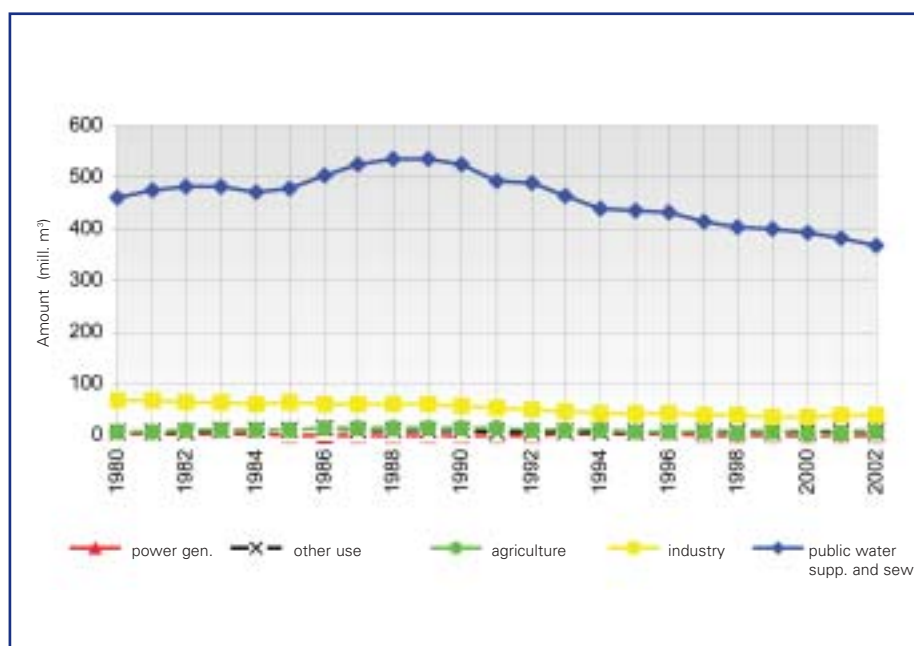
2.2 Abstractions of groundwater

■ **Abstractions of groundwater in 2002 decreased by 2.3% in comparison with the year 2001.**

In 2002 there were 3,145 recorded abstractions of groundwater in an amount of 423.9 million m³. These were abstractions greater than 6,000 m³ a year or 500 m³ a month. Out of the total number, 918 abstractions were less than 15,000 m³.

The structure of the recorded abstractions of water in the individual river board areas in 2002 is given in Table 2.2.1.

Graph 2.2.1 Abstractions of groundwater in the Czech Republic in the years 1980 - 2002



Source: VÚV T.G.M.

Abstractions in the category of water supply systems for public use accounted for 86.9% of total abstractions of groundwater. Total abstractions of groundwater reduced in comparison with 2001 by 2.3%. There was

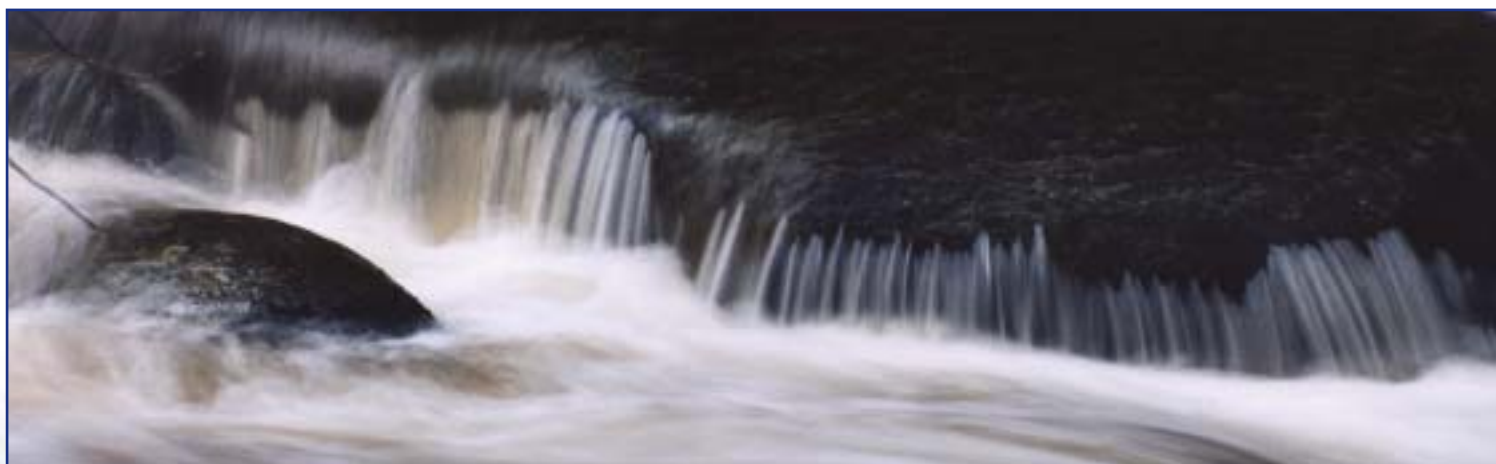
an increase in consumptions in all categories, with the exception of abstractions of water supply systems for public need, where there was a reduction in abstractions by 3.6%.

The overall development of abstractions of groundwater since 1980 is given in Graph 2.2.1.

Table 2.2.1 Abstractions of groundwater in 2002 in millions m³

Group of users												
River Board corp.	Water supply systems		Agriculture		Electricity generation		Industry		Other		Total	
	Amount	Number	Amount	Number	Amount	Number	Amount	Number	Amount	Number	Amount	Number
Elbe	115.1	569	1.5	88	0.8	5	10.2	133	1.8	37	129.4	832
Vltava	37.2	517	2.2	126	0.0	1	11.5	121	2.0	39	52.9	804
Ohře	65.0	369	0.4	12	0.7	3	5.6	73	1.3	15	73.0	472
Odra	24.5	125	0.5	26	0.0	1	2.6	36	0.6	22	28.2	210
Morava	126.6	492	2.7	134	0.1	5	9.5	153	1.4	43	140.3	827
Czech Republic	368.4	2072	7.3	386	1.6	15	39.4	516	7.1	156	423.8	3145

Source: ME, VÚV T.G.M. from data of River Board corps.



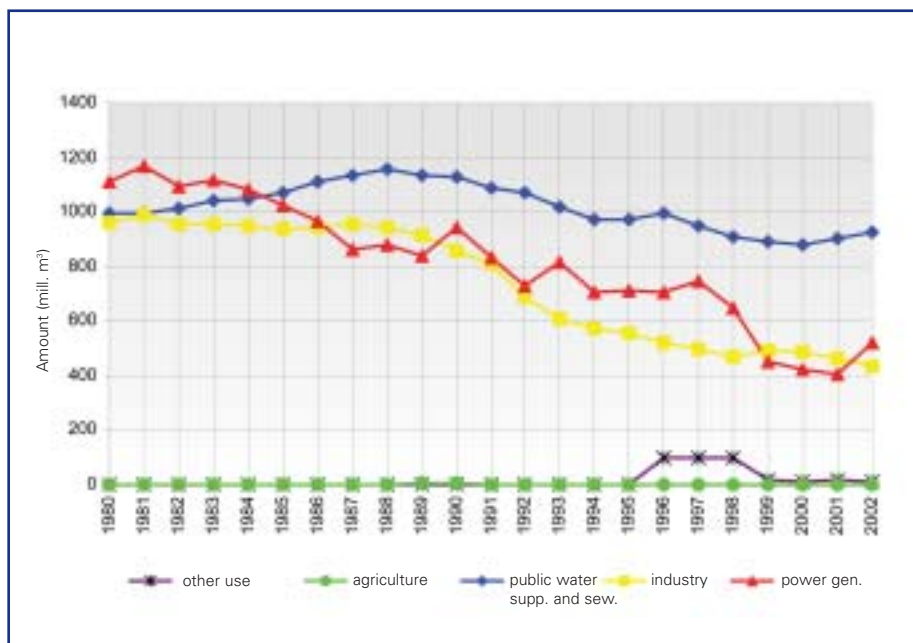
2.3 Discharge of waste and mine water and mine water

■ The volume of discharged waste and mine water increased by 5.8% in comparison with 2001.

In the year 2002, 3,183 discharges of waste and mine water into surface water were recorded with a volume of 1,886.9 million m³. This involves sources in excess of 6,000 m³ per year or 500 m³ per month. As a result of the unification of the data from the individual river board corporations, transfers of water in the Ohře River Board corp. are not included, which in 2002 amounted to 5 million m³, nor is the emptying from the fishpond complex in the Odra river board area, which came to 4.4 million m³.

The year-on-year increase was 5.8%. There was an increase in all categories of use with the exception of discharges from industry. The greatest increase, influenced by the increase discharge of cooling water from the power station Opatovice by 99 million m³, was recorded in the category of the energy sector. With reference to the changes shown, it is necessary to note that in the years 1998 - 2001 the generation

Graph 2.3.1 Discharge into surface water in the Czech Republic in the years 1980 - 2002



Source: VÚV T.G.M.

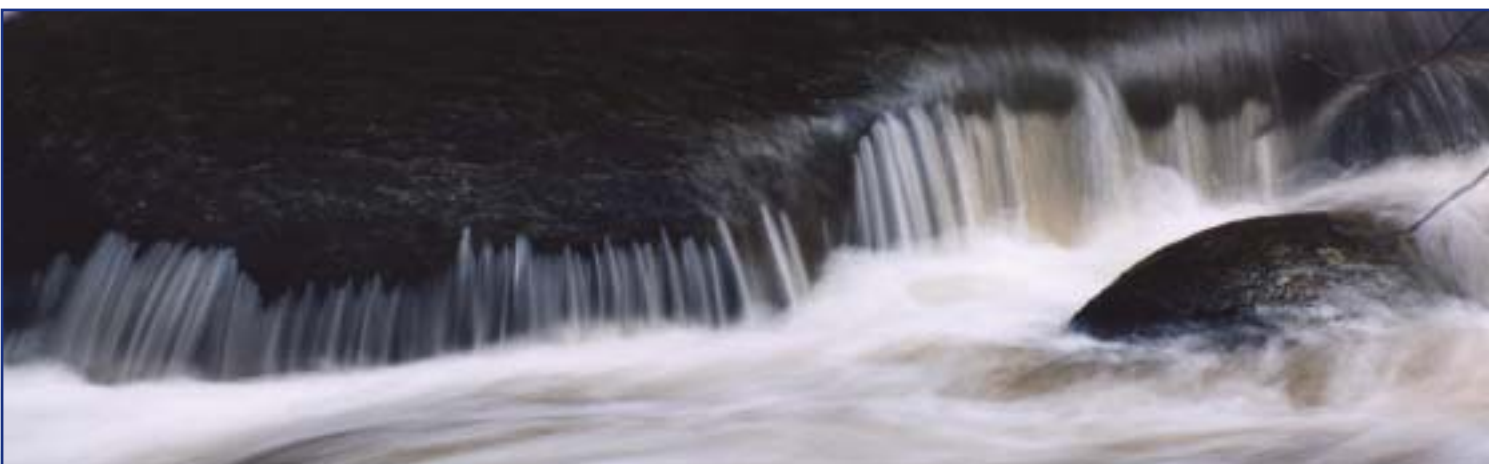
of heat was included in the category industry (according to the OECD), whereas up to 1998 and now in the year 2002 it is included in the category of the energy sector. There was an increase in the category of public sewer systems by 2.3 %.

The structure of the recorded discharges in the individual river board regions in 2002 is given in Table 2.3.1. The overall development of discharged water since 1980 is shown by Graph 2.3.1.

Table 2.3.1 Discharge of waste and mine water into surface water in the years 2002 in millions of m³

Group of users												
River Board corp.	Water supply systems		Agriculture		Electricity generation		Industry		Other		Total	
	Amount	Number	Amount	Number	Amount	Number	Amount	Number	Amount	Number	Amount	Number
Elbe	173.4	381	0.0	2	395.1	23	127.7	191	1.5	55	697.7	652
Vltava	340.2	768	1.5	12	16.3	16	66.7	131	4.8	66	429.5	993
Ohře	91.8	261	0.3	2	33.9	20	128.3	170	1.3	18	255.6	471
Odra	117.4	227			3.5	8	82.2	94	1.8	30	204.9	359
Morava	200.7	512	0.1	3	69.1	10	27.4	146	1.7	37	299.0	708
Czech Republic	923.5	2149	1.9	19	517.9	77	432.3	732	11.1	206	1 886.7	3 183

Source: ME, VÚV T.G.M., River Board Corps.





3.

ADMINISTRATION OF WATERCOURSES



3.1 Professional administration of watercourses

■ With effect from the start of 2002, the scope of professional administration of significant watercourses is designated by the new decree of the MA No. 470/2001 Coll., which designates a list of important watercourses and the method of carrying out activities associated with the administration of watercourses.

The decree designates the basic terms, care for the channels of watercourses and the waterworks themselves, the activities of administrators of watercourses during the creation of conditions enabling the authorised handling of water associated with the watercourse and their cooperation during the liquidation of accidents on watercourses. It also deals with the content of applications for the designation of administrators of small watercourses, and in appendix No. 1 of the decree referred to a full list of significant watercourses is given.

The decisive administrators of watercourses are the river board corporations, AWMA and Forests of the CR, s.e. in the competence of the MA, which ensure the administration of approximately 94% of the length of watercourses in the Czech Republic. Municipalities, regional military offices of military districts and the administrations of national parks administer approximately 6% of watercourses.

As a result of changes in the definition of significant watercourses, some watercourses were excluded and transferred from the administration of the river board

Table 3.1.1 Professional administration of watercourses

Category	Administrator	Length of watercourses in km	
		2001	2002
Watercourses important for water management	Elbe River Board corp.	3 712.70	3 380.80
	Vltava River Board corp.	4 779.30	4 775.60
	Ohře River Board corp.	1 981.00	2 299.57
	Odra River Board corp.	1 202.50	1 110.80
	Morava River Board corp.	3 745.80	3 823.86
	Total competence of MA	15 421.30	15 390.63
Small watercourses	Agricultural Water Management		
	Administration	35 374.90	35 090.00
	Forests of the CR, s.e.	19 628.30	19 370.00
	Total river board corporations	1 835.30	1 593.68
	Total competence of MA	56 838.50	56 053.68
	Other ¹⁾	3 740.20	4 555.69
Total			
small watercourses		60 578.70	60 609.37
Total watercourses		76 000.00	76 000.00

Source: MA

¹⁾ Includes administrations of National Parks, offices of military areas, municipalities and other legal persons (for example, mines)

corporations to the administration of AWMA. In addition, certain spring segments and border watercourses originally recorded as small watercourses were classified as significant watercourses. These changes are documented according to the individual managers of watercourses in Table 3.1.1.

■ Book values of tangible assets related to watercourses reached a value of almost CZK 44 billion in 2002.

In the year 2002 no water structure was completed, received official post-construction approval for use and was put into use by any administrator of watercourses which would significantly influence indicators expressing the book values of tangible fixed assets. The year-on-year increase expresses primarily increments in tangible fixed assets (referred to hereinafter as "TFA") gained by renewal

and planned development in the field of entrusted assets in the form of regular investment construction and the ongoing incorporation of acquired assets and completed water structures. For example, the Vltava River Board corporation planned to put the small hydroelectric station Štvanice into operation with acquisition costs in



Table 3.1.2 Book value of tangible fixed assets related to watercourses in billions of CZK

Administrators of water boards under supervision of MA		
	2001	2002
Elbe River Board corp.	7.88	7.92
Vltava River Board corp.	7.22	7.22
Ohře River Board corp.	7.16	7.22
Odra River Board corp.	4.70	4.69
Morava River Board corp.	6.60	6.66
Total River Board corporations	33.56	33.73
AWMA	7.59	7.83
Forests of the CR. s.e.	2.09	2.17
Total	43.24	43.73

Source: MA

excess of CZK 55 million. But after the August floods the state of the equipment required relatively extensive repair, which was not complete by the end of the year, and as a result of this it was not put into operation. In 2002 the retirement of certain assets destroyed by the floods represented a significant movement in TFA. The specific values of TFA in acquisition prices for the individual administrators of watercourses with year-on-year development (increments in TFA) are given in Table 3.1.2.

■ In the year 2002, the MA, performing the function of founder on behalf of the state, issued Deeds of Foundation and Statutes of all the river board corporations, and the second phase of the transformation of AWMA was carried out.

The administration of important and designated small watercourses is performed by the river board corporations, which for the second year are operating on the basis of Act No. 305/2000 Coll. as state enterprises after transformation from joint-stock companies.

The MA, performing on behalf of the state the function of founder of the river board

corporations according to the provisions of section 1, paragraph 4 of Act No. 305/2000 Coll., concerning River Boards, and pursuant to section 4, paragraph 1 of Act No. 77/1997 Coll., concerning State Enterprises, as subsequently amended, issued the Deeds of Foundation of the river board corporations of the Elbe, Vltava, Ohře, Morava and Odra. And pursuant to the provisions of section 1, paragraph 4 of Act No. 305/2000 Coll., Concerning River Boards, and pursuant to section 3, paragraph 1 of Act No. 77/1997 Coll., Concerning State Enterprises, as subsequently amended, issued pursuant to section 15, letter f) of the State Enterprises Act they were also the founder of the statutes of these five professional administrators of watercourses. A methodological instruction was issued for the submission and circulation of documents and documentation in the context of handling designated assets of the state which the river board corporations have a right to manage.

During 2002, the second phase of transformation of AWMA occurred. It focussed on the change in internal territorial and organisational configuration of the organisation and also on the regulation and expansion of services ensured during the administration of information and in the actual performance of administration of watercourses and water structures. There was a transformation of the former seven offices of AWMA to five AWMAs – areas or river basins, IT activity was reinforced both in relation to the administered assets and to the actual activity of the organisation expanded to include a new section for IT and management systems. At the level of regional administration, the divisions were transformed into independent departments in order to ensure linkage in direct management of activity from the headquarters to the executive employees in the field.

For the unification of the procedure when submitting applications for requesting consent of the founder for handling the assets of the Czech Republic, the MA issued a methodological instruction for the AWMA for the submission of documents when handling state assets, i.e., land, buildings and appurtenances which the AWMA is competent to manage.

Forests of the CR, s.e., continued to be a stable and significant administrator of small watercourses in 2002, and via its six regional watercourse administrations it performed professional administration of watercourses, especially mountain streams.

The regulation of mountain streams and forestry-technological land reclamation are activities carried out with the aim of the harmless conducting away of flood flows and increasing the resilience of the administered land to the erosive effects of water. This activity, which is a part of state forestry policy, is carried on according to the Forestry Act in the public interest. In the year 2002 it was ensured by six Area Administrations of watercourses in Frýdek-Místek, Brno, Hradec Králové, Benešov, Plzeň and Teplice. A total of 61 employees worked in them caring for tangible assets with a book value of CZK 2.17 billion.

The supervision activity of the individual river board corporations and the state enterprise Forests of the CR is performed via supervisory boards established and operating in the sense of Act No. 77/1997 Coll., Concerning State Enterprises, as subsequently amended.

In the year 2002, many comprehensive and tightly focussed inspections were carried out at river board corporations and the AWMA:

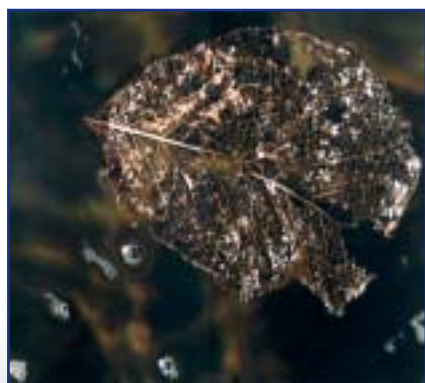
■ In the year 2002 the Supreme Audit Office carried out an audit of all river board corporations focussing on “Management of State Assets”. No faults were discovered in any case.

■ The locally competent inland revenue offices carried out an income tax audit in the state enterprises Ohře River Board, Odra River Board and Morava River Board. In all cases there were no shortcomings.

■ Prague Social Security Administration carried out an audit focussing on “Payments of Insurance Premiums and Performance of Duties in Pension Insurance”. The audit did not find any shortcomings.

■ There is an ongoing audit by the Brno inland revenue office of the Morava River Board corp. “Justification of Use of Grant from 1999”.

■ There was an audit of the Elbe River Board corp. by the Hradec Králové inland





The greatest part of the overall revenues of the River Board corporations in 2002 consisted of payments for abstractions of surface water, which remained the most important source of income for covering the costs for the administration of watercourses, in particular for ensuring the conditions for the requisite abstractions of water. Their share drops every year, and there is an attempt to make up for these falls with an increased growth in other revenues and yields. The grant element, primarily from the state budget, was significantly reinforced in view of the reconstruction of water-management assets following the disastrous floods.

The structure of revenues of River Board corporations in 2002 is expressed in Table 3.2.1 and Graph 3.2.1.

revenue office focussing on “Audit of Management of Resources Provided from the State Budget”, there was also an audit by the State Transport Infrastructure Fund (referred to hereinafter as the “STIF”) focussing on an audit of management of STIF resources. Neither of the audit bodies discovered any shortcomings.

■ The Chomutov inland revenue office carried out an “Audit of Corporate Income Tax for the Period of 1997” at the Ohře River Board corp., and it discovered an inflation of the tax base and tax arrears. The Chomutov inland revenue office imposed a penalty of CZK 181,760 on the state company. A request for the forgoing of the penalty has not yet been dealt with.

The following audits were carried out at the AWMA last year:

■ for the period of 2002 there was an audit by the inland revenue office focusing on corporate income tax – no shortcomings,

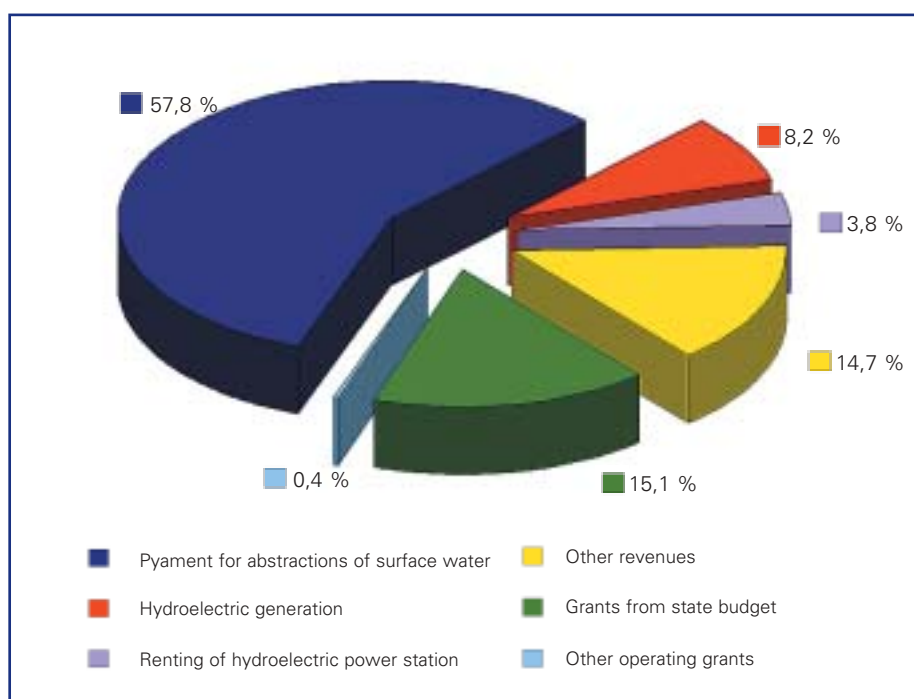
■ Health insurance company carried out an audit of payment of insurance premiums and contribution to state employment policy – no shortcomings,

Social security administration carried out an audit of insurance premiums and performance of duties from pension insurance – no shortcomings.

3.2 River Board corporations

■ The overall revenues of River Board corporations including all revenues and operational grants, displayed an increase of 17.7%, despite the negative consequences of the flood last year.

Graph 3.2.1 Structure of incomes of River Board corporations in 2002



Source: River Board corporations

Table 3.2.1 Structure of income of River Board corporations in 2002 in thousands of CZK

Indicator	Elbe River Board corp.	Vltava River Board corp.	Ohře River Board corp.	Odra River Board corp.	Morava River Board corp.	River Board corp. total
Payments for abstractions of surface water	565 890	437 818	398 854	346 509	299 959	2 049 030
Electricity generation	15 107	49 992	161 747	41 604	21 604	290 054
Income from use of water storage (heading-up) facilities	15 342	104 184	5 323	0	10 902	135 751
Other income	173 429	191 389	65 606	47 853	44 975	523 252
Grants from state budget	106 982	140 691	2 966	81 218	254 788	586 645
Other operational grants	5 452	294	0	2 935	4 562	13 243
Total River Board corporations	882 202	924 368	634 496	520 119	636 790	3 597 975

Source: ME, River Board corporations

■ **The sum of yields for deliveries of surface water last year rose by almost CZK 120 million.**

The development of deliveries of surface water for a fee 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 are given in Table 3.2.5.

■ **The prices of surface water increased by 10.5% in comparison with last year. These are materially regulated prices which can include only economically justifiable costs, reasonable profit and tax according to the relevant tax regulations.**

These prices in the current interpretation do not express the value of surface water, but the price for the service – i.e., allowing supplies which are ensured by the River Board corporations for water users. These calculated prices are subject to regulation in the form of material regulation according to the Prices Act and according to the rules of Assessments issued by the Ministry of Finance in the Price Bulletin every year.

Table 3.2.2 Supplies of surface water for a fee in the years 1995 - 2002 in thousands of m³

River Board corporation		1995	1996	1997	1998	1999	2000	2001	2002
Elbe River									
Board corp.	a)	887 994	863 372	897 063	787 331	572 341	534 300	508 435	571 365
	b)	52 857	58 927	55 464	49 710	45 137	43 630	43 279	41 618
Vltava River									
Board corp.	a)	394 582	382 786	355 799	324 336	294 550	276 626	264 802	266 916
	b)	257 135	250 796	232 545	207 949	192 786	185 072	171 924	167 878
Ohře River									
Board corp.	a)	213 257	217 748	214 455	207 855	190 731	176 183	176 403	169 092
	b)	81 236	78 533	74 352	71 517	67 185	63 206	60 263	57 807
Odra River									
Board corp.	a)	244 247	235 133	215 549	198 122	182 515	175 883	166 799	173 275
	b)	96 636	94 109	86 595	77 245	72 108	69 434	66 255	72 167
Morava River									
Board corp.	a)	210 279	204 538	201 655	171 842	156 247	141 902	132 680	135 366
	b)	46 198	40 925	40 833	38 086	36 499	38 768	39 398	38 112
River board corporations total									
	a)	1 950 359	1 903 577	1 884 521	1 689 486	1 396 384	1 304 894	1 249 119	1 316 014
	b)	534 062	523 290	489 789	444 507	413 715	400 110	381 119	377 582

Source: River Board corporations

Note: a) total for fee,

b) of this for water supply system for public need.

Table 3.2.3 Price for abstractions for flow cooling in the years 1993 - 2002 in CZK/m³

River Board corporations	1993	1994	1995	1996	1997	1998	1999	2000	2001	2002
Elbe River Board corp.	0.08	0.27	0.30	0.33	0.45	0.53	0.61	0.67	0.67	0.65
Vltava River Board corp.	0.27	0.42	0.42	0.48	0.51	0.55	0.70	0.76	0.81	0.86
Morava River Board corp.	0.27	0.30	0.40	0.42	0.46	0.49	0.53	0.56	0.60	0.53

Source: River Board corporations

Note: The unit price for 1m³ is given without value added tax

Table 3.2.4 Price for other abstractions of surface water in the years 1993 - 2002 in CZK/m³

River Board corporations	1993	1994	1995	1996	1997	1998	1999	2000	2001	2002
Elbe River Board corp.	0.35	0.62	0.75	0.83	0.99	1.16	1.39	1.54	1.71	1.88
Vltava River Board corp.	0.58	0.88	0.91	0.95	1.03	1.15	1.41	1.55	1.65	1.70
Ohře River Board corp.	0.94	1.21	1.31	1.43	1.52	1.67	1.87	1.99	2.11	2.23
Odra River Board corp.	0.50	0.67	0.80	0.94	1.18	1.40	1.59	1.74	1.80	2.01
Morava River Board corp.	1.15	1.40	1.60	1.76	1.92	2.10	2.27	2.53	2.66	2.89
Total River Board corporations	0.64	0.88	0.98	1.08	1.24	1.39	1.59	1.76	1.90	2.10

Source: River Board corporations, VÚV T.G.M.

Note: The unit price for 1m³ is given without value added tax

Table 3.2.5 Payments for abstractions of surface water in the years 1993 - 2002 in CZK million

River Board corporations	1993	1994	1995	1996	1997	1998	1999	2000	2001	2002
Elbe River Board corp.	173	363	419	448	548	556	530	532	536	566
Vltava River Board corp.	237	331	332	337	345	357	383	401	408	438
Ohře River Board corp.	245	293	288	323	343	368	375	367	397	399
Odra River Board corp.	131	170	195	221	255	273	279	294	301	347
Morava River Board corp.	234	248	256	266	273	264	266	277	287	300
Total River Board corporations	1 020	1 405	1 490	1 595	1 764	1 818	1 833	1 871	1 929	2 050

Source: River Board corporations

■ The significant year-on-year growth in revenues for electrical energy from own small hydroelectric plants came to CZK 88 million last year, and overall revenues of CZK 290 million helped overcome the downturn in other revenues

and also helped to cover many extraordinary costs caused by the floods.

In the year 2002 these revenues reached their maximum – more than CZK 290 million. The river board with the greatest revenue

was the Ohře River Board Corporation, which operates 20 small hydroelectric plants. More detailed information about the overall number of own small hydroelectric plants, their installed capacity, generation of electricity and revenues is given in Table 3.2.6.

Other revenues of River Board corporations are less significant and cover the area of the leasing of land, non-residential premises and water surfaces, and other entrepreneurial activities, the most significant of which are revenues from the operation of machines and road transport, the operation of laboratories, and project and engineering activity and also financial yields.

In the year 2002, the year-on-year fall of these other revenues from the year 2001 was halted, and indeed there was significant growth. This primarily involved an increased need for financial resources associated with the rectification of flood damages, and the unfavourable situation in the field of yields was compensated in some cases by financial revenues and yields from the sale of assets.

Overall income, i.e., total yields for the operations of River Board corporations, including financial incomes and increased grants, displayed a growth of almost 18% in 2002. The level of the other revenues is given in Table 3.2.7.

The annual grants represent significant support for the financing of needs as part of the main activities of the River Board corporations. Without state grants, the consequences of the floods and the most important securing work could not have been rectified as quickly in 2002 in particular. Table 3.2.8 shows the overall operational (non-investment) and investment grants of the individual River Board corporations allocated in the year 2002. Amongst the other sources contributing towards grants in particular were the MA, SFDI, ME via the funds of PHARE and Ostrava-Karviná Mines for the rectification of mine damage, and contributions to flood prevention measures also came from some regional authorities.

The significant year-on-year increase in grants reflects the need for the renewal of watercourses after the floods of the year

Table 3.2.6 Own small hydroelectric plants of River Board corporations in the year 1997-2002

River Board corporations	Indicator	1997	1998	1999	2000	2001	2002
Elbe River							
Board corp.	Number of SHEP	14	15	15	15	15	15
	Installed capacity in kW	2 650	2 711	2 711	2 711	2 711	2 677
	Electricity generation in MWh	10 700	10 860	8 913	7 968	10 738	9 974
	Revenues in CZK thous.	11 051	11 566	10 626	9 459	12 515	15 107
Vltava River							
Board corp.	Number of SHEP	10	11	13	12	14	14
	Installed capacity in kW	3 464	3 629	8 740	8 500	9 600	9 600
	Electricity generation in MWh	10 880	36 454	37 403	37 722	50 409	35 873
	Revenues in CZK thous.	8 723	33 823	38 233	39 840	53 217	49 992
Ohře River							
Board corp.	Number of SHEP	16	16	19	20	20	20
	Installed capacity in kW	14 897	15 029	15 286	16 750	16 750	16 750
	Electricity generation in MWh	63 820	72 826	82 868	74 494	87 539	106 363
	Revenues in CZK thous.	64 376	75 113	89 121	82 922	95 774	161 747
Odra River							
Board corp.	Number of SHEP	12	14	14	14	14	14
	Installed capacity in kW	4 741	4 750	4 750	4 750	4 750	4 750
	Electricity generation in MWh	7 245	18 658	26 161	25 168	25 896	31 019
	Revenues in CZK thous.	5 680	17 723	28 220	26 480	25 732	41 604
Morava River							
Board corp.	Number of SHEP	11	12	12	12	13	14
	Installed capacity in kW	2 759	3 192	3 192	3 192	3 512	3 612
	Electricity generation in MWh	11 742	9 255	12 342	10 613	14 301	14 476
	Revenues in CZK thous.	12 858	9 613	13 266	11 839	15 716	21 604
Total River Board corporations							
Board corporations	Number of SHEP	63	68	73	73	76	77
	Installed capacity in kW	28 511	29 311	34 679	35 903	37 323	37 389
	Electricity generation in MWh	104 387	148 053	167 687	155 965	188 903	197 705
	Revenues in CZK thous.	102 688	147 838	179 466	170 540	202 954	290 054

Source: River Board corporations

Table 3.2.7 Other income of River Board corporations in the years 1994 - 2002 in CZK thous.

River Board corporations	1994	1995	1996	1997	1998	1999	2000	2001	2002
Elbe River Board corp.	12 086	21 811	32 356	54 094	50 907	54 754	145 989	124 730	173 429
Vltava River Board corp.	12 200	19 200	23 600	26 800	56 286	49 222	55 481	79 505	191 391
Ohře River Board corp.	37 000	47 000	57 000	54 000	64 398	55 922	66 836	57 809	65 606
Odra River Board corp.	7 400	14 200	8 000	9 600	70 977	31 033	49 113	28 208	47 853
Morava River Board corp.	13 102	18 647	29 107	29 346	38 021	41 786	54 879	46 462	44 975
Total River Board corporations	81 788	120 858	150 063	173 840	280 589	232 717	372 298	336 714	523 254

Source: River Board corporations

Table 3.2.8 Grants allocated to River Board corporations in the year 2002 in thousands of CZK

River Board corporations	Operating grants	Investments grants	Total grants
Elbe River Board corp.	112 434	357 369	469 803
Vltava River Board corp.	140 985	39 580	180 565
Ohře River Board corp.	2 966	11 923	14 889
Odra River Board corp.	84 153	251 018	335 171
Morava River Board corp.	259 350	151 509	410 859
Total River Board corporations	599 888	811 399	1 411 287

Source: MA, River Board corporations

1997, 1998, 2000, and in particular the most urgent cases of rectification and liquidation of flood damage after the august floods of 2002. For the Elbe River Board corp. and the Vltava River Board corp., the contribution for operations and maintenance of watercourses constitutes a fundamental part of the operational grants, and the contribution for the building of watercourses constitutes a fundamental part of the investment grants.

■ **The year-on-year growth in costs by almost 22% interrupted a drop in costs truly expended which had lasted for several years. This significant growth is the result of an attempt to secure the operation and safety of water structures as soon as possible after the floods of 2002 and to minimise the damages to assets of water-management organisations.**

There was an increase in costs in particular as a result of increased costs for repairs and maintenance, increased consumption of material and also the settlement of flood damages. The costs item for repairs grew for the total of River Board corporations by more than 50%. The organisations where the floods did most damage contributed the most to this increase – for example the year-on-year increase was more than tripled for Vltava River Board corp. An overview of costs of the River Board corporations in the year 2002 and their comparison with the previous year is given in Table 3.2.9.

■ **Last year the River Board corporations expended CZK 1424 million on the implementation of investments, of which CZK 694.3 million was drawn from own sources, and in addition a total of CZK 729.7 million of investment resources not covered by own means was used.**

In the course of the last nine years, the River Board corporations have spent CZK 10,006 million of financial resources on investments, as is shown in Table 3.2.10 and Graph 3.2.2. The year-on-year increase by more than 27 % reflects the necessity of immediately dealing with the consequences of last year's catastrophic floods and also the fact that the SFDI provided significant investment resources for the development of the Elbe watercourse which were invested last year.

Table 3.2.9 Costs of River Boards in millions of CZK

Type of costs		Elbe Board corp.	Vltava Board corp.	Ohře Board corp.	Odra Board corp.	Morava Board corp.	Total River Board corporations
Depreciations	2002	127.4	141.4	152.7	98.3	106.9	626.7
	2001	131.5	142.9	157.4	70.2	106.7	608.7
Repairs	2002	215.9	471.6	122.8	133.7	211.7	1 155.7
	2001	172.5	145.4	105.0	187.0	158.7	768.6
Material	2002	48.6	22.4	22.3	33.4	31.7	158.4
	2001	45.2	18.0	21.6	28.9	36.7	150.4
Energy and fuel	2002	28.2	23.7	24.5	4.4	9.4	90.2
	2001	28.0	23.1	27.5	4.2	9.2	92.0
Personnel costs	2002	277.8	241.9	190.9	129.2	195.1	1 034.9
	2001	243.2	214.5	178.2	118.6	190.1	944.6
Services	2002	115.9	55.3	28.1	33.1	24.2	256.6
	2001	95.0	53.6	29.1	33.7	22.6	234.0
Financial costs	2002	109	6.9	3.0	5.1	9.4	26.3
	2001	2.5	6.4	0.6	5.3	0.5	15.3
Other costs	2002	61.7	6.7	78.9	59.9	23.9	231.1
	2001	25.0	36.1	20.8	24.8	17.6	124.3
Total costs	2002	877.4	969.9	623.2	497.1	612.3	3 579.9
	2001	742.9	640.0	540.2	472.7	542.1	2 937.9

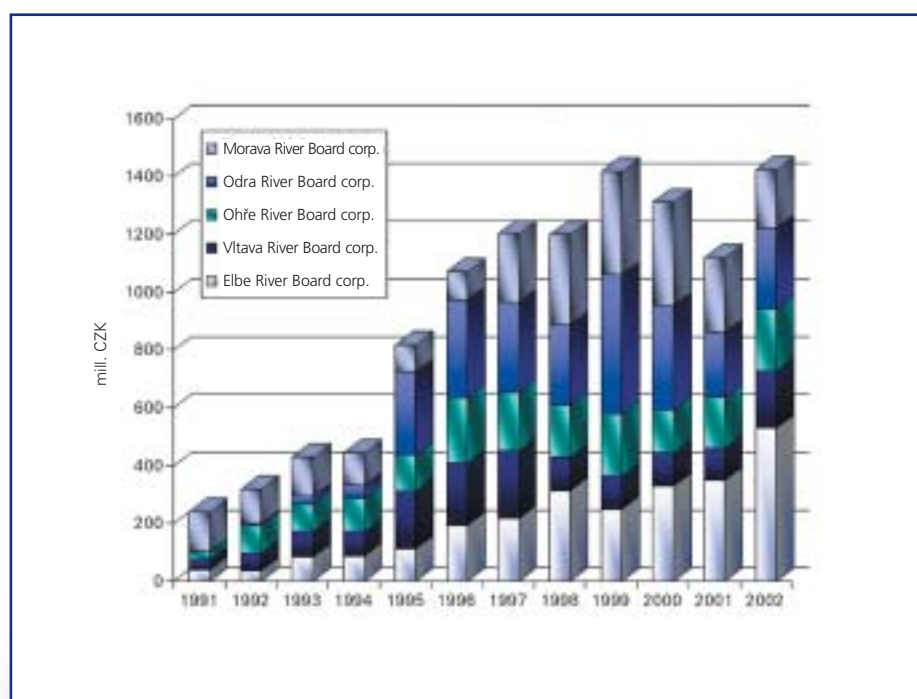
Source: River Board corporations

Table 3.2.10 Investments of River Board corporations in years 1994 - 2002 in millions of CZK

River board corporation	1994	1995	1996	1997	1998	1999	2000	2001	2002
Elbe River Board corp.	87.0	110.1	193.0	216.8	313.4	248.4	328.5	347.1	529.1
Vltava River Board corp.	85.0	203.2	216.4	235.2	115.7	116.3	115.2	114.1	199.3
Ohře River Board corp.	116.0	122.0	225.0	200.0	180.2	212.5	148.2	173.4	212.8
Odra River Board corp.	44.7	289.1	340.2	314.3	279.1	484.4	361.6	226.8	282.3
Morava River Board corp.	111.0	94.0	95.5	236.1	311.0	357.3	356.8	257.8	200.5
Total river board corporations	443.7	818.5	1 069.8	1 202.4	1 199.4	1 418.9	1 310.3	1 119.2	1 424.0

Source: ME, River Board corporations

Graph 3.2.2 Development of investment construction of River Board corporations



Source: MA, River Board corporations

■ **Four of the River Board corporations recorded a total profit of CZK 63.6 million in 2002, and only the Vltava River Board corp. recorded a trading loss, this being in the total amount of CZK 45.5 million.**

The share of the individual River Board corporations in the overall trading result and development in the generation of profit or loss for the Vltava River Board corporation is documented in Table 3.2.11. The division of profits achieved into individual funds and a proposal for the settlement of loss in the concrete River Board corporations is shown in Table 3.2.12.

The trading loss of the year 2002 for the Vltava River Board corporation was a pre-tax loss of CZK 66,368 thousand. For the period to the end of the year 2001, a tax liability was billed, as was an unsettled tax loss in the amount of CZK 87,440 thousand. A deferred tax receivable of the year 2002 in the amount of CZK 20,843 thousand was billed as a reduction of costs and also a reduction in the tax liability. After these adjustments, a trading loss of CZK 45,525 thousand was recorded for the fiscal period of 2002. According to a proposal, this loss should be settled by CZK 3,455 thousand from the reserve fund and CZK 42,070 thousand from other capital funds.

■ **In contrast with previous years, when there was a year-on-year drop, the average calculated number of employees in the River Board corporations in 2002 increased by 12 employees to a figure of 3,544 persons compared with the previous year.**

In 2002 the overall year-on-year increase in employees was 12. The situation with the development of labour is illustrated by Table 3.2.13, from which it is evident that the greatest increase in the overall number was for the Elbe River Board corp., whereas there was a drop of five employees at the Ohře River Board corp.

Average monthly salaries in River Board corporations were CZK 17,724 in the year 2002, see Table 3.2.14, and displayed a year-on-year increase of 8.1% in 2002.

Table 3.2.11 Profit or loss of River Board corporations in thousands of CZK

River Board corporation	1995	1996	1997	1998	1999	2000	2001	2002
Elbe River Board corp.	25 200	8 533	- 1 800	- 6 808	35 398	19 859	17 166	4 774
Vltava River Board corp.	29 616	22 058	22 000	14 475	16 853	37 838	48 735	- 45 525
Ohře River Board corp.	13 426	8 306	7 461	14 625	6 947	11 825	12 415	11 334
Odra River Board corp.	30 996	32 192	- 71 500	65 340	66 870	19 617	22 575	23 002
Morava River Board corp.	3 623	8 047	- 68 359	- 41 867	8 930	20 647	17 939	24 512
River Board corporation total	102 861	79 136	- 112 198	45 765	134 998	109 786	118 830	18 097

Source: River Board corporation

Table 3.2.12 Allocation of profits for the year 2002 in thousands of CZK

River Board corporation	Profit	Allocation of profit or covering of loss					Unsettled loss from previous years
		Reserve fund	FKSP	Investment fund Capital funds	Social fund	Bonus fund	
Elbe River Board corp.	4 774	477	4 297	0	0	0	0
Vltava River Board corp.	- 45 525	- 3 455	0	- 42 070	0	0	0
Ohře River Board corp.	11 334	2 267	3 500	3 567	0	2 000	0
Odra River Board corp.	23 002	2 300	2 818	14 534	0	3 350	0
Morava River Board Corp.	24 512	5 519	3 500	0	0	2 500	12 993

Source: MA

Table 3.2.13 Number of employees (average calculated state)

River Board corporation	2002	2001
Elbe River Board corp.	936.5	926.8
Vltava River Board corp.	784.0	782.0
Ohře River Board corp.	623.0	628.0
Odra River Board corp.	460.0	455.0
Morava River Board corp.	740.4	740.2
River board corporations total	3 543.9	3 532.0

Source: River Board corporations

Table 3.2.14 Average salaries in CZK achieved in the individual River Board corporations

River Board corporation	1996	1997	1998	1999	2000	2001	2002
Elbe River Board corp.	10 325	11 351	12 911	14 675	15 641	16 565	17 941
Vltava River Board corp.	10 957	11 852	13 338	14 875	15 819	16 526	18 444
Ohře River Board corp.	10 732	11 923	13 454	14 545	15 704	17 085	18 435
Odra River Board corp.	10 251	11 459	12 738	13 999	14 717	15 811	17 516
Morava River Board corp.	9 949	11 009	12 922	14 007	14 663	15 820	16 216
Total River Board corporations	10 447	11 506	13 084	14 468	15 330	16 396	17 724

Source: River Board corporations



3.3 Agricultural Water Management Administration

Last year's flood affected virtually the entire territory of the river basins of the Vltava, the Berounka and lower Elbe and also the river basin of the Ohře, the Jizera, the Dyje and certain rivers draining the Czech-Moravian Highlands. Flood waves in watercourses culminated in the course of the first and second wave of rainfall at the level of a 100-year flood and higher. In many profiles, the highest ever historical water states and throughflows were recorded in watercourses.

On the basis of a field survey, the AWMA discovered damage at an estimated level of CZK 543,444 thousand at watercourses and reservoirs in its administration. The watercourses were damaged in the natural river bed sections and the artificially altered river bed sections. In many places structures and buildings were destroyed. Despite the fact that there was no case of a reservoir dike bursting, many of them were damaged. The most badly affected area in general and in the scope of AWMA was the area of the Vltava basin.

The character of the damages which AWMA recorded differs greatly and reflects the differences of the flood situations in various localities affected by the flood. In general it is possible to state that the upper sections of watercourses were affected primarily by the erosive effects of water and the objects washed away. Extensive damage to the structures on the watercourses was noted, there were changes to the routes of riverbed of watercourses, and there was extensive collapsing of riverbanks and destruction of vegetation on the riverbanks. The lower sections of flows with a shallow riverbed gradient were primarily affected by flooding. The flooding resulted in sedimentation from waste which caused heavy silting both in the riverbeds themselves and on the surrounding lands. A large amount of sediment was also noted in the reservoirs which AWMA administers in affected areas.

When carrying out repair work on damages caused by the August floods in 2002 it was necessary to ensure as a priority the repair of buildings and structures on watercourses

which serve to ensure the functionality of the communication and engineering networks. It was also necessary to ensure the renewal of structures which ensure the stability and passibility of watercourses in the built-up areas of municipalities and cities and to ensure the stability and unobstructed nature of riverbeds and renewal of their flow capacity. In the case of reservoirs it is essential to remove silt.

The resources for the implementation of these remedial measures are covered in cooperation with the European Investment Bank via the programme 229 110 – Rectification of consequences of flood on state water-management assets or its sub-programme 229 113 – Rectification of consequences of flood damage caused by floods in August 2002. An overview of use of investment and non-investment expenses for the rectification of flood damage from 2000 and 2002 is shown in table 3.3.6.

In 2002 non-investment resources for maintenance, repairs and operation of watercourses in the amount of CZK 119.82 million were allocated to AWMA, as were CZK 9.4 million for the operation of watercourses and associated water structures. In addition non-investment financial resources were granted for flood prevention repairs of tangible fixed assets from programme 229 060

in the amount of CZK 10.00 million, from the Care for the Countryside Programme, in the amount of CZK 0.62 million, and for other non-investment expenses (other contributions, monitoring, ecological programme) CZK 18.80 million. A total of CZK 158.02 million was allocated to AWMA in 2002, of which CZK 156.79 million was used.

Out of the financial resources mentioned, the main part was used for maintenance and repair of watercourses (approximately 81%) and also for other non-investment expenses (approximately 12%).

A summarised overview of the true use of these financial resources is given in Table 3.3.1.

As part of maintenance of watercourses, mowing, cleaning and repairs were carried out to structures which ensure flood protection, as was the liquidation of invasions of non-indigenous plant species (giant hogweed, Japanese knotweed) and the maintenance of riverbank vegetation.

Table 3.3.2. gives an overview of the resources used in recent years from the individual financial sources for the maintenance and repair of watercourses and waterworks.

Table 3.3.1 Use of individual financial resources of AWMA in 2002 in millions of CZK

Activity	Source	Plan	Reality
Maintenance and repair to watercourses	SR	119.82	119.70
Operation of watercourses and associated water-management structures	SR	9.40	9.01
Care for the Countryside Programme	SR	0	0.62
Flood prevention	SR	10.00	8.91
Other non-investment expenses	SR	18.80	18.55
Total		158.02	156.79

Source: AWMA

Table 3.3.2 Coverage of expenses of AWMA for maintenance and repairs to watercourses and water-management structures in millions of CZK

Source for coverage of expenses	1998	1999	2000	2001	2002
MA budget	70.8	68.1	77.6	77.0	119.7
Care for Countryside Programme	6.6	2.5	1.0	2.4	0.6
Flood prevention measures	0	0	35.2	5.7	8.9
Total state budget	77.4	70.6	113.8	85.1	129.2
State Soil Improvement Fund	-	1.0	5.6	3.8	0
Total	77.4	71.6	119.4	88.9	129.2
Rectification of flood damage from sources of Soil Fund (SF)	-	-	0	0	0
Maintenance and repairs to land reclamation facilities from sources of SF	103.8	79.6	75.9	59.8	54.9
Total expenses	178.2	151.2	195.3	148.7	184.1

Source: AWMA

Table 3.3.3 Non-investment expenses for watercourses in the administration of AWMA and maintenance of and repairs to main drainage facilities in the administration of the Land Fund according to region in millions of CZK in the year 2002

Region	Maintenance of and repairs to watercourses	Operation	Rectification of flood damage	Main drainage facilities	Total
Prague	14.800	0.280	2.798	6.043	23.021
České Budějovice	19.200	0.182	13.871	12.383	45.636
Plzeň	14.300	0.277	6.295	4.744	25.616
Ústí nad Labem	8.700	1.085	1.808	2.896	14.489
Hradec Králové	18.300	1.285	0	12.516	32.101
Brno	29.900	3.819	0.200	7.938	42.857
Ostrava	14.500	1.078	0	8.352	23.930
Total	119.700	9.006	24.972	54.872	208.550

Source: AWMA

Table 3.3.3. gives the division of non-investment expenses for watercourses administered by AWMA and maintenance and repairs of main drainage facilities in the administration of the Land Fund according to the individual regions.

■ **Yields from payments for abstractions of water or from rents of water-management structures and other real estate are insignificant, and in the medium term they are around CZK 8 to 11 million.**

The slight drop in incomes from water abstractions and in other revenues was eliminated in 2002 by a growth in incomes from the renting of water-management structures. The overall structure of incomes of AWMA is shown in the following Table 3.3.4.

Table 3.3.4 Composition of income of AWMA in millions of CZK

Income	1998	1999	2000	2001	2002
Payments for abstractions of water	3.4	2.8	4.4	3.8	2.5
Rents from water-management structures	2.9	3.2	1.9	3.5	5.2
Other income	3.3	2.3	4.1	3.4	1.4

Source: AWMA

Table 3.3.5 Rectification of flood damage from the year 1997 to the watercourses managed by AWMA in 2002 in millions of CZK

Source	Investment costs	Non-investment costs	Total
– programme			
Programme 329 181	0.013	0	0.013
Programme 329 184	29.206	0	29.206
Total	29.219	0	29.219

Source: AWMA

Table 3.3.6 Rectification of flood damage from the years 2000 and 2002 to watercourses administered by AWMA in 2002 in millions of CZK

Source	Investment costs	Non-investment costs	Total
– programme			
Programme 229 112	1.629	3.871	5.500
Programme 229 113	0	24.973	24.973
Total	1.629	28.844	30.473

Source: AWMA

■ **In 2002, on the watercourses managed by AWMA there was a continuation in the rectification of flood damage from the year 1997. The flood damage from the following years is also being gradually eliminated.**

An overview of the overall expenses for the rectification of flood damage broken down according to source and divided up into investment and non-investment resources is given by Table 3.3.5.





■ In order to eliminate flood damage from the year 2000 and 2002 to watercourses administered by AWMA, in 2002 the programme 229 110 was initiated for the rectification of flood damage from the year 2000 (sub-programme 229 112) and 2002 (sub-programme 229 113).

In 2002, AWMA implemented investment construction in the total amount of CZK 172.9 million, including a programme of flood prevention measures in the amount of CZK 63.1 million, and it also implemented the rectification of flood damage from the year 1997 in the amount of CZK 29.2 million and the rectification of flood damage from 2000 in the amount of CZK 1.6 million. An overview is given in Table 3.3.7.

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

The vast majority of watercourses managed by Forests of the CR, s.e. are in the upper reaches of the river basins, spring areas and areas with a higher degree of forestation. Forests of the CR, s.e. manages mountain streams even outside the lands intended for fulfilling the function of a forest, because during care for the integrated basin of watercourses, they flow through the agricultural landscape and built-up areas of municipalities.

In 2002, flood situations occurred in mountain streams in several waves. There

Table 3.3.7 Structure of investments and financial sources of AWMA in millions of CZK

Structure of investments	Financial sources	1999	2000	2001	2002
Adjustment of watercourses	State budget - MA	32.7	32.2	47.2	47.4
	Special-purpose fund (replacement recultivation)	2.4	3.6	6.5	0.9
	State Fund for Soil Improvement	4.4	0	0.2	0
Study of drainage conditions	State budget	0	3.8	0	0
Revitalisation of watercourses	State budget	94.4	45.3	17.3	30.7
Flood prevention measures	State budget	8.8	33.6	2.8	63.1
Rectification of flood damage from year 1997	State budget	27.3	27.0	28.9	29.2
	European Investment Bank	102.4	36.5	0	0
Rectification of flood damage from year 1998	State budget	12.2	0	0	0
Rectification of flood damage from year 2000	State budget	0	0	0	1.6
Total		284.6	182.0	102.9	172.9

Source: AWMA

were a few in the Spring in the mountainous parts of the Republic. Watercourses were affected by two flood waves. The first in July in the areas of Blansko, Žďár nad Sázavou, Benešov and Kolín, and, most importantly, the second, August wave, which affected watercourses administered by the Forests of the CR, s.e. in the South Bohemia, Central Bohemia, Plzeň and Ústí nad Labem region, and partially the Karlovy Vary, Liberec and South Moravia region. The floods of 2002 in watercourses in the competence of Forests

of the CR, s.e. did not cause damage of the same extent as the floods of 1997 and 1998, which in the case of mountain streams is given by the differing geomorphology of the afflicted areas. Overall, the damage in 2002 was estimated to be CZK 125 million. The flood flow rates confirmed the justification and functionality of regulation of mountain streams.

Out of the total financial expenses of Forests of the Czech Republic, s.e. in water manage-

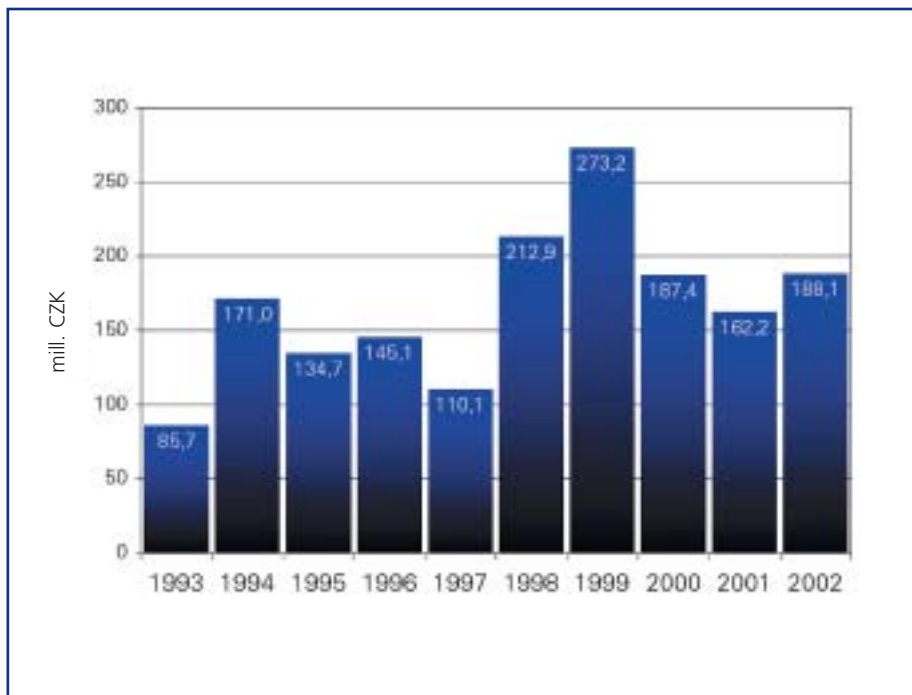


ment in the amount of CZK 451.6 million, expenses of an investment character were CZK 188.1 million. Out of this volume, CZK 104.9 million represents own resources. The investments of Forests of the Czech Republic, s.e. focussed on preventative mea-

asures and, in particular, the construction and reconstruction of structures for regulating mountain streams in areas affected by floods. Measures are realised primarily with the aim of creating retention spaces for catching floating debris, stabilisation of longitudinal

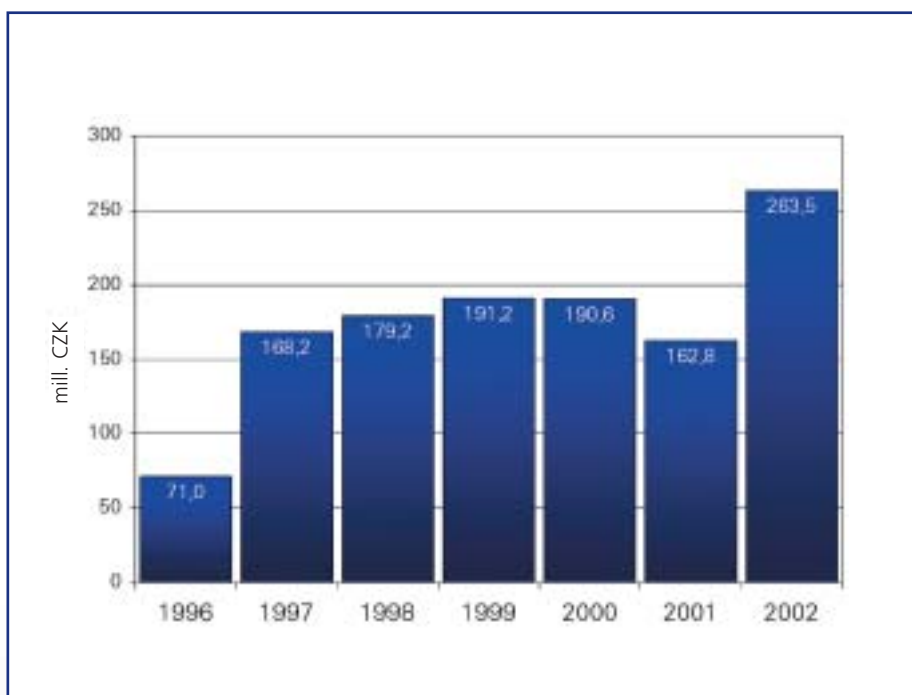
gradients of flows of transverse structures and ensuring flood prevention by increasing the capacity of river beds. CZK 263.5 million was used for the repair and maintenance of basic means for regulation of mountain streams and other waterworks, of which CZK 183.4 million came from own resources.

Graph 3.4.1 Investment expenses of Forests of the Czech Republic, s.e. in the years 1993 - 2002 in millions of CZK – watercourses



Source: Forests of the CR, s.e.

Graph 3.4.2 Expenses of Forests of the CR, s.e. in the years 1996 - 2002 in millions of CZK – repair and maintenance of watercourses



Source: Forests of the CR, s.e.



■ **Forests of the CR, s.e. expended almost CZK 452 million on the administration of watercourses in 2002.**

Table 3.4.1. shows the structure of financing for small watercourses via regional watercourse administrations and also state support for the year 2002.

■ **Income from abstractions of surface water is not significant in 2002, and it came to CZK 9.8 million at a price of CZK 1.23 /m³ of abstracted water.**

The development of income of Forests of the CR, s.e. for abstractions of surface water and unit prices are shown in Table 3.4.2.

Tab. 3.4.1 Structure of financing for Forests of the CR, s.e. – regional watercourse administrations in year 2002 in millions of CZK

Forests of the CR, s.e.	Own resources	Grants	Of this flood damage	
	total	total	Grants	Own sources
Investments	104.9	83.2	20.3	64.9
Non-investments	183.4	80.1	67.2	94.1
Total	288.3	163.3	87.5	159.0

Source: Forests of the CR, s.e.

Table 3.4.2 Income of Forest of the CR, s.e. for surface water for the years 1997 - 2002 in thousands of CZK

Year	1997	1998	1999	2000	2001	2002
Earnings	7 030	7 906	7 896	7 876	8 639	9 790
Price per m³*)	0.79	0.92	0.99	1.06	1.17	1.23

Source: Forests of the CR, s.e.

Note: *) The unit price for one m³ is given without value added tax

3.5 Waterways

The Elbe-Vltava waterway is of transport importance for the Czech Republic because it is the only river transport connection with the entire European waterway system. On the 171 km-long Czech section of the Elbe from Střekov to the port in Chvaletice, and on the 70 km-long section of the Vltava from the confluence with the Elbe in Mělník up to the port Radotín in Prague, virtually year-round navigation is ensured by a series of weirs even during low flow.

■ **In the year 2002, total financial resources in the amount of CZK 108.5 million were expended in the form of a grant on repairs, maintenance and operation of the Elbe-Vltava waterway and the so-called Baťa Canal from the state budget via the MA chapter.**

The Elbe River Board corporation was supported from these sources with an overall amount exceeding CZK 29 million, of which CZK 15 million was used to repair walls and the electrical fittings of the lock at the water-management structure Klavary,

CZK 2.5 million was used to dredge silt from the navigation channel in the section Střekov – Ústí nad Labem, and almost CZK 5.0 million was spend on provisional repairs to the control systems of several water-management structures on the Elbe waterway.

Work on the Vltava waterway can be divided up into two periods – before the flood, when planned repairs and reconstruction was carried out, and the period after the flood in August 2002, when work began on the rectification of flood damage.

As part of work on flood prevention, three major dredging operations were carried out in the Vltava in Davle, in Zbraslav, and a dredging operation of the Smíchov port, costing a total of CZK 6.7 million was carried out. There were also repairs to the canals in Štvanice and Podbaba, a repair of the concrete gates of the Smíchov lock, a repair to the small lock Podbaba, dredging of sediment from the canal Vraňany – Hořín, and a repair to the locks Smíchov, Roztoky, Dolánky and Měřejovice and Štěchovice costing CZK 7.8 million, i.e., a total of CZK 23.5 million.

The second stage of the modernisation of the small lock Podbaba was completed for CZK 8.4 million, and illuminations were installed for navigation signs in Skochovice, equipment was installed in the lower anchorages of the water-management structure Orlík, and bypass technology was installed on the water-management structure Hněvkovice for CZK 0.6 million, i.e., for a total of CZK 9.0 million.



As part of work on the rectification of flood damages, after the disastrous floods of August, dredging on the territory of Prague was carried out at a cost of CZK 7.3 million. Sediment was dredged, and repairs were made to the locks at Modřany, Štvanice, Roztoky, Dolánky and Měřejovice at a cost of CZK 7.5 million. In addition to this, repairs were made to damaged dikes on the canal Podbaba and Dolánky costing CZK 13.6 million, a total of CZK 33.4 million. The control system of the Roztoky and Dolánky locks was modernised at a cost of CZK 5.6 million.

The Morava River Board corp. spent CZK 5.5 million provided in the form of a special-purpose non-investment grant for the maintenance and repair of the waterway Otrokovice - Rohatec, the so-called Bata Canal, where there are a total of 13 locks, and which has a primarily recreational function. CZK 3.1 million was used for the repair of the lock Vnorovy II, and the remaining part of the expenses covered the costs for the clearing of the lower anchorages of the other locks.

■ **As part of the programme for the renewal and reconstruction, modernisation and construction of waterways, work was carried out costing CZK 504.9 million from the resources of the State Transport Infrastructure Fund in the year 2002.**

In addition to the resources already shown for the ensuring of operation and maintenance of canals of transport significance in the competence of the MA, in the field of care for the development of waterways, the Ministry of Transport (referred to hereinafter as the "MT") has been carrying out the government approved "Programme for the Development of Water Transport in the Czech Republic up to 2005" since 1997. Under this programme, using funds from the State Fund of Transport Infrastructure, in the year 2002 work on development was carried out costing CZK 504.9 million, which in comparison with the previous year represents a year-on-year increase of 79.9 %. Out of this amount the Elbe River Board corp. and Vltava River Board corp. received a total of CZK 347.3 million. Other resources were implemented by the inves-



tor Waterways of the Czech Republic Directorate and to a lesser extent by private investors. In order to renew the recreational waterways Otrokovice – Rohatec, in 2002 the Waterways of the Czech Republic Directorate carried out minor constructions costing CZK 13.3 million. Under these programmes in support of water transport development, it has not yet been possible to ensure the conditions (issue of planning decision) for the implementation of the constructions "Improvement of Navigation Conditions on the Elbe in the Sections Ústí nad Labem – State Border of CR/FRG" and "Stage Přelouč II" for extending the navigation of the Elbe to Pardubice.

The August floods of 2002 also had a significant impact on the Elbe-Vltava waterway, and they caused significant damage to the structures of the waterway. These damages were calculated by the Elbe River Board corp. and Vltava River Board corp. as a total of CZK 699 million. In addition to the immediate resources provided by the MA, the MD has prepared the programme "Renewal of Structures of Water Transport After the Flood of 2002" for the rectification of flood damage to structures of importance for water transport, and starting from the year 2003 River Board corporation the Elbe River Board corp. and Vltava River Board corp. will be given grants for this work.



4.

MEASURES TO LESSEN THE HARMFUL EFFECTS OF WATER, ESPECIALLY FLOODS



4.1 Catastrophic flood in 2002

In 2002 there was a large number of small floods in the spring, autumn and winter, but the catastrophic August flood was particularly exceptional.

As a result of the unusually warm weather, the spring flood began from the third ten days in January and ended in March. The reason for the flood was rainfall and the thawing of snow. Only half-year to 2-year flow levels were reached, and occasional 5-year flows were reached during the second degree of flood activity (referred to hereinafter as ("DFA") and the 3rd DFA.

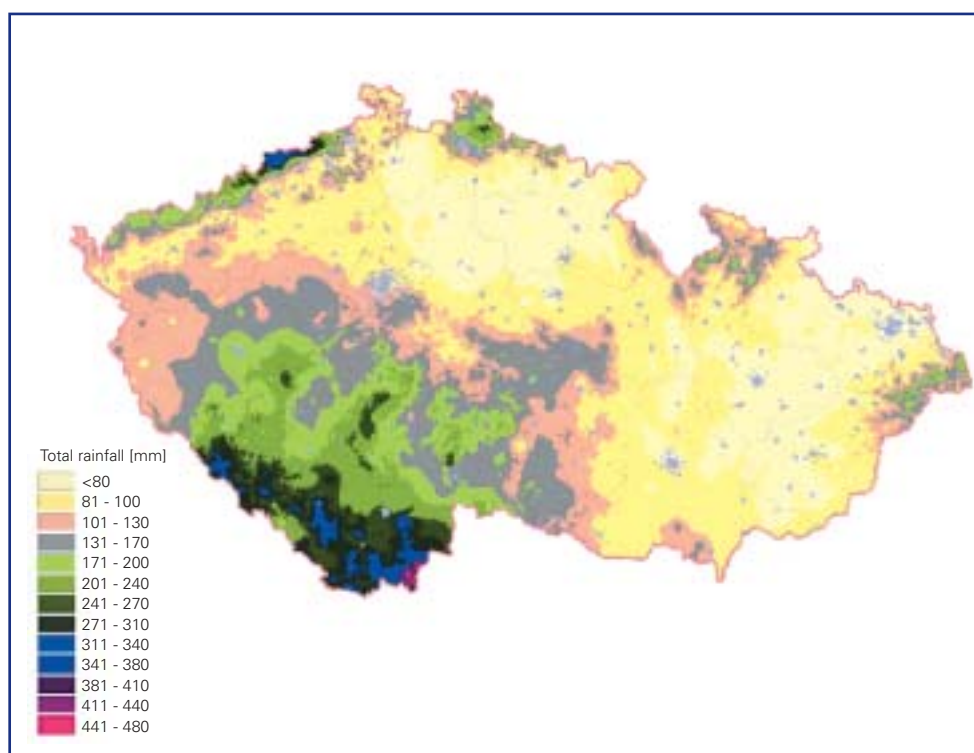
In the April/May period there were occasional half-year to 1-year water flow levels or at 1st or 2nd DFA.

But the situation from 10th June in the Olše basin was more significant, when the 2nd DFA was reached, and on 24th – 26th June the 2nd DFA was reached on the Úslava.

The flash flood of 15th July in the Hodonínka river basin area was a serious, albeit local, situation with a periodicity of repeat exceeding 200 years.

In August 2002 most of the territory of the Czech Republic was afflicted by a catastrophic flood which had no precedent in the history of our state. In terms of its extent and destructive consequences it can be compared possibly only with the flood of the year 1997. Over the past five years (1997 - 2002) catastrophic floods have affected virtually the entire territory of our state.

Picture 4.1.1 Map of total rainfall for period from 6th to 15th August 2002

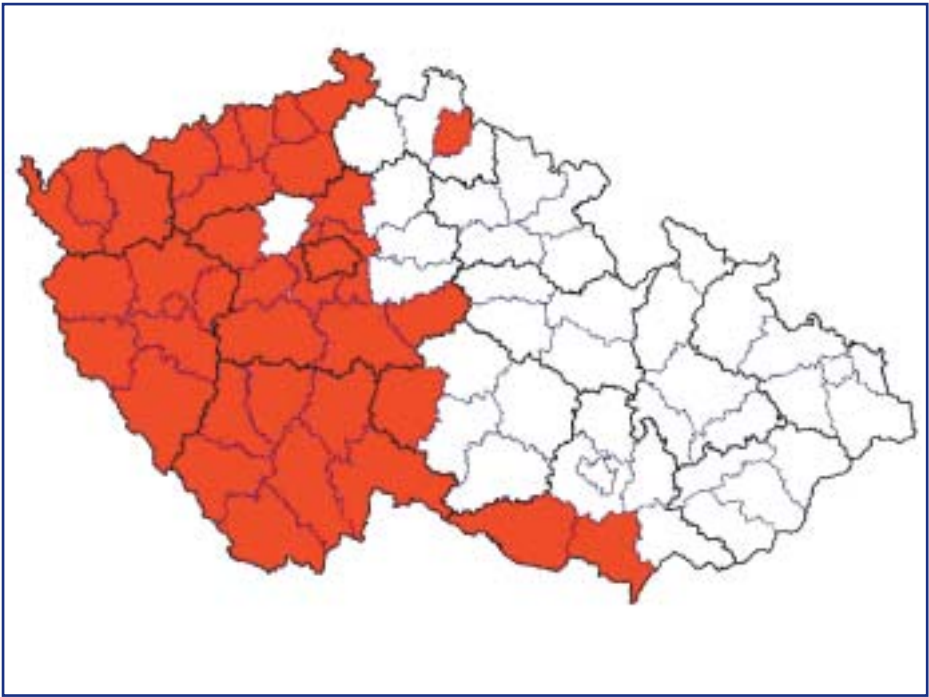


Source: CHMI

The August flood affected virtually the entire territory of the Vltava basin and the Elbe basin, and part of the Ohře basin and Dyje basin. This extreme hydrological situation occurred after the territory was affected by two waves of extremely intense rainfall. The first wave of rainfall fell from 6th to 8th of August of the year 2002 and affected primarily the border area of southern Bohemia with Austria. The second wave of rainfall on the days 11th to 13th August 2002 gradually affected the areas of southern Bohemia, the entire western half of Bohemia, the Jizerské Mountains, the Czech-Moravia Highlands, part of eastern Bohemia and part of Moravia.

As a result of this extraordinary rainfall, an extreme hydrological situation was also noted. The flow rate of the Vltava in Prague - Chuchli at culmination was estimated at 5 160 m³.s⁻¹ compared with the long-term average of 147 m³.s⁻¹, and the flow rate of the Elbe in Děčín reached a value of 4 760 m³.s⁻¹ upon culmination. In many watercourses the flow rate of water reached a value with a probability of incidence once in every thousand years (for example the Malše, Vltava, Lužnice, Blanice, Lomnice, Skalice and Úslava). The flood mentioned affected 8 out of 14 regions.

Picture 4.1.2 Map of the Czech Republic marked with districts affected by flood



Source: MA

The material damage which the flood caused to the assets of state administration and local government, legal and natural persons of citizens of the Czech Republic reached a value of approximately CZK 75.0 billion crowns. But worse than the level of material damages referred to was the fact that 19 people lost their lives as a result of the flood situation in 2002. An overall overview of the damages to property and human lives lost caused by flood situations on the territory of the Czech Republic over the past five years (1997 – 2002) is given in the following Table 4.1.1.

From a comparison of the data given in the table it is evident that although there was comparable flood damage during the catastrophic flood situations in the years 1997 and 2002, in 2002 there was a signifi-

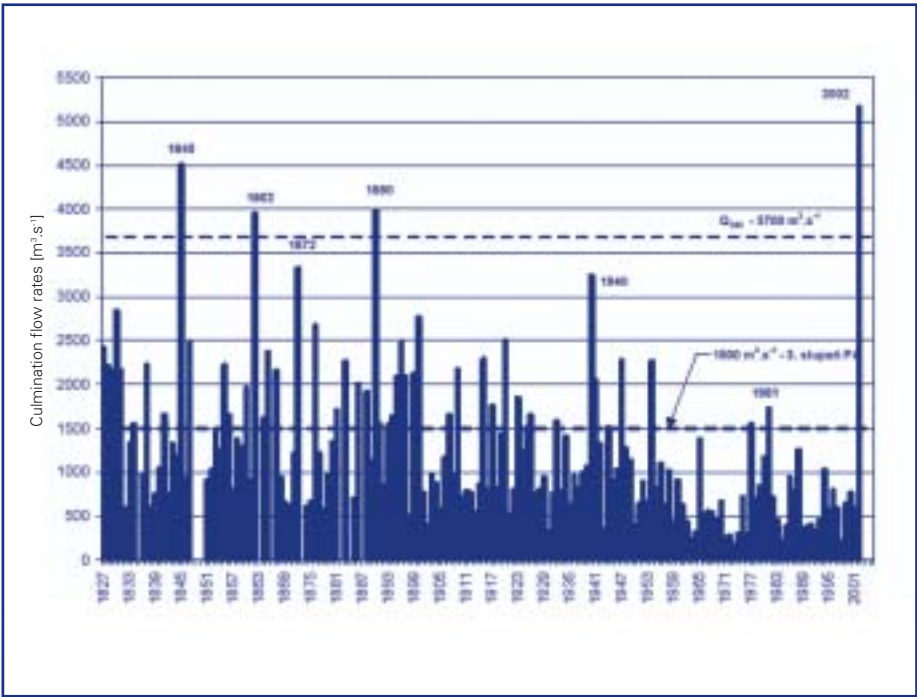
cant drop in the number of lives lost. The reason for this is the experience gained during the floods in 1997 and also better legislative tools for flood protection.

In 2000 and 2001 four central acts were passed with a significant linkage to flood

protection. In 2000 it was the Fire and Rescue Brigades of the Czech Republic Act (Act No. 238/2000 Coll.), the Act Concerning the Integrated Rescue System and Concerning the Amendment of Certain Acts (Act No. 239/2000), and the Act Concerning Crisis Management and Concerning Amendments to Certain Acts (Act No. 240/2000 Coll. – the Crisis Act). In 2001 the Act Concerning Water and Concerning Amendments to Certain Acts (Act No. 254/2001 Coll. – the Water Act) was passed, by which Government Order No. 100/1999 Coll., Concerning Flood Protection, was passed. The passing of this last act was the strongest method of reinforcing flood prevention.

By means of Government Decision No. 977 from 7th November 2002, the government approved the project Evaluation of the Catastrophic Floods of August 2002. The project has a significant interdepartmental character, uses the information of other departments and prepares output which will subsequently be used by other resorts. The specified project is divided up into working stages – the first two will be information for the government of the Czech Republic and the third stage will be terminated with a final report about the project and approved by the government of the Czech Republic.

Picture 4.1.3 Comparison of size of culmination flow rates of flood in the Vltava in Prague in the years 1827 - 2002



Source: CHMI

Table 4.1.1 Flood damage in the years 1997 - 2002

year	Loss of life	Damage [CZK billion]
1997	60	62.6
1998	10	1.8
2000	2	3.8
2002	19	75.1
Total	91	144.3 *)

Source: MA, ME
Note.: *) of this, CZK 20 billion to water-management assets

By the end of the year 2002 the 1st stage had been completed and the Report on the Meteorological Causes of the Flood Situation in August 2002 and Evaluation of the Extremity of the Causal Rainfall had been submitted to the government for information purposes.

It is wholly evident that the process of rectification after the flood situation had to be initiated almost as soon as the flood had subsided. From the aspect of the concept of flood prevention, this activity is divided up into two phases:

- I. phase – rectification of flood damage,
- II. phase – implementation of preventative measures.

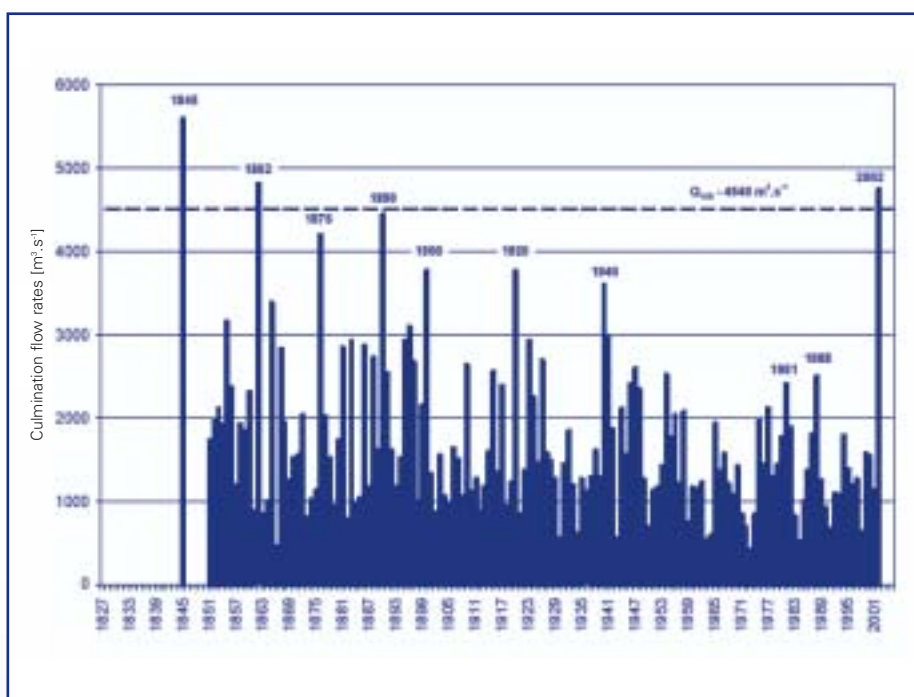
Flood prevention was neglected throughout virtually the entire second half of the last century. The principle of systematic prevention was not applied thoroughly, and all efforts were concentrated on rectifying flood damage. From the start of the 1970s up to the first half of the 1990s the state concept in the field of water management tended towards the construction of large water structures in the spirit of the age which were not built with the primary purpose of increasing flood protection.



The field of flood protection was covered conceptually by the Strategy for Flood Protection for the Entire Territory of the Czech Republic, which was approved by the Decision of the Government No. 382 from the

date 19th April 2000. The material performance of this Strategy is fulfilled through the implementation of the programmes assigned to the departments as part of programme financing.

Picture 4.1.4 Comparison of size of culmination flow rates of flood in the Elbe in Děčín in the years 1827 - 2002



Source: CHMI

4.2 Programmes for renewal of water-management assets affected by floods

■ In order to implement programmes intended for the rectification of flood damages (229 113) and the renewal of water-management infrastructure (229 810) from 2002, the MA secured financial resources from the European Investment Bank in a total amount of CZK 5.8 billion for the years 2002 - 2005.

After the flood from August this year it was necessary at first to start on the solution of the first phase of liquidation of consequences – to rectify flood damage.

Immediately after the flood situation had died down, the Ministry of Agriculture reacted actively and started to systematically prepare two programmes focussing on the elimination of flood damage.

This consisted of these following programmes shown in Table 4.2.1:

Table 4.2.1 Programmes of the MA focussing on elimination of flood damage from August 2002

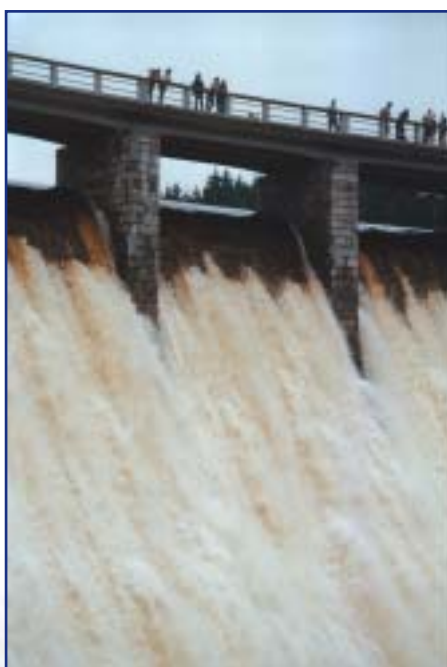
ISPROFIN number	Name of programme
229 110	"Elimination of consequences of flood on state water-management assets"
	- sub-programme 229 113 "Elimination of consequences of 2002 flood"
229 810	"State assistance for renewal of territory affected by the 2002 flood provided by the Ministry of Agriculture Focussing on the Renewal and Securing of Water-management Infrastructure of Water Supply Systems and Sewerage Systems"

Source: MA

■ Programme 229 110 "Elimination of consequences of flood on state water-management assets"

- sub-programme 229 113 "Elimination of consequences of 2002 flood"

Programme 229 110 "Elimination of consequences of flood on state water-management assets" focuses on the renewal of basic functions of water-management assets in the administration of the river board corporations, Forests of the Czech Republic and the AWMA following floods. The programme deals with damage to assets caused by the flood in 2000 (sub-programme 229 112) and in 2002 (sub-programme 229 113). The programme itself follows on from the previous programme MA 329 180 "Elimination of Damages Caused by Flood of 1997" and programme 329 190 "Elimination of Damages Caused by Flood of 1998" by which flood damages from the years 1997 and 1998 were eliminated.



In order to secure the financing of the aforementioned programme, as part of the project for renewal following the floods of 2002, Act No. 574/2002 Coll., Concerning the Outline Loan of the Czech Republic from the European Investment Bank for the Financing of Elimination of Flood Damages from the year 2002, was passed. The aim of the loan was to secure the financial resources to finance the elimination of flood damage from 2002 in a total amount of EURO 400 million (approximately CZK 12.5 billion), of which an amount of CZK 5.8 billion was allocated for the area of water management. Of this amount, a total sum of CZK 4.3 billion was allocated to the Programme 229 110 "Elimination of consequences of flood on state water-management assets" (or to its sub-programme 229 113).

As part of sub-programme 229 113, in 2002 1 investment construction was implemented, as were 58 non-investment events. The greatest number (36 events) were ensured by AWMA. CZK 2382 thousand out of the state budget was invested in 2002, and CZK 131 832 thousand of non-investment financial resources were used. More detailed information about this renewal of water-management assets, including tabular overviews and a description of the most significant events, is given in chapter 7.1.

■ Programme 229 810 "State assistance for renewal of territory affected by the flood in 2002 provided by the MA, focusing on renewal and securing of water-management infrastructure of water supply systems and sewerage systems"

Programme 229 810 State assistance for renewal of territory affected by the flood in

2002 provided by the MA focuses on the renewal and securing of water-management infrastructure of water supply systems and sewerage systems. The aim was to secure as quickly as possible the renewal of the basic functions of this infrastructure for public needs. Applicants for this type of grant were cities and municipalities, federations of cities and municipalities (voluntary federations and associations) and water-management joint-stock companies with a greater than 2/3 capital participation by cities and municipalities.

The financing of this programme was ensured partly from national sources in the amount of CZK 0.5 billion and partly from the aforementioned outline loan from the European Investment Bank accepted by Act No. 574/2002 Coll., in the amount of CZK 1.5 billion. By means of these resources it was possible to secure financing of the programme in the total amount of CZK 2.0 billion.

On 25th September 2002, through its resolution No. 926, the Government of the Czech Republic decided inter alia to establish a programme of State Assistance for the Renewal and Securing of Territory Afflicted by an Extraordinary Event provided by the MA and administered by the MA with the Possibility of initiating a financial programme before the approval of documentation.

In view of the fact that it was possible to assume the provision of decisive financial resources from the loan of the EIB from the year 2003, the MA ensured a so-called "start-up package" for the urgent financing of certain events in the amount of CZK 65.0 million by the transfer of CZK 15.0 million from the budget reserve and CZK 50.0 million from savings in the budget chapter of the MA.

In the years 2003 – 2005 the source of the provided grants will be the loan resources of the EIB in a maximum assumed amount of CZK 1,500 million.

The programme complies with the strategy for the renewal of the territory affected by an extraordinary event processed according to Act No. 12/2002 Coll., Concerning State Assistance for the Renewal of Territory Affected by Natural or Other Disasters and Concerning the Amendment of Act No. 363/1999 Coll., Concerning Insurance and Concerning Amendments to Certain Associated Acts (Insurance Act), as subsequently amended, (Act Concerning State Assistance During Renewal of Territory).

The programme focuses on the provision of immediate assistance to owners of water supply and sewerage systems with the aim of:

- renewing the normal operation of existing objects and facilities of water supply systems serving to supply citizens with drinking water,
- replacing affected local sources of drinking water connected in group water supply and sewerage systems,
- construction of new water supply systems in areas where there has been serious contamination of individual sources of water (usually wells); non-compliance with hygiene and quality regulations results in an increased risk of possible incidences of serious epidemics,
- renewal of normal operation of waste water treatment plants, in particular their technological equipment,
- renewal of normal operation of existing sewerage objects and facilities serving to channel waste water and treat it,
- construction of water supply systems and sewerage systems in places of housing construction replacing that in places intended for demolition in the flood zone,
- ensuring and securing greater resilience of water-management infrastructure in the flooded territories.

4.3 Flood prevention programmes

■ **The measures in the field of flood prevention in the Czech Republic are implemented on the basis of the Strategy**

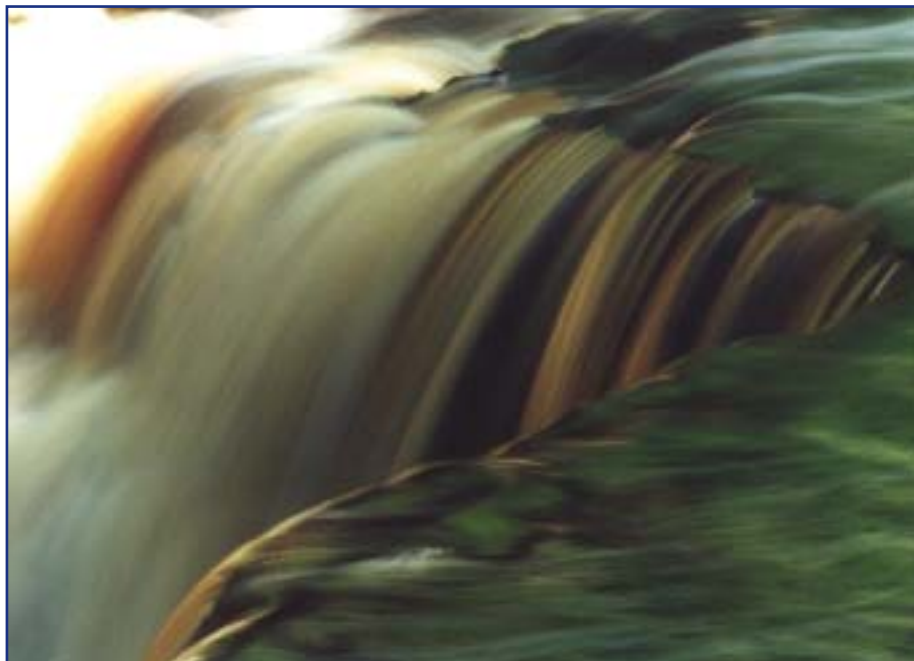


Table 4.3.1 Programmes of MA focusing on flood prevention

Number ISPROFIN	Name of programme
229 060	"flood prevention"
229 210	"renewal, dredging and reconstruction of fishponds and reservoirs"

Source: MA

of Flood Prevention for the Territory of the Czech Republic by a set of programmes as part of programme financing.

The management of these programmes is divided up between the following resorts: MA, ME, MT and the Ministry of Information. The most important and most financially demanding of these in this area are the programmes of the MA, via which the level of flood protection is increased in the area of the Czech Republic at greatest risk.

■ Programme 229 060 "Flood prevention"

■ **There was only a significant change in the situation and understanding of the necessity of flood prevention after the floods in 1997. For the years 2002 – 2005 the MA secured financial resources from the European Investment Bank in the total amount of approximately CZK 2.0 billion for the implementation of the programme Flood Prevention (229 060).**

At present the phase of rectifying flood damages to state water-management assets on territory afflicted by the floods in

1997 has finished (financially ensured by the programme 329 180 "Elimination of Damages Caused by Flood of 1997"). Then the second phase was initiated during which significant preventative measures of a regional and supra-regional character are implemented in the worst affected areas. At the time of the floods in August 2002, on the basis of the resolution of the government No. 1344 from the date 19th December 2001, Act No. 123/2002 Coll. was passed, Concerning the Acceptance of a Loan by the Czech Republic from the European Investment Bank for the financing of investment needs associated with carrying out the project Support for Investment Measures for Flood Prevention in the Czech Republic under the Programme Flood Prevention by which financial resources intended for flood prevention from national sources in the amount of CZK 2.15 billion were augmented by a loan from the European Investment Bank in the amount of EURO 60 million (approximately CZK 2.0 billion). By means of these national and foreign sources it was possible to secure financing for the programme 229 060 "Flood prevention" for the years 2002 - 2005 in a ratio of 1:1 in the total amount of CZK 4.15 billion. The reality of the combination of the financial

resources of the programme referred to arises from the limited possibilities of the state budget for financing this matter. National sources are thus secured in compliance with section 135 of Act No. 254/2001 Coll., Concerning Water and Concerning the Amendment of Certain Acts (the Water Act), as subsequently amended. On 6th June 2002, the Ministry of Finance approved the documentation of this programme and the actual implementation of the measures was begun.

The programme itself consists of 5 sub-programmes and is recorded in the ISPROFIN database as shown in Table 4.3.2:

The individual sub-programmes are divided up into two groups which are related to each other. The first group consists of sub-programmes of a study character (229 064, 065, 066), the output of which are defined flood territories along the significant watercourses, and for the sub-programme 229 065 the output is also the possible variants of flood protection which are compared with each other according to effectiveness. From these variants, the optimum one is then recommended for implementation.

The second group consists of sub-programmes via which the concrete measures for flood protection are built (229 062, 063). In view of this fact, the programme constitutes a compact whole in which emphasis is placed on the comprehensive nature of the flood protection solution.

Through approval of the documentation of the programme, the duration of the programme was agreed for the period 2002 – 2005, during which significant flood protection measures will be built in the river basins worst affected, especially by the flood of 1997.

The implementation of these measures for flood protection is ensured by the administrators of watercourses (the river board corporations, AWMA and Forests of the CR, s.e.). The use of resources for this programme is shown in Table 7.1.3.

For the actual process of agreeing implementation of the individual measures for flood protection, control mechanisms were designated, as were bodies confirming the correctness of construction of the proposed

Table 4.3.2 Structure of programme 229 060 "Flood prevention"

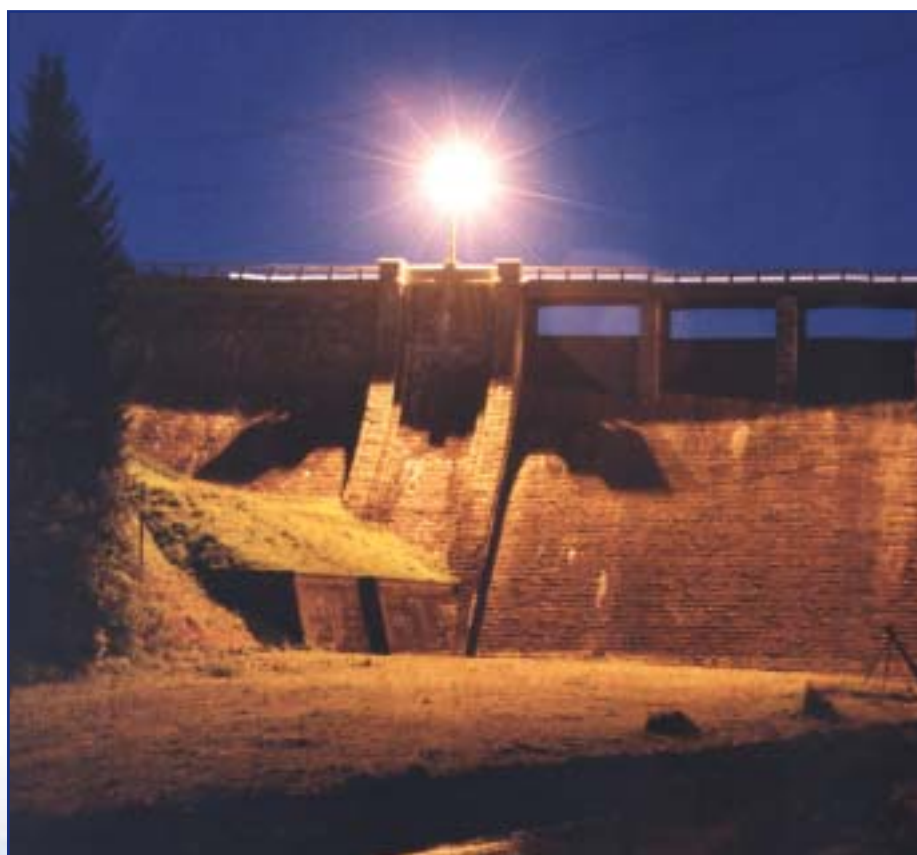
No. ISPROFIN	Name
229 060	programme "Flood prevention"
229 062	sub-programme "Construction and renewal of polders, reservoirs and dikes"
229 063	sub-programme "Increasing flow capacity of watercourses"
229 064	sub-programme "Designating flood territories"
229 065	sub-programme "Study of drainage conditions"
229 066	sub-programme "Defining scope of territory threatened by special floods"

Source: MA

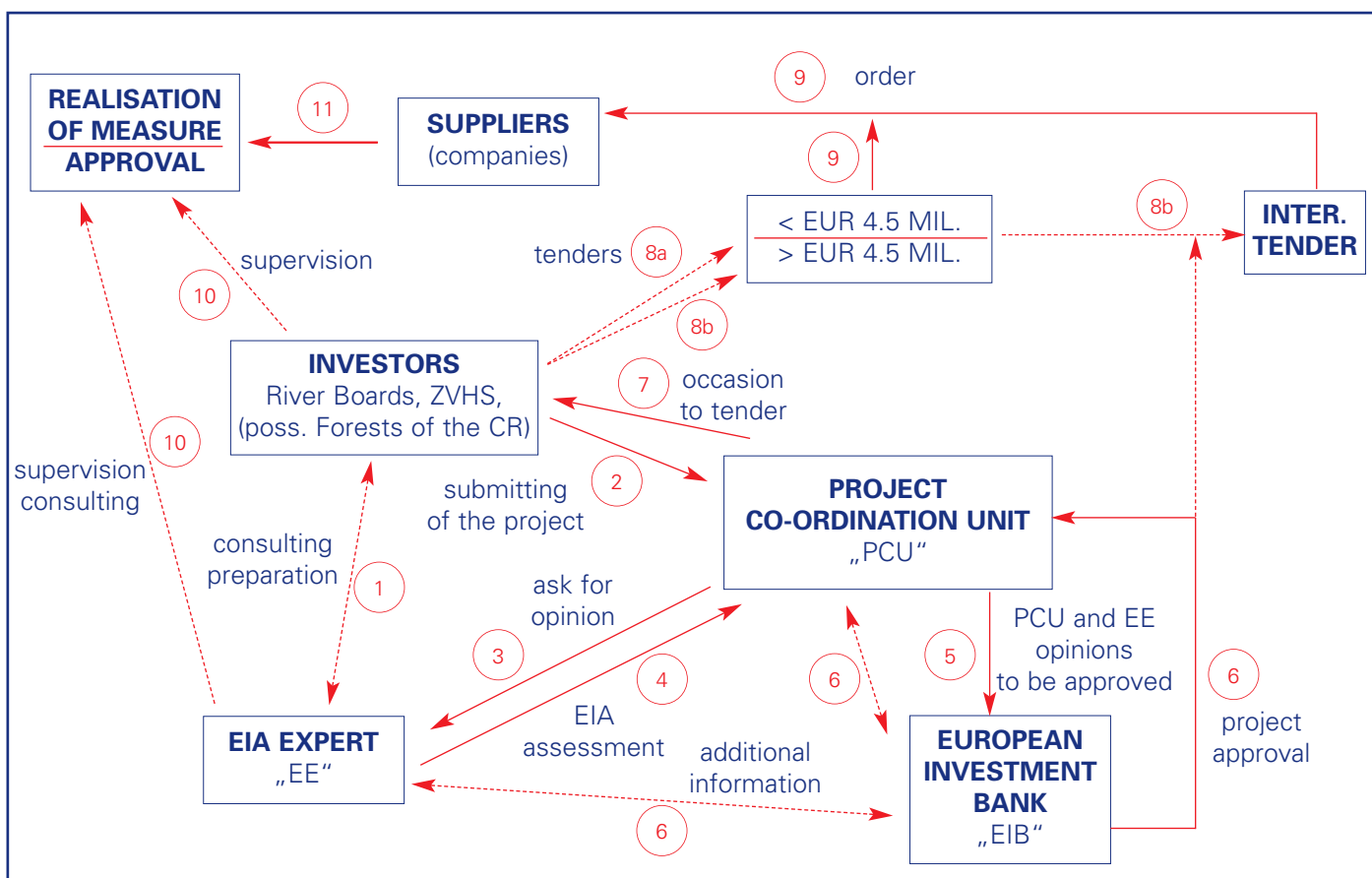
measures. Supervision of compliance of the prepared events with the issue of environmental protection is ensured by a so-called environmental expert. His task is to cooperate from the stage of the preparation of the investment intentions and proposals with investors (the river board corporations, AWMA and possibly Forests of the CR, s.e.), and on the basis of mutual consultations to incorporate additions (or amend the draft of the measure) and complete the documentation for further discussion in such a way that the negative impacts on the environment are minimised. Investors shall also submit a draft of the project for approval to the so-called Coordination Unit of the project. Upon the request of the Coordination Unit of the project, the environmental expert will prepare an evaluation for every event in which he will take into account national legislation in the field of

the environment (Act No. 244/1992 Coll., Concerning Evaluation of Environmental Impact and Act No. 100/2001 Coll., Concerning Environmental Impact and Concerning Changes to Certain Associated Acts) and compliance with the standards and procedures of the European Union in the field of environmental protection.

The eventual aim of the programme in the threatened areas in the Czech Republic is to increase the level of protection in built-up areas from Q_{20} to at least Q_{50} and, in justified cases, even on non-built-up areas from Q_5 to Q_{20} . The construction of new retention areas located in key parts of river basins which enable the transformation of the flood wave will become the basis for protection in these territories. And under the programme "Flood prevention" there will be an increase in the length of the



Picture 4.3.1 Chart describing the activities connected with implementation of the “Flood Prevention Project” co-financed by the loan granted to the Czech Republic by the European Investment Bank



Source: MA

designated flood territory along significant water courses from the current 51.4% to a value of 75.0%.

In the prepared further stage of the programme “Flood prevention”, in the years 2006 – 2010 measures will be implemented primarily in the Vltava basin and partly in the basins of the Ohře, Elbe and Morava damaged by the catastrophic floods of August 2002.

■ Programme 229 210 “Renewal, dredging and reconstruction of fishponds and reservoirs”

Immediately after the flood in August 2002, the MA proposed the preventative programme 229 210 “Renewal, dredging and reconstruction of fishponds and reservoirs”, the aim of which is the renewal of the basic functions of fishponds and reservoirs after the flood in August 2002 and the reinforcing of the retention function of fishponds and reservoirs on the territory of the Czech Republic.

On 4th April 2003 the Ministry of Finance approved the documentation of this programme for the period 2003 - 2006.

Before the establishment of this programme the MA provided non-investment grants for the dredging of fishponds. At present certain events of this type are ongoing, and all of them will be completed by the end of 2003.

■ Programme 215 120 “Support for prevention in territories threatened by unfavourable climatic influences”

In addition, the programme “Support for prevention in territories threatened by unfavourable climatic influences” is also being implemented under the administration of the ME.

This programme consists of three sub-programmes and is given in the database ISPROFIN:

Table 4.3.3 Structure of programme 215 120 “Support for prevention in territories threatened by unfavourable climatic influences”

No. ISPROFIN	Name
215 120	Programme of support for prevention in territories threatened by unfavourable climatic influences
215 122	Sub-programme reporting system for flood protection
215 123	Sub-programme acquiring documentation of flood territory
215 124	Sub-programme dealing with instability of slopes in the Czech Republic

Source: ME



5.

WATER SUPPLY AND SEWERAGE SYSTEMS FOR PUBLIC NEED

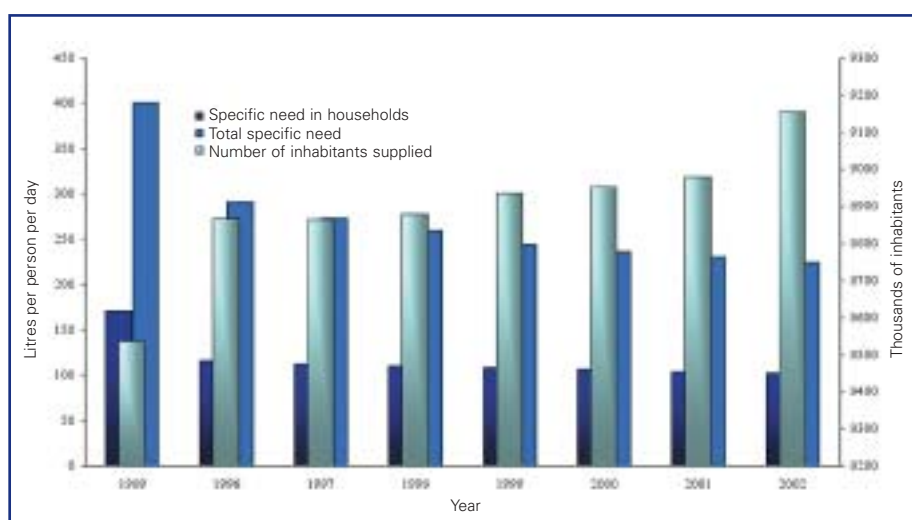


5.1 Drinking water supply

■ **89.8% of inhabitants were supplied with drinking water from water supply systems for public need in 2002.**

In 2002 9.16 million inhabitants, i.e., 89.80% out of the entire population of the Czech Republic were supplied from water supply systems for public need. In all the water supply systems for public need a total of 753.09 million m³ of drinking water was produced. The losses of drinking water reached 171.66 million m³, for the main operators, i.e., 23.80% of the water produced intended for implementation.

Graph 5.1.1 Development in number of supplied inhabitants and specific need of water charged in the years 1989 and 1996 – 2002



Source: CSO, MA

Table 5.1.1 Supply of water from public water supply systems in 1989 and 1996 – 2002

Indicator	Unit of measurement	Year							
		1989	1996	1997	1998	1999	2000	2001	2002
Inhabitants (median state)	thous. inhabs.	10 364	10 316	10 304	10 295	10 283	10 273	10 287	10 201
Inhabitants really supplied with water from water supply system for public need	thous. inhabs.	8 537	8 868	8 866	8 879	8 936	8 952	8 981	9 156
	%	82.4	86.0	86.0	86.2	86.9	87.1	87.3	89.8
Water produced from water supply system for public need	million m ³ / year	1 251	944	887	843	800	778	754	753
	%	100.0	75.5	70.9	67.4	63.9	62.2	60.3	60.2
Total charged water	million m ³ / year	924.4	631.4	604.0	579.9	564.2	554.1	535.6	545.3
	%	100.0	67.9	65.0	62.4	60.7	59.6	57.6	58.7
Specific need from water produced *)	l / person per day	401	292	274	260	245	237	231	225
	%	100.0	72.8	68.3	64.8	61.1	59.1	57.5	56.1
Specific amount of water charged in total *)	l / person per day	298	195	187	179	173	169	164	163
	%	100.0	65.4	62.8	60.1	58.1	56.7	54.9	54.7
Specific amount of water charged for households *)	l / person per day	171	116	113	110	109	107	104	103
	%	100.0	67.8	66.1	64.3	63.7	62.6	60.7	60.2
Loss of water per 1 km of system *)	l / km per day	16 842	16 801	14 159	12 149	10 704	9 706	9 141	8 358
Loss of water per 1 supplied inhab. *)	l / person per day	90	93	79	71	63	60	57	53

Source: CSO

Note *) data for water supply systems and sewerage systems of main operators

In 2002, under Decree of the Czech Statistical Office No. 393/2001 Coll., the Census of Water Supply and Sewerage Systems was included in the Programme of Statistical Ascertainment. The main aim of the census was to gain an overall impression of the results for all the water supply systems, sewerage systems and waste water treatment plants serving the public need before the accession of the Czech Republic as a member state of the European Union and to improve the quality of the summarised data concerning water supply systems and sewerage systems of the Czech Republic provided to national institutions and international organisations (Eurostat, OECD). The census has created a framework for the annual selective statistical ascertaining of technical and economic information for the field, and it also means a rapid increase in the monitored data in comparison with previous years.

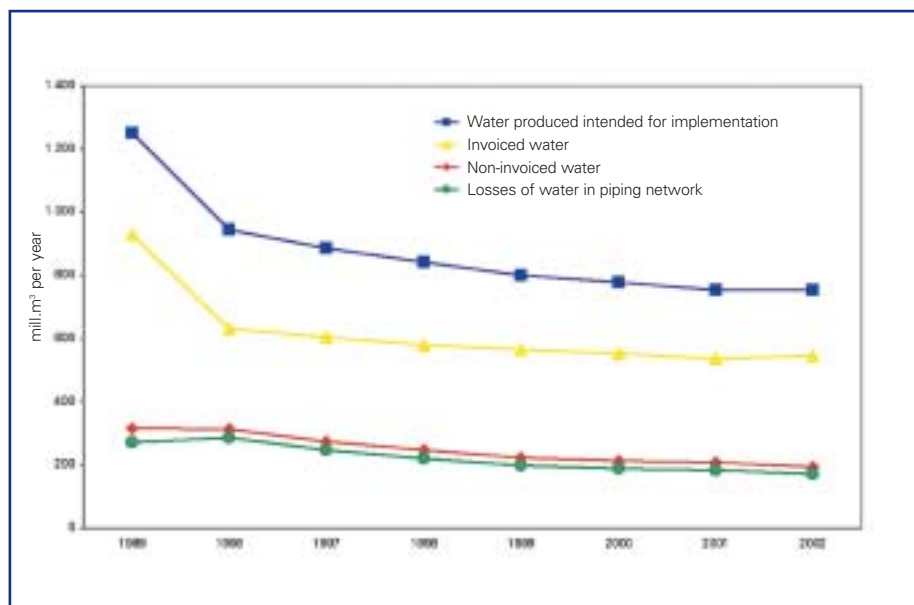
■ **The trend of a drop in volume of drinking water produced and specific need per one inhabitant has not yet stopped.**

■ **The greatest share of inhabitants supplied from the public water supply system for public need in 2002 was in the capital Prague (99.6%) and in the Ústí nad Labem district (96.2%), whereas the lowest proportion was in the Central Bohemia region (74.8%) and the Plzeň region (81.2%).**

■ **The length of the water supply network increased by 1,537 km compared with the year 2001.**

- The length of the water supply network reached 56,273 km, i.e. 6.37 km per connected inhabitant,
- The number of water supply connections increased by 75,287 to 1,471,584,
- The length of water supply connections increased by 8,521 km and reached 23,251 km,
- There are 2.63 m of connection per one connected inhabitant.

Graph 5.1.2 Development of values of water produced from water supply systems for public need and charged water in total in the years 1989 and 1996 – 2002



Source: CSO, MA

Table 5.1.2 Supply of inhabitants, production and delivery of water from water supply systems for public use in 2002

Region, territory	Inhabitants		Water produced from water supply system for public need (thous. m³)	Invoiced water	
	Truly supplied with water from water supply systems for public need	Proportion of inhabitants supplied with water out of total number		total	of this households
	(number)	(%)		(thous. m³)	(thous. m³)
Capital Prague	1 154 000	99.6	154 061	89 340	56 989
Central Bohemia Region	842 120	74.8	51 300	46 529	29 832
South Bohemia Region	556 380	89.1	40 364	29 899	18 334
Plzeň Region	446 300	81.2	35 723	27 829	16 598
Karlovy Vary Region	282 520	93.0	24 055	17 751	11 467
Ústí nad Labem Region	787 900	96.2	73 080	49 943	31 887
Liberec Region	374 000	87.5	36 337	22 084	14 755
Hradec Králové Region	483 970	88.2	36 387	25 930	16 124
Pardubice Region	464 700	91.7	33 474	25 343	15 425
Vysočina Region	453 010	87.5	28 213	23 695	13 148
South Moravia Region	1 039 150	92.6	73 152	58 579	36 258
Olomouc Region	561 610	88.1	41 898	29 673	18 606
Zlín Region	509 780	85.9	35 979	26 894	16 171
Moravian-Silesian Region	1 200 680	95.0	98 066	71 765	47 313
Czech Republic	9 156 120	89.8	753 089	545 254	342 907

Source: CSO

Note: including water supply systems not included in the statistical investigation





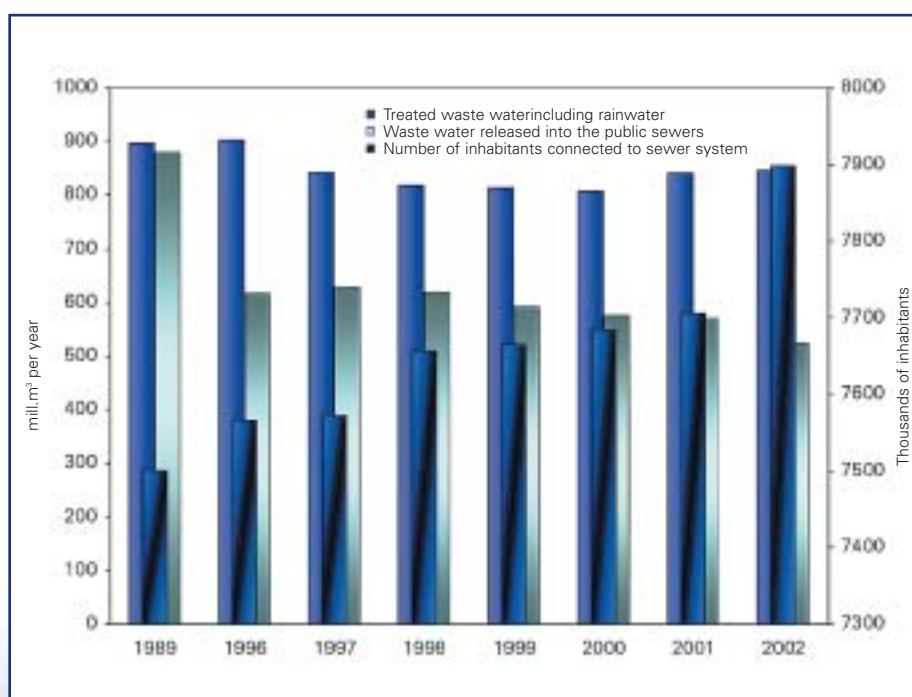
5.2 Removal and treatment of communal waste water

■ In 2002, 77.40% of inhabitants lived in homes connected to the sewerage system for public need.

In 2002, 7.89 million inhabitants lived in homes connected to the sewerage systems for public need. A total of 576.26 million m³ of waste water was discharged into the sewerage system for public need. Out of this amount 92.6% of waste water was treated (without the inclusion of rainwater), which represents 533.59 million m³. The development trends for sewerage systems for public need and the treatment of waste water are documented in the longer timescale by Table 5.2.1 and Graph 5.2.1.

■ The lowest proportion of inhabitants connected to the sewerage system is in the Central Bohemia region.

Graph 5.2.1 Development in numbers of inhabitants living in homes connected to the sewerage system for public need and amount of discharged and treated waste water in the years 1989 and 1996 – 2002



Source: CSO, MA

Table 5.2.1 Removal and treatment of waste water from sewerage system for public need in years 1989 a 1996 – 2002

Indicator	Unit of measurement	Year							
		1989	1996	1997	1998	1999	2000	2001	2002
Average population	thous. inhabs.	10 364	10 316	10 304	10 295	10 283	10 273	10 287	10 201
Inhabitants living in homes connected to sewerage systems for public need	thous. inhabs.	7 501	7 566	7 573	7 657	7 666	7 685	7 706	7 899
	%	72.4	73.3	73.5	74.4	74.6	74.8	74.9	77.4
Waste water discharged into sewerage systems for public need (excluding rainwater) total	million m ³	877.8	615.6	628.5	620.0	592.2	576.0	570.7	576.3
	%	100.0	70.1	71.6	70.6	67.5	65.6	65.0	65.7
Treatment of waste water. including rainwater *)	million m ³	897.4	903.4	842.5	818.9	814.6	808.8	841.4	846.2
Treatment of waste water. excluding rainwater	million m ³	627.6	555.9	571.5	566.1	562.9	546.1	544.8	533.6
	%	100.0	88.6	91.1	90.2	89.7	87.0	86.8	85.0
Proportion of treated waste water. excluding rainwater	%	71.5	90.3	90.9	91.3	95.1	94.8	95.5	92.6
Ratio of treated water to untreated water. excluding rainwater	-	2.51	9.31	10.00	10.50	19.20	18.30	21.21	12.50

Source: CSO

Note: *) data for water supply and sewerage systems of main operators

Table 5.2.2 Number of inhabitants living in homes connected to the sewerage system for public need and amount of discharged and treated waste water in 2002 in the individual regions

Region, territory	Inhabitants living in homes connected to the sewerage system for public need		Waste water discharged into sewerage system for public need total (thou. m ³)	Treated waste water, excluding rainwater	
	total	Total number of inhabitants		total	proportion
	(number)	(%)		(thou. m ³)	(%)
Capital Prague	1 149 000	99.2	91 984	91 984	100.0
Central Bohemia Region	667 620	59.3	47 193	44 832	95.0
South Bohemia Region	528 830	84.6	40 591	36 613	90.2
Plzeň Region	419 730	76.4	32 074	29 219	91.1
Karlovy Vary Region	252 580	83.2	16 284	15 893	97.6
Ústí nad Labem Region	671 000	81.9	44 529	41 145	92.4
Liberec Region	290 410	67.9	18 782	17 993	95.8
Hradec Králové Region	395 470	72.1	30 157	27 473	91.1
Pardubice Region	339 860	67.1	29 371	25 553	87.0
Vysočina Region	410 320	79.2	22 172	18 225	82.2
South Moravia Region	877 650	78.2	56 562	52 716	93.2
Olomouc Region	468 630	73.5	32 117	28 713	89.4
Zlín Region	443 010	74.6	31 540	28 954	91.8
Moravian-Silesian Region	985 210	77.9	82 906	74 284	89.6
Czech Republic	7 899 320	77.4	576 262	533 597	92.6

Source: CSO

Note: including water supply systems not included in the statistical investigation



5.3 Development of water supply and sewerage charges

■ Water supply and sewerage charges increased by an average of 7.5% in comparison with 2001.

In 2002 the average water supply charge in the Czech Republic, including VAT, calculated according to implementation prices, was CZK 20.47/m³ and the average sewerage charge, including VAT, was CZK 17.22/m³.

The limit values of the sum of water supply and sewerage charges in 2002 came to a minimum of CZK 19.86/m³ and a maximum of CZK 48.83/m³. The average price

Table 5.3.1 Water supply and sewerage charges in the year 2002 (including VAT)

Indicator	Unit	Water supply systems	Sewerage systems
Weighted arithmetic average for Czech Republic	CZK/m ³	20.47	17.22
	%	100.00	100.00
Minimum value	CZK/m ³	8.00	7.56
	% from line 1	39.10	43.90
Maximum value	CZK/m ³	28.04	24.59
	% from line 1	137.10	142.90

Source: VÚV TGM

was CZK 37.69/m³. A more detailed overview processed according to the calculation information is given by Table 5.3.1.

In relation to the average values for the Czech Republic (100%), the price differences in the individual regions in the year

2002 varied from 39% to 44% for the lowest prices, and from 137% to 143% for the highest prices. For minimum prices there was no change when comparing 2002 and 2001, for average prices there was an increase in the year 2002 by 7.5%, and for maximum prices there was also an increase by 8.1%.





6.

SOURCES OF POLLUTION AND WATER PROTECTION



6.1 Point sources of pollution

■ The production of pollution increased in 2002 in comparison with 2001 in indicators for dissolved inorganic salt and suspended solids, and it practically stagnated in indicators of biochemical consumption of oxygen and chemical consumption of oxygen.

The quality of surface water is primarily influenced by point sources of pollution (cities and municipalities, industrial plants and objects of concentrated livestock production).

The production of organic pollution according to the biochemical consumption of oxygen (BCO_5) fell by 2% and increased in the indicators of chemical consumption of oxygen designated by the dichromate method (CCO_{Cr}) by 4,891 t (0.8%). In the indicator of dissolved inorganic salts (DIS) there was an increase in 2002 in comparison with 2001 by 113,808 t (by 15.8%), and in the indicator of suspended solids (SS) it was 42,801 t (13.5%). These changes occurred mainly as a result of the flood (NL) and as a result in changes in the discharge of mine water (DIS).

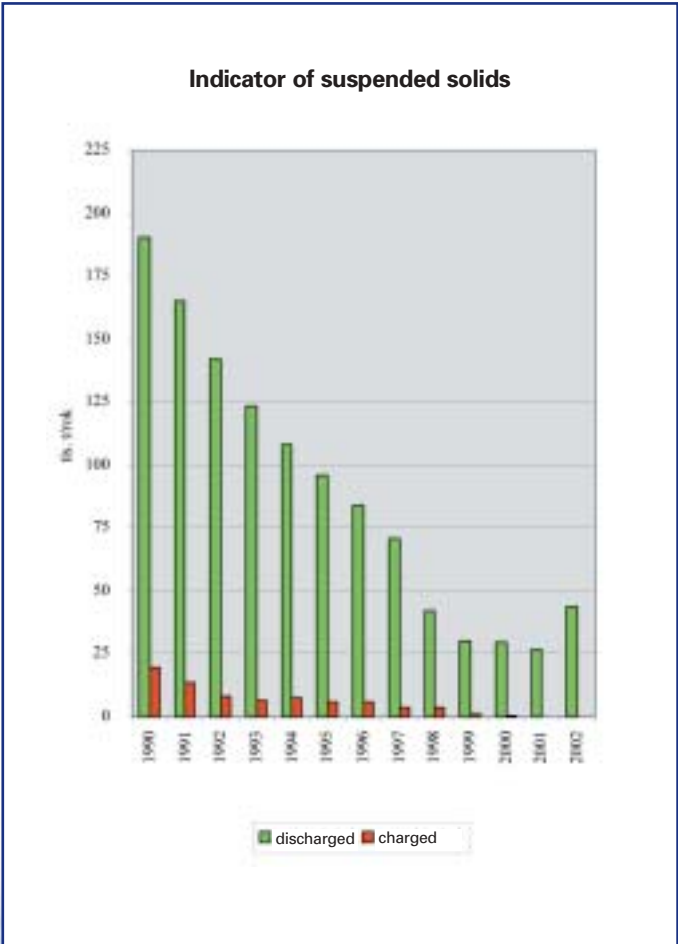
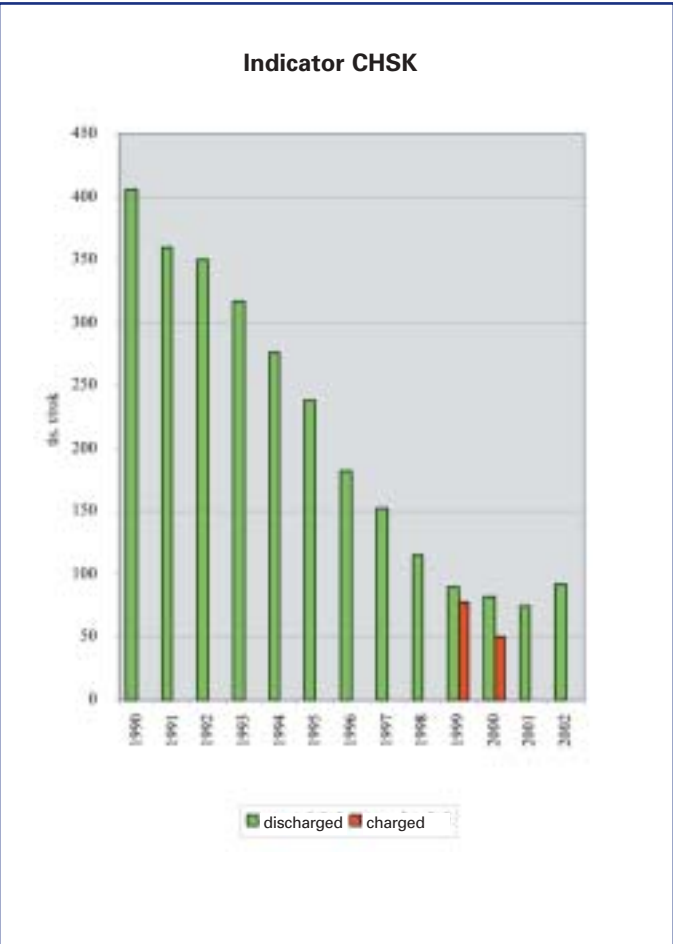
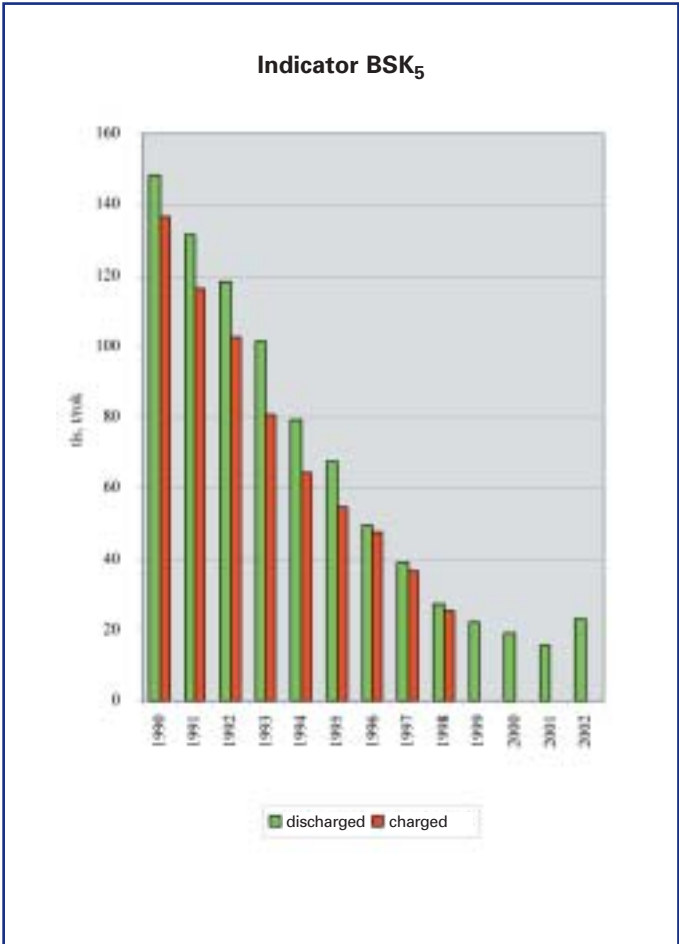
In comparison with 2001, discharged pollution increased in these indicators: BCO_5 by 7,274 t (46.4%), CCO_{Cr} by 17,593 t (23.6%), DIS by 97,372 t (14.7%) and NL by 17,466 t (65.4%). There was a significant increase in the pollution released as a result of the flood. Several important waste water treatment plants in the Vltava basin (CWTP Prague, WWTP České Budějovice, WWTP Písek) were completely out of operation for several months in 2002 as a result of the flood and damage to mechanical equipment; in better



cases only the mechanical stage of treatment was in operation. In the Vltava basin the discharged pollution in 2002 increased in comparison with the year 2001 by 211% according to BCO_5 , and according to CCO_{Cr} by 108% and according to NL by 230%. In the other basins the discharged pollution according to BCO_5 was reduced by 0.9%, according to CCO_{Cr} by 7.6%, and according to NL by 2.4% as a result of the operation of new and reconstructed

waste water treatment plants (referred to hereinafter as WWTP) completed in 2001, or 2002, the intensification of old WWTP, and the connection of certain sewerage systems for public need to WWTP. The discharged pollution is also being reduced by the fact that for certain WWTP the chemical condensation of phosphorus is being applied, which also leads to a reduction in the discharged organic pollution characterised by indicators of BCO_5 and CCO_{Cr} .

Graph 6.1.1 Discharged and charged pollution 1990 – 2002



Source: VÚV T.G.M., river board corps.

In industry there was a significant decrease in discharged pollution from ALIACHEM – Synthesia, a. s., Pardubice (by 1,206 t CCO_{Cr} and 366 t NL), BIOCEL, a. s. Paskov (by 308 t CCO_{Cr}) and from Spolek pro chemickou a hutní výrobu, a. s. Ústí nad Labem (by 766 t CCO_{Cr} and 243 t BCO_5). On the other hand, a greater amount of pollution was discharged in 2002 in comparison with 2001 from Sokolovská uhelná, a. s. Chodov (by 166 t CCO_{Cr}) and OP papírna, s. r. o. in Olšany (by 277 t CCO_{Cr}).

In the communal sphere there was a significant decrease in discharged pollution from these cities: Ostrava (by 53 t BCO_5 and 187 t CCO_{Cr}), Třebíč (by 35 t BCO_5 and 100 t CCO_{Cr}), Most (by 53 t BCO_5 and 249 t CCO_{Cr}). On the other hand, as a result of the flood more pollution was discharged from these cities: Prague (by 7,822 t BCO_5 and 20,396 t CCO_{Cr}), České Budějovice (by 467 t BCO_5 and 956 t CCO_{Cr}), Písek (by 70 t BCO_5 and 156 t CCO_{Cr}), Klatovy (by 101 t BCO_5 and 214 t CCO_{Cr}).

According to data gathered on the basis of decree No. 431/2001 Coll., in the year 2002 sewerage systems for public need contributed 63.9% to the total volume of waste water released into watercourses, excluding cooling water. The share of sewerage systems for public need of the amount of discharged pollution was as follows: BCO_5 77.9%, CCO_{Cr} 67.7 % and NL 63.9 %. The share of sewerage systems for public need of the overall pollution burden of watercourses from point sources of pollution in 2002 was approximately 10% higher than in 2001 as a result of the floods.

■ In 1990 – 2002 it was possible to decrease the discharged amount of dangerous and especially dangerous substances.

For example the amount of mercury was reduced from approximately 2.5 t to less than 0.5 t. In 2002 there was also a significant drop in the released amount of AOX. Spolek pro chemickou a hutní výrobu a.s. in Ústí nad Labem reduced AOX by approximately 10 t/year. There was also a significant drop in macronutrients (nitrogen, phosphorous). According to available data the amount of phosphorous dropped in



this period by 41% and the amount of inorganic nitrogen dropped by approximately 28%. The drop occurred mainly because biological removal of nitrate and biological or chemical removal of phosphorous was applied in the technology of treating waste water for new and intensified waste water treatment plants.

In the industrial sphere in 2002 there was inadequate treatment of waste water mainly from these subjects: Spolek pro chemickou a hutní výrobu, a. s. in Ústí nad Labem (finishing of treatment of waste water in municipal WWTP in Ústí nad Labem was started on 1st January 2003), Papírny Bělá, a. s. in Bělé pod Bezdězem (134 t BCO_5 , 235 t

CCO_{Cr}) and JIP – papírna Loučovice (133 t BCO_5 , 363 t CCO_{Cr}). The WWTP of the town Roztoky u Prahy also had an inadequate effect caused by industrial waste water.

Amongst municipalities with more than 5000 inhabitants, in 2002 waste water discharged from Kravaře u Opavy, Kunovice and Havířov was not adequately treated.

Out of the most significant events for sources of pollution above 2000 EI in 2002, waste water treatment plants (WWTP) with a total capacity of 60 279 EI were completed (N = nitrification, DN = denitrification, BP = biological removal of phosphorous, CHP = chemical removal of phosphorous):

Jablunkov	(8 000 EO, N, DN, CHP)
Líně	(5 475 EO, N, DN, CHP)
Michálkovice	(5 283 EO, N, DN, CHP)
Kdyně	(5 000 EO, N, DN, CHP)
Velvary	(4 350 EO, N, DN, BP)
Rychvald	(3 500 EO, N, DN)
Jaroslavice	(3 405 EO, N, DN, BP)
Luka nad Jihlavou	(2 420 EO, N, DN, CHP)
Brandýsek	(2 200 EO, N, DN, CHP)
Červená Voda	(2 180 EO, N, DN)
Moravany	(2 130 EO, N, DN)
Stíty	(2 100 EO, N)
Jesenice	(2 100 EO, N, DN, CHP)
Břežany	(2 048 EO, N, DN, BP)
Osoblaha	(2 048 EO, N, DN)
Drnholec	(2 020 EO, N, DN)
Hazlov	(2 020 EO, N, DN, CHP)
Troubky	(2 000 EO, N, DN, CHP)
Stáhlavy	(2 000 EO, N, DN, BP)

6.2 Non-point pollution

The quality of surface and groundwater is significantly impacted by non-point pollution – in particular pollution from farming, atmospheric deposition and eroded material washed off from the land. With the continuing drop in point pollution, the significance of this non-point pollution grows. Its proportion is fundamental, especially for nitrates and acidification but less so for phosphorous, and differs in different parts of the Czech Republic depending on population density, the proportion of treatment of discharged waste water, the intensity and method of farming and level of atmospheric deposition.

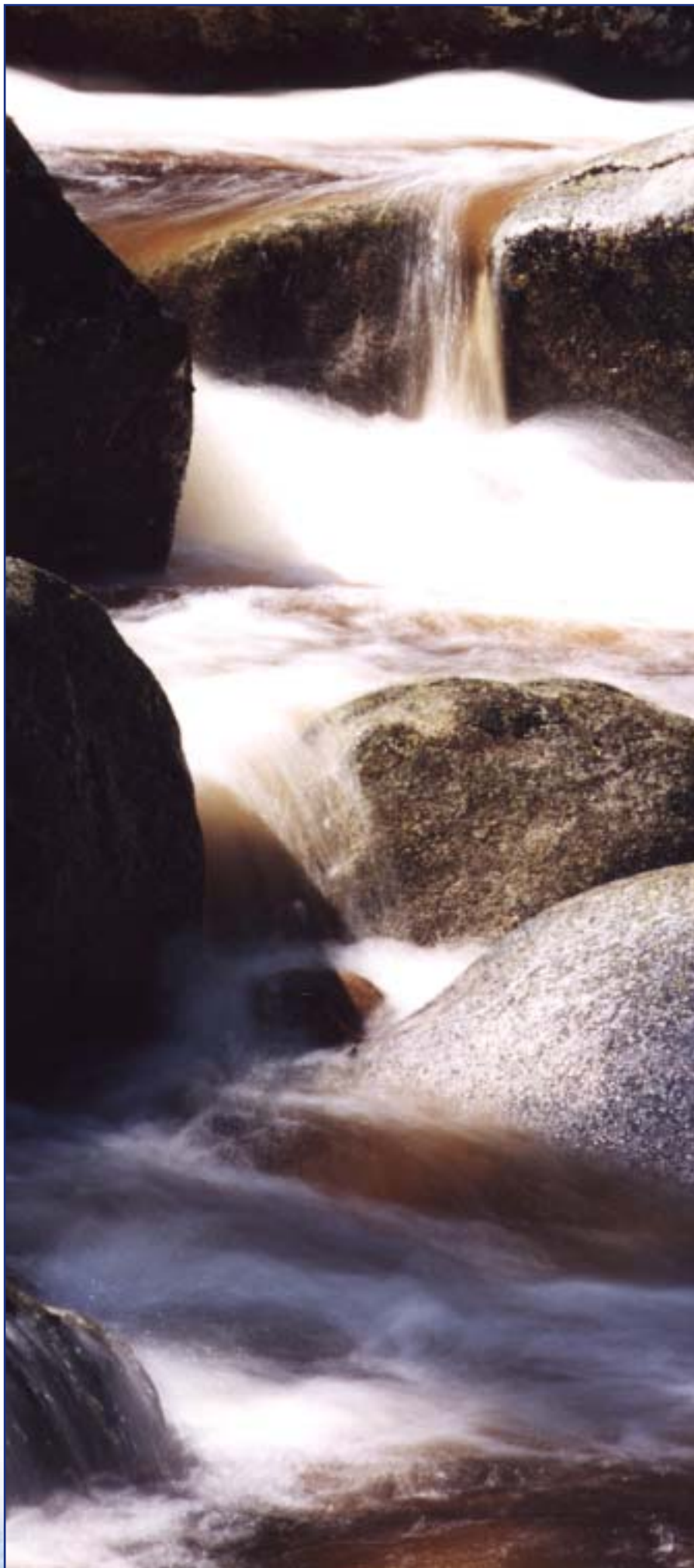
In 2002 the Water Management Research Institute T.G.M. completed a five-year research programme VaV “Limiting of Non-point Pollution of Surface and Groundwater of the Czech Republic”, the result of which was, inter alia, a designation of areas at risk from nitrates, phosphorous and acidification. On the basis of the output of this project, a government order was prepared with a definitive designation of the vulnerable areas according to the directive of the Council 91/676/EU (so-called nitrate directive) and a list of binding measures for vulnerable areas.



6.3 Accident pollution

■ In the year 2002, on the territory of the Czech Republic the Czech Environmental Inspectorate recorded 246 cases of accident pollution or threat to water quality, of which 12 cases involved groundwater.

In comparison with 2001 the number of accidents in waters is 83 higher. In 2002 there were 133 accidents as a result of the floods, and these were recorded separately. The most frequent group of polluting substances remains oil substances (49.2% out of the total number of recorded cases), followed by chemical substances (8.9%). In a breakdown according to the origin of the accident, accidents were caused most frequently in transport (10.6%), and after this in agriculture (7.4%). In 44.7% of cases the perpetrators were not discovered. In 2002, the CEI participated in the investigation of 247 cases of accidents, of which it investigated 72 accidents alone and 49 accidents jointly with environmental departments of district authorities, which themselves investigated 112 cases alone. For breaches of the laws valid in water management, in 2002 the CEI imposed a total of 468 fines, of which 402 acquired legal authority (they represent a total of CZK 18.443 million).





7.

FINANCIAL SUPPORT FOR INVESTMENTS IN WATER SUPPLY SYSTEMS AND SEWERAGE SYSTEMS FOR PUBLIC NEED, FOR ADMINISTRATORS OF WATERCOURSES AND IMPROVEMENT IN THE STATE OF THE COUNTRYSIDE



7.1 Financial support of the Ministry of Agriculture

■ In 2002, the state, via the programmes of the MA, supported the development of water-management infrastructure of water supply systems and sewerage systems with almost CZK 2 billion of financing.

In 2002, under the programmes MA 329 030 "Construction and Technical Renewal of Water Supply Systems and Water Treatment Plants" and 329 040 "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 development of the field of water supply systems and sewerage systems itself support was provided in the total approximate amount of CZK 2 billion. In comparison with the year 2001 this is a significant increase by 125%. Support from the state budget more than doubled, and support provided to investors in the form of a preferential loan from the EIB almost trebled.

In 2002, the programme 229 810 "State Assistance During the Renewal and Securing of Territory Afflicted by Extraordinary Events Provided by the MA Focusing on the Renewal and Securing of Water-Management Infrastructure of Water Supply Systems and Sewerage Systems" was instituted as an essen-

tial reaction to the damaged structures of facilities of water supply systems and sewerage systems resulting from the August floods. In order to start up this programme, the MA secured financial resources from the state budget in the amount of CZK 65 million, which were invested virtually in full.

Table 7.1.1 State financial resources provided under the programmes MA 329 030 (229 030), 329 040 (229 040) and 229 810 in millions of 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 floods of 08/2002	MA total
Refundable financial assistance	52.595	0	0	52.595
Grants	698.964	564.262	64.995	1 328.221
Total	751.559	564.262	64.995	1 380.816

Source: MA

Table 7.1.2 Development of state support for construction of water supply systems, water treatment plants, sewerage systems and waste water treatment plants under the MA in the years 1999 - 2002 in millions of CZK

Financial sources	1999	2000	2001	2002
Grants of state budget	1 245	918	447	1 328
Refundable financial assistance	473	422	219	53
Support of state budget	1 718	1 340	666	1 381
EIB	568	60	222	616
Support - total	2 286	1 400	888	1 997

Source: MA

■ **The MA declared many other programmes outside the field of water-management infrastructure of water supply systems and sewerage systems the aim of which was to rectify the consequences of the previous floods, the renewal of water-management assets after the devastating floods in the year 2002 and the implementation of flood prevention measures.**

The use of state financial resources for capital and current expenses is given in the following Tables 7.1.3 and 7.1.4.

As part of the administration of small waterways, repairs and maintenance of tangible fixed assets and care for unregulated watercourses was carried out in 1,427 events. Amongst the most significant events were the dredging of the watercourses Blatenský, Kozárovický, Babický and Bečva - Hať and repair of the sealing on the Krhovice – Hevlín irrigation channel, which was diverted to watercourses.

Dredging was carried out in 125 fishponds. Amongst the most significant fishponds which were dredged in 2002 were Slavíček, Starý splav, Obecní Velký, Schoř and Žákův. In another nine fishponds, the most significant of which include Kout and Rohozecký, dredging was started in the year 2002.

Amongst the most important events for the maintenance and repair of tangible fixed assets on watercourses of importance for transport on the Vltava, Elbe and Morava in particular, were:

- **on the Vltava** in particular, the dredging of the Smíchov port, the passenger shipping wharfs, the pool of the water structure Modřany and repairs to 10 locks, 5 water structures and the lateral canal Vraňany – Hořín,
- **on the Elbe** in particular, repairs to 20 water structures in the section Pardubice - Střekov and dredging of the navigation channel in the section Střekov – Ústí nad Labem,
- **on the Morava** in particular, the dredging of 10 locks and canals, for example the section Vnorovy – Strážnice.

Table 7.1.3 State financial resources provided by MA for capital and current expenses as part of programme financing in the programmes 229 060, 229 110 and 329 180 in thousands of CZK

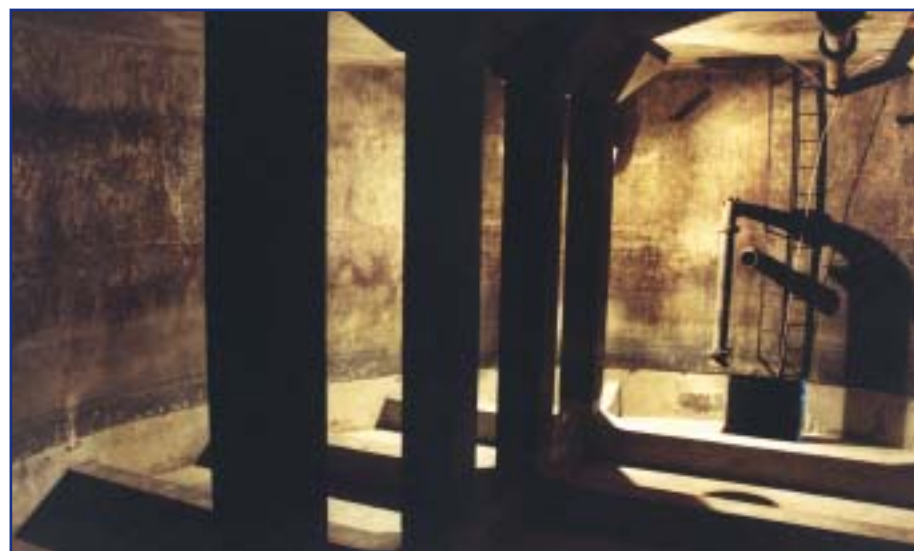
Registration number of programme	Name of programme	Expenditure for financing of programmes
229 060	Flood prevention	186 420
229 110	Rectifying consequences on state water-management assets	176 447
329 180	Rectifying damages caused by the flood of 1997	725 371

Source: MA

Table 7.1.4 Non-investment support for other measures in water-management provided by the MA in thousands of CZK

Name of support	Level of provided resources	Recipient of support
Administration of small watercourses	119 820	AWMA
Dredging of fishponds	176 822	Legal and natural trading persons
Operation and maintenance of waterways of significance for transport	51 500	Elbe River Board corp.
	6 000	Morava River Board corp.
	51 000	Vltava River Board corp.
Total	108 500	Administrators of waterways of significance for transport

Source: MA



■ As part of this programme, in the course of 2002 78 investment constructions and 18 non-investment events were implemented or partially built, and 6 studies were prepared.

The largest number of flood prevention measures in the entire Czech Republic, i.e., 62 investment structures and 17 non-investment events, was implemented by the AWMA. In the following overview we give certain of the more significant events:

Table 7.1.5 Use of financial resources under the programme 229 060 "Flood Prevention" in millions of CZK

Owners and administrators	Use in 2002 State budget	
	Investment	Non-investment
Elbe River Board corp.	9.8	0
Morava River Board corp.	14.375	42.616
Odra River Board corp.	16.552	0
Vltava River Board corp.	31.048	0
AWMA	63.118	8.911
Total	134.893	51.527

Source: MA

VLTAVA RIVER Board corp.

■ Reconstruction of Novořecké dike at 0.100–3.550 km

total costs CZK 96.0 million, in 2002 CZK 26.072 million was invested in construction

■ Study evaluation of flood line of flood 08/2002

total costs CZK 15.0 million, in 2002 CZK 5.0 million was released

ELBE RIVER Board corp.

■ Chrudimka, Štětín -Tuněchody, protective dike of municipality

total costs CZK 22.7 million, in 2002 CZK 2.0 million was invested in construction

MORAVA RIVER Board corp.

■ Morava, Napajedla – LB dike 172,526-175,620

total costs CZK 28.0 million, in 2002 CZK 1.5 million was invested in construction

■ Under this programme, in 2002 60 investment constructions and 56 non-investment events were implemented.

The largest number of events was ensured by the Morava River Board corp. – 21 investment constructions and 36 non-investment events. In the following overview we give some of the more important events:

Table 7.1.6 Use of financial resources under programme 329 180 "Rectification of Damage Caused by Floods of 1997" in millions of CZK

Owners and administrators	Used in 2002 State budget	
	Investment	Non-investment
Elbe River Board corp.	3.070	12.0
Morava River Board corp.	134.224	195.321
Odra River Board corp.	238.806	73.733
AWMA	29.219	0
Forests of the CR. s.e.	12.091	26.907
Total	417.410	307.961

Source: MA

MORAVA RIVER Board corp.

■ Regulation of Morava in Libava, reconstruction of right-bank dike

total costs CZK 15.4 million, in 2002 CZK 13.8 million was invested in construction

■ Regulation of Morava and reconstruction of dike in section Vnorovy - Uherský Ostroh

total costs CZK 19.7 million, in 2002 CZK 15.4 million was invested in construction

■ Morava, Kroměříž, removal of sediment and collapsed banks

total costs CZK 13.8 million, in 2002 CZK 13.8 million was invested in construction

■ Vsetínská Bečva, km 8.872-12.183, repair of riverbed in section Mikulůvka - Jablůnka

total costs CZK 27.3 million, in 2002 CZK 27.3 million was invested in construction

ODRA RIVER Board corp.

■ Regulation of Bělá and reconstruction of weir in Jeseník, km 18.750-19.251

total costs CZK 23.2 million, in 2002 CZK 18.0 million was invested in construction

■ Regulation of Bílá Opava in Vrbna pod Pradědem, km 0.000-0.850

total costs CZK 16.5 million, in 2002 CZK 16.5 million was invested in construction

■ Regulation of Opavice in Hynčice, km 18.250-19.000

total costs CZK 19.6 million, in 2002 CZK 19.6 million was invested in construction

■ Regulation of Opavice in Albrechtice, km 16.225-17.015

total costs CZK 19.7 million, in 2002 CZK 19.7 million was invested in construction

ELBE RIVER Board corp.

■ Repair of Elbe riverbed in Pec pod Sněžkou

total costs CZK 28.7 million, in 2002 CZK 12.0 million was invested in construction

AWMA

■ Adjustment of watercourse Grasmanky, retaining walls, stabilisation of riverbed, transverse objects

total costs CZK 19.0 million, in 2002 CZK 17.0 million was invested in construction

■ Adjustment of Vojtovický stream III, retaining walls, transverse objects, sills

total costs CZK 7.1 million, in 2002 CZK 5.1 million was invested in construction

FORESTS OF THE CR, s.e.

■ Repair of watercourse Olešnice, repair of reinforcements and transverse objects

total costs CZK 28.1 million, in 2002 CZK 22.0 million was invested in construction

■ Adjustment of Jasénka in Jasená II, stabilisation and reinforcement of riverbed

total costs CZK 5.4 million, in 2002 CZK 5.4 million was invested in construction

■ **Under this subprogramme 229 112, 10 investment constructions and 50 non-investment events were implemented or partly finished.**

The greatest number of events, 3 investment ones and 36 non-investment ones, was ensured by the Elbe River Board corp. In the following overview we give some of the more important events:

ELBE RIVER Board corp.

■ **Reconstruction of left-bank wall below the weir on the Elbe in Jaroměř**
total costs CZK 12.2 million, in 2002 CZK 3.5 million was invested in construction

MORAVA RIVER Board corp.

■ **Repair of riverbed of Oslava in Dlouhá Loučka**
total costs CZK 3.9 million, in 2002 CZK 2.0 million was invested

AWMA

■ **Radíkovský stream, repair of riverbed**
total costs CZK 2.1 million, in 2002 CZK 1.8 million was invested in construction

Table 7.1.7 Use of financial resources in sub-programme 229 112 "Rectification of consequences of flood from the year 2000" in millions of CZK

Owners and administrators	Used in 2002 State budget	
	Investment	Non-investment
Elbe River Board corp.	5.162	22.837
Morava River Board corp.	0	8.734
AWMA	1.629	3.871
Total	6.791	35.442

Source: MA

■ **Under this sub-programme, 1 investment construction and 58 non-investment events were implemented.**

The largest number, 36 events, was ensured by AWMA. The most significant events were implemented by the Vltava River Board corp. We give some of the more important events in the following overview:

Table 7.1.8 Use of financial resources in sub-programme 229 113 "Rectification of Consequences of Flood of 2002" in millions of CZK

Owners and administrators	Used in 2002 State budget	
	Investment	Non-investment
Elbe River Board corp.	0	20.500
Morava River Board corp.	2.382	2.117
Vltava River Board corp.	0	84.241
Agricultural Water Management Administration	0	24.974
Total	2.382	131.832

Source: MA

VLTAVA RIVER Board corp.

■ **Vltava, km 239.624-240.500, pool of Jiráskův weir, removal of failed embankment, repair to reinforcements**

total costs CZK 12.6 million, in 2002 CZK 10.6 was invested in construction

■ **Vltava, km 241.725-242.390, area upstream of Trilčův weir, removal of failed embankment, repair to reinforcements**

total costs CZK 19.2 million, in 2002 CZK 11.3 million was invested in construction

■ **Úslava in Plzeň, km 0,650-4.100, removal of failed embankment, repair to reinforcements, transverse and stabilisation objects**

total costs CZK 49.5 million. in 2002 CZK 9.6 million was invested in construction

■ **Water-management structure Vrané, repair to collapsed right bank downstream of hydroelectric power plant**

total costs CZK 29.5 million, in 2002 CZK 16.0 million

■ **Repair to right bank of upper canal Dolánka, removal of collapsed embankment and repair to reinforcements**

total costs CZK 15.3 million, in 2002 CZK 9.0 million was invested in construction

ELBE RIVER Board corp.

■ **Smědá, Předláne - Minkovice, km 10.500-15.220, removal of sediment and repair of embankment failure**

total costs CZK 3.0 million, in 2002 CZK 3.0 million was invested in construction

■ **Elbe, Dolní Beřkovice - Mělník, removal of sediment**

total costs CZK 6.5 million, in 2002 CZK 5.0 million was invested in construction

MORAVA RIVER Board corp.

■ **Dyjskomlýnský raceway, reconstruction of right-bank dike**

total costs CZK 2.6 million, in 2002 CZK 2.6 million was invested in construction

AWMA

■ **Rectification of flood damage in the district of Klatovy**

total costs CZK 9.8 million, in 2002 CZK 2.3 million was invested in construction

■ **Rectification of flood damage in the district of České Budějovice**

total costs CZK 4.2 million, in 2002 CZK 4.2 million was invested in construction

7.2 Financial support of the Ministry of the Environment

■ Programme for the revitalisation of river systems

■ In 2002 support for the implementation of the measures was provided in the form of a special-purpose grant in an overall amount of CZK 194.727 million.

The programme for the revitalisation of river systems (referred to hereinafter as "PRRS") is formulated as a programme for the regeneration, stabilisation and care of the water regime in the countryside with the aim of creating conditions for the renewal of ecological stability and the sustainable use of the countryside.

The financial resources for PRRS are allocated from the budget every year. The programme is ensured by the Agency for the Protection of Nature and the Countryside. The resources are provided according to the Rules in the form of a special-purpose grant in addition to the applicant's own resources after discussion and recommendation by regional advisory groups. Management of the Programme is entrusted to the Department of Countryside Ecology of the ME.

The overall budget of PRRS in 2002 was CZK 209,011 thousand, and the grants provided for the implementation of measures amounted to CZK 194,727 thousand. An overview of the use of financial resources in the regions and in regional competence and centres of the Agency for the Protection of Nature and the Countryside is given in the following tables 7.2.1. and 7.2.2.

Since 2000 the budget of the programme has been decreasing constantly, as has the number of new events with financial support. In the year 2002, CZK 194,727 thousand was used for 179 events, and CZK 134,974 thousand was used for 99 unfinished events, and CZK 59,753 thousand was used for 80 events started in 2002.

The greatest volume of financial resources was expended on events where the grant was from CZK 2 to 5 million.

Table 7.2.1 Use of financial resources of PRRS in the years 2001 and 2002 according to region

Region / year	2001		2002					
	Total		Unfinished events		Events started		Total	
	number	CZK thou.	number	CZK thou.	number	CZK thou.	number	CZK thou.
Central Bohemia	38	58 674	18	32 988	11	10 234	29	43 222
South Bohemia	25	26 456	11	17 854	6	2 903	17	20 757
Plzeňský	26	23 527	10	12 125	11	9 471	21	21 596
Karlovarský	5	4 092	3	2 279	2	1 534	5	3 813
Ústecký	14	27 233	7	8 453	1	3 594	8	12 047
Liberecký	3	1 045	1	3 270	1	800	2	4 070
Královéhradecký	20	14 673	7	7 669	6	5 143	13	12 812
Pardubický	15	12 859	4	12 082	1	1 200	5	13 282
Vysočina	21	14 941	11	9 864	11	6 649	22	16 513
South Moravia	14	16 846	8	10 308	7	4 693	15	15 001
Olomoucký	20	14 252	7	8 067	11	6 101	18	14 168
Zlínský	9	11 240	5	3 920	7	5 667	12	9 587
Moravia-Silesia	9	13 921	7	6 095	5	1 764	12	7 859
Total	219	239 759	99	134 974	80	59 753	179	194 727

Source: ME, VÚV T.G.M.

Table 7.2.2 Use of financial resources of PRRS in the years 2001 and 2002 according to centres APNC

APNC /Year	2001				2002			
	Total		Unfinished events		Events started		Total	
	number	CZK thou.	number	CZK thou.	number	CZK thou.	number	CZK thou.
Brno	20	23 772	11	12 602	12	8 860	23	21 462
České Budějovice	25	26 456	11	17 854	6	2 903	17	20 757
Havlíčkův Brod	23	15 641	12	10 388	12	6 949	24	17 337
Olomouc	22	15 251	8	9 267	11	6 101	19	15 368
Ostrava	12	18 235	9	7 721	7	3 264	16	10 985
Pardubice	34	34 745	10	18 551	7	6 343	17	24 894
Plzeň	30	25 572	13	14 404	13	11 005	26	25 409
Prague	36	57 974	17	32 464	10	9 934	27	42 398
Ústí nad Labem	17	22 113	8	11 723	2	4 394	10	16 117
Total	219	239 759	99	134 974	80	59 753	179	194 727

Source: ME, VÚV T.G.M.



The greatest number of events was implemented with grants up to CZK 500,000:

Budgetary organisations can receive a grant in a maximum amount of CZK 100% of the total costs of investments, municipalities up to 80% and others up to a maximum of 70% of costs depending on the type of measures. The ME will decide on exceptions at the recommendation of the Advisory group of the ME.

There is a slight predominance of natural and legal persons in the number of financed applications and in the volume of support. In terms of use of grants, the ratio of appli-

cants in the individual groups was relatively balanced. In comparison with the previous year, the proportion of budgetary and subsidised organisations rose by approximately 20%, because the drop in the number of applications for grants for the acquisition of project documentation fell (from 16 to 7 in 2002) with lower financial demands.

The use of grants according to type of measure in 2002 is given in Table 7.2.5.

■ Programme of minor water-management ecological events

The programme of minor water-management ecological events (referred to hereinafter

as "PMWMEE") is ensured by the Ministry of the Environment (Department of Countryside Ecology) in cooperation with the Ministry of Finance. The aim is to improve the environment in the form of support for treatment of waste water in smaller municipalities linked with landscape-forming programmes and a comprehensive approach to dealing with the ecological stability of the territory. PMWMEE focuses on municipalities which cannot resolve their problems with the treatment of waste water via the State Environmental Fund or the Ministry of Agriculture. It is intended for municipalities with less than 2000 equivalent inhabitants. The overall volume of financial resources of the PMWMEE for 2002 came to CZK 187.052 million, and it supported 70 events.

Table 7.2.3 Number of applications according to level of grants released in 2002

Level of grant	Event		Grants	
thous. CZK	number	proportion (%)	thous. CZK	share (%)
up to 500	61	34,1	18 966	9,7
501 to 1000	58	32,4	46 678	24,0
1001 to 2000	39	21,8	53 528	27,5
2001 to 5000	18	10,0	54 120	27,8
More than 5000	3	1,7	21 435	11,0
Total	179	100,0	194 727	100,0

Source: ME, VÚV T.G.M.

Table 7.2.4 Number of events and level of grant according to type of applicant in 2002

Applicant	Number of events	Grants (CZK thous.)	Average level of grant (CZK thous.)
Municipalities and cities	57	62 332	1 094
Natural and legal persons	68	70 070	1 030
Budgetary and subsidised organisations:			
SCHKO	6	4 764	794
APNC	9	16 682	1 854
AWMA	33	30 641	929
Forests of the CR, s.e.	3	8 190	2 730
NP Podyjí	1	768	768
Ohře River Board corp.	1	1 094	1 094
Odra River Board corp.	1	186	186
Total	179	194 727	1 088

Source: ME, VÚV T.G.M.

Table 7.2.5 Types of measures supported from PRRS in 2002

Type of measures	Number of measures	Grants CZK thous.
a – revitalisation of natural function of watercourses	30	24 978
b – establishment and revitalisation of elements of system of ecological stability linked with the water regime	12	22 062
c – revitalisation of retention capacity of the countryside	125	133 948
d – reconstruction of technical elements and dredging of production fishponds	2	9 168
e – construction of root water treatment plants, establishment of artificial wetlands	2	1 934
f – removal of transverse barriers on watercourses	1	684
g – project documentation, preparation for implementation	7	1 953
Total	179	194 727

Source: ME, VÚV T.G.M.

7.3 State environmental fund

The State Environmental Fund (referred to hereinafter as the "SEF") provides support to municipalities for protection of water under declared programmes (in particular for measures at sources of pollution) in the form of a grant, loan and contribution for partial payment of interest.

In 2002, the support of the SEF in the area of water reached CZK 1,973.405 million (grants CZK 1,369.798 million, loans CZK 603.607 million), and as a result of the flood situation it was 23% higher than in the previous year.

By the end of 2002, 154 applications had been registered in the field of water protection, and 76 had been registered for support from the Renewal Programme (dredging, drying, cleaning) or construction of sewerage systems and waste water treatment plants on territories affected by the flood.

On the basis of Resolution of the Government No. 149 of the date 14. 2. 2001, the SEF is the implementation agency for the implementation of the ISPA instrument. The priority of this EU instrument is primarily support for measures in the water-management area, in particular the handling of waste water. Grants of CZK 10,156 thousand were provided for the joint financing of ISPA programmes in 2002 from the resources of SEF for 13 projects in the field

of water protection in a total amount of CZK 162,041 thousand.

Some of the most significant recipients of support from the aspect of the resources released up to the end of 2002 were the city of Klatovy, which was given support in the amount of CZK 55.3 million for the reconstruction and modernisation of a WWTP (of this, grant of CZK 5.2 million and loan of CZK 50.1 million), the Water Supply System and Sewerage System of the Federation of Municipalities with its headquarters in Třebíč for the intensification of the WWTP in a total amount of CZK 37.1 million (grant CZK 8.6 million, loan CZK 28.5 million) and municipality of Moravany for a sewerage system in the total amount of CZK 26.9 million (grant CZK 19.6 million, loan CZK 7.3 million). The support given by SEF in the field of water in 2002 is given by Table 7.3.1.

7.4 Financial support from international sources

In 2002 many investments of a water-management nature were supported from foreign sources. Last year almost EURO 12.654 million was paid out from the funds PHARE – CBC and PHARE – LSIF for water-management events (more than CZK 392.0 million). EURO 4,067.170 thousand was provided under the programme PHARE – LSIF for the reconstruction of the sewerage system in Brno (approximately CZK 126.0 million). A total of EURO 7.6 million was provided from the programme PHARE – CBC for projects focussing on the removal and cleaning of waste water (approximately CZK 23.5 million). This was used to support, for example, the following events Třebíč – expansion of WWTP - EURO 2.665 million (approximately CZK 82.6 million), region Vlára – building of sewerage system and alteration of WWTP – EURO 1.150 million (CZK 35.65 million), Klatovy – reconstruction of WWTP - EURO 2.025 million (CZK 62.775 million), Mariánské Lázně – sewerage system – EURO 1.655 million (CZK 51.305 million), and EUROS 93.1 thousand (approximately 2,9 million CZK) was given for a waste water treatment plant and sewerage system in Břeclav.

All events were co-financed from national sources (own sources of investors and support from state budget).

Table 7.3.1 Total support of SEF given in 2002

Subject of support	Grants		Loan		Total support	
	CZK thous.	Proportion (%)	CZK thous.	Proportion (%)	CZK thous.	Proportion (%)
Entrepreneurial subjects – legal persons	8 662	0.6	21 197	3.5	29 859	1.5
Entrepreneurial subjects – natural persons	0	0	847	0.1	847	0
Civic associations	27 290	2.0	5	0	27 295	1.4
Churches	62	0	0	0	62	0
Non-profit-making and similar organisations	22 857	1.7	5 895	1.0	28 752	1.5
State budget	21 216	1.5	0	0	21 216	1.1
Municipalities	1 191 492	87.0	505 310	83.7	1 696 802	86.0
Regions	3 539	0.3	0	0	3 539	0.2
Public budget	94 680	6.9	70 353	11.7	165 033	8.3
Subsidised organisations	0	0	0	0	0	0
Established organisations	0	0	0	0	0	0
Total	1 369 798	100	603 607	100	1 973 405	100

Source: SEF, VÚV T.G.M.

Under the PHARE 2000 programme, many events were implemented in northern Bohemia and in the Moravian-Silesian Region (NUTS II) for EURO 900.0 thousand (almost CZK 28.0 million), and an ecological improvement of the Ohře and the Elbe costing EURO 98.5 thousand (more than CZK 3.0 million) was financed from the fund PHARE - CBC.

Out of the events implemented under the Programme of Small Infrastructure projects it is possible to mention the channelling of sewerage in the municipality of Kostomlaty pod Milešovkou implemented in the amount of EURO 211.86 thousand, to which the Czech Republic contributed EURO 52.97 thousand and PHARE contributed EURO 158.89 thousand. The reconstruction of the inspection sewer shafts and pumping station in the municipality of Babylon required a total of EURO 45.29 thousand, to

which the Czech Republic contributed only EURO 11.32 thousand, and the remaining amount was paid from the PHARE fund.

Resources from the loans of the European Investment Bank used for support of construction of water supply systems, water treatment plants, sewerage systems and waste water treatment plants have virtually trebled since 2001, because last year a total level of CZK 616.0 million of them were implemented. The financial resources intended for flood prevention from national sources in the amount of CZK 2.15 billion were augmented by a loan from the European Investment Bank in the amount of EUROS 60 million. Using these national and foreign sources, in the year 2002 – 2005, it was possible to ensure financing for the programme 229 060 “Flood Prevention”.





8.

LEGISLATIVE INSTRUMENTS



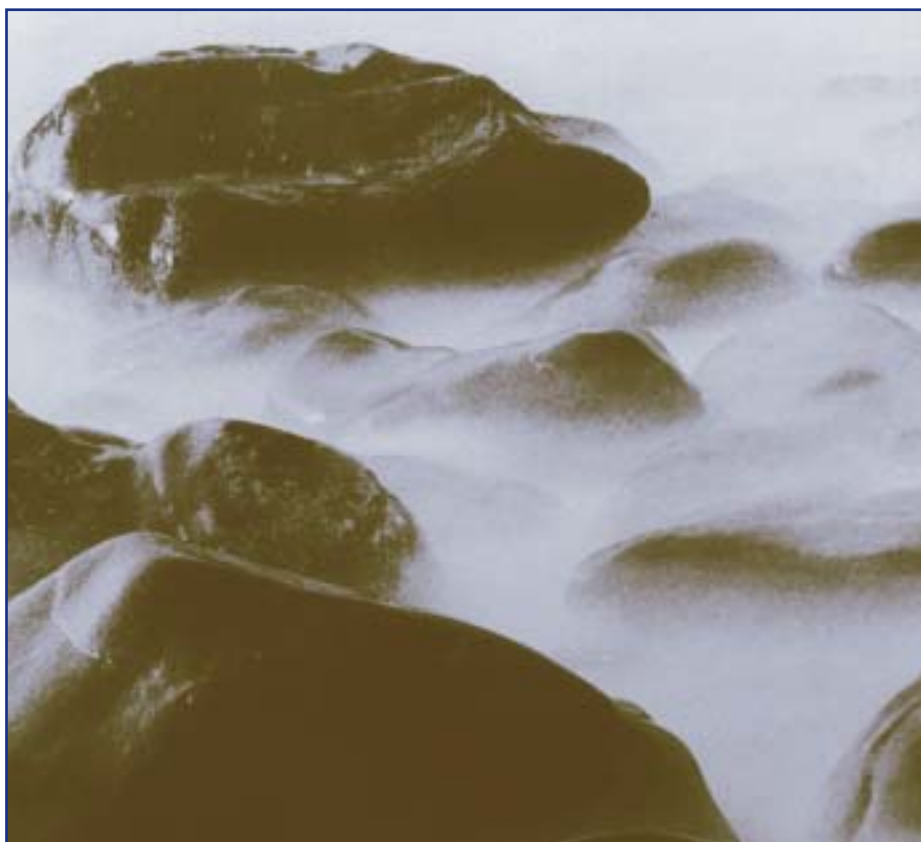
■ On 1st January 2002 two fundamental acts regulating the area of water management - Act No. 254/2001 Coll., Concerning Water and the Amendment of Certain Acts (the Water Act) and Act No. 274/2001 Coll., Concerning Water Supply Systems and Sewerage Systems for Public Need and Concerning the Amendment to Certain Acts (the Water Supply System and Sewerage System Act) – became valid.

By the adoption of Act No. 76/2002 Coll., Concerning Integrated Prevention, and Act No. 320/2002 Coll., Concerning the Amendment And Repeal of Certain Acts in Relation to the Termination of the Activity of District Authorities, the Water Act was amended. The amendment of Water Act and the Water Supply Systems and Sewerage Systems Act was implemented only by Act No. 320/2002 Coll.

8.1 Amendment to Water Act

■ In the course of 2002, Act No. 254/2001 Coll., Concerning Water and Amendments to Certain Acts (the Water Act) was amended by Act No. 76/2002 Coll. and Act No. 320/2002 Coll.

Act No. 76/2002 Coll., Concerning the Integrated Prevention and Limiting of Pollution, Concerning the Integrated Pollution Register and Concerning the Amendment of Certain Acts (Integrated Prevention Act) removes decisions according to section 8 paragraph 1, section 16 paragraph 1, section 17 paragraph 1, section 36, 37, section 39 paragraph 2 letter a) and expressions according to section 18 paragraph 1 of the Water Act



for defined equipment into the competence of the Integrated Prevention Act for proceedings concerning the issue of an integrated permit for which the administrative authority is the regional authority (with the exception of facilities the operation of which could have a significant cross-border impact on the environment, where the administrative authority is the ME). An integrated permit is a decision which designates the conditions for the operation of facilities, including the operation of activities directly associated with the operation of facilities on site, and which is issued instead of decisions, opinions, expressions and consents issued according to special legal regulations in the area of environmental protection, public

health protection and in the area of agriculture, if these regulations allow it. Facilities defined in the Integrated Prevention Act are, according to section 2 paragraph a) a technical unit and technological unit shown in Appendix No. 1 to this act or set of related technical and technological units in a single operation if at least one of these units is given in Appendix No. 1 to this act, and if they are not units used for research, development and testing of new products and processes; other technical units and technological units or a set thereof not shown in Appendix No. 1 to this act shall be considered to be facilities if the operator of the equipment requests the issue of an integrated permit for them.

Act No. 320/2002 Coll., Concerning the Amendment and Repeal of Certain Acts in Relation to the Termination of Activity of District Authorities as Part of the Next Stage of Reform of Public Administration, has significantly changed the exercise of state administration in the area of water management. On 1st January 2003, a large part of the competence of first-instance water authorities passed from the environmental departments of the district authorities to 205 municipalities with expanded competence. Certain selected competences from the aspect of greater territorial extent during decision making also passed to regional authorities. This involves competence being expanded to include another 11 activities by which the provisions of section 107 of the Water Act were augmented.

With regard to the amended Water Act already referred to, at the end of 2002 the MA prepared the second publication of the Water Act with a commentary containing the annotated full wording of Act No. 254/2001 Coll., Concerning Water and Concerning the Amendment of Certain Acts (the Water Act), as subsequently amended, as of 1st January 2003, augmented to include accompanying

legal regulations issued up to the end of 2002, also with a commentary. In the context of assistance to lower state administrative bodies in water management at water authorities, the MA provided this publication to all water authorities – municipal authorities of municipalities with authorisation from a municipal authority, municipal authorities of municipalities with expanded competence, and regional authorities, including the City Council of the capital Prague.

8.2 Amendment to Act Concerning Water Supply Systems and Sewerage Systems for Public Need

■ In the course of the year 2002 Act No. 274/2001 Coll., Concerning Water Supply Systems and Sewerage Systems for Public Need and Concerning the Amendment of Certain Acts, was updated by Act No. 320/2002 Coll.

Act No. 320/2002 Coll., Concerning the Amendment and Repeal of Certain Acts in Relation to the Termination of Activity of District Authorities as Part of the Next Stage of Reform of Public Administration,

significantly changed the exercise of state administration in the field of water management. On 1st January 2003 the first-instance water authorities were abolished and replaced with first-instance water authorities at 205 municipal authorities of municipalities with expanded competence. The one significant change where the competence of abolished water authority did not pass to the municipal authority of a municipality with expanded competence is the imposition of fines on owners and operators of water supply and sewerage systems pursuant to section 32 of the relevant act, and this is because many municipalities with expanded competence are themselves owners and operators of water supply and sewerage systems.

With regard to the specified amendment of the Act Concerning Water Supply Systems and Sewerage Systems for Public Use, at the end of 2002 the MA prepared the second issue of the publication of the Act Concerning Water Supply Systems and Sewerage Systems with an expanded commentary which contains the full wording of Act No. 274/2001 Coll., Concerning Water Supply Systems and Sewerage Systems for Public Use and Concerning the Amendment of Certain Acts, as subsequently amended, as of 1st January 2003 with expanded commentary.

8.3 Accompanying regulations for Water Act

■ In the year 2002, the preparation and issue of accompanying regulations according to the authorisation in the Water Act continued.

Last year these accompanying regulations were published in the Collection of Acts of the Czech Republic.:

- Decree No. 20/2002 Coll., Concerning the Method and Frequency of Measuring the Amount and Quality of Water,
- Decree No. 195/2002 Coll., Concerning the Particulars of the Handling Rules and Operational Rules of Water Structures,
- Decree No. 225/2002 Coll., Concerning the Detailed Definition of Structures for Water-Management Reclamation Lands and the Parts Thereof and Method and Scope of Care Thereof,



- Decree No. 236/2002 Coll., Concerning Method and Scope of Preparation of Proposal and Designation of Flood Territories,
- Decree No. 241/2002 Coll., Concerning Designation of Reservoirs and Watercourses on which Vessels with Combustion Engines are Forbidden and Concerning the Scope and Conditions of Use of Surface Water for Navigation,
- Decree No. 292/2002 Coll., Concerning River Basin Areas,
- Decree No. 293/2002 Coll., Concerning Charges for the Discharge of Waste Water into Surface Water
- Decree No. 590/2002 Coll., Concerning Technical Requirements for Water Structures.

According to the authorisation in section 37 paragraph 2 of the Water Act, in the Bulletin of the ME No. 2/2002, the ME issued Methodological Instruction No. 1 of the Water Protection Department of the ME for the designation of the minimum level of groundwater.

Preparation also continued on many other accompanying regulations, which are gradually being declared in 2003:

- Decree Concerning Water Records (No. 7/2003 Coll.), which as of 1st July 2003 cancels decree No. 126/1976 Coll., (Concerning Water-management Records and Overall Water-management Records,
- Order of the Government Concerning Indicators and Values of Permissible Pollution of Surface Water and Waste Water, Particulars of Permit for Discharge of Waste Water into Surface Water and into Sewerage Systems and Concerning Sensitive Areas (No. 61/2003 Coll.),
- Order of the Government Concerning Designation of Surface Water Suitable for the Life and Reproduction of Native Fish Species and Other Water Creatures and Concerning the Ascertaining and Evaluation of the State of the Quality of this Water (No. 71/2003 Coll.),
- Order of the Government Concerning the Designation of Vulnerable Areas and Concerning the Use and Storage of Fertilizers and Yard Manure, Crop Ro-



tation and the Carrying Out of Anti-Erosion Measures in These Areas (No. 103/2003 Coll.),

- Decree Concerning Records of the State of Surface Water and Groundwater and the Method of Inputting Data into the Information System of Public Administration (No. 139/2003 Coll.), according to section 21 paragraph 2,
- Decree Concerning Planning in the Area of Water (No. 140/2003 Coll.), According to section 24 paragraph 3., section 25 paragraph 4 and section 26 paragraph 5,
- Decree Concerning Particulars of Emergency Plan and Handling of Noxious Substances Pursuant to section 39 paragraph 8.

The following methodological instructions were prepared for the activity of water authorities, administrators of watercourses and users of water in 2002:

- Methodological Instruction of the MA Concerning the Procedure When Designating the Uncharged Amount of Water Abstracted in Order to Balance

the Irrigation Deficit of Agricultural Crops,

- Methodological Instruction of the MA For Compilation of Water-management Balance of River Basin Area,
- Methodological Instruction of the ME and MA for Evaluation of Request for Exemption from the Provisions of section 39 paragraph 1 of Act No. 254/2001 Coll., Concerning Water and Concerning Amendments to Certain Acts (the Water Act, as Subsequently Amended, for the Use of Noxious Substances for Feeding Fish [section 39 paragraph 7 letter b) of the Water Act] and for the Treatment of Surface Water in Reservoirs Intended for Fish Farming [section 39 paragraph 7 letter d) of the Water Act],
- Methodological Instruction for Carrying Out Water Supervision of Water Authorities in the Competence of the MA,
- Methodological Instruction of the MA for the Treatment, Maintenance and Protection of Vegetation on Embankment Dams of Small Reservoirs During Their Construction, Construction Alterations, Repairs and Operation,



- Methodological Instruction of the MA for Carrying Out Technical-Safety Supervision on Dikes of Small Reservoirs of the IV. Category,
- Methodological Instruction of the MA for Submission and Circulation of Documents and Documentation as Part of Handling Designated State Assets which river board corporations have a right to manage,
- Methodological Instruction of the MA for Submission of Documents when Handling State Assets, i.e., Land, Buildings and their Appurtenances, which the AWMA is competent to manage.

8.4 **Accompanying and internal regulations for Act Concerning Water Supply Systems and Sewerage Systems for Public Need**

The only accompanying legal regulation for Act No. 274/2001 Coll. is Decree of the MA No. 428/2001 Coll., which accompanies Act No. 274/2001 Coll., Concerning Water Supply Systems and Sewerage Systems for Public Need and Concerning the Amendment of Certain Acts, from the date 16th November 2001 with effect as of 1. 1. 2002.

In the course of the year 2002, in connection with Act No. 274/2001 Coll., Concerning Water Supply Systems and Sewerage Systems for Public Need and Concerning the Amendment of Certain Acts, the following methodological instructions have been prepared for the activity of water authorities, regional authorities, owners of water supply systems and sewerage systems, operators of water supply systems and sewerage systems and processors of Plans for the development of water supply systems and sewerage systems on the territory of a region:

- Methodological Instruction of the MA ref. No.: 10535 of the date 2nd May 2002 For Designating the Optimum Size of an Invoice Water Meter and Profile of Water Connection,
- Methodological Instruction of the MA ref. No.: 10689 of the date 2nd May 2002 for Issuing a Permit for Operating a Water Supply System,

- Methodological Instruction of the MA ref. No.: 10532 of the date 31st May 2002 for Plan of Quality Control in the Course of the Production of Drinking Water and Plan of Control of Level of Pollution of Waste Water,
- Methodological Instruction of the MA ref. No.: 10534 of the date 2nd July 2002 for Processing Plan of Development for Water Supply Systems and Sewerage Systems of Region,
- Methodological Instruction of the MA ref. No.: 20494 of the date 11th July 2002 for Calculation of Acquisition Price of Structure According to Orientation Indicators for Selected Data of Asset Records of Water Supply and Sewerage Systems,
- Methodological Instruction of the MA ref. No.: 29192 of the date 11th September 2002 for Processing Selected Data from the Asset Records of Water Supply Systems and Sewerage Systems, and
- Methodological Instruction of the MA ref. No.: 29193 of the date 11th September 2002 for Processing Selected Data from the Operational Records of Water Supply Systems and Sewerage Systems.



December the Regional Authority of the Central Bohemia region (environment and agriculture department) was inspected.

During the inspections of the exercise of state administration in water management, in none of the regional authorities inspected were fundamental errors or serious shortcomings which would have lead to the imposition of remedial measures, including any follow-up inspections, discovered by employees of the MA department of state administration in water management.

From the results of the inspections it is evident that the approach of the individual regional authorities to the establishment of environment departments was mixed at the start of 2001. Dealing with the matter of how to fulfil the new provisions of Act No. 254/2001 Coll., Concerning Water and Concerning the Amendment of Certain Acts (the Water Act), as subsequently amended, and Act No. 274/2001 Coll., Concerning Water Supply Systems and Sewerage Systems for Public Need (the Water Supply Systems and Sewerage Systems Act) in the intentions of the individual regions meant that departments were established with differing preferential activities and varying requirements for the number and qualification of employees in these local departments for water management were defined.

But it is possible to state that following the initial searching for optimum models and approaches, there was a profiling of departments on the part of all regional authorities and a reinforcing of the significance of departments which have water management in their job description. The adminis-

tration of appeals against decisions of district authorities was gradually managed, and now it works smoothly and usually within the prescribed time limits.

During inspections of the exercise of state administration at all regional offices it was discovered that environment departments, or environment and agriculture departments, also handle without difficulty the work which has been entrusted to them by the Water Act and the Water Supply Systems and Sewerage Systems Act, which came into effect on 1.1. 2002.

One common element at all the inspected regional authorities was the small or non-existent number of inspections carried out under the provisions of section 110 of the Water Act – water supervision of water authorities.

In all the regional authorities inspected the MA recommended an increase in the number of inspections of the exercise of state administration for bodies of the first degree. It also stressed the necessity to focus on methodological and supervision activity for municipalities with expanded competence in the following year.

As part of the inspection and supervision activity of supreme water supervision in the administration of the ME implemented by the individual departments of exercise of state administration, in 2002 37 supervision events were carried out in water protection. A timetable for inspections of the exercise of state administration in the competence of ME for the year 2002 was also planned and approved.

8.5 Inspection of exercise of state administration

On the basis of government resolution No. 1030 of the date 10th October 2001, the department of state administration in water management of the MA prepared a plan for inspection activities and carried out inspections of the exercise of state administration in the section of water management in the statutory competence of the MA.

In the course of 2002, the Regional Authority of the Ústí nad Labem region (environment and agriculture department) was inspected in February, in March the Regional Authority of the Olomouc region (environment and agriculture department) was inspected, in May the Regional Authority of the Hradec Králové region (environment and agriculture department) was inspected, in September the Regional Authority of the Plzeň region (environment and agriculture department) was inspected, in October the Regional Authority of the South Moravia region (environment department) and in



9.

INTERNATIONAL RELATIONS



9.1 International cooperation on border waters

■ In 2002 international cooperation continued on border waters with Germany, Austria, Poland and Slovakia.

On 25th and 27th September 2002, the 5th meeting of the Czech-German Commission for Border Waters was held (the Commission). This discussed the results of the two meetings of the Standing Committee for the Bavarian Border Section, held after the 4th meeting of the Commission in October 2001 and in April 2002, and the Standing Committee for the Saxony border section held in June 2002. It dealt with the preparation of joint fundamentals for the individual areas of cooperation on border waters, in particular the "Fundamentals for the Planning, Preparation and Carrying out of Water-Management Measures and Maintenance of Watercourses, and the Construction, Operation and Maintenance of Water-Management Equipment", the "Fundamentals for the Valuation of Work, Performances and Supplies and the Joint Adoption and Mutual Billing of Water-management Measures Carried out on Border Watercourses", the "Fundamentals for the Monitoring of the Quality and Amount of Water and for the Evaluation and Exchange of Results", the "Fundamentals for Coordination of Administrative Proceedings on Border Waters" and the "Fundamentals for Direct Cooperation of the Relevant Bodies and Specialist Offices". The Commission also deals with tasks associated with its participation during the implementation of the Outline Directive, updating of the list of boarder waters and cooperation with the Czech-German Border

Standing Committee and it resolved the crossing of the border by authorised persons. Questions associated with the August flood in the Saxony section of border waters were dealt with, including the elimination of flood damages and specific tasks of cooperation, such as protection of the pearl mussel in border waters and their river basins, and ensuring the necessary flow of water for hydroelectric power stations on the border watercourse of the Načetínský stream in the Saxony border section.

On the days 22nd to 26th April 2002, the 10th meeting of the Czech Austrian Commission for Border Waters (Commission) was held. This discussed the regular questions of maintenance of border watercourses, upda-

ting of the Directives for the Warning Service on Border Waters, questions of the supply of water and discharges of waste water and care for the quality of water, the issue of hydrology and other matters mostly from the period of 2001. The Czech party informed the Austrian party of the intention to prepare a new agreement for cooperation on border waters between the Czech Republic and Austria that takes into account the modern principles of water protection expressed in the Treaty on the Protection and Use of Border Waters and International Lakes and in the Outline Directive of the EU concerning Water.

In 2002 on the dates 11th – 15th November the 4th meeting was held of the representa-



tives of the governments of the Czech Republic and Poland for cooperation on border waters. At the meeting agreement was not reached in the matter of preserving the meander on the Odra in Bohumín-Chalupki. Despite its extraordinary ecological value, the Polish party considers this meander to be flood damage from 1997, and for this reason it requires its elimination.

Within the framework of the hydrology, hydrogeology and flood protection group, an expert group is working for the area of the mine Turów. In cooperation with hydrologists and hydrogeologists from the Polish side, it has not been possible to prove that the groundwater in this area flows from the Czech Republic to Poland and not the other way around, as was originally assumed. After the completion of the balance planned for this year, the Polish party may be handed a request for a solution (or compensation for damage) to the massive drop in the level of groundwater caused by the operation of the mine Turów. In 2001 work was initiated on the preparation of a new Agreement between the Government of the Czech Republic and the Government of Poland on Cooperation on Border Waters (Agreement). The Agreement should replace the now unsatisfactory Treaty between the Government of the Czechoslovak Republic and the Government of the People's Republic of Poland concerning Water Management on Border Waters from the year 1958. Expert negotiations on this Agreement were held in 2002 on 23rd – 25th April in Poland and on 30th September to the 2nd of October in the Czech Republic.

The planned meeting of the Czech-Slovak Committee for Border Waters (Committee) did not take place in 2002 as a result of personnel changes in Slovakia and the late appointment of the representative for border waters with the Czech Republic. Despite this the tasks arising from the Protocol of the 2nd meeting of the Committee in December 2001 were performed on an ongoing basis, both at the level of the representatives by means of correspondence and within the context of the working groups. In order to ensure the work of the working groups for technical matters, hydrology and water protection, immediately after the 2nd meeting of the Commission the members of these groups were appointed. In the course of the



year the working groups dealt with activities arising from their work plans, primarily technical measures relating to border waters, including matters associated with the August flood, joint measuring on border waters, mutual exchange of information about them and the preparation of basic documents (directives and fundamentals) essential for the activity of working groups.

9.2 Regional cooperation in the river basins of the Elbe, the Odra and the Danube and Treaty on the Protection and Use of Border Watercourses and International Lakes

■ **The Czech Republic has been a party to the Treaty on the Protection and Use of Border Watercourses and International Lakes (referred to hereinafter as the "Treaty") since May 2000.**

In 2002, Czech specialists participated in the negotiations of the working groups for water management, monitoring and evaluation. Under the Treaty, work continued

on the pilot project Morava as part of the international project for the verification of Directives EEC/UN for the monitoring and evaluation of water quality in border watercourses. In cooperation with the Slovak party the report "Recommendation for Monitoring and Evaluation of Border Waters in the Morava River Basin" was prepared. The representatives of the Czech Republic also participated actively in the preparation of the "Protocol concerning Civil Liability and Compensation for Damages Caused by the Effects of Industrial Accidents to Waters Going Beyond State Borders", which is prepared under this Treaty and the Treaty Concerning Cross-Border Influences of Industrial Accidents.

In cooperation with the World Health Organisation, the Protocol Concerning Water and Health (the Protocol) was prepared for the Treaty. This Protocol was signed in London in June 1999. Since November 2001, the Czech Republic has been a treaty partner to this Protocol. In view of the fact that the condition of its ratification by sixteen parties has not been met, the Protocol has not become valid. The administrator for the

implementation of the Protocol at a national level is the Ministry of Health in cooperation with the ME and the MA. In 2002, the working group for the preparation of goals according to article 6 of the Protocol began its work in the Czech Republic.

■ **In the year 2002, the active participation of the Czech Republic in international commissions for the protection of the river basin of the Elbe (referred to hereinafter as the "ICPE"), the Danube (referred to hereinafter as the "ICPD") and the Odra (referred to hereinafter as "ICPO") began.**

In view of the demanding task of implementation of the Outline Directive of the EU concerning water (referred to hereinafter as the "Directive") in the international river basins of the Elbe, the Danube and the Odra via these commissions in compliance with article 3 of the Directive, the structure of the working groups in these commissions was changed in order to better fulfil this task. In 2002 the Czech Republic chaired the ICPD and the ICPO. Whereas the Czech Republic's term as chair of the ICPD has finished, it will continue to chair the ICPO until the end of 2004. At the request of the Czech party, in January 2002 the presidents of all three commissions met in Prague. The presidents discussed approaches and problem questions of work in the commissions and decided on joint principles which it is necessary to promote.

On 21st and 22nd October 2002, the 15th meeting of the ICPE was held, to which the Magdeburg Seminar – held every two years alternately in the Czech Republic and Germany – was linked. The flood which occurred on the Elbe in August 2002 had a significant impact on the decision making of the ICPE. The "Action Programme of Flood Protection in the Elbe River Basin", which is a part of the "Action Programme of the Elbe for the Period 1996 – 2010", was submitted to the ICPE for approval. But on the basis of a detailed analysis of the flood of the year 2002 contained in the material "Documentation of the Flood in the Elbe River Basin in August 2002", the ICPE decided on the necessity of updating both documents. At the same time the ad-hoc working group for the flood was replaced with a perma-

nent working group Flood Protection, and new members were appointed. It was stated that the floods had completely destroyed the measuring stations of the ICPE Obříství, Schmilka and Zelčín. Other stations Děčín, Magdeburg and Dessau/Mulde, where there was only an electrical power cut or other minor faults, had already been put into operation.

The ICPE approved the recommendation "Fundamental Recommendations for Technical Facilities with Substances Threatening the Quality of Water" and called upon the working group for accidents to process an inventory of facilities with substances threatening the quality of water and old burden in flood areas. The results will be used in the work of the working group for floods and for the updating of the "Action Plan for Flood Protection in the Elbe Basin". Work also began on the "International Warning and Alarm Plan for the Elbe" and on the first steps towards joint Czech-German accident exercises. To this end closer coo-

peration has been initiated with the experts of the Standing Committee of the Saxony Czech-German Commission for Border Waters.

The ICPE approved the "International Programme of Measuring of the ICPE for the year 2003", which is adapted to the requirements of the Outline Directive of the EU Concerning Water and which reflects the cooperation of the ICPE with experts for the protection and improvements of water quality of the Standing Committee of the Saxony Czech-German Commission for Border Waters.

The ICPE stated that by the processing and approval of the minimum requirements for the discharge of waste water from the food processing industry, production of edible fats and oils, rendering and for surface storage of waste, the task from chapter 3.1.2. "Elbe Action Plan" was fulfilled. The work on the processing of the further minimum requirements (systems of cooling





water, waste water from the cleaning of flue gases, chemical-physical processing of waste and the treatment of old oil, waste water from steam productions and treatment of input water for boilers) is ongoing.

On the days 28th and 29th November 2002 in Vienna, the 5th meeting of the ICPD was held. The discussion focussed on the activities of expert groups (for the prevention of accidents, monitoring and evaluation of data, emissions, management of river basins, strategic questions and ecology) in the period between the 4th and 5th meetings of the ICPD. Special attention was given to the implementation of the Outline Directive of the EU about Water in the Danube river basin. The Strategic Material of the Expert Group for the Management of River Basins was approved, as was the document of this group relating to the Economic Analysis for the Outline Directive of the EU Concerning Water Policy, and there was discussion of distribution of tasks for the fulfilment of the Outline Directive of the EU concerning Water between the individual expert groups of the ICPD. An expert sub-group was established for economics as a sub-group to the expert group for the management of river basins.

The "Report on the Joint Survey of the Danube", "Annual Report on the Activities of the ICPD in 2001" and the yearbooks of the international monitoring networks for the year 1999 and 2000 were published. The recommendations for the best available technology for the chemical, paper, food

processing and cellulose industries were completed and translated into the national languages. The "Inventory of Sources of Emissions in the Danube River Basin" was processed, and negotiations began with the International Association of Detergent Manufacturers with the aim of negotiating a voluntary agreement about the banning of the production of detergents containing phosphor in the entire Danube river basin.

Within the framework of the expert group for ecology, an inventory of fulfilment of projects focussing on the revitalisation of wetlands contained in the "Joint Action Programme of the Danube" was processed.

In view of the fact that in 2002, the issue of floods became highly topical, an expert group for floods was formed, the task of which will primarily be to process an "Action Programme for Sustainable Flood Protection in the Danube Basin". The ICPD approved the document "Fundamental Requirements for Facilities with Substances which Threaten Water Quality" prepared by the expert group for accident prevention, which is analogous to the material approved within the framework of the ICPE.

In 2002 there was successful work on the Regional project GEF, which serves to support the activity of ICPD and is paid for from the resources of UNDP/GEF. The activity of the DABLAS Task Force continued which brings together the representatives of Danubian states and financial institutions and donors for the support of the financing of selected priority projects.

On the days 12th to 13th December 2002, the fifth plenary meeting of the ICPO was held. The issue of introducing the Outline Directive of the EU concerning water in the international river basin of the Odra was discussed, as were the issues of mutual cooperation associated therewith, and the fundamental changes in the structure of the ICPO and their working groups were approved. The procedural questions of the functioning of the ICPO and the composition of the secretariat with the aim of ensuring its most effective operation were dealt with, applications for the granting of observer status to the organisations WWF and Bund für Umwelt und Naturschutz Deutschland were discussed,

as were questions of the budget for the year 2003 and cooperation with HELCOM for the protection of the Baltic. The ICPO also discussed and approved the documents "Action Plan for Flood Protection in the Odra River Basin" and the "Macrozoobentos of the Odra" and recommended their publication. The basic documents of ICPO "Rules of Procedure" and "Fundamentals for Granting of Observer Status at ICPO for International and National Organisations" were approved.

In 2002 the ICPO issued the publications "Flood 1997", "Evaluation of the State of Implementation of Investments Included in the Programme of Urgent Measures" and "Reporting and Flood Service in the Odra River Basin".

9.3 Preparation for accession to the European Union

The requirements of the aquis communautaire in the field WATER are transposed to Czech legislation by the new Water Act, Act Concerning Water Supply Systems and Sewerage Systems and the Public Health Protection Act and their accompanying regulations. The completion of the transposition of the existing legislation of the EU, especially from the aspect of the requirements of the Directive of the European Parliament and Council 2000/60/EU setting out the framework for the activity of the Community in the field of water policy (outline directive), will be achieved by a so-called euroamendment to the Water Act, which is currently being prepared, and it is assumed that it will come into effect from 1. 1. 2004. The detailed requirements are gradually being projected into secondary legislation (decrees and government orders according to the relevant authorisations of the acts referred to). Out of the total number of 25 accompanying regulations, so far 15 titles have been issued.

The ecological approach to water which is the basis of the EU water policy is also a significant element of the environmental policy of the Czech Republic and is formulated in the State Environmental Policy. In compliance with the outline directive, the emphasis is placed on the protection of water and associated aquatic ecosystems, ensuring

water sources for drinking, economic and recreational purposes, and the amelioration of the effects of flood and drought.

The process of direct negotiations between the European Union and the Czech Republic on chapter 22, the Environment, which also included the sub-area of Water Quality, was provisionally closed and the final revised Joint Position of the European Union on this Chapter was published on 26. 11. 2002. The European Union accepted three transitional periods in the area of the environment for the Czech Republic. In the field WATER there is one transitional period for the implementation of directive 91/271/EEC concerning the treatment of municipal waste water.

The transitional period is granted up to the end of the year 2010 for the fulfilment of certain requirements of the directive, in particular for the construction of sewerage systems and municipal waste water treatment plants in agglomerations in the size category of 2,000 – 10,000 equivalent inhabitants and for the intensification (removal of nitrates and phosphorous) of municipal waste water treatment plants for agglomerations above 10,000 EI in so-called sensitive areas.

An updated Strategy for the Financing of Implementation of Directive 91/271/EEC Concerning the Treatment of Municipal Waste Water a part of which is also the timetable of construction of waste water treatment plants, was approved by the government in December 2002, and total costs were estimated at CZK 80 billion.

In connection with the implementation of the directive 91/271/EEC concerning the treatment of waste water, by means of government order No. 61/2003 Coll. the Czech Republic declared the entire territory of the state a sensitive area from the aspect of quality of surface water.

In the economic area, in the year 2002 the government approved the updating of the strategy of financing for implementation of the directive for protection of water from pollution by nitrates from agricultural sources, where the overall costs were estimated at CZK 6 billion.

By the date of entry of the programme the Czech Republic will start measures for the implementation of directives, the implementation of which in practice will take some time after the date of accession. For directives concerning dangerous substances, the requirements of directives of the EU should be met by the date of access, and the relevant programmes of measures should be implemented by the end of the year 2009. According to the requirements of the directive concerning the protection of water from pollution by nitrates from agricultural sources and corresponding order of the government No. 103/2003 Coll., the programmes of measures will be valid from 1st January 2004, with implementation by the end of 2007. For the directive concerning drinking water, all the quality requirements which ensure that there is no potential threat to human health must be fulfilled by the date of accession.

In connection with the process of approximation, the Implementation Plan was updated for the area of the environment. For the individual directives, the remaining transposition and implementation tasks were summarised and the dates for the individual steps were designated, as were the responsible subjects. An estimate was also made of the costs and personnel needs associated with the implementation of directives in the area of the environment. One of the initial documents for the introduction of the outline directive in the Czech Republic is the Implementation Plan of the Directive, which is processed as part of the activities

of the Interdepartmental Working Group for the approximation of directives of the EU in the area of water in cooperation with the departments of the ME and MA. The plan contains a list of basic requirements of the directive with the designation of detailed individual steps, dates and responsibilities for their performance. The gradual steps are designated in such a way that in the year 2006 a time plan will be published for the processing of a draft of the first plan for the river basin for discussion with the public, in the year 2009 plans of the river basins are published with relevant programmes of measures, and in 2012 programmes of measures are introduced in such a way that in 2015 the required improvement in the water state is achieved. In the following two planned cycles, measures are to be adopted and the achieved state of river basins is to be evaluated, and the relevant plans of the river basins and programmes of measures should be updated in order that in 2007 the aims of the directive are definitively attained.

Following on from the Phare twinning project "Implementation Strategy in the Area of Water in the Czech Republic", which was terminated in April 2002, in May 2002 a new Phare twinning project was started focussing on the implementation of the outline directive which is to support the process for the implementation of this important directive of the EU in the area of the protection of water. A consortium of Great Britain, France and Austria is cooperating on the project, and it should run until January 2004.





10.

FISHERIES AND FISHPOND MANAGEMENT



10.1 Fisheries and fishpond management in 2002

■ The disastrous floods caused significant damage to the technical state of the equipment of fishponds and to fish stocks.

2002 was an exceptional year for fisheries and fishpond management. The catastrophic floods in August affected virtually all of the southern half of Bohemia, in which fishpond management is most widespread. The August floods caused significant damage to both the technical equipment of fishponds and fish stocks. The damages suffered by stocks to small fish and eggs will have a negative impact on market production for the following two years. The damages caused to fishponds inspired state administration to increase public support for this branch. At the end of the year a new grant title had been prepared at the MA under which grants exceeding CZK 3 billion will be provided up until 2006 to improve the state of fishponds.

In 2002 there was a drop in fish production to 19.2 thousand tons from the 20.1 thousand tons in 2001, i.e., by 4.4%. The August floods played a significant role in the production drop. A greater drop in fish production last year was softened by the successful course of sales on the domestic and foreign market from the start of the year up to the August floods (in advance in the year-on-year comparison as a result of greater interest on the market).



Table 10.1.1 Development of production 1993 – 2002 in thousands of tons live weight

	1993	1994	1995	1996	1997	1998	1999	2000	2001	2002
Production live weight	20.1	18.7	18.7	18.2	17.6	17.2	18.8	19.5	20.1	19.2

Source: Fisheries Association CR

The dominant fish continues to be carp, with more than 86% of total production. Herbivorous fish account for 5.4%, salmonid fish account for 3.9%, and the catch of tench accounts for 1.2%.

The production of freshwater fish has long exceeded the consumption in the

Czech Republic, and it is sold on foreign markets. In 2002 a total of 12.0 thousand tons of freshwater fish and products thereof was exported. In 2002 a total of 30.1 thousand tons of fish was imported into the Czech Republic, and of this 185.0 tons were freshwater fish. The rest consisted of sea fish and other seafood.



Table 10.1.2 Overview of catch of market fish up to 31.12. 2002 within the Czech Republic according to place of catch

Catch	t	%
From fishponds	18 505	96.33
From special facilities	649	3.38
From reservoirs	56	0.29
Total catch of fish	19 210	100.00

Source: Fisheries Association CR

Table 10.1.3 Overview of catch of market fish as of 31.12. 2002 within the Czech Republic according to representation of species

Catch of fish (representation of species)	t	%
Carp	16 596	86.39
Salmonid fish	743	3.87
tench, cisco	228	1.19
Herbivorous fish	1 041	5.42
Predatory fish	218	1.13
Thermophile fish	6	0.03
Other	378	1.97
Total	19 210	100.00

Source: Fisheries Association CR

Damages caused by predators in 2002 to companies involved in fish farming and fish sales federated in the Fishery Association of the Czech Republic exceeded CZK 99.5 million. Almost half of all damage was caused by the European cormorant. The common heron and Eurasian otter were responsible for damages to a lesser extent. In compliance with Act No. 115/2000 Coll., Concerning the Payment of Damages Caused by Selected Specially Protected Animals, CZK 13.5 million was paid out in damages.

Table 10.1.4 Catches in reservations of Czech Angling Federation in years 1991 - 2002

Year	Non-trout waters			Trout waters		
	Catch (thous. of)	Catch (t)	Average (kg/ha)	Catch (thous. of)	Catch (t)	Average (kg/ha)
1991	2 088	2 107.5	90.3	318	128.3	40.1
1992	2 241	2 338.0	101.4	318	135.0	38.7
1993	2 169	2 393.5	103.8	277	116.5	33.4
1994	2 466	2 768.5	98.7	312	122.9	35.6
1995	2 405	2 767.0	92.5	323	131.6	38.6
1996	2 045	2 454.0	89.2	309	118.1	25.1
1997	2 063	2 359.5	80.3	315	118.8	36.3
1998	2 310	2 803.0	92.6	334	127.5	40.0
1999	2 498	2 992.3	98.5	337	124.9	39.2
2000	2 554	3 312.6	107.9	318	128.3	40.5
2001	2 546	3 374.5	109.2	332	130.5	39.5
2002	2 518	3 625.0	117.0	304	126.1	38.0

Source: Czech Angling Federation



Table 10.1.5 Catches in reservations of Moravian Angling Federation in years 1991 - 2002

Year	Non-trout waters			Trout waters		
	Catch (thous. of)	Catch (t)	Average (kg/ha)	Catch (thous. of)	Catch (t)	Average (kg/ha)
1991	633	730.3	107.2	115	57.3	85.6
1992	728	802.7	116.2	113	57.1	94.1
1993	720	800.2	115.5	87	46.5	85.9
1994	838	1013.2	150.8	98	54.6	107.7
1995	796	1003.1	149.0	104	58.2	107.7
1996	706	898.8	134.3	91	53.4	98.2
1997	650	812.5	121.9	99	57.5	104.6
1998	725	958.2	143.1	116	64.7	117.8
1999	767	1010.5	150.7	107	62.1	113.1
2000	778	1148.5	168.9	100	61.6	114.6
2001	730	1105.8	162.6	92	35.5	67.9
2002	768	1199.8	175.6	86	32.2	62.0

Source: Moravian Angling Federation

10.2 Changes in state of fishponds in 2002

The August floods had a fundamental impact on the state of fishponds. According to provisional information 949 fishponds and reservoirs were destroyed or damaged, and the estimate for damages reached CZK 985.7 million (see Table No. 10.2.1). The MA already issued on 22. 8. 2002 methodological instruction ref. No. 27135B/2002-6000 for ascertaining the extraordinary damages caused by the floods to fishponds and small reservoirs in private ownership in the Czech Republic in August 2002. On the basis of this instruction a local investigation of damages was carried out at 788 fishponds where the owners had asked for one. The damages ascertained in this reached CZK 528.012 million (see Table No. 10.2.2). A total of 1,454 different types of damages were noted (see Table No. 10.2.3).

The MA established the grant programme 229 210 "Renewal, dredging and reconstruc-

tion of fishponds and reservoirs" in order to eliminate these flood damages and to in general improve the state of fishponds. But this programme started in 2003.

In 2002 the MA provided grants for the dredging of fishponds in compliance with appendix No. 10 to Act No. 490/2001 Coll., Concerning the State Budget of the Czech

Republic for 2002. The MA provided grants for dredging 1,743,771 m³ of sediment from 137 fishponds, of which 41 events had been initiated and financed in 2001, and for nine events financing will be completed in the year 2003. In 2002 financial resources totaling CZK 240.1 million were expended for the dredging of fishponds, of which CZK 182.6 million came from grants.

Table 10.2.1 Provisional damages following flood of 2002 reported by regional authorities according to Act No. 12/2002 Coll.

Region	Number		Financial damages	
	[number]	[%]	[CZK mill.]	[%]
Central Bohemia	254	26.77	107.851	10.94
Ústí nad Labem	33	3.48	5.864	0.59
Plzeň	231	24.34	51.712	5.25
South Bohemia	417	43.94	813.114	82.49
South Moravia	8	0.84	5.779	0.59
Karlovy Vary	4	0.42	0.405	0.04
Liberec	2	0.21	1.000	0.10
Total	949	100.00	985.725	100.00

Source: MMR

Tabulka 10.2.3 Types of damage recorded by commission when ascertaining damages

Description of damage		Number of cases	
		[number]	[%]
1	Collapse in area of drainage equipment	22	1.5
2	Collapse not in area of drainage equipment	0	0.0
3	Collapse (not specified where)	87	6.0
4	Collapse of longitudinal dike	8	0.5
5	Failure of dry or water side of dike	190	13.0
6	Damage to crown of dike, damage to road	98	6.7
7	Damage to dike (not specified how), damage to slope	213	14.6
8A	Seepage in dike	48	3.3
8B	Damage to dike by tree being uprooted	25	1.7
9	Damage to banks, waterlogging of trees, damages to bank vegetation	18	1.2
10	Damage to diversion channels	38	2.6
11A	Damage or destruction of drainage equipment	107	7.3
11B	Damage to outflow channels or drainage channel	48	3.3
12	Damage to inlet object	18	1.2
13	Damage or destruction of safety spillway	155	10.6
14	Damage to paving (BP, plunge pool), damaged rock filling	106	7.3
15	Destroyed gratings	18	1.2
16A	Alluvium (branches, trunks ...)	4	0.3
16B	Choking	160	11.0
17	Damaged raceway - feeder (sediment deposits, alluvium, waterlogged banks)	28	1.9
18	Damages to technology (fish stocks)	7	0.5
19	Damages to equipment (lighting...), damaged fencing	4	0.3
20	Damage to retaining walls	11	0.8
21	Damage to surrounding lands (covering with mud...), damage to access roads	17	1.2
22	Damaged damming and dividing object	24	1.6

Source: MA

Table 10.2.2 Damages to fishponds ascertained by commission according to instruction of MA ref. No. 27135B/2002 - 6000

Region	Number		Financial damages	
	[number]	[%]	[CZK mill.]	[%]
District				
České Budějovice	207	26.27	14.894	2.82
Český Krumlov	33	4.19	17.367	3.29
Jindřichův Hradec	58	7.36	47.186	8.94
Písek	88	11.17	93.651	17.74
Prachatice	43	5.46	16.414	3.11
Strakonice	130	16.50	183.265	34.71
Tábor	101	12.82	53.747	10.18
South Bohemia	660	83.76	426.525	80.78
Region				
Cheb	2	0.25	0.450	0.09
Karlovy Vary	1	0.13	0.020	0.00
Karlovy Vary	3	0.38	0.470	0.09
Region				
Domažlice	8	1.02	1.218	0.23
Klatovy	16	2.03	2.890	0.55
Plzeň South	26	3.30	34.953	6.62
Plzeň sever	8	1.02	1.190	0.23
Rokycany	17	2.16	10.745	2.03
Tachov	5	0.63	1.400	0.27
Plzeň Region	80	10.15	52.396	9.92
Region				
Benešov	1	0.13	1.200	0.23
Příbram	37	4.70	44.820	8.49
Rakovník	4	0.51	2.100	0.40
Central Bohemia	42	5.33	48.120	9.11
Region				
Pelhřimov	1	0.13	0.101	0.02
Vysočina region	1	0.13	0.101	0.02
Total	788	100.00	528.012	100.00

Source: MA



11.

RESEARCH AND DEVELOPMENT IN WATER MANAGEMENT



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

■ In 2002 specific research and development in the field of water management financed by the Ministry of Agriculture as part of research projects amounted to almost CZK 20.0 million.

In 2002 research and development specifically funded in the area of water management was implemented from the budget chapter of the MA in the amount of CZK 19.733 million for the Research Programme 2000 - 2004 for projects in selected thematic areas.

Out of this amount, the following were supported in the area:

A) Protection, preservation and continuous use of basic natural resources in agriculture and for the development of the countryside

■ 2 projects,

F) Water management, care for watercourses, flood protection

■ 6 projects,

G) Water management, sewer systems and treatment

■ 4 projects.

A summarised overview concerning the projects dealt with is given in Table 11.1.1. The focus of the projects concentrates on comprehensive research into the issue of protection and use of water as a natural renewable resource, on matters of managing water in the soil and in the countryside

with the aim of increasing water retention in the countryside, on the issue of care for watercourses and flood protection from the aspect of public interest, solving problems associated with the ensuring of high-quality drinking water and the improvement of treatment processes.

■ Research intention “Comprehensive solution to problems of soil, water and countryside management” is ensured by the Research Institute of Soil and Water Conservation Prague.

The aim of the intention, dealt with in the period 1999-2003 is a deeper understanding

of the development of the soil and hydrosphere in the countryside exposed to the pressure of civilisation factors, their evaluation and processes of procedures for the elimination of negative technical and civilisation influences on the basis of scientifically based management of the soil and hydrosphere in our countryside, including procedures for the rational protection of natural resources – soil and water.

Work on solutions in the year 2002 brought a total of 27 user outputs. Examples of these are the following significant applicable results. The vulnerability of soils to debasification and compaction was eva-



Table 11.1.1 Projects dealt with in 2002 as part of Research Programmes of MA in the years 2000 - 2004

Name of project	Coordinator	Period of solving	Resources used in 2002 from the chapter of MA (thous. CZK)
area A)			
Protection, preservation and continuous use of basic natural resources in agriculture and for the development of the countryside			
Application of system of alternative management of protection of soil and water in the countryside	VÚMOP Prague 5	2000 - 2004	7 153.00
Anti-erosion and anti-flood measures in small agricultural and forestry river basins	VÚMOP Prague 5	2000 - 2002	1 120.00
area F)			
water management, care for watercourses, flood protection			
Analyses of flood damage and their use for prevention	ČVUT Prague 6	2000 - 2002	1 040.00
Integrated system of documents for formalised evaluation of non-production functions (services) of water management	Prof. Ing. Říha, DrSc. Prague 9	2000 - 2002	150.00
Design and use of territorial information system of hydro-amelioration structures	VÚMOP Prague 5	2001 - 2002	2 300.00
Evaluation of suitability of application of rainfall-drainage models with regard to simulation of flood states for localities on the territory of the Czech Republic	ČZÚ Prague 6	2001 - 2002	1 100.00
Optimisation of system of comprehensive measures for minimising undesirable effects of surface runoff in river basins and its application in the process of land alterations	VÚMOP Prague 5	2001 - 2002	1 200.00
Verification of methods derived from hydrogeological data for evaluation of safety of water structures following flood	ČHMÚ Prague 4	2001 - 2004	1 670.00
area G)			
Water management, sewer systems and water treatment			
Optimisation of processes of treatment of drinking water allowing the separation of oocyst of single-cell creatures <i>Cryptosporidium</i> spp.	W&ET Team České Budějovice	2000 - 2004	180.00
Integrated approach when planning reconstruction and modernisation of waste water treatment plants	VÚV TGM Prague 6	2000 - 2004	820.00
Research into effect of water treatment on its quality when it is held in the distribution system for extended periods	VÚV TGM Prague 6	2001 - 2004	1 500.00
Reconstruction and modernisation of water treatment plants and water supply systems	VÚV TGM Prague 6	2001 - 2004	1 500.00
Total			19 733,-

luated with a designation of developmental trends and prediction for future development, and there was a designation of the new value of infiltration characteristics of soils. In addition there was an evaluation of the influences of rundown programmes on changes of mobility of the significant

risk elements in soils and a current evaluation of the hygiene state of soils was carried out after the floods in the section from Prague to Děčín with an ascertaining of the fact of a reduction in contamination of fluvial soil in comparison with the reality ten years before, with the exception of con-

tent of residual pesticide DDT. An evaluation of the results of the study of the influence of depositing of organic matter in the soil on the size of surface runoff and loss of soil through erosion was tested. A model for calculation of the erosion threat to lands in the geographic information system was tested, as was its suitability for the decision making process for proposing anti-erosion measures in specific territories and river basins. Through a mathematical-statistical analysis of the system of flood and storm rainfall with a great intensity in eight river basins, the most important factors were ascertained for the retention of the river basin and the maximum specific outflow during floods. In order to evaluate the hypothesis of the increase of droughts, using the method of retrospective moisture balance (as an indicator of dryness) the needs for irrigation water were calculated for the period 1930 - 2002. In addition, for the system of use of the results of the comprehensive survey in GIS applications concerning soil, a proposal for a map server was developed and opened along with the processing of a converter of the used classification system of soils for the subsequent application of geographic information outputs.



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

■ Once again in 2002 the VÚV T.G.M. was the main researcher of tasks dealing with the problems of water protection, some tasks were also dealt with by the CHMI, or they cooperated to a significant extent on their resolution.

Under the management of the ME, there were science and research projects in the field of water protection (including associated areas) under the programme Government Board for Research and Development "HYDROSPHERE II". This involved the following scientific and research projects. System of measures in hydrological river basins to reduce the harmful effects of floods, research into methods and development of forecasting models for the needs of flood protection, evaluation of quantitative and chemical state of groundwater, hydrogeological zoning, incidence and movement of dangerous substances in the hydrosphere, limiting non-point pollution of groundwater and surface water, influence of climatic changes on the amount and quality of water sources and on hydrological conditions in the Czech Republic, proposal of methodology for designating flood risks and damage in flood territory and their verification in the river basin of the Elbe, protection and use of water sources within the context of the unified river basin (project Elbe III), project Morava III, renewal of river continuity of Elbe by making fish channels passable, Project Odra III, influence of chemical status of water on conditions for existence of pearl mussel and evaluation of possibilities for treating waste water from sources up to 2,000 EI.

The scientific and research tasks carried on under the programme "Information about Environment" also apply to the protection of water in the broader sense of the word: system of measures in hydrological river basins for the reduction of harmful consequences of floods – development of application GIS, integration of data of remote survey Country for informational securing of care for selected ele-

ments of the environment (protection from floods, protection of water) and methodology of cartographic output from digital input data of ME. In all CZK 46.880 million from the budget chapter of the ME was expended on scientific and research projects in the year 2002.

In addition to this, many other research tasks were dealt with within the context of the contribution of the founder (ME) which tended in particular to support the implementation of the relevant legislative regulations of the EU.



12. CURRENT CONTACTS OF IMPORTANCE FOR THE AREA OF WATER MANAGEMENT

AS OF 1. 8. 2003

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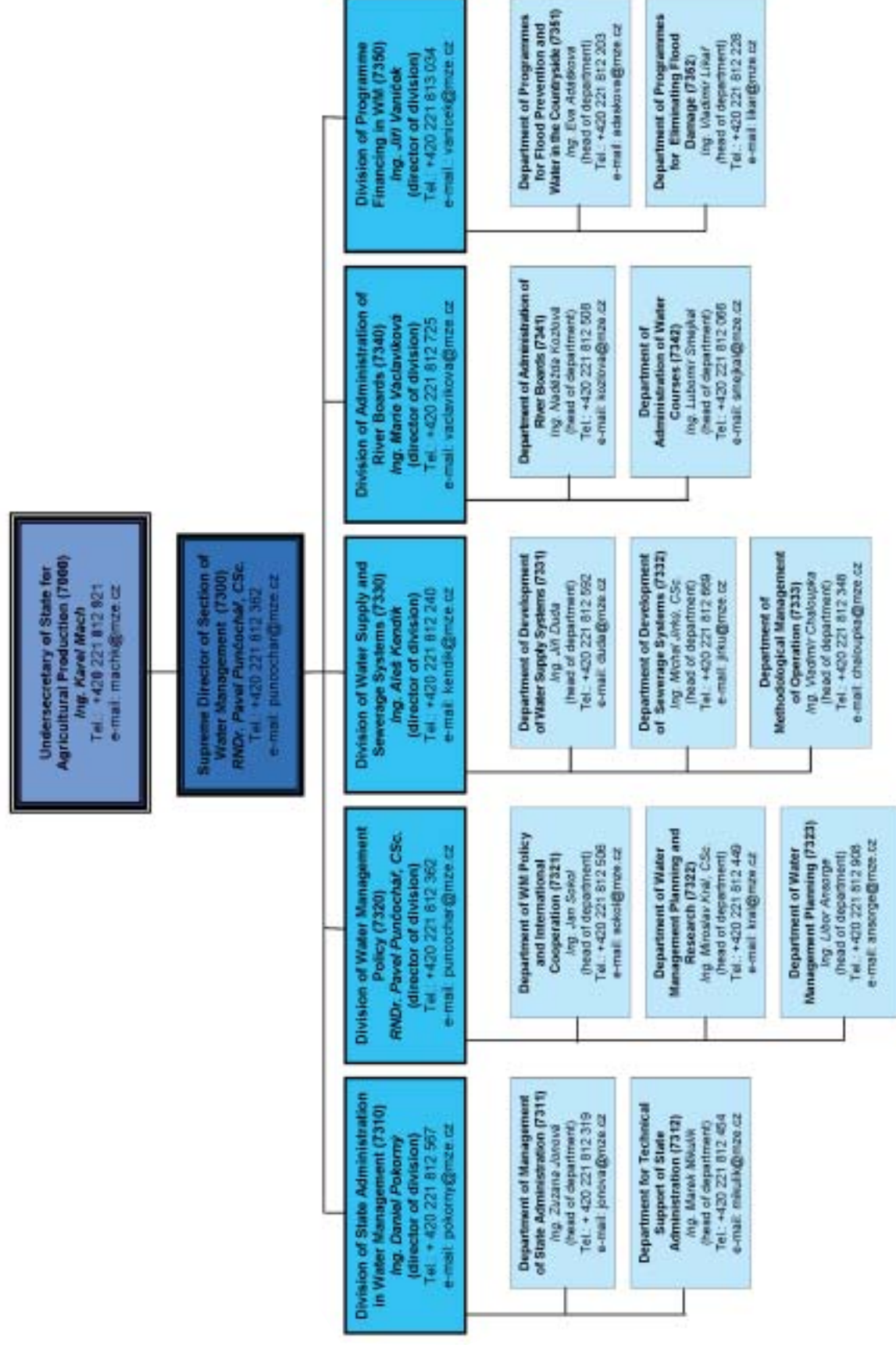
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CURRENT ORGANISATIONAL DIAGRAM OF SECTION OF WATER MANAGEMENT

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