3.

ADMINISTRATION OF WATERCOURSES

3.1 Professional administration of watercourses

With effect from 1.10.2003, decree No. 333/2003 Coll. (which amends decree No. 470/2001 Coll., which designates a list of important watercourses and the method of carrying out activities associated with the administration of watercourses) has amended, amongst other things, the divisions and definition of sections of significant watercourses.

A full list of important watercourses is given in the appendix to the aforementioned decree. The decisive administrators of watercourses remain the state River Board enterprises, AWMA and Forests of the CR, s.e. in the competence of the MoA, which ensure the administration of approximately 94 % of the length of watercourses in the Czech Republic. Municipalities, regional military offices of military districts and administrations of national parks administer approximately 6 %.

Table 3.1.1 Professional administration of watercourses

Category / Administrator	Length of watercourses in km 2002	2003
Significant watercourses		
Elbe River Board, s.e.	3 380,80	3 564,20
Vltava River Board, s.e.	4 775,60	4 744,67
Ohře River Board, s.e.	2 299,57	2 290,81
Odra River Board, s.e.	1 110,80	1 110,80
Morava River Board, s.e.	3 823,86	3 816,27
Total competence of MoA	**15 390,63**	**15 526,75**
Small watercourses		
AWMA	35 090,00	35 144,00
Forests of the CR, s.e.	19 370,00	19 490,92
River Board enterp. total	1 593,68	1 382,53
Total competence of MoA	**56 053,68**	**56 017,45**
Other [1)]	4 555,69	4 455,80
Total small watercourses	**60 609,37**	**60 473,25**
Total watercourses	**76 000,00**	**76 000,00**

Source: MoA

Note.: [1)] Includes administrations of national parks, regional military offices of military districts, municipalities and other legal persons (for example, mines)

As a result of changes in the definition of significant watercourses, certain watercourses were gradually excluded and transferred from the administration of the River Board enterprises to the administration of the AWMA. In addition, certain spring sections and border watercourses originally recorded as small watercourses were classified as significant watercourses. These changes are documented according to the individual administrators of watercourses in Table 3.1.1. Pursuant to an outline agreement between Forests of the CR, s.e. and AWMA, the change in designation of administration between these administrators is carried out on an ongoing basis.

Book values of tangible fixed assets related to watercourses display a year-on-year growth of almost CZK 0,5 billion, and in 2003 they reached the value of CZK 44,0 billion.

As in the previous year, in 2003 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 the 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. In 2003, movements in TFA continued with the retirement of certain assets destroyed by floods in previous years and also with the increased number of essential reconstructions and general repairs in the context of entrusted assets. The concrete values of TFA in book prices for the individual administrators of watercourses with year-on-year development (increments in TFA) are given in Table 3.1.2.

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

Administrators of watercourses in competence of MoA	2002	2003
Elbe River Board, s.e.	7,92	7,95
Vltava River Board, s.e.	7,22	7,32
Ohře River Board, s.e.	7,22	7,44
Oder River Board, s.e.	4,69	4,74
Morava River Board, s.e.	6,66	6,66
River Board enterprises	**33,73**	**34,11**
AWMA	7,83	7,89
Forests of the CR, s.e.	2,17	2,20
Total	**43,73**	**44,20**

Source: MoA

In the year 2003, the Ministry of Agriculture, performing the function of founder on behalf of the state, issued Deeds of Foundation and Statutes of all the river board corporations.

The administration of important and designated small watercourses is performed by the River Board enterprises on the basis of Act No. 305/2000 Coll., the River Boards Act.

The MoA, performing on behalf of the state the function of founder of the River Board enterprises pursuant to the provisions of section 1, paragraph 4 of Act No. 305/2000 Coll., the River Boards Act, and according to section 4, paragraph 1 of Act No. 77/1997, the State Enterprise Act, as subsequently amended, issued Deeds of Foundation of the state River Board enterprises of the Elbe, Vltava, Ohře, Morava and Odra as a result of a change in the organisational structure of the MoA. They were also the founder – pursuant to the provisions of section 1, paragraph 4 of Act No. 305/2000 Coll., the River Boards Act, and pursuant to section 3, paragraph 1 of Act No. 77/1997

Moravia weir at Hradec Králové - Elbe river basin

Coll., the State Enterprise Act, as subsequently amended, issued pursuant to section 15, letter f) of the State Enterprise Act – of the Statutes of these five professional administrators of watercourses. The methodological instruction was amended for the submission and circulation of documents and documentation in the context of handling designated assets of the state which the River Board enterprises have a right to manage.

In the context of the change in organisational structure of the MoA, and on the basis of the requirement of the MoE, a change was carried out in the composition of the supervisory boards in all state River Board enterprises.

On the basis of the 2nd phase of AWMA transformation carried out in 2002, the chief executive officer issued a new organisational code in April 2003.

Forests of the CR, s.e., continued to be a stable and significant administrator of small watercourses in 2003, and via its seven regional watercourse administrations it performed professional administration of small watercourses, in particular mountain streams.

Inspection activity of the individual state River Board enterprises and Agricultural Water Management Administration is carried out by the founder or establisher. In 2003, the following comprehensive and tightly focussed inspections were carried out in the state River Board enterprises and Agricultural Water Management Administration with these results:

Ministry of Agriculture

■ The Internal Audit and Supervision Department carried out an inspection of all state River Board enterprises the subject of which was a thematic check on economic management and authorisation to manage state assets. No gross breach of the act was ascertained, merely minor faults in the records.

■ The river basin administration department also carried out 2 tightly focused inspections in all state River Board enterprises: an inspection of the state of handling and operating rules of waterworks and an inspection of the procedures when designating the price for abstractions of surface water for the year 2003. No shortcomings or faults were ascertained for either inspection.

■ The Programme Financing Department performed an inspection of adherence to the conditions for drawing on financial resources of the EU Solidarity Fund in the State River Board Enterp. Vltava, Elbe and Ohře and also a check on the conditions for drawing state financial resources in the River Board Enterp. Vltava, Elbe and Morava. No faults were ascertained.

Inland revenue offices

These carried out an inspection of adherence to budgetary rules and discipline for the state River Board Enterp. Ohře, Morava and Odra.

No faults.

Prague Social Security Administration and District Social Security Administrations

These carried out inspections of insurance, the performance of health insurance and performance of tasks in pension insurance in the state River Board enterprises Vltava, Ohře and Morava.

Only in the Ohře River Board State Enterp. were total arrears of CZK 3 073 discovered. Otherwise there were no faults.

General Health Insurance Company

This carried out inspections of the duties of the employer in the field of the reporting duty, deadlines for payments and correctness of calculation for the Elbe, Ohře and Morava state River Board enterprises.

No faults.

State Energy Inspectorate

This carried out an inspection of documents in the state River Board enterprises Vltava and Elbe focussing on the use of state financial assistance from the EU Solidarity Fund and adherence to provisions.

No shortcomings were ascertained.

Ministry of Transport

This carried out an inspection of sub-programme No. 237 824 Renewal of Water Transport Constructions After Flood of 2002 in the Vltava River Board enterprises.

No faults.

Administration of Tangible State Reserves

This carried out an inspection of the performance of tasks in the field of economic measures for crisis states in the state River Board enterprises Elbe and Odra.

No faults were ascertained.

Ostrava City Council

An ongoing inspection was carried out of the provided grant in the Odra River Board Enterp.

No faults.

Opava Regional Archive

Carried out inspection supervision of the running of the document service in the Odra River Board Enterp.

No faults were ascertained.

Union of Wood Processing Workers in the Branch of Forestry and Water Management

Carried out a preventative inspection of health and safety at work (HSaW) of those working for the Odra River Board Enterp. in plant 1 - Opava.

No faults were ascertained.

The following inspections were carried out in 2003 in the Agricultural Water Management Administration.

Ministry of Agriculture

■ The Internal Audit and Supervision Department carried out a thematic inspection of the economic management of AWMA.

No unauthorised use of financial resources was ascertained, but there were minor shortcomings of a formal nature.

■ The Department for the Administration of River Basin carried out an inspection focussing on verifying the procedures when designating the price for the year 2003 for abstractions of surface water and inspection focussing on the state of handling codes for waterworks.

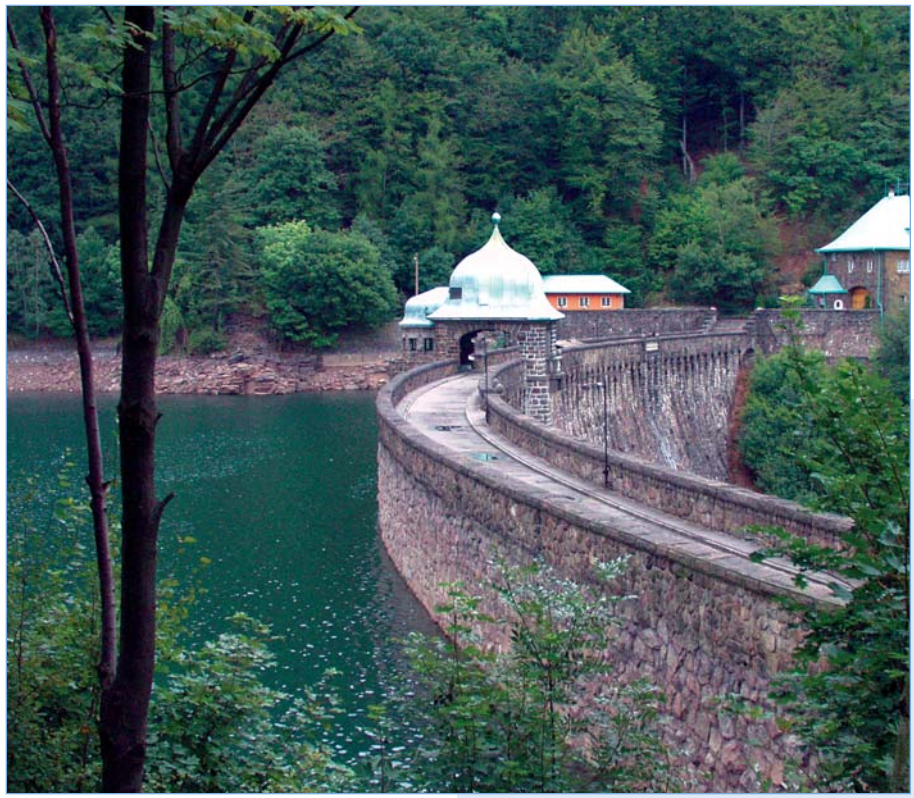
No faults were found by either inspection.

■ The Department of Programme Financing in Water Management carried out an inspection of the performance of conditions for drawing on financial resources of the state budget. In the evaluated period, no deficiencies were discovered in the management of public resources.

3.2 State River Board enterprises

The total revenues of state River Board enterprises including all yields and operating grants, displayed a significant year-on-year increase, despite the negative results of the floods in the previous years. Last year the increase represented almost 31%.

An extraordinary increase in the allocation of financial resources from the state budget in the form of grants in particular played a role in this high year-on-year increase in the yields of the state corporations. More than anything else, this grant allocation reaching almost CZK 1,7 billion, influenced and accelerated the reconstruction and renewal of water management assets following the floods and also made it possible to implement anti-flood measures, to designate flood zones and to process many studies essential for systematic activity in the years to come in compliance with the concept of water management policy. The largest part of the overall yields of the state River Board enterprises in 2003 consisted of payments for abstractions of surface water, which remain the most important source of revenues for the payment of costs for the administration of watercourses, especially for ensuring conditions for the necessary abstractions of water. Despite the fact that their year-on-year increase represented CZK 212 thousand, their proportion drops every year, and there is an attempt to compensate for these drops by an increase in other revenues and yields. In view of the unfavourable hydrological situation, there has also been a year-on-year drop in revenues for the generation of electrical energy and use of water storage (heading-up) facilities. The structure of incomes for the state River Board enterprises in 2003 is expressed in Table 3.2.1 and Graph 3.2.1.



Janov water resorvoir - Ohře river basin

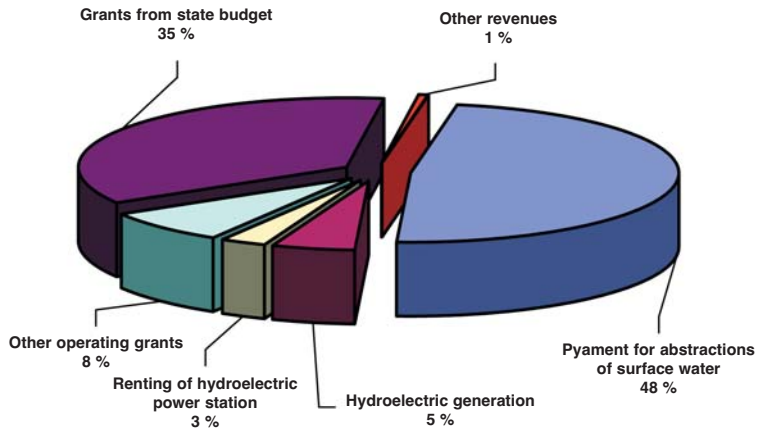
Table 3.2.1 Structure of incomes for state River Board enterprises in 2003 in thousands of CZK

Indicator	Elbe River Board, s.e.	Vltava River Board, s.e.	Ohře River Board, s.e.	Oder River Board, s.e.	Morava River Board, s.e.	River Board, s.e. Total
Payments for abstractions of surface water	612 980 [1)]	495 210	426 550	358 629	367 780	**2 261 149** [1)]
Electricity generation	14 590	62 363	111 312	27 798	18 324	**234 387**
Income from use of water storage (heading-up) facilities	15 560	102 730	4 319	0	10 902	**133 511**
Other income	68 368	136 859	67 525	41 618	55 643	**370 013**
Grants from state budget	325 499	1 019 151	33 188	56 572	251 598	**1 686 008**
Other operating grants	11 143	835	0	3 853	9 272	**25 103**
River Board, s.e. Total	**1 048 140**	**1 817 148**	**642 894**	**488 470**	**713 519**	**4 710 171** [1)]

Source: MoA, River Board enterprises

Note.: [1)] Payments do not include the subsequent reduction from the title of the water deficit in the amount of CZK 153 thousand in the context of abstractions for agricultural irrigation which were acknowledged and not implemented in the overall yields (difference as opposed to CSO report).

Graph 3.2.1 Structure of incomes of River Board enterprises in 2003



Source: River Board enterprises

Last year, total yields for deliveries of surface water for the Czech Republic increased by more than CZK 212 million.

The development in deliveries of surface water for a payment is shown 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.

In comparison with last year, prices for surface water increased on average by 6,2 %. These are materially regulated prices into which it is only possible to project economically justified costs, commensurate profit and tax pursuant to the relevant tax regulations.

In today's interpretation, these prices do not express the value of surface water but the price of the service – i.e., allowing supplies which are ensured by the river board corporations to users of the water. These prices are subject to regulation in the form of material regulation pursuant to Act No. 526/1990 Coll., the Prices Act, and the rules designated by the decision of the Ministry of Finance for the Regulation of Prices, i.e., the relevant assessments, by which a list of goods with regulated prices is issued which are published in the Pricing Bulletin.

In 2003, all state River Board enterprises recorded an increase in incomes for abstractions of surface water which came to an absolute figure of CZK 212 million, which represents a year-on-year increase in this category by 10,3 %.

Table 3.2.2 Deliveries of surface water for payment in years 1996-2003 in thousands of m³

River Board enterprises		1996	1997	1998	1999	2000	2001	2002	2003
Elbe River Board, s.e.	a)	863 372	897 063	787 331	572 341	534 300	508 435	571 365	803 416
	b)	58 927	55 464	49 710	45 137	43 630	43 279	41 618	36 334
Vltava River Board, s.e.	a)	382 786	355 799	324 336	294 550	276 626	264 802	266 916	286 889
	b)	250 796	232 545	207 949	192 786	185 072	171 924	167 878	173 773
Ohře River Board, s.e.	a)	217 748	214 455	207 855	190 731	176 183	176 403	169 092	170 975
	b)	78 533	74 352	71 517	67 185	63 206	60 263	57 807	58 951
Odra River Board, s.e.	a)	235 133	215 549	198 122	182 515	175 883	166 799	173 275	172 795
	b)	94 109	86 595	77 245	72 108	69 434	66 255	72 167	74 183
Morava River Board, s.e.	a)	204 538	201 655	171 842	156 247	141 902	132 680	135 366	165 653
	b)	40 925	40 833	38 086	36 499	38 768	39 398	38 112	38 256
Total River Board, s.e.	**a)**	**1 903 577**	**1 884 521**	**1 689 486**	**1 396 384**	**1 304 894**	**1 249 119**	**1 316 014**	**1 599 728**
	b)	**523 290**	**489 789**	**444 507**	**413 715**	**400 110**	**381 119**	**377 582**	**381 497**

Source: River Board, s.e.
Note: a) for payment total, b) of this, for waterworks and public use

Table 3.2.3 Price for abstractions for through cooling in the years 1994 - 2003 in CZK/m³

River Board, enterprises	1994	1995	1996	1997	1998	1999	2000	2001	2002	2003
Elbe River Board, s.e.	0,27	0,30	0,33	0,45	0,53	0,61	0,67	0,67	0,65	0,39
Vltava River Board, s.e.	0,42	0,42	0,48	0,51	0,55	0,70	0,76	0,81	0,86	0,91
Morava River Board, s.e.	0,30	0,40	0,42	0,46	0,49	0,53	0,56	0,60	0,53	0,41

Source: River Board, s.e.
Note: The unit price per m³ is given excluding VAT

Table 3.2.4 Price for other abstractions of surface water in the years 1994-2003 in CZK/m³

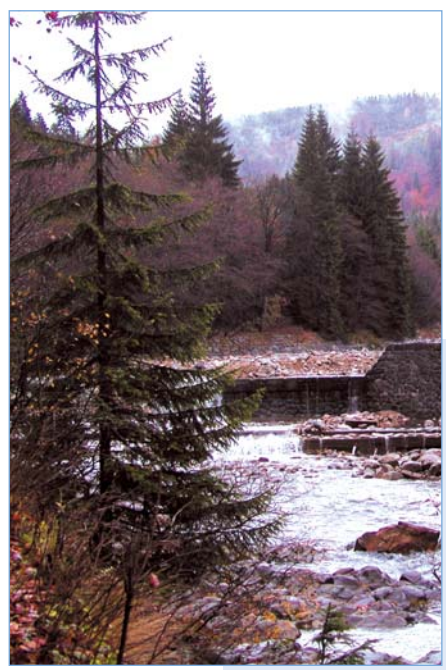
River Board enterprises	1994	1995	1996	1997	1998	1999	2000	2001	2002	2003
Elbe River Board s.e.	0,62	0,75	0,83	0,99	1,16	1,39	1,54	1,71	1,88	2,04
Vltava River Board s.e.	0,88	0,91	0,95	1,03	1,15	1,41	1,55	1,65	1,70	1,79
Ohře River Board s.e.	1,21	1,31	1,43	1,52	1,67	1,87	1,99	2,11	2,23	2,33
Odra River Board s.e.	0,67	0,80	0,94	1,18	1,40	1,59	1,74	1,80	2,01	2,08
Morava River Board s.e.	1,40	1,60	1,76	1,92	2,10	2,27	2,53	2,66	2,89	3,06
River Board s.e. Total	**0,88**	**0,98**	**1,08**	**1,24**	**1,39**	**1,59**	**1,76**	**1,90**	**2,10**	**2,23**

Source: River Board enterprises, WMRI T.G.M.
Note: The unit price per m³ is given excluding VAT

Table 3.2.5 Payments for abstractions of surface water in the years 1994-2003 in millions of CZK

River Board enterprises	1994	1995	1996	1997	1998	1999	2000	2001	2002	2003
Elbe River Board s.e.	363	419	448	548	556	530	532	536	566	613
Vltava River Board s.e.	331	332	337	345	357	383	401	408	438	495
Ohře River Board s.e.	293	288	323	343	368	375	367	397	399	427
Odra River Board s.e.	170	195	221	255	273	279	294	301	347	359
Morava River Board s.e.	248	256	266	273	264	266	277	287	300	368
River Board e.s. Total	**1 405**	**1 490**	**1 595**	**1 764**	**1 818**	**1 833**	**1 871**	**1 929**	**2 050**	**2 262**

Source: River Board enterprises



Elbe at Špindlerův Mlýn

In contrast with the significant year-on-year increase in yields for electrical energy from own small hydroelectric power stations in 2002, last year, as a result of the unfavourable hydrological situation, there was a drop in these incomes by almost CZK 56 million, and overall incomes in this area reached a level exceeding CZK 234 million.

The incomes of the state river board corporations reached their maximum – more than CZK 290 million – in 2002, and last year there was a year-on-year drop for all state river board corporations with the exception of Vltava River Board, s.e., which recorded an increase in comparison with the previous year of more than CZK 12 million. The most significant drop in these incomes, totalling more than CZK 50 million, occurred for the Ohře River Board, s.e., which has the highest number of own operated small hydroelectric power stations. More detailed information about the overall number of own small hydroelectric power stations in the individual state river board corporations, their installed output and generation of electrical energy and revenues is given in Table 3.2.6.

The other incomes of the state river board corporations are less important, and they are primarily rents for lands, non-residential premises and water surfaces, and other entrepreneurial activities, of which the most significant are revenues from the operations of machine mechanisms and road transport, from the operation of laboratories and for project and engineering activity and also financial yields.

In the field of other revenues, the year 2003 cannot be compared with the preceding year, which was atypical, but, from the aspect of absolute volume of these resources in connection with the liquidation of flood damages it was exceptional (in certain cases, the unfavourable situation in the field of yields was compensated for by financial yields and revenues from the sale of unnecessary assets). And so the year-on-year increase is not compared, but rather the trend from the preceding years. In contrast with the year 2001, these yields display a growth of 9,9 %.

In 2003, overall yields, i.e., total revenues from the performances of the state river board corporations, including financial yields and increased grants, displayed an increase of almost 31 %, which was influenced primarily by increased grant provision (of almost CZK 1,7 billion) to ensure the rapid reconstruction and renewal of water management assets following the floods. The level of the other revenues is shown in Table 3.2.7.

Annual grants represent significant support for financial needs within the context of the main activities of state River Board, s.e.

Table 3.2.6 Own small hydroelectric power stations of state River Board enterprises in 1998-2003

River Board enterprises	Indicator	1998	1999	2000	2001	2002	2003
Elbe River Board, s.e.	Number of SHEPS	15	15	15	15	15	17
	Installed capacity in kW	2 711	2 711	2 711	2 711	2 677	4 876
	Electricity generation in MWh	10 860	8 913	7 968	10 738	9 974	7 792
	Revenues in CZK thous.	11 566	10 626	9 459	12 515	15 107	14 590
Vltava River Board, s.e.	Number of SHEPS	11	13	12	14	14	15
	Installed capacity in kW	3 629	8 740	8 500	9 600	9 600	15 500
	Electricity generation in MWh	36 454	37 403	37 722	50 409	35 873	43 030
	Revenues in CZK thous.	33 823	38 233	39 840	53 217	49 992	62 363
Ohře River Board, s.e.	Number of SHEPS	16	19	20	20	20	20
	Installed capacity in kW	15 029	15 286	16 750	16 750	16 750	16 750
	Electricity generation in MWh	72 826	82 868	74 494	87 539	106 363	75 560
	Revenues in CZK thous.	75 113	89 121	82 922	95 774	161 747	111 312
Odra River Board, s.e.	Number of SHEPS	14	14	14	14	14	14
	Installed capacity in kW	4 750	4750	4 750	4 750	4 750	4 985
	Electricity generation in MWh	18 658	26 161	25 168	25 896	31 019	20 250
	Revenues in CZK thous.	17 723	28 220	26 480	25 732	41 604	27 798
Morava River Board, s.e.	Number of SHEPS	12	12	12	13	14	14
	Installed capacity in kW	3 192	3 192	3 192	3 512	3 612	3 612
	Electricity generation in MWh	9 255	12 342	10 613	14 301	14 476	12 412
	Revenues in CZK thous.	9 613	13 266	11 839	15 716	21 603	18 324
River Board, s.e. Total	**Number of SHEPS**	**68**	**73**	**73**	**76**	**77**	**80**
	Installed capacity in kW	**29 311**	**34 679**	**35 903**	**37 323**	**37 389**	**45 723**
	Electricity generation in MWh	**148 053**	**167 687**	**155 965**	**188 903**	**197 705**	**159 044**
	Revenues in CZK thous.	**147 838**	**179 466**	**170 540**	**202 954**	**290 053**	**234 387**

Source: River Board, s.e.

Table 3.2.7 Other revenues of state River Board enterprises in the years 1995-2003 in CZK thous.

River Board enterprises	1995	1996	1997	1998	1999	2000	2001	2002	2003
Elbe River Board, s.e.	21 811	32 356	54 094	50 907	54 754	145 989	124 730	173 429	68 368
Vltava River Board, s.e.	19 200	23 600	26 800	56 286	49 222	55 481	79 505	191 391	136 859
Ohře River Board, s.e.	47 000	57 000	54 000	64 398	55 922	66 836	57 809	65 606	67 525
Odra River Board, s.e.	14 200	8 000	9 600	70 977	31 033	49 113	28 208	47 853	41 618
Morava River Board, s.e.	18 647	29 107	29 346	38 021	41 786	54 879	46 462	44 975	55 643
River Board, s.e. Total	**120 858**	**150 063**	**173 840**	**280 589**	**232 717**	**372 298**	**336 714**	**523 254**	**370 013**

Source: River Board, s.e.

Table 3.2.8 Grants allocated to state River Board enterprises in 2003 in CZK thous.

River Board enterprises	Operating grants	Investments grants	Total grants
Elbe River Board, s.e.	336 643 [1]	416 277	**752 920**
Vltava River Board, s.e.	1 019 986	101 744	**1 121 730**
Ohře River Board, s.e.	33 188 [2]	85 086 [3]	**118 274**
Odra River Board, s.e.	60 425	206 672	**267 097**
Morava River Board, s.e.	260 870	357 744	**618 614**
River Board, s.e. Total	**1 711 112**	**1 167 523**	**2 878 635**

Source: MA, River Board, s.e.

Note:

1) including grant of CZK 2422 thousand to cover costs from the year 2002 transferred to the state river board corporation in 2003

2) including operating grant of SEFCR in the amount of CZK 3 760 thousand for monitoring water quality

3) including investment grant from PHARE in the amount of CZK 9 678 thousand

Last year, without state grants the consequences of the floods in particular could not have been rectified, and neither could have systematic activity begun which makes it possible to implement anti-flood measures, to designate flood zones and to prepare the many necessary studies. Table 3.2.8 gives the overall operating (non-investment) and investment grants of the individual state River Board enterprises allocated in 2003. Apart from grants from the budget of the MoA, grants also consisted of financial resources of the State Transport Infrastructure Fund (referred to hereinafter as the "SFTI"), the MoE via the PHARE funds, and certain regional authorities also contributed to flood-prevention measures. Resources to cover costs from the year 2002 but which were transferred to administrators of watercourses in 2003 were also included in grants.

The significant year-on-year increase expressed most in operating grants reflects the need for renewal of watercourses after the floods from the preceding years of 1997, 1998, 2000, and especially after the destructive August floods of 2002. As part of the programme measures, programmes were announced for the liquidation of flood damage from the previous years. For the Elbe River Board, s.e. and Vltava River Board, s.e., every year a grant for the operation and maintenance of waterways constitutes a significant part of the operating grants, and grants for the building and reconstruction of waterways constitute an important part of investment grants.

The year-on-year growth in costs by almost 27 % corresponds to the trends mentioned in the previous parts of the report. This significant increase is the result of attempts to ensure as fast as possible the operation and safety of waterworks following the floods in previous years, especially after the destructive August floods in 2002, and to minimise the damage to the assets managed by water management organisations.

There was an increase in costs in particular as a result of increased costs for repairs and maintenance and as a result of the gradual billing of flood damage. The costs item of repairs, which in the preceding year increased for the sum of state river board corporations by more than 50 %, continued to increase in 2003 at an exceptional rate and represented almost CZK 1 billion in terms of the absolute volume of growth, which represents a year-on-year increase by more than 86 %. Organisations where the floods had done most damage participated the most in this increase – for example, for the Vltava River Board, s.e. the year-on-year increase in the preceding year was more than triple, in 2003 this increased base was not only preserved, but as a result of programme measures, it was possible to increase it 2.5 fold. The item of repairs and maintenance increased by more than double for the Elbe River Board, s.e. An overview of the costs of state river board corporations in 2003 and their comparison with the preceding year is given in Table 3.2.9.

Last year the state River Board enterprises expended CZK 1 992,7 million on investment implementation, of which CZK 762,6 million was drawn from own resources, and a total of CZK 1 230,1 million of investment resources not covered by own sources was also used.

Table 3.2.9 Costs of state River Board enterprises in CZK millions

Type of costs		Elbe River, s.e.	Vltava River, s.e.	Ohře River, s.e.	Odra River, s.e.	Morava River, s.e.	River Board, s.e.. Total
Depreciations	2002	127,4	141,4	152,7	98,3	106,9	**626,7**
	2003	131,5	152,8	170,3	89,2	107,7	**651,5**
Repairs	2002	215,9	471,6	122,8	133,7	211,7	**1 155,7**
	2003	483,3	1 205,9	143,3	100,4	221,1	**2 154,0**
Material	2002	48,6	22,4	22,3	33,4	31,7	**158,4**
	2003	46,2	22,8	23,1	34,2	35,4	**161,7**
Energy and fuel	2002	28,2	23,7	24,5	4,4	9,4	**90,2**
	2003	11,8	26,2	24,2	4,3	8,0	**74,5**
Personnel costs	2002	277,8	241,9	190,9	129,2	195,1	**1 034,9**
	2003	292,3	253,7	202,4	138,4	202,9	**1 089,7**
Services	2002	115,9	55,3	28,1	33,1	24,2	**256,6**
	2003	50,5	59,5	32,4	30,0	25,4	**197,8**
Financial costs	2002	1,9	6,9	3,0	5,1	9,4	**26,3**
	2003	1,4	7,6	1,2	3,3	0,2	**13,7**
Other costs	2002	61,7	6,7	78,9	59,9	23,9	**231,1**
	2003	4,6	42,9	17,7	50,0	80,6	**195,8**
Total costs	**2002**	**877,4**	**969,9**	**623,2**	**497,1**	**612,3**	**3 579,9**
	2003	**1 021,6**	**1 771,4**	**614,6**	**449,8**	**681,3**	**4 538,7**

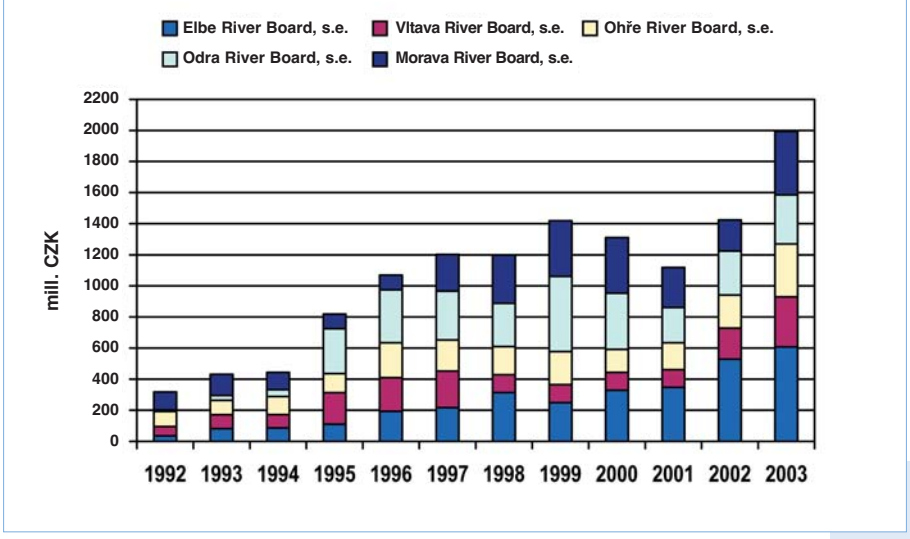
Source: River Board, s.e.

Table 3.2.10 Investments of state River Board enterprises in the years 1995-2003 in millions of CZK

River Board, s.e.	1995	1996	1997	1998	1999	2000	2001	2002	2003
Elbe River Board, s.e.	110,1	193,0	216,8	313,4	248,4	328,5	347,1	529,1	607,6
Vltava River Board, s.e.	203,2	216,4	235,2	115,7	116,3	115,2	114,1	199,3	321,6
Ohře River Board, s.e.	122,0	225,0	200,0	180,2	212,5	148,2	173,4	212,8	339,8
Odra River Board, s.e.	289,1	340,2	314,3	279,1	484,4	361,6	226,8	282,3	316,3
Morava River Board, s.e.	94,0	95,5	236,1	311,0	357,3	356,8	257,8	200,5	407,4
River Board, s.e. Total	**818,5**	**1 069,8**	**1 202,4**	**1 199,4**	**1 418,9**	**1 310,3**	**1 119,2**	**1 424,0**	**1 992,7**

Source: MoA, River Board, s.e.

Graph 3.2.2 Development of investment construction of state River Board enterprises



Source: MoA, River Board, s.e.

In the course of the last nine years, the state River Board enterprises have invested more than CZK 11,555 million crowns of financial resources into investment, as is shown in Table 3.2.10 and expressed in Graph 3.2.2. The year-on-year growth of almost 40 % reflects the necessity of dealing as fast as possible with the consequences of the catastrophic floods of the year 2002 not only in the form of drawing on operating (non-investment) financial resources in the field of essential repairs and maintenance of badly damaged water management works and beds of watercourses, but in many cases ove-

rall renewal or reconstruction in the form of investment work was essential or demonstrably the best variant from the economic aspect.

In 2003, all state River Board enterprises recorded a profit which represents financial resources in a total amount of CZK 171,7 million. The Vltava River Board, s.e. had the greatest share of this result, representing an amount of almost CZK 46 million, where its loss in the preceding year had been at approximately this level. But this loss was covered in 2002 from the reserve fund and from other capital funds.

The share of the individual state river board corporations in the overall profit or loss and the development of profit or loss over the last eight years is documented by Table 3.2.11. The allocation of attained profits into the individual funds and proposal for coverage of loss in the concrete state River Board enterprises is given in Table 3.2.12.

The average calculated number of employees in state River Board enterprises in 2003 increased by another 14 employees. In contrast with previous years, when there had been year-on-year drops, in 2002 there was a turnaround, and the number of employees increased. When compared to the preceding year, this trend was preserved, and the increase by 14 employees represents a total of 3558 persons. This increase is closely linked to the new tasks of watercourse administrators arising from the Water Act, in particular in connection with planning in the area of water (see chapter 9).

The situation in the development of labour is shown in Table 3.2.13, from which it is evident that the greatest increase in the level of the overall number is for Vltava River Board, s.e. (+ 14), and there is also an evident increase of 5 persons at the Elbe River Board, s.e., whereas for the Ohře and Morava River Board, s.e. there was a drop in the average number of workers.

In 2003, the average monthly salary in the state river board corporations was CZK 18,505, see Table 3.2.14, and in 2003 it displayed a year-on-year increase of 4,4 %. In absolute figures the year-on-year increases were around CZK 629 for the Vltava River Board, s.e. to CZK 985 for the Ohře River Board corp. The lowest average salary remains in the Morava River Board, s.e.

Table 3.2.11 Profit or loss of state River Board enterprises in CZK thousands

River Board corps.	1996	1997	1998	1999	2000	2001	2002	2003
Elbe River Board, s.e.	8 533	- 1 800	- 6 808	35 398	19 859	17 166	4 774	26 542
Vltava River Board, s.e.	22 058	22 000	14 475	16 853	37 838	48 735	- 45 525	45 752
Ohře River Board, s.e.	8 306	7 461	14 625	6 947	11 825	12 415	11 334	28 274
Odra River Board, s.e.	32 192	- 71 500	65 340	66 870	19 617	22 575	23 002	38 671
Morava River Board, s.e.	8 047	- 68 359	- 41 867	8 930	20 647	17 939	24 512	32 170
River Board, s.e. Total	**79 136**	**- 112 198**	**45 765**	**134 998**	**109 786**	**118 830**	**18 097**	**171 409**

Source: River Board, s.e.

Table 3.2.12 Allocation of profit for the year 2003 in CZK thousands

River Board , s.e.	Profit	Allocation of profit or covering of loss					
		Reserve fund	FKSP	Investment fund Capital funds	Social fund	Bonus fund	Unsettled loss from previous years
Elbe River Board, s.e.	26 542	2 655	4 237	17 150	0	2 500	0
Vltava River Board, s.e.	45 752	6 000	5 000	28 252	1 000	5 500	0
Ohře River Board, s.e.	28 274	8 482	6 000	7 792	0	6 000	0
Odra River Board, s.e.	38 671	5 801	4 929	22 941	0	5 000	0
Morava River Board, s.e.	32 170	3 217	4 870	0	0	3 000	21 083

Source: MoA

Table 3.2.13 Number of workers (average calculated state)

River Board, s.e.	2002	2003
Elbe River, s.e.	936,5	941,1
Vltava River, s.e.	784,0	798,0
Ohře River, s.e.	623,0	619,9
Odra River Board, s.e.	460,0	461,0
Morava River Board, s.e.	740,4	738,1
River Board, s.e. Total	**3 543,9**	**3 558,1**

Source: River Board, s.e.

Table 3.2.14 Average salaries in CZK achieved in individual state River Board enterprises

River Board, s.e.	1997	1998	1999	2000	2001	2002	2003
Elbe River Board, s.e.	11 351	12 911	14 675	15 641	16 565	17 941	18 750
Vltava River Board, s.e.	11 852	13 338	14 875	15 819	16 526	18 444	19 073
Ohře River Board, s.e.	11 923	13 454	14 545	15 704	17 085	18 435	19 420
Odra River Board, s.e.	11 459	12 738	13 999	14 717	15 811	17 516	18 362
Morava River Board, s.e.	11 009	12 922	14 007	14 663	15 820	16 216	16 899
River Board, s.e. Total	**11 506**	**13 084**	**14 468**	**15 330**	**16 396**	**17 724**	**18 505**

Source: River Board corps.

Confluence of Elbe and Orlice at Hradec Králové

3.3 Agricultural Water Management Administration

The AWMA is an organisational unit of the state established by the MoA on the date 1.1.2001 for the purposes of ensuring the exercise of the administration of watercourses, care for main drainage facilities (refered to hereinafter as the „MDF“) under the administration of the Land Fund of the Czech Republic (refered to hereinafter as the „LF CR“), economic management of specified state assets, expert activity in the field of water management, land reclamation, monitoring the state of surface water and protection and landscape creation, including the information science relevant to the field.

As of 31.12.2003, the AWMA ensures the performance of administration on 35 144 km of minor watercourses and 444 reservoirs. These are generally watercourses running through agricultural land and developed parts of municipalities. As of 31.12.2003, the book value of waterworks was CZK 7,894 billion.

Every year, as an administrator of small watercourses, the AWMA ensures the elimination of flood damage to managed watercourses and waterworks. In 2003, the elimination of flood damage caused in 2000 and, in particular, 2002 (when extensive catastrophic floods affected the majority of the Vltava and Ohře basins and part of the Morava basin) was implemented in particular. As an organisational unit of the state which does not have its own financial resources, the AWMA implemented this remedial work mainly using the resources of the European Investment Bank (refered to hereinafter as the „EIB“).

In its activities, the AWMA has managed to harmonise requirements from the aspect of nature protection with its intentions, especially its participation in the countryside generation programmes of the MoE. The implementation of the Programme for the Revitalisation of River Systems (PRRS) was one of the organisation priorities in 2003.

On the basis of a valid mandate contract concluded between the LF CR and the AWMA, the AWMA ensures the exercise of expert care of MDF. In 2003, the LF CR gave the AWMA a total of CZK 60 000 thousand for the maintenance and operation of these extensive assets (inter alia, almost 12 thousand km of drainage canals).

The largest part of the financial resources referred to was used for the maintenance and repair of watercourses (approximately 90 %) and also for other non-investment expenses (approximately 10 %). The non-investment expenses for the elimination of flood damages are given separately.

An overall summary of the real use of these financial resources is given in Table 3.3.1.

As part of the maintenance of watercourses, mowing, cleaning, repairs of objects ensuring flood protection, liquidation of non-indigenous invasive types of plants (giant hogweed, Japanese knotweed) and maintenance of riverbank vegetation in particular were carried out.

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

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

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

The overall structure of incomes of AWMA is given in the following Table 3.3.4.

Table 3.3.1 Use of individual financial resources of AWMA in 2003 in millions of CZK

Activity	Source	Plan	Reality
Maintenance and repair of watercourses	SB	122,449	122,376
Operation of watercourses and associated waterworks	SB	12,603	12,532
Programme for care of countryside	SB	0,313	0,311
Flood prevention	SB	26,125	26,109
Other non-investment expenses	SB	18,800	18,735
Total	**SB**	**180,290**	**180,063**

Source: AWMA (non-investment expenses for the elimination of flood damages are given in separate tables)

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

Sources for payment of expenses	1999	2000	2001	2002	2003
MoA budget	68,1	77,6	77,0	119,7	122,4
Care for Countryside Programme	2,5	1,0	2,4	0,6	0,3
Flood prevention measures	0,0	35,2	5,7	8,9	26,1
Total state budget	**70,6**	**113,8**	**85,1**	**129,2**	**148,8**
State Soil Improvement Fund	1,0	5,6	3,8	0,0	0,0
Total	**71,6**	**119,4**	**88,9**	**129,2**	**148,8**
Rectification of flood damage from sources of LF CR	0,0	0,0	0,0	0,0	0,0
Maintenance and repairs to land reclamation facilities of LF CR	79,6	75,9	59,8	54,9	59,9
Total expenses	**151,2**	**195,3**	**148,7**	**184,1**	**208,7**

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 LF CR according to the individual regions in 2003 in millions of CZK

Region	Maintenance of and repairs to watercourses	Operation	Rectification of flood damage	Main drainage facilities	Total
Vltava	33,430	0,707	57,025	24,397	**115,559**
Elbe	26,999	2,497	4,450	13,200	**47,146**
Ohře	13,279	1,630	24,302	4,199	**43,410**
Morava	30,433	6,154	7,799	12,971	**57,357**
Odra	18,235	1,544	0,000	5,093	**24,872**
Total	**122,376**	**12,532**	**93,576**	**59,860**	**288,344**

Source: AWMA

Table 3.3.4 Structure of AWMA incomes in millions of CZK

Incomes	1999	2000	2001	2002	2003
Payments for abstractions of water	2,8	4,4	3,8	2,5	2,6
Rents from water-management structures	3,2	1,9	3,5	5,2	5,3
Other income	2,3	4,1	3,4	1,4	1,0

Source: AWMA

In 2003, the rectification of flood damage from 1997 continued on watercourses administered by the AWMA. The flood damage from the previous years is gradually being 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.

With the aim of rectifying the flood damage from the year 2000 and 2002 to watercourses administered by the AWMA, in 2003 it continued in the implementation of programme 229 110, which had been commenced in the preceding year, for the elimination of flood damage from the year 2000 (sub-programme 229 112) and 2002 (sub-programme 229 113).

In 2003, AWMA implemented investment construction in a total amount of CZK 232,7 million, including a programme for flood-prevention measures in the amount of CZK 121,2 million, rectification of flood damages from the year 1997 in the amount of CZK 0,5 million, and rectification of flood damages from the years 2000 and 2002 in the amount of CZK 12,4 million. An overview is given in Table 3.3.7.

Table 3.3.5 Rectification of flood damage from the year 1997 to the watercourses managed by AWMA in 2003 in millions of CZK

Source – programme	Investment costs	Non-investment costs	Total
Programme 329 181	0,027	0	**0,027**
Programme 329 184	0,439	0	**0,439**
Celkem	**0,466**	**0**	**0,466**

Source: AWMA

Table 3.3.6 Rectification of flood damage from the years 2000 and 2002 to watercourses administered by the AWMA in 2003 in millions of CZK

Source – programme	Investment costs	Non-investment costs	Total
Programme 229 112	3,757	4,450	**8,207**
Programme 229 113	8,654	89,126	**97,780**
Celkem	**12,411**	**93,576**	**105,987**

Source: AWMA

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

Structure of investments	Financial sources	2000	2001	2002	2003
Adjustment of watercourses	State budget – MoA	32,2	47,2	47,4	52,2
	Special - purpose fund replacement recultivation	3,6	6,5	0,9	0,1
	State Fund for Soil Improvement	0,0	0,2	0,0	0,0
Study of drainage conditions	State budget	3,8	0,0	0,0	4,7
Revitalisation of watercourses	State budget	45,3	17,3	30,7	41,6
Flood prevention measures	State budget	33,6	2,8	63,1	54,4
	European Investment Bank	0,0	0,0	0,0	66,8
Rectification of flood damage from year 1997	State budget	27,0	28,9	29,2	0,5
	European Investment Bank	36,5	0,0	0,0	0,0
Rectification of flood damage from year 1998	State budget	0,0	0,0	0,0	0,0
Rectification of flood damage from year 2000	State budget	0,0	0,0	1,6	3,8
Rectification of flood damage from year 2002	State budget	0,0	0,0	0,0	0,3
	European Investment Bank	0,0	0,0	0,0	8,3
Total		**182,0**	**102,9**	**172,9**	**232,7**

Source: AWMA

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

Forests of the Czech Republic, s.e. has been entrusted with the administration of approximately 19,5 thousand km of small watercourses. The vast majority of them are in the upper parts of basins, in spring areas and in areas with a higher proportion of forestation. Forests of the Czech Republic, s.e. also administers mountain streams not on lands intended for performing the function of a forest because under care for the unified basin of watercourses they run through agricultural country and the developed parts of municipalities. A total of 70 employees at 7 area watercourse administrations in Frýdek-Místek, Brno, Hradec Králové, Benešov, Plzeň, Teplice, and including the newly created office in Vsetín ensure the administration of watercourses.

The work of 2003 primarily consisted of rectifying flood damage from the years 1997 and 2002 and also the implementation of preventative measures. Out of the larger projects, we might mention, for example, the completion of repairs to the Olešnice border river with Poland, Červený stream - Šumpersko, Kotelnice and Matulákův stream - Beskydy, Vrchovištní and Bystrý stream in Jeseníky, the project Hodonínka in Šťěpánov in Vysočina, Jamenský and Těchonínský stream in the Giant Mountains, Sudovický stream and Podlužský stream in Central Bohemia, Jedlová and Poustka in the Ore Mountains, Romanovský stream and Všeminka in the Zlín region.

Increased flows were recorded only locally in the month of May in areas of Jihlava, Blansko and Brno-rural – otherwise the year with its poor rainfall caused many watercourses to dry up.

The implemented measures were financed from own sources, from the loan of the EIB – programme for flood prevention and elimination of damages caused by floods in 2002 and from the state budget – elimination of damage caused by floods in the year 1997 and measures carried out in the public interest via section 35 of the Forestry Act.

Expenses of an investment character totalling CZK 245,9 million were made into the overall financial expenses of the Forests of the Czech Republic, s.e. for water management in the amount of CZK 482,1 million. Out of this amount, CZK 97,0 million were own resources. The investments of Forests of the Czech Republic, s.e. were focussed on

Tab. 3.4.1 Financing structure of Forests of the CR, s.e. – area watercourse administrations in 2003 in CZK millions

Forests of the CR, s.e.	Own resources total	Total grant	Of this, flood damages	
			Grants	Own resources
Investments	90,5	146,8	12,4	24,1
Non-investments	170,2	29,3	11,2	72,5
Total	**260,7**	**176,1**	**23,6**	**96,6**

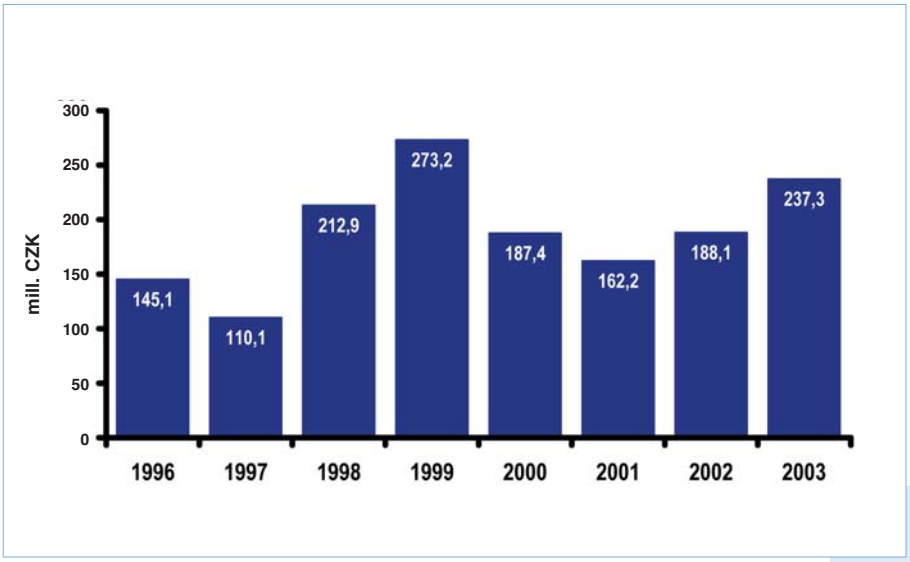
Source: Forests of the CR, s.e.

Table 3.4.2 Revenues of Forests of the Czech Republic, s.e. for surface water in the years 1998 - 2003 in thousands of CZK

Year	1998	1999	2000	2001	2002	2003
Revenues	7 906	7 896	7 876	8 639	9 790	9 390
Price per m³*)	0,92	0,99	1,06	1,17	1,23	1,24

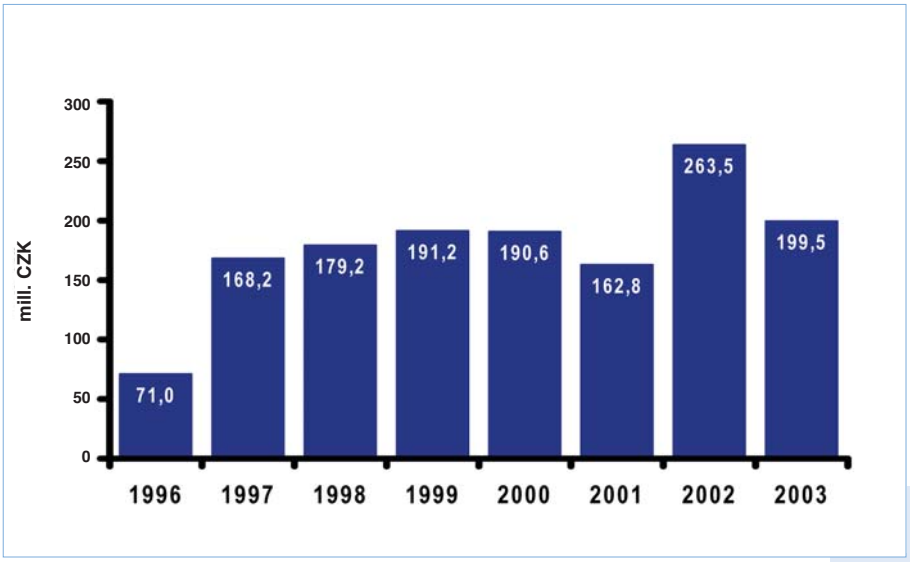
Source: Forests of the CR, s.e.
Note: *) The unit price per m³ is given excluding value added tax

Graph 3.4.1 Investment expenses of Forests of the Czech Republic, s.e. in 1993–2003 in CZK millions - watercourses



Source: Forests of the CR, s.e.

Graph 3.4.2 Expenses of Forests of the Czech Republic, s.e. in years 1996-2003 in CZK millions – repair and maintenance of watercourses



Source: Forests of the CR, s.e.

preventative measures and, in particular, on the construction and reconstruction of objects for the damming of mountain streams in areas affected by floods. Measures are implemented primarily with the intention of creating retention areas for catching floating debris, stabilisation of the longitudinal gradients of flows by transverse structures and securing flood-prevention by increasing the capacity of riverbeds. CZK 236,2 million was used for the repair and maintenance of basic resources for the control of mountain streams and other waterworks administered by Forests of the Czech Republic, s.e. Out of this amount, CZK 200,3 came from own resources. The volumes shown also include costs for the repair and maintenance of land-reclamation networks and reservoirs carried out by the relevant forest districts and forest enterprises.

The most significant activity of Forests of the Czech Republic, s.e. in the section of water management was the rectification of flood damages. This primarily involved increasing the capacity of riverbeds, removing alluvial deposits and repairs to retaining walls, paving, transverse structures and weirs. A total of CZK 120,2 million was expended on rectifying flood damage, of which CZK 96,6 million came from own resources.

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

Forests of the CR, s.e. expended almost CZK 437 million in 2003 on the administration of watercourses.

Table 3.4.1. shows the structure of financing for the administration of small watercourses via the area watercourse administrations and the level of support of the state for the year 2003 Table 3.4.1.

Revenues for abstractions of surface water are insignificant, and in 2003 they came to CZK 9,4 million at a price of CZK 1,24/m³ of abstracted water.

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

3.5 Waterways

According to the "European Agreement on Main Inland Waterways of International Significance (AGN)", the Elbe is given as the main European waterway E 20, and the Vltava is given as its fork E 20-06. According to Act No. 114/1995 Coll., concerning Inland Navigation, the Elbe-Vltava waterway is a waterway of international transport significance which is the only shipping link with the entire European network of waterways. On the Czech, 171 km section of the Elbe from Střekov to the port in Chvaletice, and on the 70 km section of the Vltava from the confluence with the Elbe in Mělník to the harbour of Radotín in Prague, virtually year-round navigation is ensured by a series of weirs even during low flow. On the 40 km regulated section from Střekov to the state border between the Czech Republic and FRG, navigation is wholly dependent on the current water level.

In 2003, work was completed to a total value of almost CZK 461 million as part of the sub-programme of the Ministry of Transport "Renewal of Water Transport after Floods of 2002".

The damages caused by the August floods in 2002 and to constructions of waterways of transport importance, enumerated by the Elbe River Board, s.e.. and the Vltava River Board, s.e. as CZK 699,0 million, were gradually eliminated in the course of 2003, excluding the expended resources from the MoA, with the help of the sub-programme of the Ministry of Transport (refered to hereinafter as the „MoT") "Renewal of Water Transport Structures after the Floods of 2002". Under this sub-programme, by the

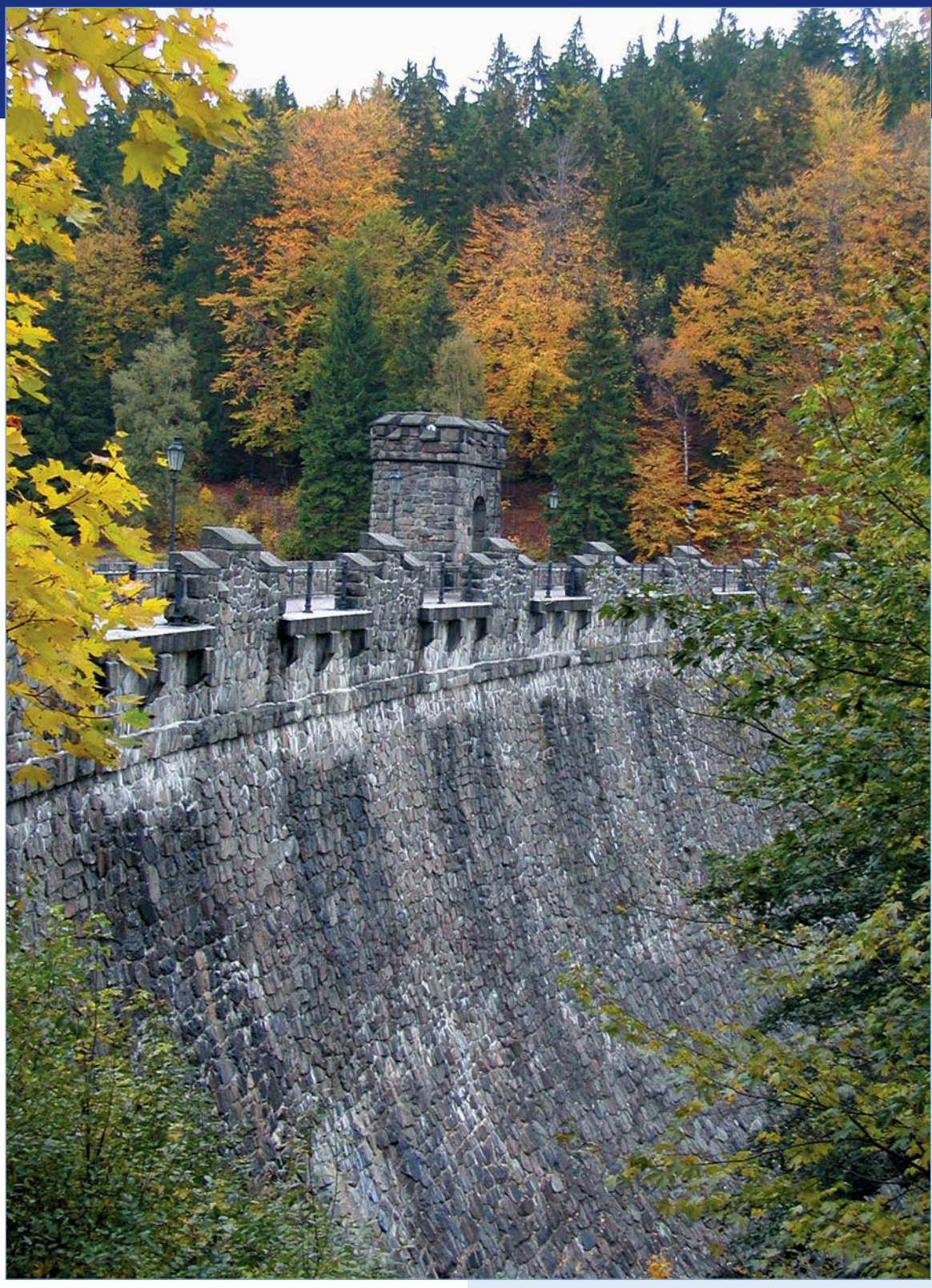
end of 2003 work had been completed in the value of CZK 460,90 million, of which by the Elbe River Board, s.e. to the value of CZK 173,20 million and by the Vltava River Board, s.e. to the value of CZK 287,7 million. This work will continue in 2004.

In 2003, work associated with the reconstruction, modernisation and construction of waterways was implemented from the resources of the State Transport Infrastructure Fund in a total amount of nearly CZK 356 million.

Under the programme "Support for Development of Water Transport in the Czech Republic for the Year 2005", work totalling CZK 355,80 million was carried out on the reconstruction, modernisation and construction of waterways from the resources of the SFTI in the field of the care of the MoT for the development of waterways. Compared with the preceding year, these expenses represent a drop of 30 %. The reason is the long preparation of the two priority constructions of the programme on the Elbe waterway caused by lengthy discussion of the objections of ecologists, these constructions being the "Improvement of Navigation Conditions on the Elbe in the Section Ústí nad Labem – state border of Czech Republic/FRG and construction "Stage Přelouč II" for extending the navigation of the Elbe to Pardubice.

Out of the CZK 355,8 million shown from the resources of the SFTI, the Elbe River, s.e. implemented CZK 280,30 million, and the Vltava River Board, s.e. implemented CZK 12,8 million. The other resources were implemented by the state investor MoT – Directorate of Waterways of the Czech Republic – in the amount of CZK 37,3 million, and also by private investors in the amount of CZK 25,4 million. In 2003, for the renewal of the waterway Otrokovice – Rohatec, minor constructions to the value of CZK 11,0 million were implemented by the Directorate of Waterways of the Czech Republic.

In the course of the last calendar year, the following preparatory work was also ensured: feasibility study for connection of Logistics Centre Břeclav to the Danube, comparison of variants for studies for extending the navigable Odra to Ostrava, study for completing the equipping of the Vltava waterway with missing navigation objects, investment intention for Extension of Baťa Canal Otrokovice - Rohatec, study work for development of waterways for sporting and recreational sailing and study bases for improving the anti-flood protection of ports and waterways.



Kamenička water reservoir - Ohře river basin

4. MEASURES TO LESSEN EXTREME HYDROLOGICAL PHENOMENA

4.1 Characteristics and consequences of drought in 2003

2003 was distinguished in the vegetative period by the unfavourable course of several climatological characteristics which together resulted in a state generally referred to as a meteorological and hydrological drought.

The CHMI processed a detailed report with comprehensive evaluation of characteristics which describes the given state. In the individual parts there was a detailed examination of the consequences of the combination of periods in 2003 which had above-average temperatures and below-average rainfall.

On the basis of available regime characteristics processed for selected stations, from the aspect of the probability of repetition of the phenomenon, the most significant hydrological drought was in the basin of the upper Elbe (probability of repeat generally 2 to 10 sporadically to 50 years) and in the basin of the Vltava above the Vltava cascade (5 to 25 years). In the basin of the Berounka, Vltava below the cascade and the lower Elbe, the situation in this aspect was more propitious (2 to 5 years).

Table 4.1.1. gives information about reserves of water in reservoirs and the progress of emptying the most important water-management reservoirs in the Czech Republic.

The replenishment of stocks of groundwater after the extreme rainfall in the second half of 2002 culminated in the period from January to February 2003. In March 2003, reserves of groundwater were replenished from the thawing of snow and from the spring rains. The emptying of stocks of groundwater, according to the drop in levels and yield of springs, began usually at the end of March until the first half of April 2003. The drop in reserves of groundwater from the spring maximums to the autumn minimums is an expression of the regular annual groundwater cycle. The difference in the individual years is the speed and size of the drop. In 2003 the initial state of reserves of groundwater in basins affected by floods and extreme rainfall was very high, and in the other parts of the country it was average or slightly above average. The drop in the levels and yield of springs began in April and lasted until September 2003. Not even the higher rainfall totals in May had an influence on the continuing drop, because the high level of evapotranspiration did not allow rainfall to reach the level of the groundwater.

In view of the relatively large potential stocks of groundwater, despite the very low rainfall totals, the drop in reserves of groundwater in the period April – September was not as great as for the flows in watercourses. It is possible to state that from approximately August virtually the entire flow in watercourses is saturated from groundwater. At the end of August, apart from the spread of rainfall, the influence of the character of hydrogeological structures begins to have a marked effect in the groundwater regime. In August, the basin structures with collectors, which have a greater reserve of groundwater, were still above the long-term averages from the period 1971 – 1990. From July on, shallow circulations of groundwater and riverine zones were generally markedly under the long-term average. The spring yield regime in fissure circulations of the crystalline and similar rock environments were of a similar character. In September, the drop in reserves of shallow circulations halted locally or were slowed as a result of the greater rainfall total.

An analysis of the drought for the year 2003 was carried out in the individual monitored items as of 30th September 2003, and in exceptional cases it also covered October 2003. The period thus defined covers the entire vegetation period of this year, but it is not capable of covering and designating the necessary period over which the landscape system in the field of water reserves in the individual parts of the system will fill up.

From the climatological and agro climatological aspect, on average the period from January to the end of September was significantly warmer, and there was a shortage of rainfall. There was only a more propitious rainfall situation in the peripheral parts of the Czech Republic, whereas in all the agri-

Table 4.1.1 Progress of emptying most important water-management reservoirs in the Czech Republic in % of storage space

Supplied region	Reservoir	28.7.	4.8.	11.8.	18.8.	25.8.	1.9.	8.9.	15.9.	22.9.	29.9.	6.10.	13.10.	20.10.
Central Bohemia	Želivka	88	88	87	87	85	85	84	83	83	82	82	82	82
Liberec	Josefův Důl	87	86	85	84	82	81	79	79	78	77	76	77	76
	Souš	79	77	75	73	72	69	67	66	64	61	60	62	60
South Bohemia	Římov	74	74	72	69	68	66	64	63	60	59		64	65
Plzeň	Nýrsko	95	95	95	94	94	93	92	92	91	91	90	93	92
Karlovy Vary	Horka	68	66	62	61	60	59	58	58	57	56	56	56	55
	Stanovice	73	72	70	68	66	65	64	63	62	61	60	59	58
Ústí nad Labem	Přísečnice	78	78	77	76	75	74	72	72	70	69	68	68	67
	Fláje	60	59	57	55	54	52	50	49	47	46	44	43	41
Moravia-Silesia	Kružberk	58	60	61	63	64	66	65	70	75	80	85	79	71
	Šance	65	65	63	61	58	56	54	52	49	47	46	51	50
South-Moravia	Vír	82	80	77	74	72	70	67	66	65	62	61	62	60

Source: CHMI

culturally productive areas the situation was adverse to significantly adverse, and not only at the end of September, but throughout all the summer months.

Lower air humidity with higher temperatures caused its high drying ability. For this reason, the values of potential evapotranspiration in the evaluated period of 2003 were significantly greater than their long-term average 1992–2002. Logically, the dampness of the soil was then lower than the long-term average referred to. This is also associated with the greater number of days when the current deficit reached or exceeded the value of critical water deficit.

The greatest negative deviations in the index of meteorological drought occurred on the entire territory of the Czech Republic, with the exception of the border mountains, Droughts came in five waves with two significant peaks. The first came in June, when there was a critical drought on 47 % of the territory of the Czech Republic, i.e., it affected most of the agriculturally important areas of the republic. The second, essentially August, drought occurred on 53 % of the territory and was as extensive as the June one.

From the hydrological evaluation it is derived that from the aspect of surface water, it is not possible to see the dry period of 2003 as a nationwide matter. But there were extremely low flows in places in watercourses in southern and eastern Bohemia and also in small watercourses in the west of the territory. Flows in northern Moravia originating in the Jeseníky area were also affected.

The reduction in reserves of groundwater was expressed in southern and south-western Bohemia earlier than in the remaining parts of the territory. But we consider reaching or undershooting the quantile of 85 % of the monthly curve of exceeding, which was reached only in the Moravia basin and partly in the Odra basin, to be a clear sign of drought for groundwater. And so, overall, from the aspect of groundwater, the dry period of 2003 cannot be considered to be extremely dry. More significant expressions of the shortage of groundwater were given primarily by local conditions.

The achieved results and conclusions from the analysis of the drought prove that in 2003, there was meteorological and soil, i.e., agronomical, drought on the territory of the Czech Republic.

4.2 Implementation of preventative measures for protection from floods and the rectification of flood damage from previous years

In the same way as for previous years, in 2003 the Ministry of Agriculture ensured programmes focussing on rectification of flood damage and the implementation of preventative measures for protection from floods (for more detail see chapter 7.1).

The implementation of the activities referred to connected with floods is one of the MoA most important activities. The protection of human life, health and property of citizens in general is one of its basic priorities, and in this matter it cooperates closely with many subjects in such a way that this priority is dealt with in the most effective manner.

One of the initial phases of the period after the flood is the clearing up of damage caused by the flood. As the Czech Republic has been affected by floods (local, regional or supra-regional) several times over the past seven years (since 1997), this phase was, and also currently is, the main motive for establishing and implementing several programmes as part of the programme financing of the MoF. It is possible to talk of the following programmes as being under the management of the MoA:

- Programme 329 180 "Rectification of damage caused by floods of 1997",
- Programme 229 110 „Rectification of damage caused by floods on state water-management assets"
  – *sub-programme 229 112 „Rectification of consequences of flood 2000"*
  – *sub-programme 229 113 „Rectification of consequences of flood 2002"*,
- Programme 229 810 "State assistance for renewal of territory affected by 2002 flood provided by the MoA focussing on the renewal and securing of water-management facilities, water supply systems and sewerage systems",
- Programme 229 210 "Renewal, dredging and reconstruction of fishponds and water-management reservoirs"
  – *sub-programme 229 218 „Rectification of damages to fishponds and water-management reservoirs after floods in August 2002."*

Chapter 7, State Financial Support for Water Management, contains a more detailed description of the individual programmes, purpose and aims for which they were established, the length of their duration, the volu-

me and securing of the anticipated financial resources, the recipients of grants and the implemented events.

The phase of flood prevention is closely linked to programmes relating to the rectification of flood damage, It is based on the findings from floods and prevents their repetition in the most exposed localities along watercourses. The target of water managers is to achieve the highest level of protection from floods on the entire territory of our state.

At present the MoA is implementing the following two programmes focussing on flood prevention:

- Programme 229 060 „Flood Prevention“,
  – *sub-programme 229 062 „Construction and renewal of polders, reservoirs and dikes“,*
  – *sub-programme 229 063 „Increasing flow capacity of watercourses“,*
  – *sub-programme 229 064 „Designating flood territories“,*
  – *sub-programme 229 065 „Study of drainage conditions“*
  – *sub-programme 229 066 „Defining scope of territory threatened by special floods“.*
- Programme 229 210 “Renewal, dredging and reconstruction of fishponds and water-management reservoirs”
  – *sub-programme 229 212 “Renewal, dredging and reconstruction of fishponds and water-management reservoirs”.*

Once again, Chapter 7 contains more detailed information associated with the programmes of the MoA referred to.

4.3 Associated non-legislative tasks

Project for evaluation of catastrophic flood in August 2002

At the end of last year, the project, Evaluation of catastrophic flood in August 2002, which the government approved by resolution No. 977 of the date 7th October 2002, was completed.

The course of work was controlled by the Steering Board of the project managed by the under-secretary to the MoE, which was composed of representatives of the interested ministries. Representatives of regional authorities and the managers of the relevant River Boards were also invited to meetings. The actual coordination of the evaluation work was entrusted to the T. G. Masaryk Water Management Research Institute (referred to hereinafter as the „WMRI T.G.M.“). The Czech Hydrometeorological Institute, the Nature and Countryside Conservancy Agency (referred to hereinafter as the „APNC“), the Czech Geological Survey, administrators of river corporations and other professional organisations and experts were invited.

Opatovice water resorvoir - Morava river basin

The important outputs and findings from the project and the recommendations and proposed measures arising from this for the further development of flood prevention in the Czech Republic were summarised in the Resulting Report of the Project, which was discussed and approved by the government in resolution No. 76 at its meeting of 21st January 2004.

On the general level, it is possible to say that the August flood disaster in 2002 became the event the evaluation of which ensured by the project verified the correctness and completeness of the collection of principles for the Strategy of Flood Prevention on the territory of the Czech Republic (approved by government resolution 382 from 19th April 2000) and is also an example on which it is possible to show that some of the fundamentals laid out are or are not followed thoroughly and complied with. Within the context of certain professional blocks of the project and also of the general public, it was frequently stated that since 1997, and thus also in the course of the 2002 floods, in the Czech Republic there has been a positive expression of the changes in legislation for the area of flood prevention, crisis management and the provision of state aid for the renewal of territory after natural and other disasters.

In the course of resolving the project, the conclusions from the individual professional blocks were confronted with the fundamentals of the Strategy. No acute need for changes to legal regulations was ascertained. But problem areas were identified where focussed change can improve the system linkage of procedures for flood prevention. For all the preventative measures it is necessary to give more attention to systematic and more thorough application of the fundamentals of the Strategy. Some of them must be applied in simulated conditions of threat through systematic schooling and training of public administration bodies, professional organisations and citizens and youth from school age.

From the analyses and evaluations carried out in the framework of the project, it was found that the rainfall which caused the floods of August 2002 was an extreme case, but it reached only 68 % of the maximum values

which are physically possible in our latitudes. From this it is evident that the incidence of greater area rainfall than the rainfall in August 2002 is realistically possible. A repeat of the incidence of heavy rainfall episodes over a short time period of several days is a sporadic case, but in the history of floods, there are records of several extreme cases of summer regional floods accompanied by secondary floods (for example 1890, 1997). It is not possible to seriously quantify the probability of a repeat of an extreme flood of a scope similar to the August flood of 2002 on our territory. There are known cases in the Vltava basin in the past of clusters of years with large floods in the summer half of the year (1872, 1890, 1897, 1899).

Performance of flood prevention strategy

The material content of the Report on the Fulfilment of the Strategy is based on the experience gained from the flood situations on the territory of the Czech Republic over the past six years and is primarily focussed on the necessity to continue in the initiated implementation of essential measures. During the preparation of this material, the findings and current results of the project Evaluation of catastrophic floods in August 2002 were already partly used. The submitted report evaluated the process for the fulfilment of the individual principles of the Strategy and carried out an analysis of the existing legislative, organisational, technical and ecological aspects.

Through its resolution No. 382, on 19th April 2000, the Government of the Czech Republic accepted the "Strategy for Flood Protection for the Territory of the Czech Republic" (referred to hereinafter as the "Strategy"). This was the first materially political document of its type in the Czech Republic based on an evaluation of the flood situations on the territory of the Czech Republic from 1997 and 1998 and from the findings concerning the level of flood protection in Europe in the 1990s. The strategy points in particular to the fact that flood protection must be dealt with as a priority by a set of programmes (within the context of programme financing) whilst applying technical and non-technical elements. By defining these principles, the Strategy was largely responsible for the turnaround in the attitude towards flood prevention, it created a unified framework for the preparation of concrete measures, and it introduced a scope of responsibilities.

In the approved Strategy, the government imposed upon the ministers of agriculture and the environment, in cooperation with the ministers for local development and transport and communication, the task of preparing a control „Report concerning the performance of the Strategy" for flood prevention on the territory of the Czech Republic (referred to hereinafter as the Report on performance of Strategy) and submitting it to the government for discussion on 31st March 2003.

In the course of the end of 2002 and the start of 2003, this Report on the Performance of the Strategy was processed by the relevant ministries. On 7th April, through its resolution No. 344, the government of the Czech Republic approved this Report on the Performance of the Strategy.

With the hindsight of several years, we can now state that the adopted strategy played an important role, especially in the initiation of the process for the realisation of flood prevention programmes which come under the systems management of the individual selected government departments. At present it is essential to continue in the initiated implementation of important flood prevention measures of a regional and supra-regional significance in the most endangered parts of our state. The public here expects the implementation of measures to reduce the risk to human life and damaged to assets of the state, towns and municipalities, including the private property of all citizens. With regard to the geographical and orographical position of the Czech Republic, it is also essential to coordinate these principles arising from the Strategy with the relevant neighbouring states, because many of our watercourses influence the course of a flood and the overall flood situation on the territories of neighbouring states.

The Report on the performance of the Strategy did not only monitor the process for the performance of the Strategy, but, on the basis of an analysis of the current system of flood prevention in the Czech Republic, it also proposed new procedures and approaches to dealing with the issues associated with the flood protection of our territory.

Labská water reservoir - Elbe river basin

Performance of programmes for flood prevention

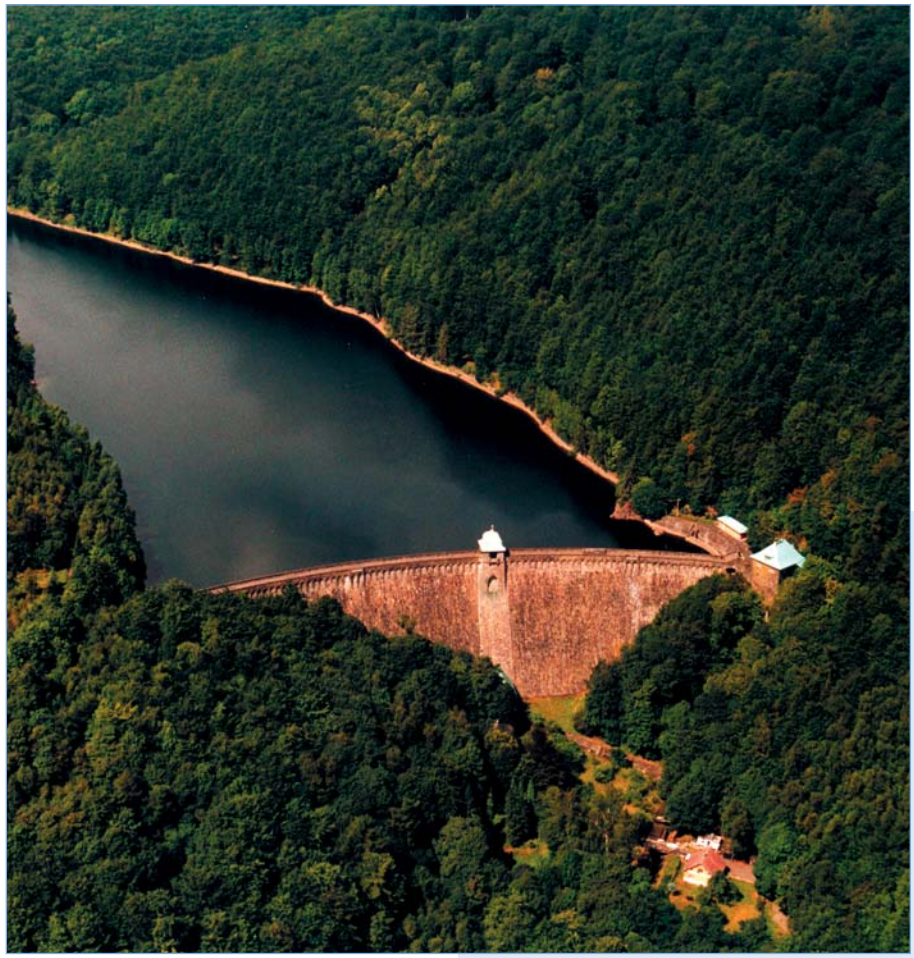
The Strategy itself is fulfilled primarily via the implementation of programmes in the field of flood prevention which are managed by the individual selected government departments within the framework of the system of programme financing.

By government resolution No. 897, point I, of the date 13th September 2000, the government took due note of the material of the Intention for the creation of flood prevention programmes in which there was a material proposal for the structure of the individual flood prevention programmes managed by the MoA, MoE and MoT and Communications, including an estimate of the financial burden for its implementation. On the basis of this resolution of the government, point II/3, the MoA, MoE and MoT and Communications were also instructed to prepare a report in cooperation with the Minister for Local Development on the performance of the flood prevention programmes (referred to hereinafter as the Report on Performance of the Programmes).

A regular monitoring report concerning the implementation of flood prevention programmes carried out in the framework of the financing programme, which was approved by the ruling of the Government No. 335 on the date 7th April 2003, was submitted at the same time as the Report on Performance of the strategy.

The submitted material presented the government with information about the implementation of flood prevention programmes since 2000, including giving reasons why some programmes were not established or why their implementation was late, including information about the newly established programmes which in terms of their character are linked to the field of flood prevention. The report on the performance of programmes gives detailed information about the current development of the state of flood prevention in the Czech Republic and about the material and financial share of the individual government departments in this field.

The most important programme, and the one with the greatest financial burden, is the Flood Prevention Programme managed by the MoA. As of 31.12.2002, it was possible to approve the documentation of the programme by the MoF, to ensure the financing of the programme by co-financing from national and foreign sources, and start the systematic implementation of selected priority measures for flood prevention in the areas of the Czech Republic most at risk. The eventual aim by 2005 is to increase the current level of flood protection in contiguous built up areas which corresponds to the increase in flows from Q_{20} to min. Q_{50} and, in justified cases, in non-built up areas from Q_5 to Q_{20}. Another no less important aim is to increase the number of designated flood territories along the significant watercourses from the current 51,4 % to an assumed approx. 75 %, which means achieving a level comparable with selected countries of Western Europe. The implementation of this programme requires investments in the amount of approximately CZK 4,15 billion.



Janov water reservoir - Ohře river basin

In the report about the performance of the programme, there remains an assumption of continuation in the implementation of support measures within the context of the non-production functions of agriculture which it is necessary to support in all ways from the aspect of flood prevention. The effect of a measure of this type in the context of preventing flood situations is not insignificant for flows with a frequency of repetition of a maximum Q_{10}. In flood situations with a lower repetition frequency, the influence of these measures drops significantly, and in the event of catastrophic floods, the effect is virtually insignificant.

Another component of the preventative measures against floods is the Prevention Support Programme in Territories Threatened by Unfavourable Climatic Conditions, managed by the MoE. The priorities of the programme are, in particular, support for the modernisation of the system of the flood forecasting service and basic reporting profiles implemented by the CHMI and also the implementation of additional reporting profiles established at the level of regions and municipalities and also the division of territory into areas for the purposes of town and country planning from the aspect of the risk of landslide phenomena.

The programme newly established by MoA called the Programme for the Renewal, Dredging and Reconstruction of Fishponds and Water Management Reservoirs is a new support programme shown in the Report about the Performance of Programmes which is linked to the systematically proposed flood prevention programmes. In flood situations in recent years, fishponds and water management reservoirs have proven their not insignificant role in the flood prevention protection of territories, which is one of the most important non-production roles of fishponds and water management reservoirs. For this reason, emphasis is placed in particular on reinforcing the retention function of fishponds.

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 2003.

In 2003, 9,18 million inhabitants, i.e., 89,8 % 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 750,5 million m³ of drinking water was produced. 547,2 million m³ of drinking water was supplied for a fee (charged), of this 344,7 million m³ of drinking water for households. The losses of drinking water reached 169,4 million m³ for the main operators, i.e., 23,3 % of water intended for implementation.

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

The trend of the drop in the volume of produced drinking water virtually stopped in 2003. The specific amount of water charged for one supplied inhabitant was 163 l per day, the specific consumption of drinking water in households was 103 l/person/day. These specific consumptions are stagnant in comparison with 2002, and it is possible to anticipate a halt in the fall.

The greatest share of inhabitants supplied from public water supply systems for public need in 2003 was in the capital Prague (99,9 %) and in the Karlovy Vary region (98,4 %), and the lowest share of inhabitants supplied with drinking water remains in the Central Bohemia region (74,9 %) and the Plzeň region (81,3 %).

In 2003, the length of the water supply network was increased by a total of 3 346 km and reached a length of 59 619 km.

Table 5.1.1 Supply of water from water supply systems for public need in the years 1989 and 1996–2003

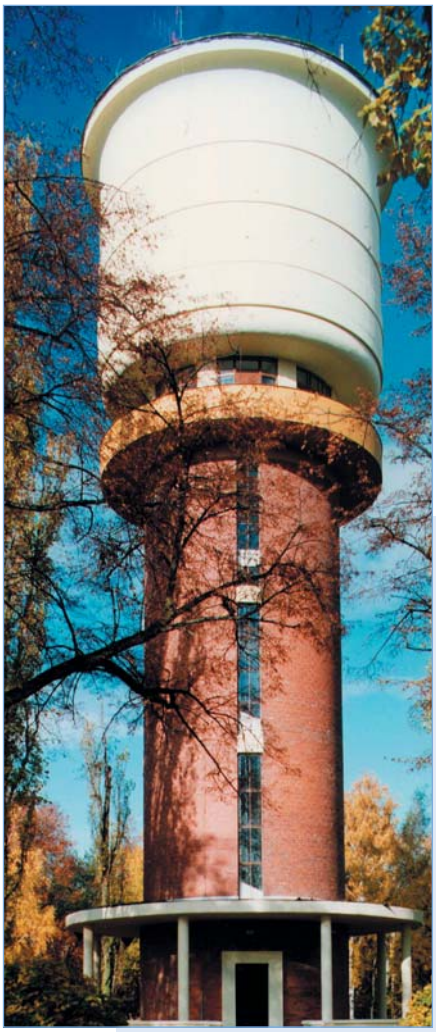
Indicator	Unit of measurement	1989	1997	1998	1999	2000	2001	2002	2003
Inhabitants (median state)	thou. inhab.	10 364	10 304	10 295	10 283	10 273	10 287	10 201	10 201
Inhabitants really supplied with water	thou. inhab.	8 537	8 866	8 879	8 936	8 952	8 981	9 156	9 179
from water supply systems for public need	%	82,4	86,0	86,2	86,9	87,1	87,3	89,8	89,8
Water produced from water	million m³/year	1251	887	843	800	778	754	753	751
supply systems for public need	%	100,0	70,9	67,4	63,9	62,2	60,3	60,2	60,0
Total charged water	million m³/year	924,4	604,0	579,9	564,2	554,1	535,6	545,3	547,2
	%	100,0	65,0	62,4	60,7	59,6	57,6	58,7	58,9
Specific need from water	l/person per day	401	274	260	245	237	231	225	224
produced *)	%	100,0	68,3	64,8	61,1	59,1	57,5	56,1	54,7
Specific amount of water	l/person per day	298	187	179	173	169	164	163	163
charged in total *)	%	100,0	62,8	60,1	58,1	56,7	54,9	54,7	54,7
Specific amount of water	l/person per day	171	113	110	109	107	104	103	103
charged for households *)	%	100,0	66,1	64,3	63,7	62,6	60,7	60,2	60,2
Loss of water per 1 km of system *)	l/km per day	16 842	14159	12 149	10 704	9 706	9 141	8 358	7 783
Loss of water per 1 supplied inhab. *)	l/person per day	90	79	71	63	60	57	53	53

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

Table 5.1.2 Supply of inhabitants, production and delivery of water from water supply systems for public need in 2003

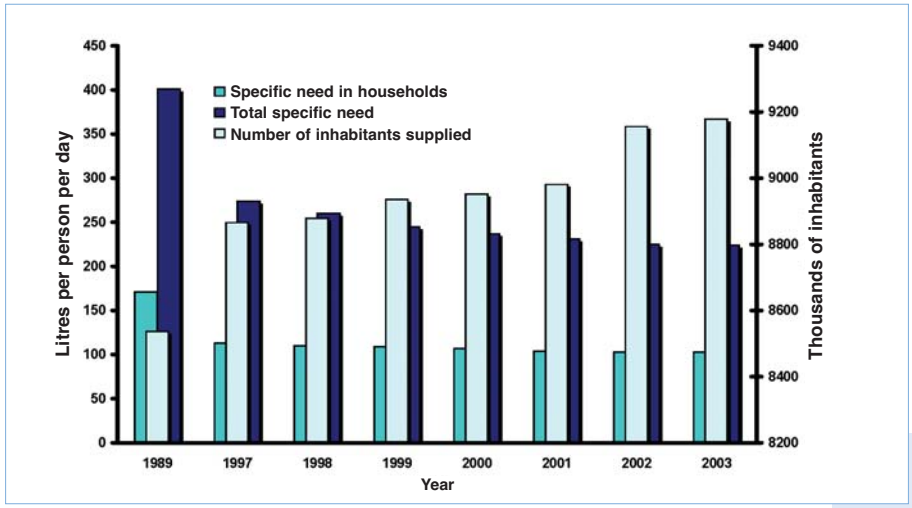
Region, territory	Inhabitants		Water produced	Invoiced water	
	Truly supplied with water from water supply systems for public need	Proportion of inhabitants supplied with water out of total number	from water supply systems for public need	total	of this households
	(number)	(%)	(thous. m³)	(thous. m³)	(thous. m³)
Capital Prague	1 161 000	99,9	142 654	90 228	57 901
Central Bohemia region	847 800	74,9	49 556	45 150	29 275
Southern Bohemia region	556 580	89,1	40 008	29 745	18 625
Plzeň region	446 350	81,3	37 120	28 974	16 426
Karlovy Vary region	299 150	98,4	25 108	18 246	11 843
Ústí nad Labem region	788 300	96,2	73 413	49 961	30 739
Liberec region	373 750	87,5	34 983	23 128	14 422
Hradec Králové region	484 000	88,4	37 378	26 936	17 332
Pardubice region	464 900	91,8	34 524	25 655	15 779
Vysočina region	452 660	87,5	27 638	23 539	13 623
Southern Moravia region	1 038 100	92,6	73 797	57 481	36 401
Olomouc region	560 500	88,1	41 504	30 078	19 083
Zlín region	508 660	85,9	36 412	26 483	15 720
Moravia-Silesia region	1 197 600	95,0	96 419	71 565	47 494
Czech Republic	**9 179 350**	**89,8**	**750 514**	**547 169**	**342 907**

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



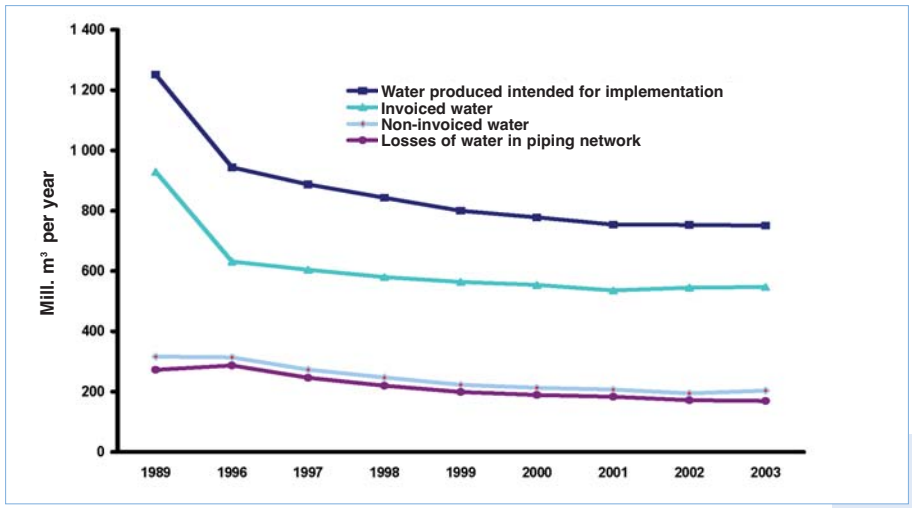
Distribution resorvoir at Hradec Králové

Graph 5.1.1 Development in number of supplied inhabitants and specific need of water charged in 1989 and 1996–2003



Source: CSO, MoA

Graph 5.1.2 Development of values of water produced from water supply systems for public need and total charged water in the years 1989 and 1996–2003



Source: CSO, MoA

The number of water supply systems for public need increased by 339 and reached a number of 2 612. The number of water supply connections increased by 73 760 and reached the number of 1 545 344. The length of water supply connections increased by 1 005 km and reached a length of 14 368 km. The number of fitted water meters increased by 70 739 and reached the number of 1 552 743.

The significant increase in the number of water supply connections and length of water supply piping is the result of auditing when processing the "Selected Data of Assets and Operational Records" pursuant to section 5 of Act No. 274/2001 Coll., Concerning Water Supply and Sewer Systems for Public Need.

5.2 Removal and treatment of communal waste water

In 2003, 77,7 % of inhabitants of the Czech Republic lived in homes connected to the sewerage system for public need.

In 2003, 7,93 million inhabitants of the Czech Republic lived in homes connected to the sewerage systems for public need. A total of

Table 5.2.1 Removal and treatment of waste water from sewerage systems for public need in years 1989 and 1996–2003

Indicator	Unit of measurement	1989	1997	1998	1999	2000	2001	2002	2003
Inhabitants (median state)	thou. inhab.	10 364	10 304	10 295	10 283	10 273	10 287	10 201	10 201
Inhabitants living in homes connected to sewerage systems for public need	thou. inhab.	7 501	7 573	7 657	7 666	7 685	7 706	7 899	7 928
	%	72,4	73,5	74,4	74,6	74,8	74,9	77,4	77,7
Waste water discharged into sewerage systems for public need (excluding rainwater) total	million m³	877,8	628,5	620,0	592,2	576,0	570,7	576,3	558,1
	%	100,0	71,6	70,6	67,5	65,6	65,0	65,7	63,6
Treated waste water, including rainwater *)	million m³	897,4	842,5	818,9	814,6	808,8	841,4	846,2	782,7
Total treated waste water, excluding rainwater	million m³	627,6	571,5	566,1	562,9	546,1	544,8	533,6	527,4
	%	100,0	91,1	90,2	89,7	87,0	86,8	85,0	84,0
Proportion of treated waste water, excluding rainwater	%	71,5	90,9	91,3	95,1	94,8	95,5	92,6	94,5
Ratio of treated waste water to untreated waste water, excluding rainwater	-	2,5	10,0	10,5	19,2	18,3	21,2	12,5	17,2

Source: CSO
Note: *) data for water supply systems and sewers of main operators

558,1 million m³ of waste water was discharged into the sewerage systems for public need. Of this amount, 94,5 % was treated (without the inclusion of rainwater), which represents 527,3 million m³. The development trends for sewerage systems for public need over the long term are shown in Table 5.2.1 and Graph 5.2.1.

The greatest proportion of inhabitants connected to the sewerage system is in the capital Prague (99,6 %) and the Karlovy Vary region (89,9 %), the lowest proportion is in the Central Bohemia region (59,5 %), followed by the Pardubice region (67,1 %).

The length of the sewerage system was extended by 2 379 km and reached a length of 26 742 km.

The length of sewer connections increased by 849 km and reached a length of 7 670 km.

The total number of waste water treatment plants increased by 176 and reached the number of 1 410.

5.3 Development of water supply and sewerage charges

In comparison with 2002, water supply and sewerage charges increased by an average of 5,6 %.

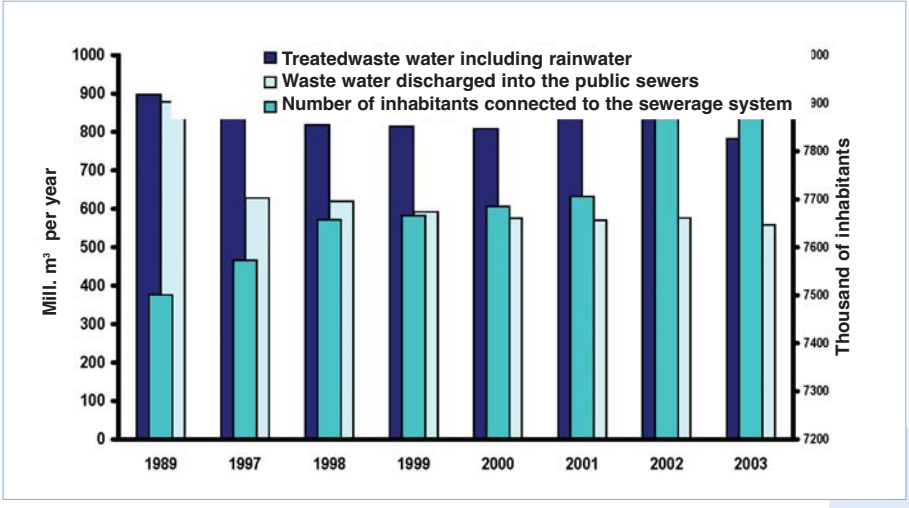
In 2003, the average water supply charge in the Czech Republic, including VAT, calculated according to implementation prices, was CZK 21,56 m^{-3}, and the average sewerage charge, including VAT, was CZK 18,22 m^{-3}.

The limit values of the sum of implementation prices for water supply and sewerage charges summarised for water supply and sewerage charges in 2003 were min. CZK 18,96 and max. CZK 56,13. The average price was CZK 39,77. Table 5.3.1. gives a more detailed overview processed according to calculation data.

The differentiation in the price for water supply charges and sewerage charges between the individual companies operating water supply systems and sewerage systems is given by the initial conditions for operation in the given region, for example, spatial distribution of consumption areas, degree of use of water supply and sewerage capacities etc.

With regard to the average values for the Czech Republic (100 %), the price differences in the individual regions were around 48 % in 2003 for the lowest prices up to 131 % and 155 % for the highest prices. In contrast with 2002, there was an increase in the minimum prices of water supply and sewerage charges by an average of 6,5 %, the maximum prices remain approximately at the same level as last year.

Graf 5.2.1 Development of number of inhabitants living in homes connected to sewerage systems for public need and amount of discharged and treated waste water in 1989 and 1996–2003



Source: CSO, MoA

Table 5.2.2 Number of inhabitants living in homes connected to sewerage systems for public need and amount of discharged and treated waste water in 2003 in individual regions

Region, territory	Inhabitants living in homes connected to the sewerage system for public need		Waste water discharged into the sewerage system for public need	Treated waste water, excluding rainwater	
	total (number)	Percentage of overall number of inhabitants (%)	total (thous. m³)	total (thous. m³)	proportion (thous. m³)
Capital Prague	1 157 000	99,6	87 510	87 510	100,0
Central Bohemia region	673 500	59,5	46 765	46 611	99,7
Southern Bohemia region	529 200	84,7	38 765	35 405	91,3
Plzeň region	419 750	76,4	34 710	31 811	91,6
Karlovy Vary region	273 500	89,9	16 485	16 475	99,9
Ústí nad Labem region	671 400	81,9	43 678	37 621	86,1
Liberec region	290 250	68,0	19 493	16 701	85,7
Hradec Králové region	395 500	72,2	29 612	28 510	96,3
Pardubice region	339 900	67,1	25 887	24 162	93,3
Vysočina region	410 100	79,2	21 320	20 510	96,2
Southern Moravia region	876 650	78,2	52 572	51 304	97,6
Olomouc region	467 600	73,5	34 700	33 849	97,5
Zlín region	441 900	74,6	29 551	28 122	95,2
Moravia-Silesia region	982 200	77,9	77 063	68 761	89,2
Czech Republic	**7 928 450**	**77,7**	**558 111**	**527 352**	**94,5**

Source: CSO
Note: Including water supply systems not included in statistical investigation

Table 5.3.1 Water supply and sewerage charges in 2003 (including VAT)

Indicator	Unit	Water supply	Sewerage
Weighted arithmetic average for Czech Republic	CZK/m³	21,56	18,22
	%	100,00	100,00
Minimal value	CZK/m³	10,26	8,88
	% of average for CR	47,60	48,30
Maximum value	CZK/m³	28,24	28,26
	% of average for CR	130,90	155,10

Source: WMRI T.G.M.