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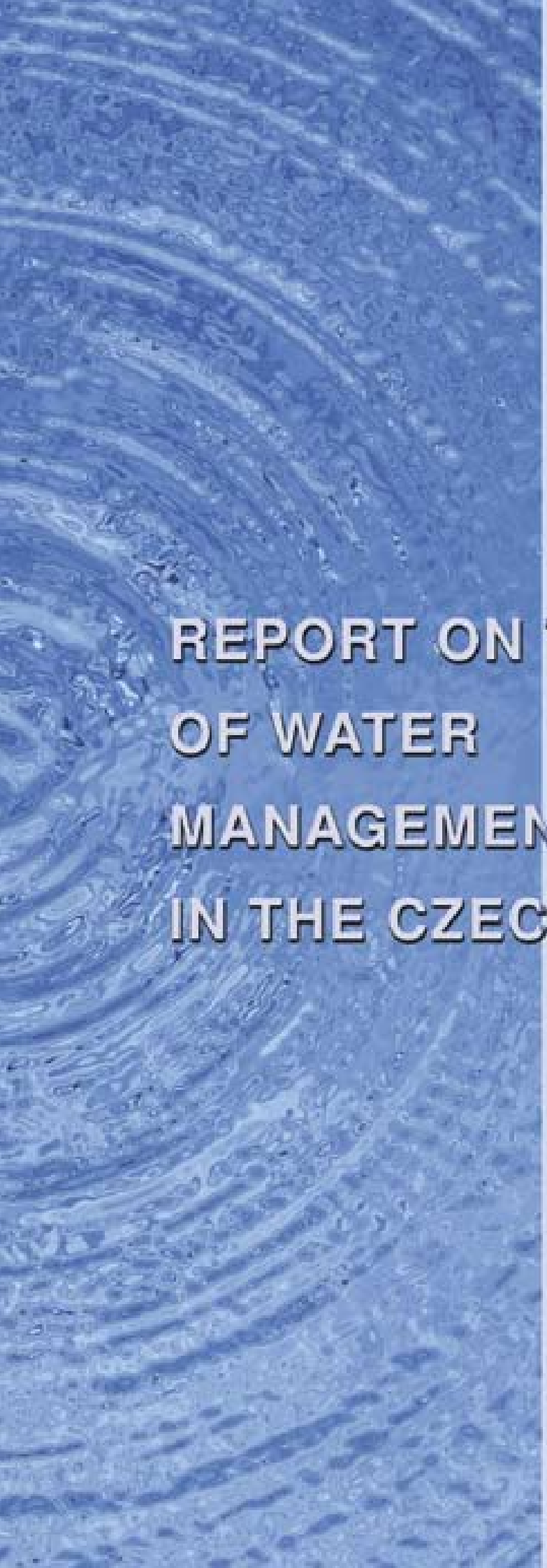

REPORT ON THE STATE OF WATER MANAGEMENT IN THE CZECH REPUBLIC

2007

By December 2007

Report on the State of Water Management in the Czech Republic

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Ministry of Agriculture of the Czech Republic
Ministry of the Environment of the Czech Republic

Draft introduction

Dear readers,

you have in your hands the eleventh edition of the „Report on the State of Water Management in the Czech Republic in 2007“, briefly entitled as the „Blue Report“.

This publication is a summary informational material which brings a complex information on the state of our waters and information on all water-management services which take care of water sources and their use by inhabitants and national economy.

The flood situations in previous ten years made the public concentrate on flood-protection measures and rectification of flood damage, which is the reason you get a detailed information on projects and financial resources in this field. In 2007 next stages of programmes aimed at intensification of flood-protection measures in competence of Ministry of Agriculture started. Between the years 2007 – 2012 they will enable the implementation of events on watercourses, reservoirs, fishponds and in landscape in the amount of app. CZK 15 billion.

Thanks to the support within the programmes of Ministry of Agriculture and the Ministry of the Environment there has also been a significant progress in the construction of sewerage systems and waste water treatment plants. As a result of this there has been a rise in the proportion of inhabitants connected to these systems, which exceeded 80 %. Over 95 % of the amount of discharged waste water is treated, which of course helps to improve the quality of water in our watercourses, as illustrated in the maps of cleaniness of water in comparison with the years 1990 – 2007. The decrease in the number of accident pollution by more than 13 %, unlike in 2006, had also a positive effect. Other improvement in quality of technological processes of waste water treatment is needed, with the aim to reduce the burden of water sources by nutrients, which contribute to growth of algae in the sum-

mer months and have negative consequences for the quality of water. Both legislative amendments to regulations, plans and programmes for measures enabling the improvement of the state of aquatic ecosystems help to supress this unfavourable trend. Preparation of these documents is in progress, some partial information is mentioned, and in 2009 a discussion with public will be held. Over 92 % of inhabitants are supplied with drinking water from public water supply systems, which is above the average of the EU member countries. Also the data from monitoring confirm the high standard of the water quality.

It is also important to mention the WATER – Information system of the Czech Republic, which is an internet source of data for both professional and general public on states of water, precipitation, water quality etc.: www.voda.gov.cz and serves not only during the flood situations but also if you want to plan your trips, hiking etc. Since 2007 the public have had a unique possibility to connect also through WAP (www.voda.gov.cz/wap).

I believe that the content of the „Blue Report“ of 2007 will provide all readers with significant information and will inform you that the situation of water sources and their usage for our everyday needs cannot be taken for granted, and that it also represents a wide scope of activities with high financial demands.

Mgr. Petr Gandalovič
Minister of Agriculture
of the Czech Republic

Content

Vítězslav Liberda, 12 years, B. Dvorský basic school, Ostrava - Hrabůvka „Bubble“ (Moravia-Silesia region)

Hydrological Balance

1.

1.1 Temperature and rainfall situation

After the hot years 2005 and 2006 the year 2007 belonged among the highly above-average years with the average annual temperature of 9.3 °C (+1.8 °C above the long-term average). In Moravia and Silesia the temperature was slightly higher with the average temperature of 9.4 °C. The average temperature in Bohemia was 9.2 °C.

December was the coldest month of 2007, the average temperature was –0.9 °C, i.e., +0.1 °C above the long-term average (N). The winter months at the start of the year were relatively very warm with the variation from the long-term average: +6.0 °C in January and +3.9 °C in February. The warmest month of the year was July with 18.3 °C (+1.4 °C above N), June (18.1 °C) and August (17.7 °C) followed.

In the first half of the year the period with hihgly above-normal temperature has continued since the second half of 2006. January was especially exceptional, in the first and the second decade the temperature records were often beaten. The above-normal temperature continued from the beginning of the year until August, then three colder months with temperature below the long-term average followed. At the same time September was 1.5 °C colder than the long-term average. December was normal in terms of tempereture.

Labe river, Kunčice nad Labem

The year 2007 was, after a series of rainfall average or below-average years 2003 to 2006, slightly above-average. The annual total reached 755 mm on the territory of the Czech Republic, which is only 81 mm more than the long-term average. At the same time the rainfall in Bohemia corresponded to 113 % of the long-term average, on the territory of Moravia and Silesia to 108 % of the long-term average. Total rainfall in Bohemia was 773 mm, in Moravia and Silesia 770 mm.

There were three months at the beginning of 2007 with above-average rainfall (January 181 % N, February 117 % N, March 140 % N), mainly rain occured. The next months with above-normal rainfall were May (116 % N), November (156 % N) a mainly September with almost twice the long-term average (216 % N). June (102 % N) and July (98 % N) were average in terms of rainfall. In August (90 % N), October (68 % N), December (79 % N) and mainly in April (only 10 % N) the rainfall did not reach the value of the long-term average. The extremely dry April caused the draught in 2007.

From the aspect of absolute rainfall totals, in 2007 the rainiest month was untraditionally September with 121 mm. July (87 mm), June (80 mm), January and May (78 mm) followed. On the other hand, April was the driest month with only 5 mm of rainfall. During the other months of 2007 the rainfall totals reached 36 to 73 mm.

Table 1.1.1.
Renewable water sources in the years 1998 – 2007 in millions m³

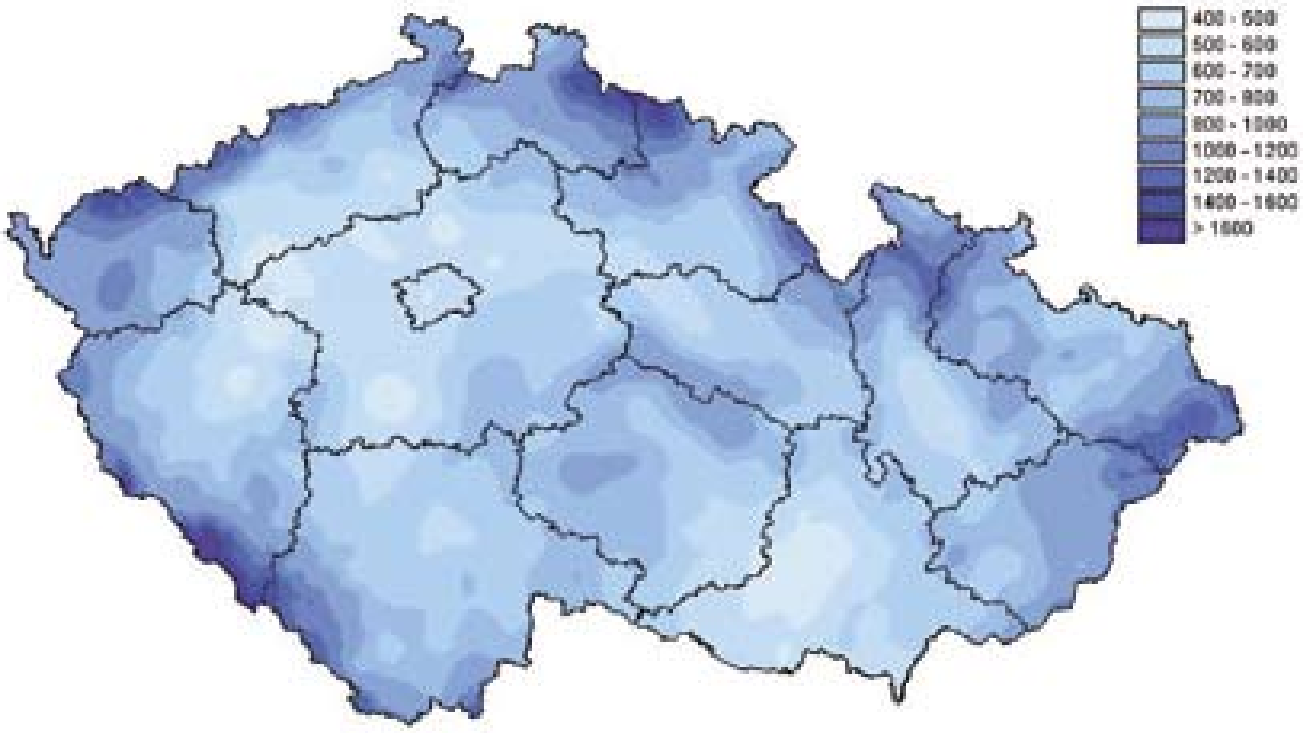
Item	Annual values									
	1998	1999	2000	2001	2002	2003	2004	2005	2006	2007
Rainfall	56 153	49 291	54 733	63 960	71 298	40 695	53 629	57 730	55 837	59 544
Evapotranspiration	42 750	35 381	40 353	48 537	48 533	29 319	41 473	42 872	37 617	46 194
Annual inflow [1]	541	550	573	761	1 341	524	640	781	1 070	637
Annual outflow [2]	13 944	14 460	14 953	16 184	24 106	11 900	12 796	15 639	19 290	13 987
Sources of surface water [3]	4 825	4 875	4 789	6 600	6 506	3 758	4 270	5 489	5 317	4 673
Usable sources of groundwater	1 330	1 390	1 204	1 440	1 625	1 195	1 224	1 330	1 338	1 248

Source: CHMI
Note: [1] Annual inflow to the territory of the Czech Republic from the neighbouring states.
[2] Annual outflow from the territory of the Czech Republic.
[3] Designated as flow in main catchment areas with 95 % ensuring.

1.2 Outflow situation

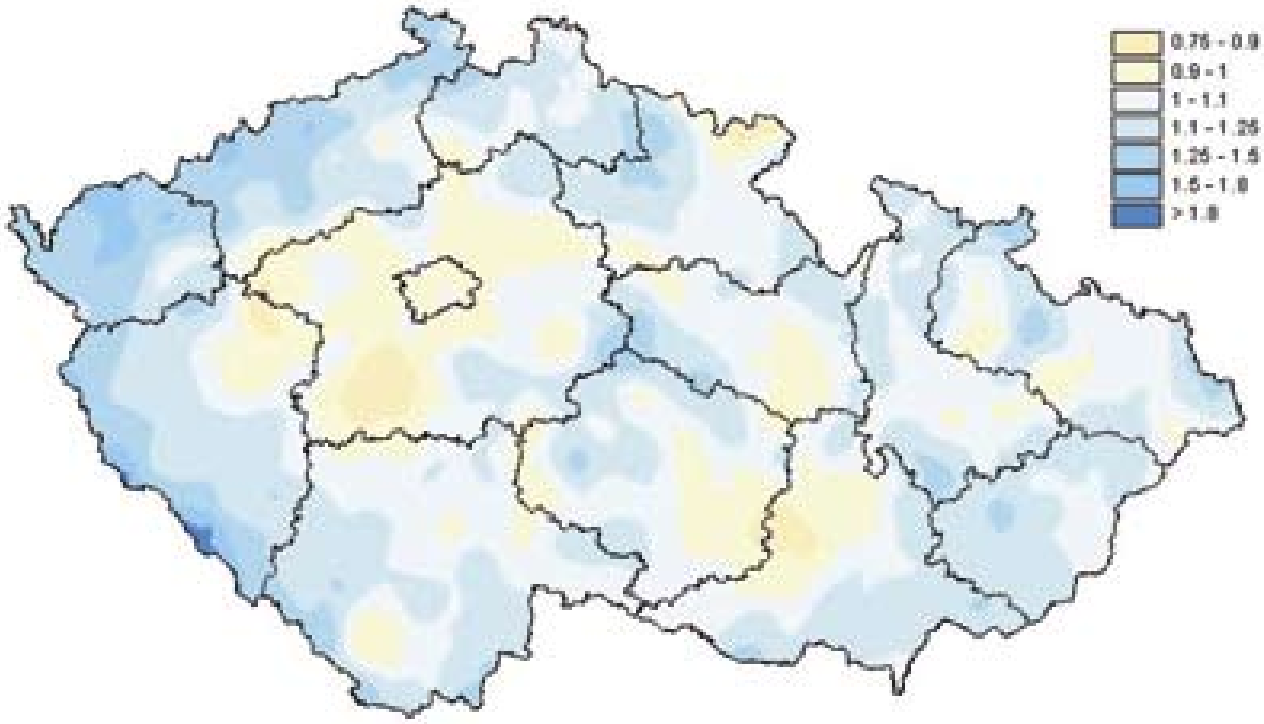
2007 was overall average or slightly below-average in terms of outflow. The annual average flows were mainly between 80 and 100 % of the long-term annual average flow. The catchment areas of the lower Vltava, the Berounka, the Sázava and the Dyje were relatively below-average in terms of flow (65 to 80 % of the long-term annual average flow). On the other hand, the catchment areas of the Ohře and the Olše were above average in terms of flow (110 to 120 % of long-term annual average flow). September was the most above

Picture 1.1.1
Total rainfall on the territory of the Czech Republic in 2007 in millimetres



Source: CHMI

Picture 1.1.2
Total rainfall on the territory of the Czech Republic in % of average in the years 1961 – 1990



Source: CHMI

average in terms of flow month of the year, when the average monthly flows were mostly between 75 to 300 % of the long-term annual average monhly flow. At the beginning and at the end of the year there were no significant snow reserves on the territory of the Czech Republic, therefore the thaw did not cause a significant rise in the flows. As a result the monthly average flows did not usually exceed twice the long-term average monthly flow. The most dry period of the year was between April and August, when the flows were mostly half of the long-term average for this period. The Ohře catchment area was the only exception with the flow corresponding to the long-term average.

Berounka river, Tetín

The whole first quarter of the year can be characterized by universally unsteady flows with overall increasing tendencies during January with the following subsequent decrease during February and March. The flood situations were mostly rather short-term and of local character and they appeared on small watercourses with the occurence of snow reserves (the Jizera, the upper Elbe, the Orlice, the upper Vltava) with the highest flows corresponding to Q_1 to Q_5. The average monthly flows at the beginning mostly ranged from 60 to 200 % of the long-term average monthly flow (Q_m), in March only between 60 to 150 % Q_m. Higher flows occured on the rivers in the upper Elbe, the Jizera, the Cidlina, the Orlice, the upper Morava, the Olše and the Bečva catchment areas, during March also in the catchment area of the Lužická Nisa. The flows corresponded to twice or thrice the norm for this period.

The beginning of the second quarter of the year was characteristic by a slight decrease to persistent conditions, only in the catchment areas of the mountain watercourses with some remaining snow covering the day course was apparent at first. Only in the period from half of May a few rainfall episodes passed, but mostly on limited area scope. Increases were recorded mainly on small watercourses. The period from April to June was below-average in terms of flow, the monthly average ranged between 40 and 80 % Q_m, and was slightly higher on mountain watercourses. Very low flows occured in the second half of this period in the Odra catchment area, they reached only 10 to 55 % Q_m. In June the watercourses in the Ohře, the Mže and the upper Cidlina catchment areas reached the values close to the long-term average (70 to 150 % Q_m).

The first two months of the third quarter of 2007 were slightly unsteady from the point of water level tendencies, the differences were only minor on the whole. Variations were mostly caused by the reaction on rainfall during storm situations. The flows reached Q_{60d} to Q_{30d} in their maximums, rarely Q_2. During the first week of September substantial rainfall fell on the territory of the Czech Republic, after which intensive increase of water levels followed, mainly in the Odra, the upper Morava and the upper Labe catchment areas. Culmination maxima were mostly on the level of Q_1 to Q_2, on some watercourses in the area of south Bohemia (the Malše above WW Římov, the Černá, the Blanice) Q_2 to Q_5, on small rivers in the Odra catchment area even Q_{10} to Q_{50}. Elswhere the flows did not exceed the values Q_{30d} to Q_1. The beginning of this period was below-average or slightly below-average, the flows mostly reached 20 to 90 % Q_m. On average less water outflowed from the Malše, the Želivka and from most rivers in the Lužnice and the Odra catchment areas (5 to 25 % Q_m). On the other hand September was above average, mainly in the Odra, the upper Elbe, the Vltava and the Morava catchment areas. Whereas on most rivers the flows ranged from 110 to 190 % Q_m, on the Malše, and the Doubrava, in the Morava and the Odra catchment areas the values ranged from 220 to 400 % Q_m. Most rivers outflowing from the area of the Czech-Moravian Highlnds, most rivers in the Orlice, middle Elbe, the Lužnice and the lower Vltava catchment areas remained below the long-term average for this period.

During the last quarter of 2007 the trend of water states varied greatly owing to frequent rainfall episodes, steady in the second half of December. Combination of rainfall and thaw of snow covering in the mountains and in the foothills (the Giant Muntains, the Jizera Mountains, the Orlice Mountains, the Krušné Mountains and the Šumava) at the beginning of December caused outflow situation with the reach of Q_1 in maximum.In terms of average monthly flows this period was average to above-average (mostly between 60 to 170 % Q_m). At the beginning higher flows occured on the river Ohře and the Opava, including some of its tributaries, during November also on the upper Odra and the upper Cidlina. During December the flows were

Blatnice river, Záblatí

higher compared to the long-term averages for this period, mostly around 110 to 300 % Q_m. The highest values were on smaller rivers in the mountain and border areas of Bohemia.

With a regard to growing tendency of appearance of below-average rainfall totals in some periods of the year, meaning higher frequency of below-average flows in some areas, the negative results of excessive drainage of the area in the years 1960 – 1989 may occur. The total drained area in the Czech Republic is estimetd to app. 1 080 ha, while the infrastructure (drainage details) became part of land and property of their owners (pursuant to the Land Act). Regarding the land ownership changes on the territory of the Czech Republic, when the extensive restitutions took or are still taking place, it is common that the new owners of land do not have the exact information on the range and placement of the drainage systems. This is true mainly for places where the drainage was not necessary and no maintenance of the drainage system leads to gradual loss of its efficiency. Even without an excessive intervention of technology this will gradually lead to the inforcement of water retention in the affected area. In connection with this restriction of the main drainage channels may occur, the length of which is app. 12 700 km and which are administrated by the Agricultural Water Management Authority (AWMA). Up to now the evaluation of proportion of the out-of-order drainage systems has not been carried out. The proportion is going to rise as a result of unsutability and neglection of maintenance. On the other hand, where the drainage of land is and was necessary and the drainage system will become out-of-order, problems with the appearance of wet areas will arise and the land owners will start to care for the rectification and subsequent maintenance. The straightening of river beds on many sectors of the watercourses, mainly small watercourses, has similarly unfavourable consequences for water detention in the landscape. The reparation of this state (revitalisation, meandering etc.) is very expensive and despite it was initiated within different programmes of the Ministry of the Environment (MoE), it is a long-term and financially demanding activity. To the completion of financial soures the ES funds within OP E will now contribute.

1.3 Groundwater regime

At the start of 2007 the levels of groundwater in most parts of the Czech Republic were below the long-term monthly average, while the lowest levels and yields occured in the Vltava catchment area. Total value of the long-term monthly average was exceeded only in the Dyje catchment area. The upper Elbe catchment area was comparable to the average.

Owing to the above-normal rainfall and temperature in January and partly in February in the whole of the Czech Republic a favourable period for groundwater topping came. At the end of February most of the catchment areas rose above the average values on the long-term curve of exceeding. The only exception was the area of central Bohemia (lower part of the letf-bank Elbe catchment area), which remained the only below-average. In March, as a result of different amount of rainfall in Bohemia and Moravia, the topping of groundwater proceeded in different ways. While in Bohemia (mainly central) most of the objects showed persistent state or slight decrease, in Moravia and Silesia the increasing tendency went on. Since January in terms of rainfall sharply below-average period occured and long-term decrease of groundwater reserves in the whole of the Czech Republic occured. Slight decrease or persistent state of water levels occured on most of the objects. The change was not brought

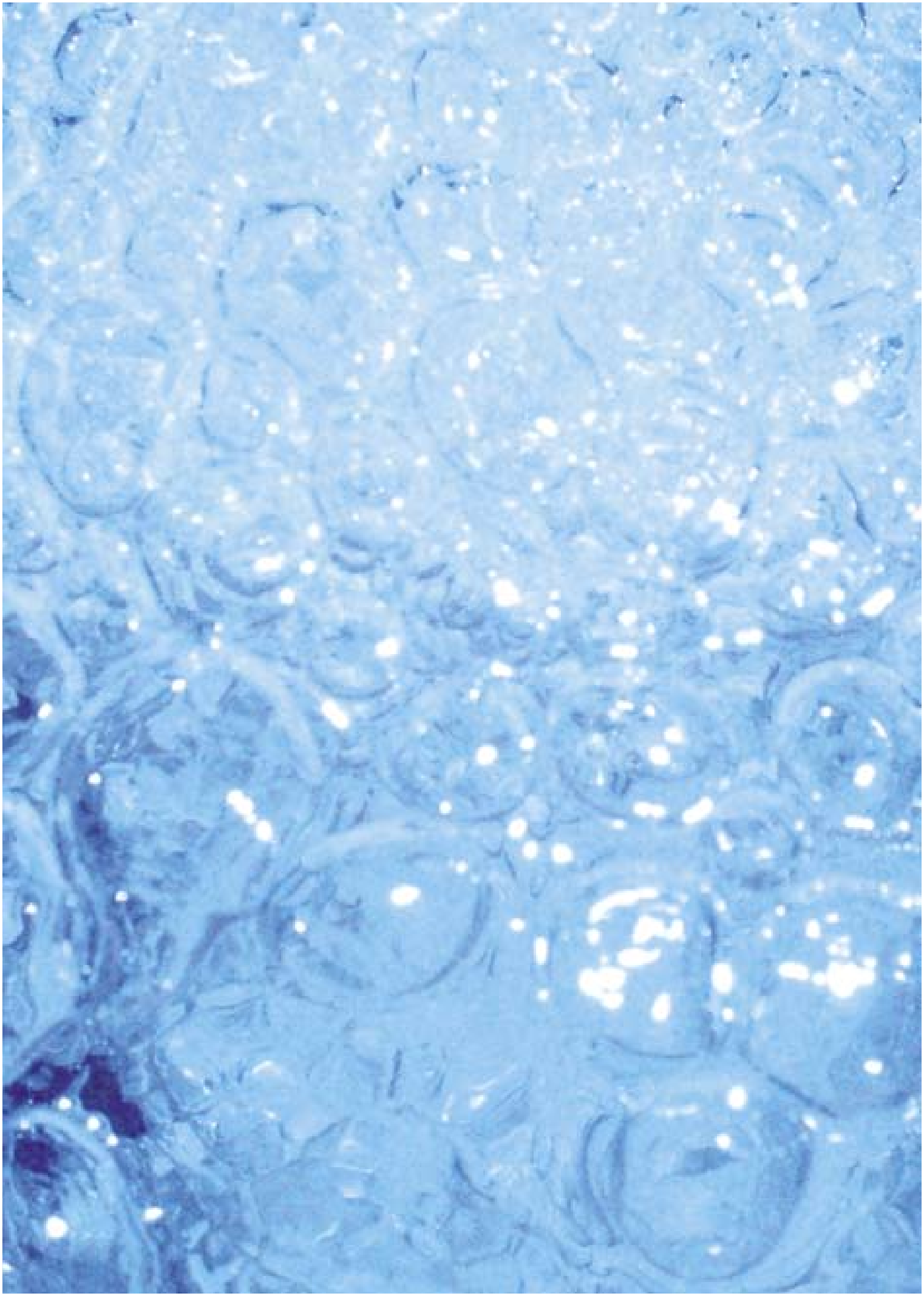
Kamenička river, WW Kamenička

even by short-term April showers in the south Moravia (the lower Dyje). Only significant rainfall in May and June in west Bohemia stopped and turned this process upside down in the Ohře and the Mže catchment areas. In the other catchment areas the fall of water levels and yield continued until the end of June with different intensity, in dependence on occasional and only local rainfall. The rainfall occured mainly in the form of intensive and short showers and storms, which are not favourable for groundwater topping. The situation was made even worse by the high temperature of air at the end of May and June. In the half of the year almost the whole territory of the Czech Republic was from the point of the long-term topping of groundwater reserves sharply below-average. In more than half of the monitored objects a decrease of water levels and yield occured, the values of drought were reached. The worst situation occured on the left-bank part of the lower Elbe catchment area (80 % of objects) and the Vltava (70 % of objects). In July the climatic conditions partly improved, mainly in the north of Bohemia and northern Moravia, theup-to-now decrease changed into persistent state or into slight increase of water levels and yield. In the southern parts of the Czech Republic a fall gradually faded in the area of the Vltava and the Dyje catchment areas. The most critical situation occured in the Vltava and the Berounka catchment areas, where the level of groundwater reached the lowest value in five years. Even though the rainfall in August was sufficient, it was concentrated only into two short periods and it manifested only minimally in the topping of groundwater. That is why most of the objects showed slight decrease or persistent state of water levels or yield. At the end of September all catchment areas remained below-average, while in the Odra, the Dyje and lower part of the right-bank Elbe the annual minima were reached. A fundamental change finally came at the start of Sepember. As a result of intensive rainfall and subsequent flood situation most of the objects mainly in Moravia and Silesia and also partly in south Bohemia (the upper Elbe) started to show a sharp increase of water levels and yield. Different situation occured in the upper Elbe catchment area, where the changes showed only slightly and the overall state can be considered as almost persistent.

Doubrava river, Chotěboř

Výrovka river, Toušice

Topping of groundwater levels also continued in the last months of the year with different intensity depending on the amount of rainfall. On most of the territory of the Czech Republic the level of groundwater ballanced with the spring values. Overall the most significant increasing tendency occured in southern areas (the Vltava and the Dyje) and also partly in south-east (the upper Elbe and the Odra). In the other catchment areas the rise of water levels was slower and minimal in central and west Bohemia (the Ohře). Owing to minimal rainfall and low temperatures in the second half of December the rise in water levels and yield staganted. At the end of 2007 most of the catchment areas had above-average reserves of groundwater, slightly below-average remained only the Berounka and lower parts of the right-bank Elbe catchment areas.



Šárka Pelikánová, 12 years, Cheb basic school „Untraditionally“ (Karlovy Vary region)

Flood situation in 2007

2.

2.1 Course of floods

In 2007 three flood situations were recorded reaching the level 3 of flood activity and a significant downpour flood in Prague occured. The main flood situation of the year was the September episode, which affected mainly the north-east of our territory reaching the level of culmination flows Q_5 to Q_{50}.

In the perion from 18. to 21.1., in connestion with whirlwind and catastrophical consequences caused by the depression Kyrill, intensive rainfall fell, which caused rise on watercourses in the area of the Jizera Mountains, the Giant Mountains, the Šumava and the Beskydy. The most significant reaction was recorded on the watercourse of the upper Elbe, where in the Vestřev profile a short-term level 3 of flood activity (LFA) was reached. The time of repeating culmination flow corresponded to Q_1 in maximum.

In August mainly storm rainfall occured. The most signifiacant outflow situation was recorded on 19.8. in the east of Prague, when in the Kunratický stream, the Botič and the Rokytka catchment area rainfall total in maximum exceeding 120 mm fell in two hours. Maximum value (121.2 mm/24 h) was recorded in Prague Chodov (in broader area of Prague a record from 1947 was beaten). The rainfall caused a downpour flooding on affected watercourses, while the maximum reached evaluated flow on the lower Botič corresponded to Q_{20} to Q_{50}.

In September the most important flood situation of the year occured. Its cause was a heavy rainfall in the period from 5. to 8.9., which reached on the northern weather area in the area of the Novohradské Mountains, the Šumava and the Giant Mountains the intensity of up to 60 mm in 24 hours, most intensive rainfall fell in the Jeseníky Mountains (up to 350 mm in 36 hours). The reaction was a sharp increase of the upper Elbe, the Doubrava and the Stěnava reaching level 1 to 2 LFA. In the upper Vltava catchment area the increases were most signifiacant on the upper Blanice and in the Malše catchment area, where the level 3 of floof activity was reached during the culmination corresponding to Q_5. The level 3 of flood situation during the flows corresponding to Q_1 to Q_5 were reached on watercourses in the Beskydy Mountains (mainly on the upper Olše and the Rožnovská Bečva). The most impacted watercourses were the ones outflowing the areas of northern weather area of the Rychlebské Hills and the Jeseníky Mountains, i.e., the watercourses belonging to the Kladská Nisa catchment area (the Bělá, the Vidnávka), the Osoblaha and the Opava (the propper Opava and the Opavice), where the level 3 of flood activity was reached and culmination flows corresponding to Q_{10} to Q_{20}, sometimes even Q_{50} (Osoblaha) occured.

The first decade of December brought heavy rainfall even in the mountain areas, mainly in the Giant Mountains, the Jizera Mountains, the Orlice Mountains and the Krušné Mountains and the Šumava during 3. to 4. and 7. to 8.12. in combination with quick thaw of snow. In the afflicted area the outflow reaction meant reaching up to of level 3 of flood activity on the Radbuza in Staňkov corresponding to Q_1 in the first case. During the second episode the water levels rose up to the level 3 of flood activity, the levels of the upper Elbe and the Otava during culminations correspponding to Q_2.

2.2 Rectification of flood damage

In 2007 the performance of sub-programme 229 114 – „Rectification of consequences of flood of 2006“ continued, which is a part of programme 229 110 – „Rectification of consequences of flood to state water management assets“.

The aim of the sub-programme 229 114 is the renewal of watercourse riverbeds and waterworks damaged by extreme exert during the floodings in 2006 and carry out serviceable stabilising constructions and constructions providing enduring functioning of watercourse riverbeds in the places of disturbances and harmless water discharge from contiguous area. Realisation of measurements are provided by the watercourse administrators, i.e., River Board Companies, state enterprises, Forests of the CR, state enterprise and the AWMA.

Newly in 2007 direct grants were provided from the department of the Ministry of Agriculture to natural and corporate bodies, who run fish herding, on rectification of flood damage of 2006 on dikes and objects of ponds for fishpond management.

The grants applied to the damage after the spring flood of 2006 and the damage after the floods in May to July 2006. Implementation of measurements is provided by the grant claimants, ie., corporate and natural bodies who run fish herding as a means of support.

Flood protection measures - Ústí nad Labem, Střekov

Barbora Stasková, 16 years, Rapšach basic school „Transformed into water“ (South Bohemia region)

Quality of surface water and groundwater

3.

3.1 Quality of surface water

Current quality of surface water in comparison with years 1991 – 1992

The map of the quality of water in selected rivers of the Czech Republic was compiled with the regard to year 1991-1992, and also to 2006 – 2007 pursuant to CSN 75 7221 Quality of water – Classification of surface water quality.

Annually the Report on the state of water management in the Czech Republic publishes the comparison of the current state with the state of water quality of the years 1991 – 1992. With regard to the extent of the then monitored indicators it was possible to elaborate only a comparison according to the basic classification. Pictures 3.1.1 and 3.1.2 show that despite the rapid improvement of water quality there still exist sections of watercourses in category V of water quality.

Evaluation of surface water quality in 2007 pursuant to CSN 75 7221

In 2007 a lot of changes were carried on in the system of water monitoring of the Czech Republic. As a result of this, there was a partial change in the number of monitored profiles; from the former state network of water quality monitoring on the watercourses, which included 314 profiles, in 2007, 300 profiles were monitored.

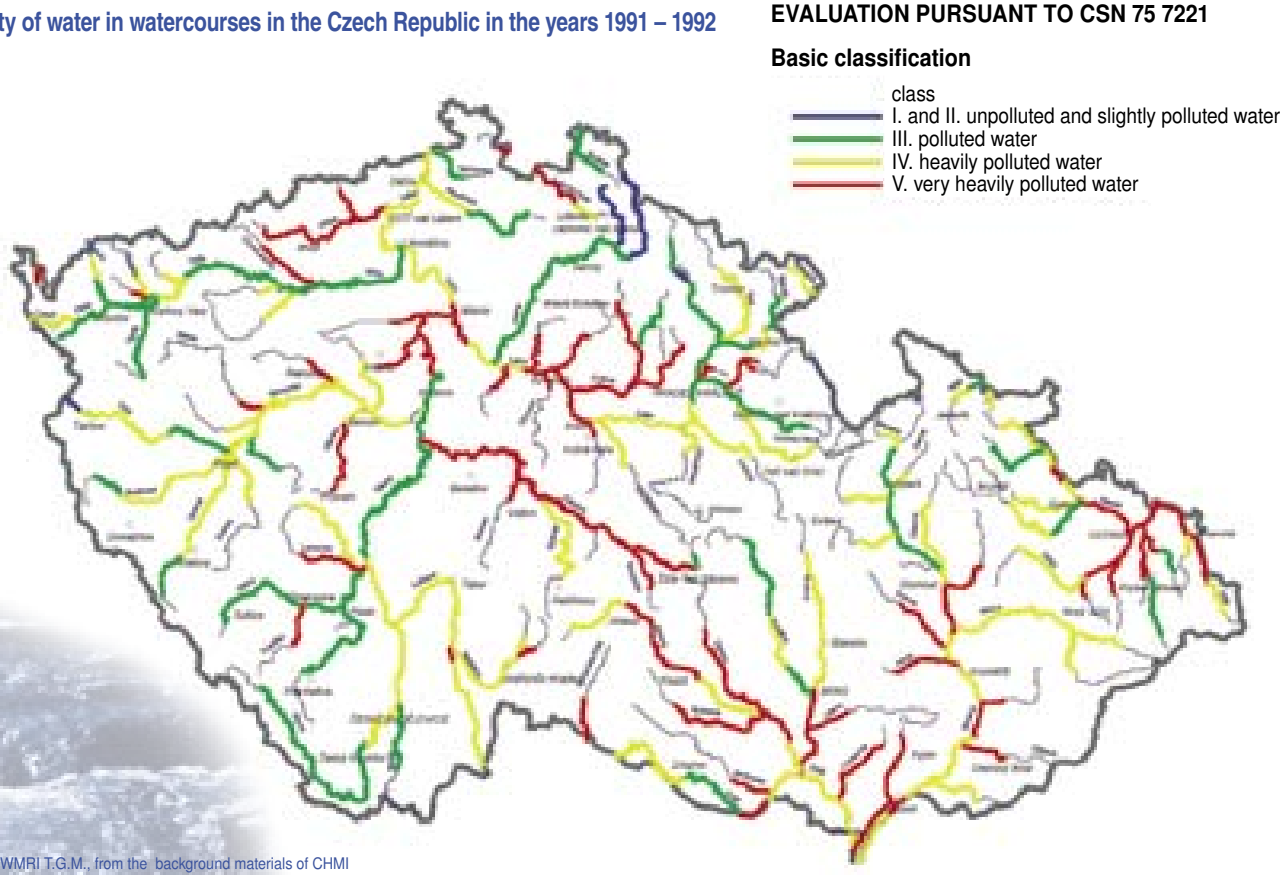
On the other hand, the number of samples doubled approximately in one third of monitored profiles. This fact partly influenced the calculation of so-called characteristic values of indicators of water quality (pursuant to CSN 75 7221), ie., values of probability of non-exceeding equal to 90 % C_{90}(dissolved oxygen by 10 %). On three profiles the Úpa – Bohuslavice, the Úpa – Poříčí by Turnov and the Elbe – Kunětice only temperatures of water and air were monitored; the number of profiles where the water quality was evaluated for the need of water quality pursuant to CSN 75 7221, equaled to app 297. Including the individual monitored profiles into the classes of cleaniness pursuant to CSN 75 7221 Quality of water – Classification of surface water quality it is possible to evaluate:

class I - unpolluted water – the state of surface water which was not significantly influenced by human activity, and where indicators of quality of water do not exceed the values corresponding to natural backgroung of the watercourse,

class II - slightly polluted water – the state of surface water which was influenced by human activity so that the indicators reach values which enable the existence of rich, ballanced and sustainable ecosystem,

class III - polluted water – the state of surface water which was influenced by human activity so that the indicators of water quality reach the values, which may not create conditions for the existence of rich, ballanced and sustainable ecosystem,

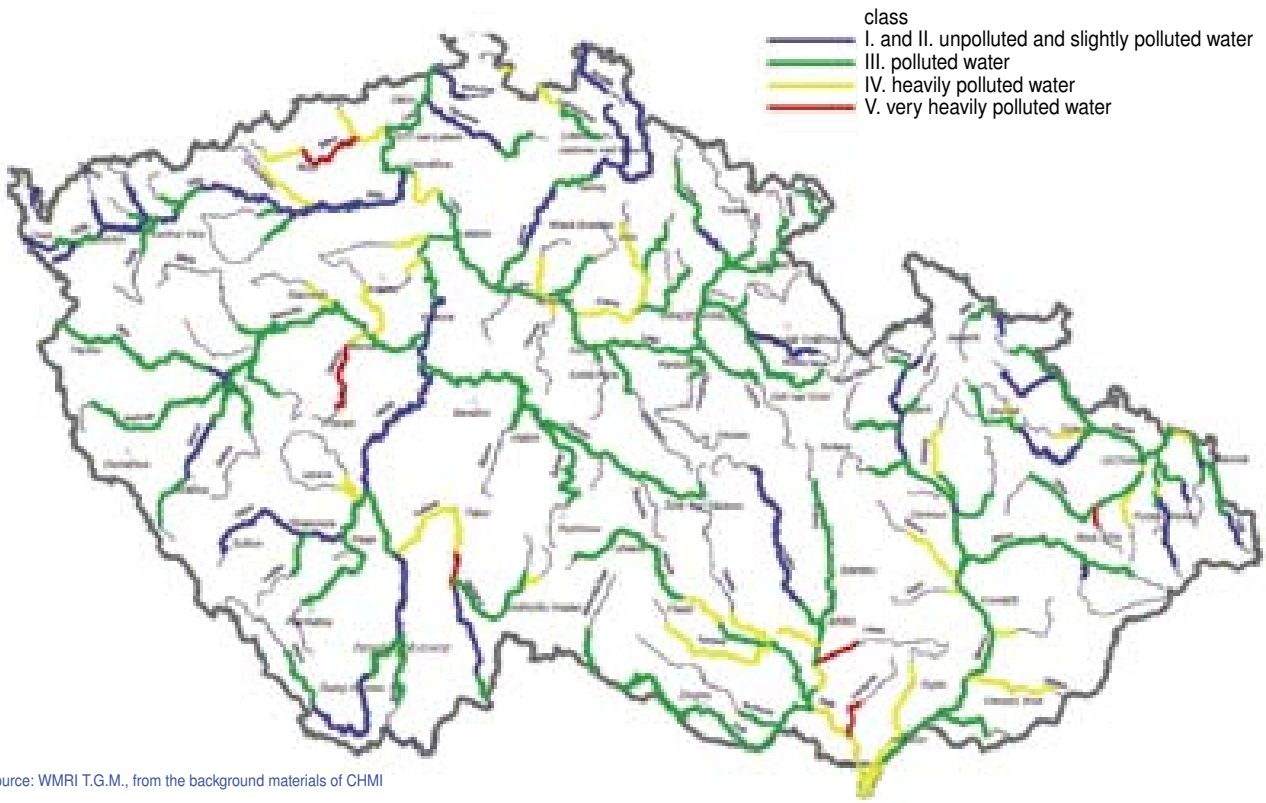
Picture 3.1.1
Quality of water in watercourses in the Czech Republic in the years 1991 – 1992



Source: WMRI T.G.M., from the background materials of CHMI

Picture 3.1.2

Water quality in the watercourses of the Czech Republic in 2006- 2007



Source: WMRI T.G.M., from the background materials of CHMI

class IV - class heavily polluted water – the state of surface water which was influenced by human activity so that the indicators of water quality reach valuest, which create conditions for the existence of only unballanced ecosystem,

class V - very heavily polluted water – the state of surface water, which was influenced by human activity so that the indicators of water quality reach values, which create conditions for the the existence of heavily unballanced ecosystem.

During the evaluation of monitored profiles pursuant to CSN 75 7221 the worst situation in the indicator of AOX, where almost 40 % of profiles reached class V and 16 % reached class IV. Very good evaluation was reached in the group of substances „Metals and metalloids" and „Specific organic substances".

„General, physical and chemical indicators" include substances with very different classification. Among the ones almost always classified as class I or II belong calcium, magnesium, sulphates and chlorides. Over 80 % of monitored profiles were classified as unpolluted or only slightly polluted water in conductivity, solid substances dried by 105°C (SS) and dissolved substances dried by 105°C (DS), dissolved oxygen (O_2) and ammonic nitrogen ($N–NH^{4+}$) and nitrogen nitrates ($N–NO^{3-}$). BCO_5 and both types of chemical consumption of oxygen monitoring, both CCO_{Mn}, and CCO_{Cr}, the same as total phosphorus (P_{total}) reached higher concentration, mostly corresponding to class III, AOX, as previously mentioned, were classified as the worst of all monitored substances pursuant to CSN 75 7221.

In the group **„Specific organic substances"** the concentrations of monitored substances did not exceed class II, only chlorbenzene on some profiles in the Morava catchment area reached values of class III (the Svratka, the Morava, the Jihlava, the Dyje and some small watercourses, eg. the Trkmanka, the Oskava, the Vlára etc.).

„Metals and metalloids" reached in most indicators class I and II, the exception was total iron and total manganese, which reached even higher classes on some watercourses, eg. on the Trkmanka, the Kyjovka, the Chodovský stream, the Bílina, the Mže. This classification also showed a higher burden of metals on the Litavka, mainly cadmium, plumbum and zinc, also on the Trkmanka zinc was classified as class V, arsenic in the Chodovský stream belongs to the same class.

In the group **„Microbiological and biological indicators"** most profiles were monitored for the chlorofyl indicator (285) on smallest number of profiles (203) enterococces were monitored. Thermotollerant coliform bacteria were evaluated best, in most profiles they were classified as I and II.

Rivers with the highest burden are small less watery watercourses flowing through densely inhabited areas or areas with high burden. Mainly the Trkmanka, the Lomnice, the Litava, the Kyjovka, the Hájecký stream, the Mrlina, the Skalice, the Vlkava and the Zákolanský stream belong among them. Of the bigger watercourses we can mention the Bílina and lower watercourses of the Lužnice and the Ostravice.

In compariсon with other monitored watercourses the water quality was very good in some border watercourses eg. the Černá voda, the Lužní stream, the Moldavský stream, the Řezná, the Teplá Bystřice, the Rokytnice (mostly AOX were monitored here), but also in the Kamenice, the Metuje, the Moravice, the Smědá, the Zlatá Opavice and the Želivka, which repeatedly reached class III for nitrogen nitrate. Also the upper courses of bigger watercourses – the Morava, the Svratka, the Ostravice, the Elbe, the Jihlava were only slightly bur-

dened by pollutants, the same as the Jizera, the Otava, the Úhlava and the Vltava (apart from AOX) in all the length of its course.

In the characteristic values calculated in compliance with CSN 75 7221, unlike in 2006, there was a sharp improvement of water quality in the Elbe in all evaluated groups, mainly in metals and basic chemical indicators. Improvement of water quality was observed on most of the bigger watercourses, mainly in $N–NH^{4+}$, where the number of profiles classified as class I and II rose by one fifth to current 91 %, unlike in 2006, and CCO_{Mn}, CCO_5 and TOC, where the proportion of profiles classified as class I and II rose by 15 – 20 %. In AOX the number of monitored profiles rose by 27, unlike in 2006, mainly in the Ohře catchment area. Unsignificant were the changes in percentual representation of profiles of AOX in individual classes.

More favourable situation was in some metals, mainly mercury, lead and zinc, on the other hand in chlorbenzene the number of profiles classified as III class rose by 15 %.

Dangerous and extremely dangerous substances – evaluation of surface water quality in 2007 pursuant to the Order of the Government No 61/2003 Coll.

The need to monitor surface water burden of dangerous and extremely dangerous substances is increasing. With new information and improvement of analytic metods, their spectrum is widening.

With regard to the insufficient range of indicators specified in table – Marginal values of water quality classes given in CSN 75 7221 Quality of water – Classification of surface water quality, an evaluation of these substances was carried out pursuant to the Order of the Government No 61/2003 Coll., concerning indicators and values of allowable pollution of surface water and waste water, requisites to the licence to waste water discharge into surface water and into sewer systems and about sensitive areas, as amended by the Order of the Government No 61/2003 Coll., as amended by the Order of the Government No 229/2007 Coll. (GR 61). When amended in 2007 important changes occured (limit values and

Labe river, Mělník - power station

methodology of evaluation), which may lead to differences in comparison to values of previous years.

For evaluation of water quality on watercourses data from 297 profiles of original state network and monitoring the water quality of watercourses were used. The implementation of monitoring programmes pursuant to the Framework directive, the increase in number of discharge occured on some profiles. On the other hand, in 2007 the monitoring on more than twenty profiles ended.

Area of the upper and the middle Elbe catchment area was most impacted on the middle course between Pardubice and Mělník by chlorinated alifatic compounds and naphtalensulphonans, on the middle and lower course by pesticides, which were found in higher concentrations also in the Loučná (chlorpyrifos) and the Cidlina (isoproturone and chlortolurone). On the lower course of Elbe pollution by hexachlorbenzene prevails. The Lužická Nisa, apart from long-term burden of metals (nickel and lead), was burdened also by dichlormethane and PAU; in the concentration of 7.8 ng/l even congener PCB 28 was discovered here. Also the Odrava was significantly pollututed by PAU.

In the area of **the upper Elbe catchment area** increased concentrations of dichlormethane occured on some courses (the Blanice, the Lužnice in Veselí nad Lužnicí) and PAU (the Malše in Pořešín, the Volyňka).

In the area of the **Berounka catchment area** the most polluted courses were the Loděnice (very high concentrations of PAU and lindane vere detected), the Rakovnický brook (toluene, galaxolide, tonalide and alachlor) and the Litavka (metals).

When we have a look at the individual catchment areas, we can say that the least polluted catchment area is the area of **the lower Vltava catchment area**, where the only detected dangerous substances in high concentrations were only alachlor (pesticide) and PCB on the Zákolanský stream, which is one of the most burdened courses of this catchment area.

In the area of **the Ohře and the lower Elbe catchment areas** on the courses Bílina (alifatic chlorinated hydrocarbons, pentachlorphenol, sulfonans, and from pesticides mainly atrazine, desethylatrazine, terbuthylazine, hexazinone and chlorpyrifos) and the Mandava long-term domination in terms of pollution occured, polluted mainly by complexforming substances (EDTA and NTA), naphtalensulfonans, PAU and some congeners of PCB, from pesticides were present desethylatrazine and lindane in higher concentrations. From pesticides also simazine was detected in higher values in the Chodovský stream and the Chomutovka, similar situation was in hexazinone. On the Ohře higher concentrations of chlorpyrifos occured, mainly in the Černčice profile. The Teplický streambrook was afflicted mainly by tetrachlorethene and the Vilémovský brook by PCB.

In **the Odra catchment area** the highest reduction of profiles in comparison with the former state network of water qaulity monitoring occured and the range of monitored indicators was also higher. On 16 monitored profiles the most significantly polluted was the PAU profile the Odra – Jakubčovice, the Odra – Bohumín and the Bělá – Mikulovice. Slightly increased concentrations of some chlorinated alifatic hydrocarbons were

found in the Odra, the Olše and the Ostravice. Pesticides were observed only in a very limited range.

In the area of the **Morava catchment area and the Dyje catchment area** (except for a significant pollution with substances of basic chemical analysis in the Trkmanka and the Kyjovka), in the Trkmanka affliction by PAU and some pesticides (alfa-endosulphane, MCPA, endrine) occured. On some small watercourses in this catchment area (the Litava, the Trkmanka, the Haná, the Vlára, the Kyjovka but also on the Bečva) significant pollution by pesticides was detected, mainly by isoproturone, chlorpyrifos, aldrine, dieldrine, isodrine and alfa endosulphane; not negligible were also the concentrations of PCB (congeners 138 and 180). Benzene and ethylbenzene were the main polluting substances in the Dřevnice, the Oslava, the Jevišovka and the Dyje in Podhradí. Chlorphenols were detected on the lower course of the Svratka; apart from the Trmanka, PAU were found also in the Bečva – Choryně, Morava – Raškov and in its lower course Nedakonice – Lanžhot.

As a summary it is possible to say, that in the group of individual elements, where also the matals belong, imission standards pursuant to OG 61 selene and mercury did not correspond. Profiles mostly polluted by substances from this group were in a long-term scope the Litavka (cadmium, lead, zinc), the Chodovský stream (arsenic, beryllium, boron, cobalt a selene), the Lužická Nisa (copper and nickel), the Trkmanka (aluminium, copper, mercury, selene, zinc) and the Elbe – Jiřice (aluminium, mercury).

Imision standards for complexforming substances were exceeded most significantly in the areas of the upper and the middle Elbe catchment areas, the Ohře and the lower Elbe and the Dyje. In the area of the lower Vltava catchment area it involved only the Rakovnický stream. PAU exceeded the imission standards only unsignificantly on the profile of the Olše – Ropice, very significantly on the profile Loděnice – Hostim (left-side tributary of the Berounka below Beroun), where the limit for anthracene was exceeded 9x and for fluoranthene 19x. The amount of PCB on one single profile, the Zákolánský stream, reached 1.3times the imission standards. Chlorinated alifatic hydrocarbons were slightly above-the-limit on the Elbe in v Obříství (1,2-dichlorethane), in the Ošava – Havřice (1,2-cis-dichlorethene) and significantly on the Bílina (1,2-cis-dichlorethene, 1,1,2-trichlorethene and 1,1,2,2-tetrachlorethene). Pesticides reached the imission standards only very rarely, desethylatrazine in the profile Bílina – Záluží and alachlor in the profile Sázava – Nespeky exceeded the limit the most. In the profile Haná – Bezměrov higher concentration of chlorpyrifos and of lindane in the profile Blata – Tovačov were measured.

Radioactivity

In the surface water of the selected profiles of the state network of the Czech Hydrometeorological Institute radiochemical indicators mainly in the areas of existing nuclear works and in the areas of the then mining of urane ores in profiles below the mine water outlets and in the sections of watercourses influenced by leaching from spiol tips and settling ponds were analyzed in 2007.

Below the waste water outlets from the Dukovany nuclear power station in the course of 2007 volume activity of tritium in the range of 40 – 240 $Bq.l^{-1}$ was detected in the Jihlava. These values reach the imission standard for tritium estimated in OG 61. In the Vltava river in the profile WW-Krásensko under the outlet of waste water from the nuclear power station Temelín, in 2007 the volume activity of tritium did not exceed 336 $Bq.l^{-1}$, this value reaches the imission standard for tritium given in OG 61. Total volume activity alfa and beta was detected in values of unpolluted water. The other activation and fissure products originated in the operation of nuclear power stations were not detected.

In the area of Příbram uran ore deposits, in the river Kocába in the profile Višňová, Štěchovice and the Dubenecký stream in the profile Dubenec and the Příbramský stream in profile Brod increased values of radiologic indicators were detected, quality of surface water corresponds pursuant to CSN 75 7221 to class V – very strongly polluted water. The quality of surface water of this class was detected in the river Hadůvka in the profile Skryje, below outlet of convertor of the urane ores of the mine Rožínka. In the above mentioned profiles the long-term pollution prevails as a result of increased values of radiological indicators.

Compared with the period 1999-2000, in the other profiles, mainly in the surface water of the river Ploučnice in the area of Stráž pod Ralskem deposit and in the surface water of the river Nežárka a sharp improvement of surface water occured from the point of monitored radiochemical indicators.

Quality of water in water a other reservoirs

In 2007 in many water reservoirs eutrofization of water occured, i.e., process caused by increased content of mineral nutrients, mainly compounds of phoprhorus and nitrogen in water.

Bigger problems arose in the course of the year in the water reservoirs and in reservoirs for water purpose: Vrchlice, Hamry, Křižanovice, Seč, Lučina, Fryšták, Hubenov, Mostiště, Nová Říše and Kružberk and in other reservoirs: Rozkoš, Pastviny, Mšeno Harcov, Les Království, Pařížov, České Údolí, Hracholusky, Novomlýnské reservoirs, Luhačovice, Plumlov, Letovice, Moravská Třebová, Jevišovice, Brněnská dam and Oleksovice. In the overall assesment it is possible to state that the worse quality of water in 2007 was equally management in terms of operation; there was no restriction in water supply for inhabitants. For a number if years implemented treatment with lime by, which eliminates the unfavourable ipact of peat waters with low alcality and low, had a pozitive influence on the quality of water in the Souš reservoir. As less acceptable or unacceptable for recreation was, in the summer months, the water in other reservoirs (eg. Hracholusky, České Údolí, Novomlýnské reservoirs, Moravská Třebová, Jevišovice, Oleksovice and Žermanice).

Small watercourses and small water reservoirs monitored by the Agricultural Water Management Authority in 2007

Agricultural Water Mnagement Authority provides within its activities also a part of all-state monitoring system of detection and evalution of the state of surface water.

In 2007 it monitored a total of 972 profiles on watercourses and small water reservoirs. In the samples of water it observes both the basic physical and chemical indicators enabling intime identification of minor communal and agricultural sources of pollution, but also heterogenous substances indicating the chance of contamination of environment by heavy metals and some specific organic substances. On chosen profiles it observes and evaluates of ecological state of water.

Abstractions on small watercourses in the administration of the Agricultural Water Managemet Authority (AWMA) were realized in context of former programme of monitoring for the state network of water quality observance by the Czech Hydrometeorological Institute (CHMI) and monitoring of point sources of pollution (MPSP) and they are connected to a network of profiles of operational monitoring ensured by the River Board Companies, s.e. The network of profiles of the AWMA is situated on the profiles in conclusion sections of rachidial courses in water formations and on more significant tributaries of these courses. The selected reservoirs in administration of the AWMA were monitored in the programme of monitoring of small water reservoirs (SR). Within the hydrobiological monitoring (BIO) to the standard monitoring of macrozoobenthos and screening monitoring of two more components acceded – phytobenthose and fry fish communities. In the course of the season on chosen SR the development of communities occured. In the fall 2007 a monitoring of chemical state of sediments (SED) was carried out with the aim to check the disputable results of 2006.

The AWMA as an entrusted professional also takes part on on fulfilling the reguirements arising from the Council directive 91/676/EHS concerning protection of water against pollution by nitrates from the agricultural sources (Nitrate direction) hadling pollution from the agricultural sources. For the needs of this direction a monitoring of surface water quality aimed at nitrates was carried out on the territory of the Czech Republic.

Quality of water used for bathing in the bathing season 2007

Most frequent problems with quality of water are connected with massive occurence of cyanobacreria, which v some localities, cause bathing ban each year.

For this reason in the bathing season 2007 a total of 24 bathing bans were issued (of this 4 natural bathing sites and 20 bathing areas). As limit values for „cyanobacteria“ indicator a recommendation of the WHO was accepted, ie., three-grade evaluation of quality of water, the ban is issued in case the presence of water flower which is detected by visual evaluation.

Because of microbiological quality of water in 2007 3 bathing bans were issued – 1 on the natural swimming pool (swimming pool Rolava – Karlovy Vary) and in 2 bathing areas (R Hracholusky – Na Radosti and fishpond Rosnička).

Quality of wash-loads and sediments

In 2007 the qualitative monitoring of wash-loads and river sediments was realized within the programme of situational monitoring on 47 profiles of main watercourses of the Czech Republic and their important tributaries. The moitored indicators were contents of heavy metals, metalloids and specific organic substances including some priority pollutants with relevance for solid matrices. The number of monitoring is four times a year for wash-loads, twice a year for sediments.

Evaluation of chemical state of wash-loads and sediments was carried out on basis of monitored values classification into categories pursuant to the methodological direction „Criteria of soil pollution and groundwater pollution“ from 1996 in the sense of methodological direction of the MoE for the analysis of risks of contaminated areas No 9/2005. Exceeding of criterion of category B of this normative is evaluated as excessive pollution, which may have a negative impact on human health and on the individual components of the environment, exceeding of criterion C represents pollution, which may mean a significant risk of threat to human health and other components of the environment.

In the matrice wash-loads criterium for risk pollution was exceeded (criterion C) inly in the contents of benzo(a)pyrene (4 % of measured values), arsenic (4 % of measured values), pentachlorbenzene (3 % of measured values) and sporadically in the content of beryllium zinc, lead and benzo(a)antracene. Values indicating increased pollution (category B) vere measured only sporadically, mainly in the contents of mercury and benzo(b) fluoranthene. In sediments only over-limit content of arsenic (3 % of measured values) occured. The number of profiles where the measured values exceeded criterion B and C is given in Table 3.1.2. (Note: The evalualion does not include substances of TOL group and substances of phenol and chlorphenol groups, which showed contents over the limit given by the criterion in the preceeding years. Results of their analyses were not available in the time of report publishing.)

Overall it can be stated that similarly to the preceeding years the contents of the monitored substances corresponded in most of the cases to the level of natural values or slightly increased pollution. In the category of increased and risk pollution only the highest measured values of indicators were classified. Only on the Bílina and the Ohře a higher contamination in all samples of wash-loads and in most of the sediments were detected.

In the year-on-year comparison the decrease in the number of cases of higher and risk contents of arsenic, mercury and cadmium is clearly visible. Mainly in the contamination of mercury wash-loads a significant fall was observed, unlike in 2006, even in the number of cases of slightly increased pollution. On the other hand a slight increase was recorded in the number of over-the-limit contents of PAU group substances, mainly benzo(a)pyrene in the wash-loads of the Odra catchment area watercourses, in the Svitava – Bílovice and in the Morava – Raškov unlike the last year. Newly the occurence of over-the-limit contents of pentachlorbenzene in wash-loads, mainly in the Bílina and the Ohře (up to 4 500 $\mu g.kg^{-1}$) and in sporadic cases also in the Morava – Lanžhot and in the Jizera – Tuřice. Repeatingly measured high contents of arsenic in the Bílina and the Ohře over the Nechranická reservoir (up to 124 $mg.kg^{-1}$) and beryllium (up to 22 $mg.kg^{-1}$) decreased in contrast, but they still remain in the category of risk contents and they are the worsely evaluated indicators.

Table 3.1.1

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

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

Source: MoE

Slightly increased pollution by hexachlorbenzene, in the past monitored in the matrice wash-loads in the area of the Ohře and the lower Elbe catchment areas, in 2007 it was measured in highest values in the sediments of the Bílina (up to 1 210 μg.kg^{-1}) and in the Elbe below Děčín. From the pesticides in solid matrices p,p´ DDT was detected in slightly increased values in the Bílina below Spolchemie and in the Elbe below Děčín (200 – 500 μg.kg^{-1}). Substances from the group PCB were all present in higher content in sediments of the Bílina – Záluží.

The monitoring results in wash-loads and sediments in 2007 confirm the gradual improvement of imission situation of surface water in the evaluated indicators. Presence of high contents of arsenic and berillium and newly also of pentachlorbenzene in the Ohře and the Bílina in the industrial area of northern Bohemia is considered heavy. Signals of possible repeated worsening of emissions and state of water were detected in the Ostarvice – Ostrava in the indicator of mercury and PAU (benzo(a)pyrene 4 570 μg.kg^{-1}) and in the Odra – Bohumín (mercury – 5,43 mg.kg^{-1}). Anthropogenous influences are traditionally documented by higher contents of heavy metals and PAU in the Odra – Bohumín, the Lužická Nisa – Hrádek n. N. and in the Bečva – Dluhonice. Prevailing long-term contamination is signalised by the area, slightly higher pollution of wash-loads by cadmium and pollution by PAU group substances.

For selected priority substances the level of pollution was approximately estimated also from the point of proposed norms of environmental quality (NEQ). These European norms were exceeded by yearly profile averages on all monitored profiles in the indicator of nickel, lead, hexachlorcyklohexane and hexachlorbenzene. In other indicators, for which the NEQ are estimated the number of exceeding ranged from 10 to 50 %. NEQ were reached in all monitored profiles in the indicator of benzo(a)pyrene (value of NEQ is on the level of category C MP MoE), benzo(k)fuoranthene and trifluraline.

Accumulation biomonitoring of surface water in 2007

In 2007 the observance of biomass contamined by harmful substances in 21 conclusion profilesh of main watercourse in the Czech Republic as a part of situational monitoring of surface water continued. Within the accumulation biomonitoring caddis fly of the genus Hydropsyche were evaluated as representants of bentic organisms, accumulation of clams (Dreissena polymorpha), in biofilm (growth) and in fish (freshwater chub) were observed. Substances, which are purposeful to observe in water organisms, i.e., substances which are only slightly soluble in water and they accumulate well in fat were monitored.

Organisms which best accumulate individual pollutants were chosen. (Concentration is given in unit of dried substance.)

From the group of **chlorinated pesticides** DDT and products of its decomposition (DDE, DDD) were evaluated in fish (freshwater chub). In all observed profiles isomer p,p´-DDE (product of partial biological decomposition DDT) showed higher concentration; the values p,p´-DDE differed from isomer p,p´-DDD and unlike isomer p,p´-DDT the values were two ranks higher. It is palpable that even though these substances have not been used for tens of years they are still present in the water ecosystem. High values of p,p´-DDE were measured on conclusion profiles of the Ohře, the Dyje, the Sázava, the Elbe – Děčín and in Elbe below Neratovice. Maximum value on the Ohře is exceptional compared with the results of 2000 and regarding to the fact that it is the result in fish, it is possible to assume that the concrete analyzed freahwater chub comes from the Elbe. If we compare other matrices, the most burdened isomer is p,p´-DDE occured on conclusion profile of the Dyje in Pohansko.

Polychlorinated biphenyls (total of 8 indicator congeners PCB) and **polybrominated diphenylethers** (total of congeners PBDE – 28, 47, 99, 100, 153, 154, 183) were evaluated in all organic matrices. High values of **PCB** were found in all the observed Elbe profiles (188 – 665 μg.kg^{-1}) and on the border profile of the Lužická Nisa (273 – 612 μg.kg^{-1}). The highest concentrations of **PBDE** occured in the conclusion profiles of the Lužická Nisa (26 – 87 μg.kg^{-1}) and the Bílina (9 – 74 μg.kg^{-1}). Quite high concentrations were measured also in the Jizera (31 μg.kg^{-1}). **Polyaromatic hydrocarbons** (7 indicator PAU) were observed with the help of passive samplers (SPMD). The highest values were found in the Odra – Bohumín (50 ng. l^{-1}) and quite high concentrations were measured on the conclusion profile of the Svratka (12.3 ng. l^{-1}).

The highest concentration of heavy metals are regularly found in biofilm. In **arsenic** the values in individual profiles ranged from 2.4 to 18 mg.kg^{-1} with maximum concentration on the Bílina. In comparison with 2006 the measured values are lower. In **cadmium** and lead the concentrations were quite high in the Lužická Nisa (1.3 and 48 mg.kg^{-1}). The highest values of cadmium were found in the profile Odra – Bohumín (1.9 mg.kg^{-1}). The highest concentration of **mercury was measured in the profile** Bílina – Ústí nad Labem (1.7 mg.kg^{-1}). High values were also on the Elbe – Obříství and Děčín (1.2 mg.kg^{-1}).

In the area of upper and middle Elbe catchment areas high values of monitored heavy metals occured, PCB, PBDE and p,p´-DDE (the Elbe – Lysá nad Labem, the Obříství and the Lužická Nisa – Hrádek nad Nisou). Relatively high concentrations of PBDE were found in the Jizera – Předměřice. Monitored objects are found below important chemical plants (Spolana Neratovice), urban aglomerations with industrial production

Table 3.1.2

Number of profiles with exceeding criteria of cat. B and C in years 2006 and 2007

	wash-loads				sediments			
	2006		2007		2006		2007	
indicator	Criterion B	Criterion C	Criterion B	Criterion C	Criterion B	Criterion C	Criterion B	Criterion C
arsenic	1	3	0	2	0	5	1	2
beryllium	0	1	1	1	1	0	0	0
chromium total	0	1	0	0	0	0	0	0
cadmium	1	0	0	0	1	0	0	0
copper	1	0	0	0	0	0	0	0
lead	0	2	0	1	0	1	0	0
mercury	3	0	2	0	1	0	0	0
zinc	0	0	1	1	0	0	0	0
benzo(a)pyrene	3	1	3	6	0	1	0	0
benzo(b)fluoranthene	0	0	2	0	0	0	0	0
benzo(a)antracene	0	0	1	1	0	0	0	0
benzene	0	0	0	0	1	2	0	0
toluene	0	0	Not evaluated		1	3	Not evaluated	
1,1,2,2 tetrachlorethene	1	1	Not evaluated		0	0	Not evaluated	
2,5-dichlorphenol	0	1	Not evaluated		0	0	Not evaluated	
2-monochlorphenol	0	5	Not evaluated		0	0	Not evaluated	
p-kresol	0	8	Not evaluated		0	1	Not evaluated	
pentachlorphenol	0	0	0	5	0	0	0	0
2,3-dichlorphenol	0	2	Not evaluated		0	0	Not evaluated	
2,4,6-trichlorphenol	0	1	Not evaluated		0	0	Not evaluated	
phenol	1	0	Not evaluated		0	0	Not evaluated	
total	**11**	**26**	**10**	**17**	**5**	**13**	**1**	**2**

Source: CHMI

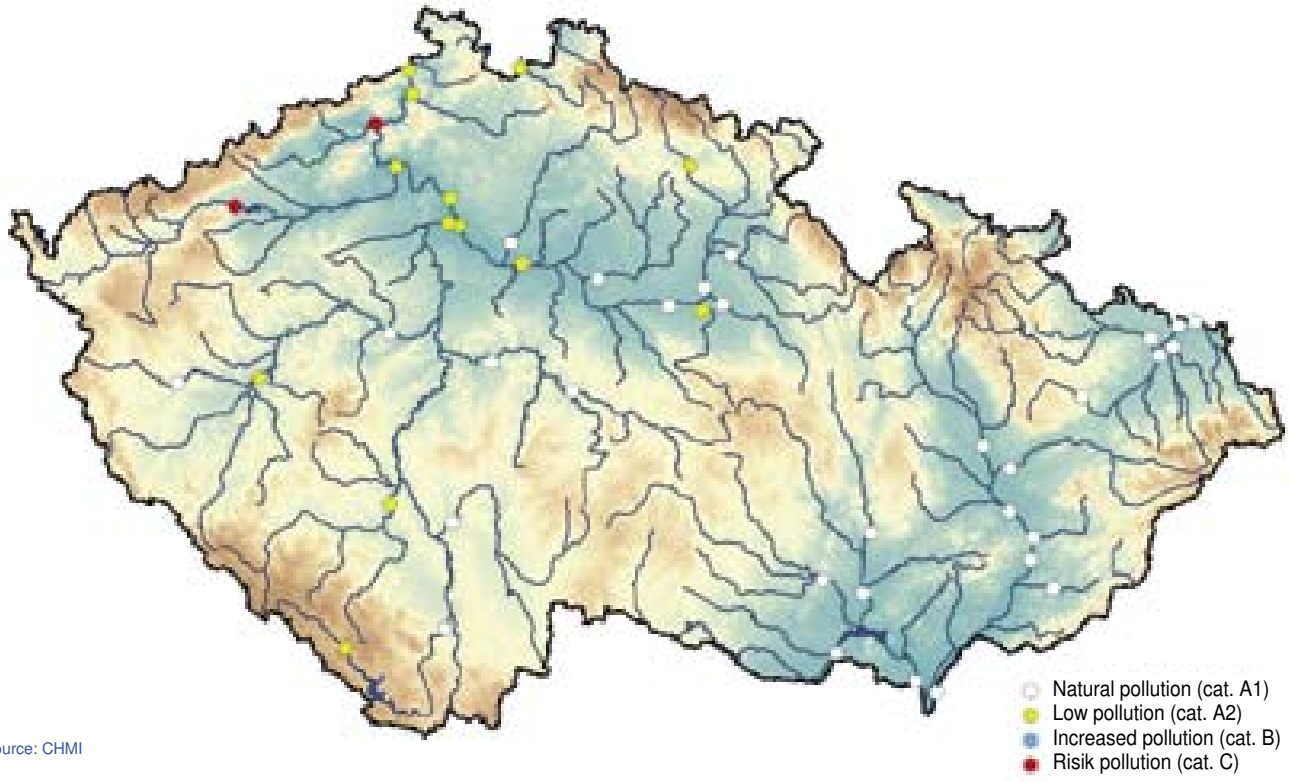
(Liberec, Jablonec, Mladá Boleslav). In the area of **upper Elbe catchment area in the profiles** Otava – Topělec and Lužnice – Bechyně the values of observed pollutants were relatively low compared to the other areas of the catchment area. In the area of **Berounka catchment area relatively high values of lead and cadmium in the profile** Berounka – Srbsko occured. In the area of **lower Vltava catchment area relatively high concentrations of** polychlorinated biphenyls in the profile Vltava – Zelčín occured. In the area of **the Ohře andthe lower Elbe catchment areas high values of concentration of mercury** in the Bílina and in the Elbe – Děčín were found. In the Bílina also high concentrations of arsenic and PBDE were found. Observed profiles are below imporatnt chemical plants (Spolchemie Ústí nad Labem) and urban aglomerations. In the area of **the Odra catchment area high concentrations of mercury**, highest values of cadmium and PAU in the border profile Odra – Bohumín were found. In the area of **Morava catchment area** in the conclusion profile Morava – Lanžhot the observed substances did not occur in high concentrations. In the area of the **Dyje catchment area** high concentrations of the isomer p,p´-DDE were found in the conclusion profile Dyje in Pohansko. The reason is probably pollution from agricultural manufactory and old burden. High values of PCB (sum of indicator kcngeners) were found in the Svratka below Brno; it is relatively not watery course under the urban aglomeration.

3.2 Quality of groundwater

In the state monitoring network for groundwater quality in 2007, 461 objects were monitored consisting of 138 springs, 147 shallow wells and 176 deep wells. A total of 226 indicators were designated here with a frequency of twice a year in spring and autumn. In view of the requirements of the Framework Water

Picture 3.1.3

Classification of arsenic content in wash-loads in 2007



Source: CHMI

Table 3.2.1

Overview of number of objects with exceeding of values of criterion B, C at least in one indicator for 2007 (compared with 2006)

Objects	Number of objects	Number of objects with exceeding of B or C	% of objects with exceeding of B or C
Shallow wells	147	72	49.0 (42.2 in year 2006)
Deep wells and springs	314	54	17.2 (16.8 in year 2006)
All objects	461	126	27.3 (24.9 in year 2006)

Source: CHMI

Directive, the evaluation of results of the quality of groundwater in 2007 focussed in particular on dangerous substances.

The CHMI measured values of groundwater quality indicators were compared with values of determination limits, values of criteria A,B and according to the methodological instruction of the MoE from 15. 9. 1996 – „Criteria of Pollution of Soils and Groundwter" and limits for drinking water according to decree of the MoH No 252/2004 Coll., which designates the requirements for drinking water and the scope and frequency of its checking (for indicators which do not have a criterion designated by this norm CSN 75 7111 Drinking water was used).

In 2007 the highest percentage of exceeding normative C was recorded in indicators chlorides (4.7 % of all samples, 10.2 % of samples of shallow wells), ammonium ions (3.2 % of all samples, 5.4 % of samples of shallow wells), aluminium (2.6 % of all samples, 3.4 % of samples of shallow wells) and nitrates (1.3 % of all samples, 2.0 % of samples of shallow wells). Exceeding of u 1,2-cis-dichlorethenu (0.7 % of all samples) and tetrachlorethene (0.5 % of all samples) is very rare. In other evaluated indicators (pesticides, volatile organic substances and metals) exceeded normative C very sporadically (0.1 to 0.4 % of all samples). Values measured above criterion B and below the criterion C were ascertained mainly by inindicators of chlorides (3.0 % of all samples, 8.2 % of samples of shallow wells), ammonium ions (2.7 % of all samples, 4.4 % of samples of shallow wells), boron (2.6 % of all samples, 2.9 % of samples of deep wells and springs) and nitrates (1.2 % of all samples, 3.1 % of samples of deep wells), and there was also a sporadic presence of aluminium, fluorides, beryllium, chrysene, benzo(b)fluoranthene, 1,2-cis-dichlorethene, nickel, vanadium, arsenic, cadmium, benzo(g,h,i) perylene, benzo(k)fluoranthene, benzo(a)pyrene, benzo(a)anthracene, indeno(1,2,3-cd)pyrene, phenantrene, tetrachlorethane, trichlorethene, 2,4-DP, β-hexachlorcyklohexane, chlorpyrifos, MCPA, MCPP, metolachlor and chlorotolurone above criterion B.

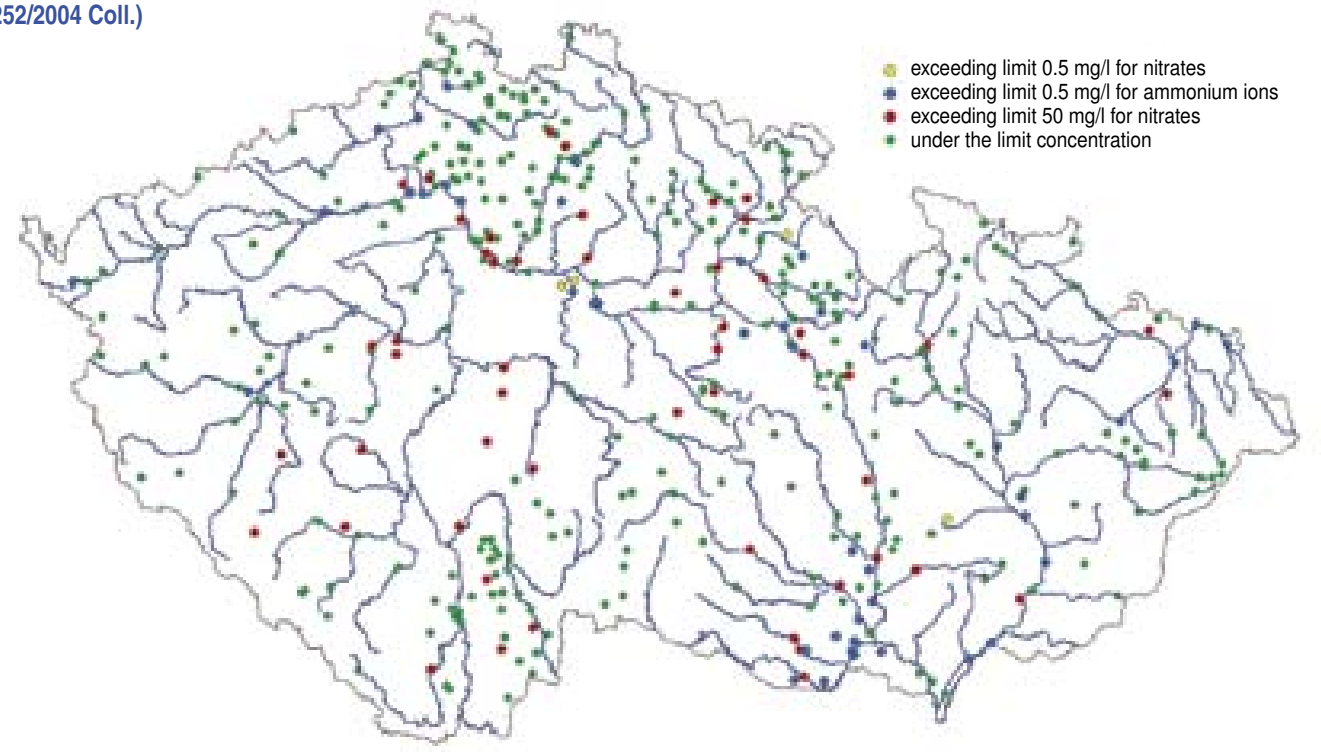
Overall the incidence of indicators exceeding the values of criteria B andC is most frequent in groundwater of shallow wells, oriented towards the alluvial areas of rivers which have the greatest anthropogenic influence.

From the aspect of comparing the quality indicators against 2006 (Table no 3.2.1) it is possible to state that in shallow wells there was a slight worsening and in the group of objects of deep wells and springs only a very slight worsening in the representation of objects with an exceeding of the values of criterion B and C. It is noteworthy that in 2007 much higher number of indicators were exceptionally observed (226) unlike the range of indicators (150) observed in 2006. The rise in number of objects with exceeding of criteria B or C can be attributed to analytical foundings of newly observed indicators in groundwater.

From the aspect of comparing the quality indicators for groundwater with the requirements for drinking water, the

Picture 3.2.1

Above-the-limit concentration of nitrogenous substances in groundwater in 2007 (exceeding the limit values of Decree 252/2004 Coll.)



Source: CHMI

most frequently discovered indicators in above-the-limit values were nitrates (12.6 % of above-the-limit samples), ammonium ions (11.0 % of above-the-limit samples), sulphates (8.0 % of above-the-limit samples), chlorides (7.7 % of above-the-limit samples), chemical consumption of oxygen by permanganete (7.2 % of above-the-limit samples), aluminium (4.3 % of above-the-limit samples), nickel (4.2 % of above-the-limit samples) and dissolved organic carbon – DOC (3.2 % of above-the-limit samples). Less frequently these limits were exceeded in the indicators of benzo(a) pyrene (2.1 % of above-the limit samples), fluorides (2.1 % of above-the-limit samples), arsenic (2.0 % of above-the-limit samples), desethylatrazine (1.8 % of above-the-limit samples), atrazine (1.6 % of above-the-limit samples). All these above-the-limit substances (except for fluorides) are represented by a greater proportion in the groundwater of shallow wells.

Overall one may sum up that the most significant indicators of groundwater pollution were seen to be nitrogenous substances (in particular nitrates and ammonium ions), chlorides and metals. Organic substances contribute less to the pollution of groundwater, and they are represented to the greatest extent by volatile organic substances (mainly in the area of Neratovice) and pesticide substances, which were found in groundwater of shallow wells mainly in the agricultural areas.

3.3 Monitoring of water in the Czech Republic in 2007 pursuant to the requirements of the Framework directive

After the regular evaluation of the surface water and groundwater state the data from the state networks of water monitoring of the Czech Hydromereorological Institute are used each year. Implementation of Framework directive meant a change in the system of water quality moitoring in the Czech Republic.

Water Monitoring is governed by the Methodological directive of the department of water protection of the MoE and the department of water management policy of the MoA for monitoring of water pursuant to section 21 paragraph 4 Act No 254/2001 Coll., on water and change in some acts (the Water Act) from 19.12.2006. The principles of pursuing and requisites of monitoring programmes pursuant to the Framework Directive and technical requisites of results processing of these programmes are defined by the Framework programme of monitoring. Pursuant to the rules of the Framework programme of monitoring, monitoring of waters by all types of monitoring is carried out, pursuant to the Framework directive: situational, operational, investigative, quantitative state and referential conditions.

Monitoring of surface water amount was in 2007 covered by the programme of monitoring of quantitative state of surface water. Programme of quantitative state of surface water monitoring was carried out on 505 profiles of running water and 48 reservoirs.

Monitoring of surface water quality was covered in 2007 by programmes of situational and operational surface water monitoring. Profiles of the state network of quality of water in courses water monitoring were divided into two groups of profiles: profiles of situational monitoring (profiles on significant watercourses representing coherent bigger catchment areas of these watercourses) and profiles of operational monitoring (other profiles). In the programme of situational monitoring a total of 1 332 samples of water, 184 samples of wash-loads, 94 samples of sediments and 143 samples of biomass on 111 profiles of state network wase taken and analyzed in the CR. Also 442 samples of biological components for evaluation of ecological state of water were taken. In the programme of operational monitoring 24 858 samples of water, 210 samples of wash-loads and 20 samples of sediments in 1 287 profiles (of this 300 profiles of state network) were taken and analyzed.

Monitoring of the amount of groundwater was covered by the programme of monitoring of quantitative state of groundwater. The programme of monitoring of quantitative state of groundwater was pursued on 2 000 objects from the network of groundwater monitoring. The monitoring was carried out 1x a week, or 1x a day in authomatized monitoring.

Svratka river, WW Brno - liming

Monitoring of the groundwater quality was covered by the programme of situational monitoring of groundwater. The Programme of situational monitoring of groundwater was excercised on 461 objects of state network of ground water monitoring. Because the range of the given indicators of situational monitoring fully covers the range of operational monitoring and the network of operational monitoring is identical with the network of situational monitoring, the operational monitoring of groundwater was not carried out in 2007. 922 samples of water were (2 samples a year on each object) were taken and analyzed.

Salmon and carp waters in 2007

Salmon and carp waters are legislatively announced surface waters suitable for life and reproduction of the original fish species and other water organisms.

From the evaluation of conclusive profiles of specified water it was observed, that in the yearse 2006 – 2007 the allowable limits were reached in 64 % of these waters (67 % of salmon and 60 % of carp waters). The most numerous limit exceedings in the indicator of dissolved oxygen, resp. not reaching its minimum values (19 % of all announced waters) occured mainly on salmon waters. On carp waters the limits were exceeded in free ammoniac a ammonium ions (17 % of all announced waters).

Most of the waters where the allowable limits were not reached are not suitable in one or two interconnected indicators (eg. free ammoniac and ammnium ions). Most unreached allowable indicators were recorded on the salmon waters in the upper Rusava, the Trkmanka, the Lužická Nisa and the Bílovka and on carp waters on the Včelínek and the Bílovec.

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Handling water

4.

4.1 Abstractions of surface water

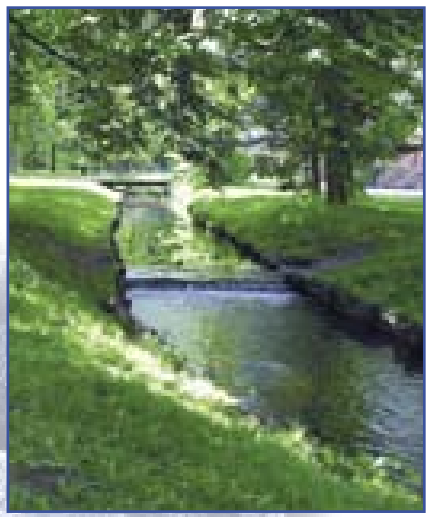
In the Report on the state of water management in the Czech Republic in 2006 was stated, that the year-on-year drop in surface water abstractions halted. With regard to the situation in 2007 it is possible to say, that in this year an increase of surface water abstractions from 1 556.930 mill. m³ to 1 588.744 mill. m³, i.e., by 2 % occured.

As in the previous years, as a result of unification of data of the individual River Board Companies, s.e., abstractions of surface water do not include transfers of water abstracted for fishpond systems.

The most significant increase of abstractions in percentual representation occured in agriculture (including irrigation). The above mentioned founding is related to the fact that after the hot years 2005 and 2006 the year 2007 with the average temperature of 9.3 °C (+1.8 °C above the normal) raged among the sharply above-the-normal years (the highest abstraction in the category of abstractions for agriculture are mainly the abstractions for irrigation). There was a sharp increase in the amount of abstractions in the absolute expression in power generation. In 2006 total abstractions in this branch were 809.2 mill. m³, in 2007 868.0 mill. m³ – the year-on-year increase was 7.3 %. In the surface water abstractions for water systems for public use (similarly as groundwater) it is possible to state, that there is an unsignificant fall from 387.9 mill. m³ to 384.1 mill. m³ unlike in 2006. In industry (raw materials extraction) there was an increase in 2007 unlike in 2006 to a decrease by almost 30 mill. m³, i.e., by 8.7 %.

Structure of registered abstractions of water in individual catchment areas in 2007 is given in Table 4.1.1. The overall development of surface water abstractions since 1985 is shown in Graph 4.1.1.

Division of users into individual groups was carried out pursuant to the branch classification of economical activities (BCEA). In the following overview the detailed information on individual water abstractions of surface water and groundwater into groups of users pursuant to BCEA classification is shown.



Karvinská Mlýnka river, Karviná Darkov

Table 4.1.1

Abstractions of surface water in 2007 in millions m³ for consumers above 6 000 m³/year or 500 m³/month

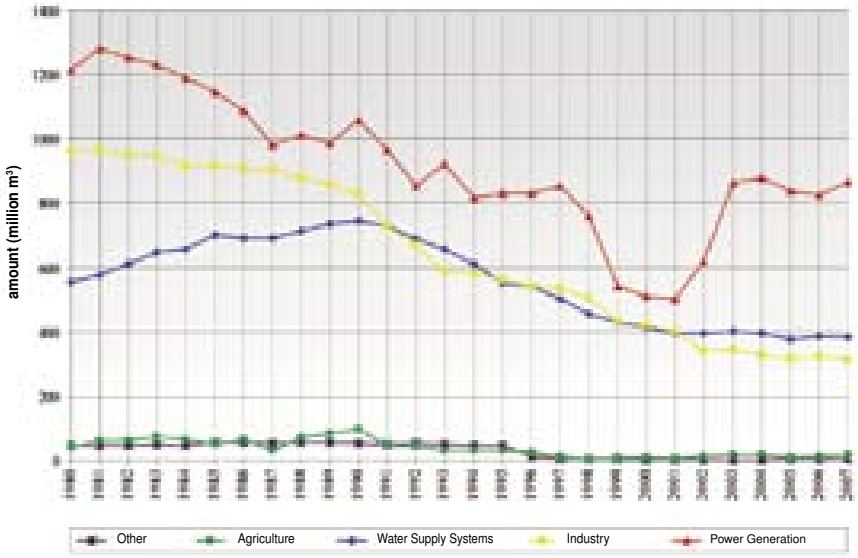
River Boards, s.e.	Water Supply Systems		Agriculture		Power generation		Industry		Other usage		Total	
	Amount	Number	Amount	Number	Amount	Number	Amount	Number	Amount	Number	Amount	Number
Elbe River Board, s.e.	45.930	37	6.747	40	613.252	12	114.564	107	0.921	36	**781.414**	**232**
Vltava River Board, s.e.	159.238	49	1.536	15	54.855	18	50.752	84	3.316	28	**269.697**	**194**
Ohře River Board, s.e.	52.640	5	4.343	11	60.166	5	47.716	52	0.165	9	**165.030**	**82**
Odra River Board, s.e.	76.545	21	0.019	1	12.332	1	81.900	57	0.837	29	**171.633**	**109**
Morava, River Board, s.e.	49.778	34	6.640	39	127.356	2	16.517	96	0.679	19	**200.970**	**190**
River Boards, s.e. in total	**384.131**	**146**	**19.285**	**106**	**867.961**	**38**	**311.449**	**396**	**5.918**	**121**	**1 588.744**	**807**

Source: MoA, WMRI T.G.M., River Boards, s.e.

More detailed information about specified BRANCHES:	
Water supply systems for public use (not including transfer)	BCEA: 41 not including 410010
Agriculture (including irrigation) (not including breeding of fish)	BCEA: 01 – 05, not including 050200
Power generation (generation and distribution of electricity and heat)	BCEA: 401 and 403
Industry (including raw materials extraction) (not including power generation and water supply systems)	BCEA: 10 – 45, not including 401, 403 and 41
Other (including building industry)	BCEA: 50 – 93
Total (not including fishponds and transfers)	**BCEA: 01 – 93, not including 050200 and 410010**

Graph 4.1.1

Abstractions of surface water in the Czech Republic in years 1980 – 2007



Source: MoA, WMRI T.G.M., the River Boards, s.e.

Table 4.2.1

Abstractions of groundwater in 2007 in millions m³ for consumers above 6 000 m³/year or 500 m³/month

River Boards, s.e.	Water supply systems		Agriculture		Power generation		Industry		Other usage		Total	
	Amount	Number	Amount	Number	Amount	Number	Amount	Number	Amount	Number	Amount	Number
Elbe River Board, s.e.	100.011	631	2.002	141	0.816	6	8.959	156	1.749	52	**113.537**	**986**
Vltava River Board, s.e.	31.987	567	3.615	247	0.216	6	10.221	128	8.398	252	**54.437**	**1 200**
Ohře River Board, s.e.	53.062	325	0.703	21	1.159	1	4.292	100	1.464	10	**60.680**	**457**
Odra River Board, s.e.	19.999	131	0.435	26	0.005	1	1.833	34	0.652	25	**22.924**	**217**
Morava River Board, s.e.	112.484	698	3.734	322	0.128	1	9.176	216	3.455	178	**128.977**	**1 415**
River Boards, s.e. in total	**317.543**	**2352**	**10.489**	**757**	**2.324**	**15**	**34.481**	**634**	**15.718**	**517**	**380.555**	**4 275**

Source: MoA, WMRI T.G.M., River Boards, s.e.

Jihlava river, WW Dalešice

4.2 Abstractions of groundwater

In comparison with 2006 the total amount of abstracted groundwater remained basically at the same level (increase by 0.3 %). This fact shows, that the decrease in this category of abtractios reached its maximum in preceeding periods and now there is more or less a stagnation.

Some kind of turniningpoint in the development trends, when permanent decrease occured, happened in the previous year 2006. In groundwater abstarction for Sewerage Systems for public use (similar to the surface water) it is possible to state, that there is a stagnation (negligible fall from 319.5 mill. m³ to 317.5 mill. m³) unlike in 2006.

Structure of registered water abstractions in individual catchment areas in 2007 is shown in Table 4.2.1. In 2007 4 275 of surface water abstractions in the amount of 380.6 mill. m³ (it involves abstractions above 6 000 m³ a year or 500 m³ a month) were registered. In industry (including raw materials abstraction) there was in 2007, similarly to surface water abstraction a decrease from 36.4 mill. m³ to 34.5 mill. m³, i.e., by 5.2 % unlike in 2006.

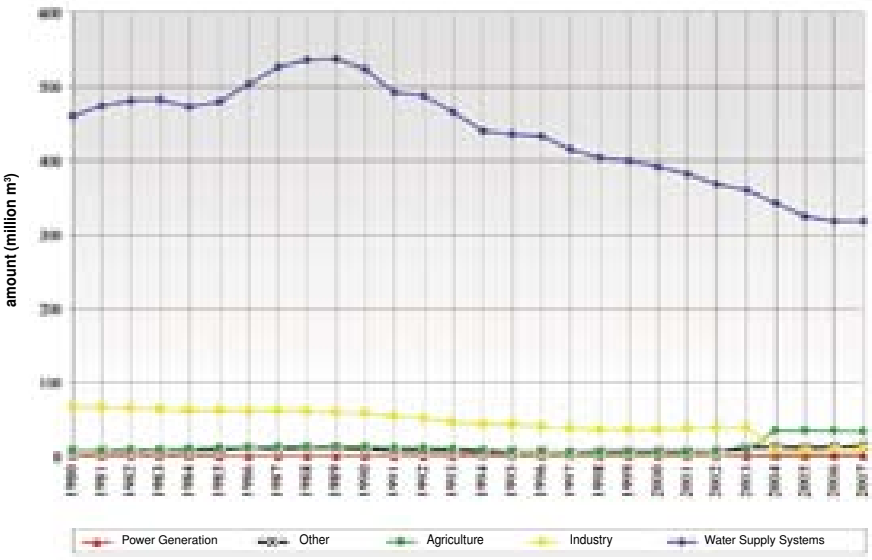
4.3 Discharges of waste water

In 2007 2 019.3 mill. m³ of waste and mine water was discharged into the watercourses. Unlike in 2006 a negligible decrease by 0.2 % occurs in 2007. It involved sources above 6 000 m³ a year of 500 m³ a month.

Increase in the amount of discharged water unlike in 2006 was registered mainly in category power generation (by 7.2 %, which is in a year-on-year increase almost by 48 mill. m³), increase over 7 % occured also in category agriculture (including irrigation), which is only 0.1 mill. m³ of the absolute volume.

Graph 4.2.1

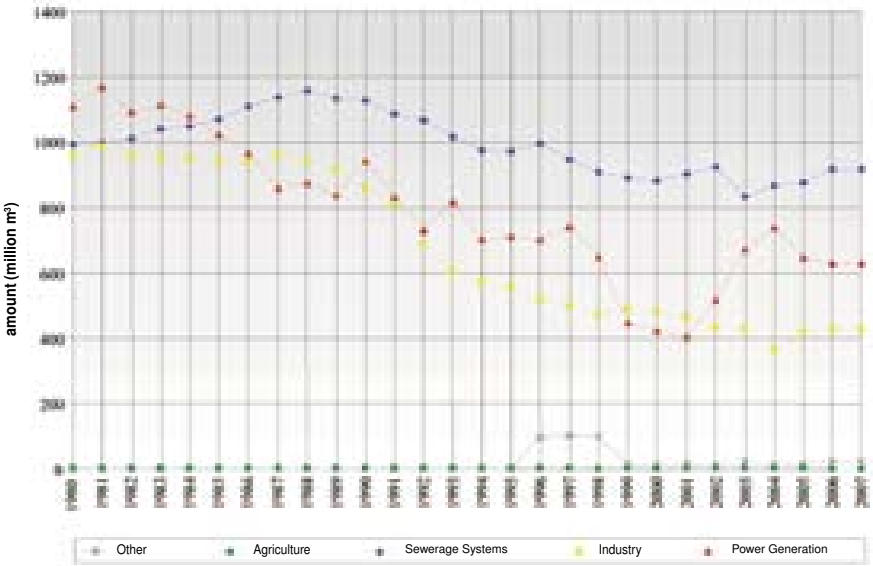
Abstractions of groundwater in the Czech Republic in the years 1980 – 2007



Source: MoA, WMRI T.G.M., River Boards, s.e.

Graph 4.3.1

Waste water discharge in the Czech Republic in the years 1980 – 2007



Source: MoA, WMRI T.G.M., River Boards, s.e.

Chrudimka river, Svatojánské Lázně

In the context of waste and mine water discharge into the surface water, given in Table 4.3.1., the total sum data agrrees with the statement VH 8a-01, i.e., it does not differ in the final stated amount. It is important to mention that the amount given in individual groups of users are not identical with the division categories of BCEA in the above-mentioned statement. This deviation is given by methodological interpretation to the content and classification in context of other groups and it was necessary to preserve the long-term timeline within the comparability. The decrease occured in category sewerage systems for public use. With regard to the ambiguous methodology (supplement of Decree No 431/2001 Coll., on the content of water balance, the way of its compilation and on the data for water balance and explanations to the statistical statement – Annual statement on watercourses and surgace water delivery VH 8a-01) there is a lot of sewerarge systems for public use (as amended the Act No 274/2001 Coll.,) on water supply and sewerage systems for public use and on the change of some acts (Water supply systems and sewerage systems Act), as amended by Act No 320/2002 Coll., Act No 274/2003 Coll., Act No 20/2004 Coll., Act No 167/2004 Coll., Act No 127/2005 Coll., Act No 76/2006 Coll., Act No 186/2006 Coll., and Act No 222/2006 Coll.) included and recorded under BCEA 751100 (this involves smalled municipalities, which run sewerage systems or waste water treatment plant on their own). Therefore it is important to adequately interpret the decrease of discharged waste water amount in the category of sewerage systems for public use (by 5.4 %) and increase in the category other (including building industry) (by 7.8 %) in comparison with the data published in the Report on the state of water management in the Czech Republic in 2006.

Division of users into individual groups in the above mentioned table, in comparison to the Czech Statistical Office recording, which was carried out pursuant to BCEA, it differs mainly in the category sewerage systems for public use, because the Czech Statistical Office(CSO) includes only BCEA: 90 into this category and not the other individually operated sewerage systems and waste water treatment plants (WWTP) in smaller municipalities, which are pursuant to their methodology included in category other use.

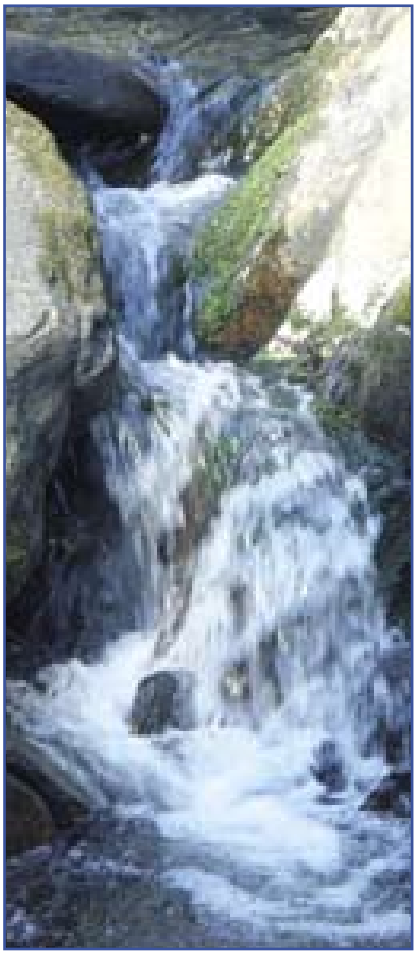


Table 4.3.1

Discharges of waste and mine water into surface water in 2007 in milions m^3 in amounts above 6 000 m^3/year or 500 m^3/month

River Boards, s.e.	Sewerage systems		Agriculture		Power generation		Industry		Other usage		Total	
	Amount	Number	Amount	Number	Amount	Number	Amount	Number	Amount	Number	Amount	Number
Elbe River Board, s.e.	184.600	527	0.030	1	578.416	20	110.940	203	1.357	64	**875.343**	**815**
Vltava River Board, s.e.	273.400	628	1.353	6	18.944	20	58.922	161	16.541	449	**369.160**	**1 264**
Ohře River Board, s.e.	80.300	265	0.000	0	21.085	16	100.799	170	59.274	27	**261.458**	**478**
Odra River Board, s.e.	112.100	306	0.022	1	5.321	1	68.539	56	5.137	112	**191.119**	**476**
Morava River Baord, s.e.	200.050	834	0.092	3	92.995	3	22.869	170	6.180	38	**322.186**	**1 048**
River Boards, s.e. in total	**850.450**	**2 560**	**1.497**	**11**	**716.761**	**60**	**362.069**	**760**	**88.489**	**690**	2 019.266	4 081

Source: MoA, WMRI T.G.M., River Boards, s.e.

Gabriela Škopová, 15 years, T.G.Masaryk basic school, Rokycany „Cry“ (Plzeň region)

Sources of pollution

5.

5.1 Point sources of pollution

The quality of surface water is primarily influenced by point sources of pollution (towns and municipalities, industrial plants, objects of concentrated agricultural animal production and old burden). The level of protection against pollution is most frequently evaluated according to the devlopment of produced and discharged pollution.

Labe river, Čelákovice

Produced pollution means the amount of pollution contained in produced (untreated) waste water. In the context of the requirements of the EU and OECD, in recent years the development of produced pollution has received increased attention in the Czech Republic. There has mainly been an expanded collection of measured data from a greater number of subjects. This expands and makes more accurate the data about produced pollution. The production of organic pollution in 2007 in comparison with 2006 fell in the indicator of BCO_5 by 6 351 t (by 2.5 %), and in the indicator of CCO_{Cr} by 15 659 t (by 2.6 %), in the indicator of SS by 3 941 t (by 1.3 %) and in the indicator of dissolved inorganic salts (DIS) by 60 299 t (by 6.6 %).

Table 5.1.1
Produced and discharged pollution in 2007

River Boards, s.e.	Produced pollution in t/year						Discharged pollution in t/year					
	BSK_5	CHSK	NL	RAS	N_{anorg}	P_{total}	BSK_5	CHSK	NL	RAS	N_{anorg}	P_{total}
Elbe River Board, s.e.	47 629	119 905	56 093	214 840	8 901	1 034	2 122	14 625	4 788	207 051	5 221	265
Vltava River Board, s.e.	85 347	195 382	106 692	127 437	8 882	2 120	2 036	12 046	2 926	134 374	3 875	277
Ohře River Board, s.e.	16 168	56 692	18 149	126 177	2 021	660	1 130	5 513	2 490	127 390	1 123	220
Odra River Board, s.e.	38 201	79 033	36 508	237 542	3 394	723	1 000	8 194	2 695	237 542	1 322	121
Morava River Board, s.e.	61 394	140 307	77 502	142 590	6 501	1 599	1 570	8 496	3 175	138 417	2 516	237

Source: WMRI T.G.M., from the background material of CSO, River Boards, s.e.

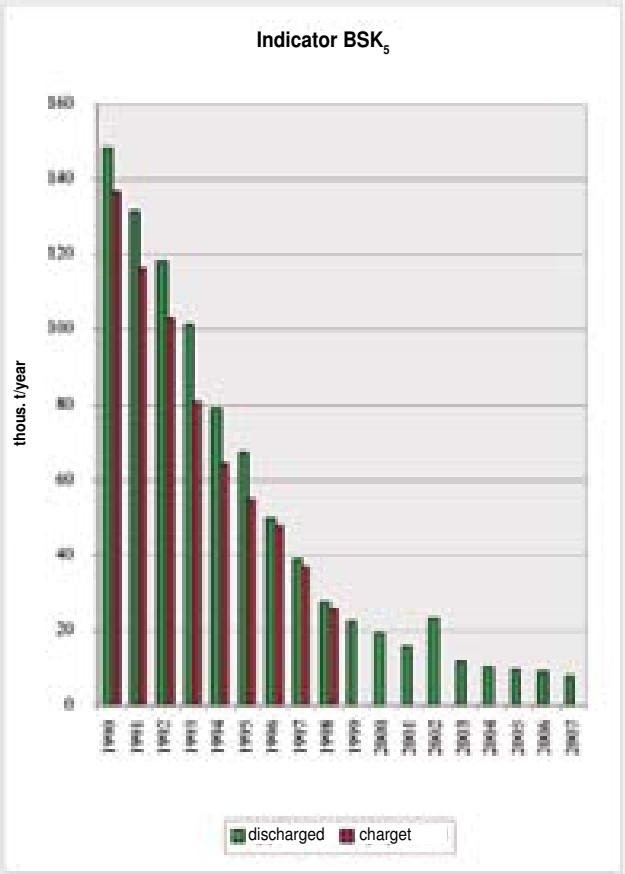
Labe river, Lovosice

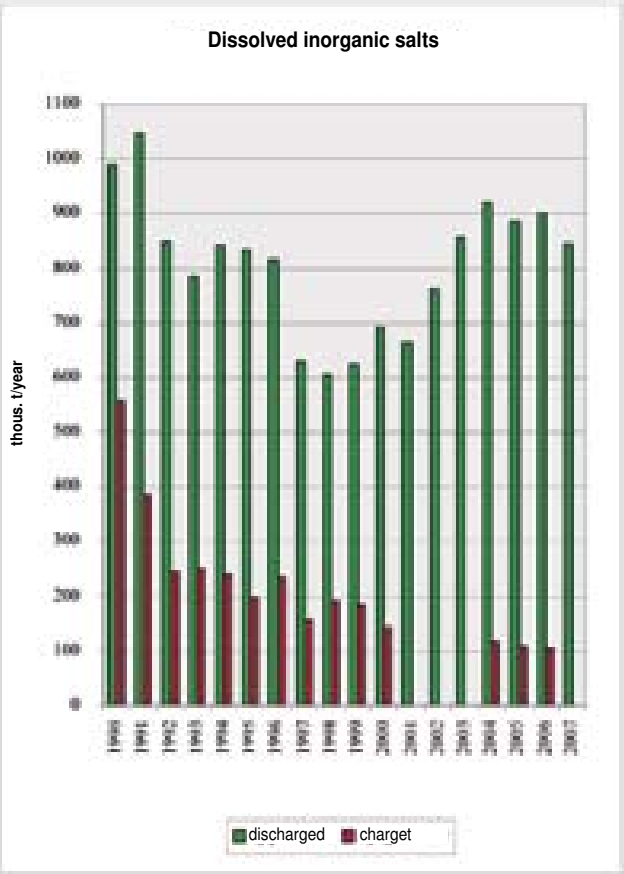
Discharged pollution is the pollution contained in waste water discharged into surface water. In comparison with 2006, discharged pollution in 2007 decreased in the indicators: BCO_5 by 974 t (by 11 %), CCO_{Cr} by 4 815 t (by 9.0 %), SS by 2 424 t (by 13.1 %) and DIS by 56 441 t (by 6.3 %). The positive trend in discharged pollution decrease according to the indicators BCO_5, CCO_{Cr} and SS continued in 2007. There was a reduction in nearly all catchment areas. The development of discharged and charged for pollution since 1990 is displayed by Graph 5.1.1.

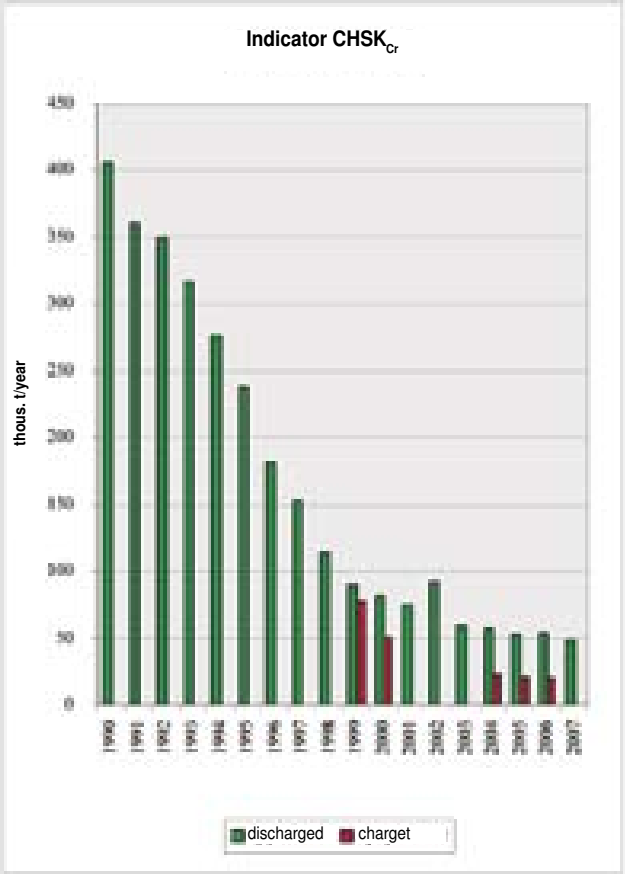
Between the years 1990 and 2007 there was a drop in discharged pollution in the indicators BCO_5 by 94.7 %, CCO_{Cr} by 88 %, SS by 90 % and DIS by 14.6 %. In years 1990 – 2007 there was also success in reducing the amount of dangerous and extremely dangerous unhealthy substances. There was also a significant drop in nutrients (nitrogen, phosphorus) as a result of the fact that the biological removal of nitrogen and biological or chemical ellimination of phosphorus being applied in a targeted manner in the technology of waste water treatment in new and intensified waste water treatment plants.

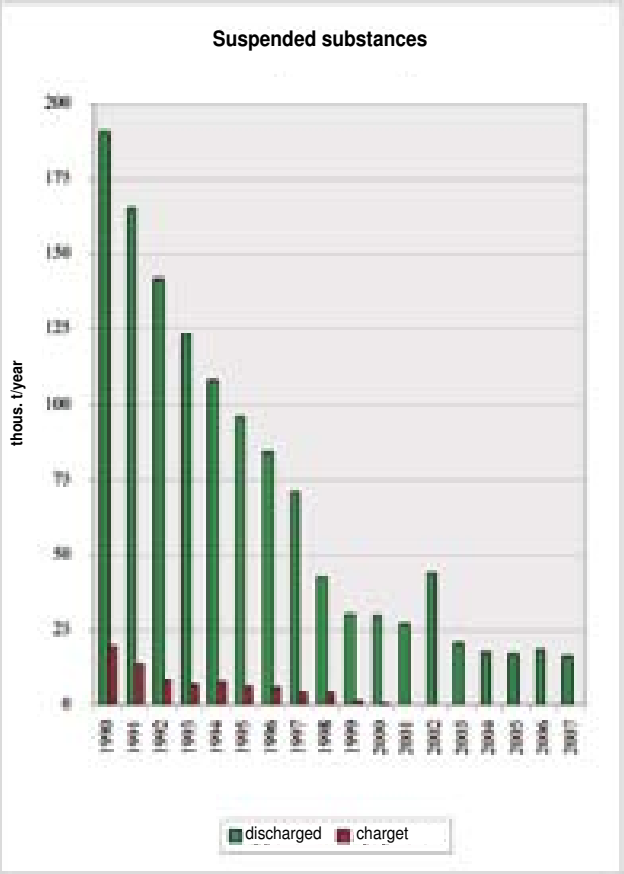
Graph 5.1.1

Discharged and charged for pollution in years 1990 – 2007









Source: WMRI T.G.M., from the background material of CSO, River Boards, s.e.

5.2 Broad area pollution

The quality of surface water and groundwater is also significantly impacted by broad area pollution – in particular pollution from farming, atmospheric deposits and erosion wash-loads from the terrain. The significance of broad area pollution is increasing with the continuous drop in pollution from point sources. Its proportion is fundamental especially for nitrates, pesticides and acidification, and less so for phosphorus. This proportion differs in the different areas of the Czech Republic depending on population density, the proportion of treatment of waste water, the intensity and method of farming and level of atmospheric deposits.

The Order of the Government No 103/2003 Coll., concerning determination of vulnerable areas and usage and storage of manure and barnyard manure, crop rotation amd implementation of anti-erosion measures in these areas, with effect from 11.4.2003 it pronounced the areas – so-called vulnerable areas and designated conditions of usage and storage of manure and barnyard manure, rotation of crops and implementation of anti-erosion measures in these areas. In these areas, where farming significantly contributes to pollution of groundwater and surface water by nitrates, some measures were designated to reduce this influence. In 2007 an amendment was authorised, namely the Order of the Government No 219/2007 Coll., from 11.7.2007, which changes the Order of the Government No 103/2003 Coll. The whole supplement No 1 of this regulation was changed, with effect from 1.9.2007. In this supplement the names of affected cadasted areas and their codes are given in alphabetical order. Elaboration of the supplement resulted from the research report of the Water Management Research Institute, T. G. M. (WMRI T.G.M.) – Revision of vulnerable areas for the Nitrate directive (2007).

Otvický stream, WW Otvice

5.3 Accident pollution

Accident pollution also negatively impacts the quality of surface water and groundwater. In 2007, the Czech Environmental Inspectorate recorded a total of 181 cases of accident pollution or threat to water quality, of this 6 cases in groundwater, on the territory of the Czech Republic.

In comparison with 2006, the number of accidents on water is 24 cases less than in 2007. The most frequent group of pollutants continue to be oils – 55.8 % of the overall number of recorded causes, followed by chemical substances (not including heavy metals) – 9.9 %. In a breakdown according to sources of accidents, the most common were accidents caused by transport (24.3 %), followed by accidents during the ellimination of waste water and solid waste (3.8 %), agriculture, hunting and associated activities (3.8 %). The source could not be ascertained in 46.3 % of cases (in 2006 it had been 62.1 % of cases). In 2007, the Czech Environmental Inspectorate (CEI) imposed a total of 597 fines for breaches of regulations valid in the field of water protection, of which 515 become legally valid, the overall amount was CZK 35.968 million.

Karolína Čechová, 12 years, Štenberk grammar school „School of fish in the evening“ (Olomouc region)

Administration of watercourses

6.

6.1 Professional administration of watercourses

The Czech Republic is an inland state in central Europe, which is literally interwowen by a network of watersourses. The hydrological network is formed by app. 76 000 km of watercourses (with natural and modified river beds). Depending on their importance, watercourses in the Czech Republic are divided into significant watercourses and small watercourses. In 2007 watercourses were professionaly managed in compliance with the provisions of section 47 of Act No 254/2001 Coll., concerning water and concerning the ammendment of certain acts (the Water Act), as subsequently amended. The water act designates, that the watercourses are always subject of administration (section 47 of Water Act) carried out by the administrators of watercourses (section 48 of Water Act).

Administration of 95.2 % of the lenght of watercourses in the Czech Republic is ensured by dominant administrators of watercourses. Approximately 4.8 % of other subjects, such as the Ministry of defense (MoD), Administartion of national parks and other natural and corporate bodies partaking in the administration of watercourses. This data shows that all changes in the watercourse demarcation are carried out in favour of the dominant administrators of watercourses, i.e., the River Boards, s.e., the AWMA and Forests of the CR, s.e. in the competence of the MoA. Professional administration of watercourses divided in accordance with individual administrators of watercourses are shown in Table 6.1.1.

Table 6.1.1
Professional administration of watercourses

Category	Administrator	Length of watercourses in km	
		2006	2007
Significant watercourses	Elbe River Board, s.e.	3 560.10	3 560.10
	Vltava River Board, s.e.	4 761.10	4 761.10
	Ohře River Board, s.e.	2 290.81	2 290.81
	Odra River Board, s.e.	1 111.39	1 111.39
	Morava River Board, s.e.	3 812.68	3 814.08
	Total significant watercourses	**15 536.08**	**15 537.48**
Small watercourses	AWMA	35 700.36	35 835.03
	Forests of the CR, s.e.	19 535.94	19 577.47
	Total River Boards, s.e.	1 380.07	1 382.58
	Other [1]	3 847.55	3 667.44
	Total small waterourses	**60 463.92**	**60 462.52**
Total watercourses		**76 000.00**	**76 000.00**

Source: MoA
Note: [1] Includes the Ministry of Defence, administration of National Parks , municipalities and other natural and corporate bodies (e.g. mines).

Lužnice river, Třeboňsko

The concrete list of significant watercoursesis given in the Regulation No 470/2001 Coll., which designates the list of significant watercourses and the way of activity operation, connected to the administration of watercourses, as amended by the Regulation No 267/2005 Coll., which came into operation on 1.7.2005. This is an overview of 814 watercourses included on the „List of significant watercourses“, which constitutes annex No 1 to the decree referred to. One part of the list is the identifier of significant watercourses (CRWC). Significant watercourses of the total length of 15 537 km are administrated, as amended by the Regulation section 4 of Act No 305/2000 Coll., on catchment areas, the individual River Boards, s.e.: The Elbe River Board, s.e., the Morava River Board, s.e., the Odra River Board, s.e., the Ohře and Vltava River Board, s.e. The rachidial watercourses are the Elbe (370 km) and the Vltava (433 km) in Bohemia, the Morava (272 km) and the Dyje (306 km) in the south Moravia and the Odra (135 km) and Opava (131 km) in the northern part of Moravia and in Silesia.

All the other watercourses (Regulation section 43 of the Water Act) are small watercourses. Total length of small watercourses is over 60 000 km. Administration of small watercourses is carried out as amended by the Regulation section 48 of the Water Act, namely on the basis of appropriate determination of the MoA (Regulation section 48 paragraph 2 of the Water Act). In the case the administration of the small watercourse is not established, it is administreted pursuant to the Regulation section 48 paragraph 4 of the Water Act the administrator of recipient, into which the small watercourse mouths. This administrator holds office till the designation of administartion of watercourse is issued (pursuant to section 48 odst. 2 of the Water Act). Administration of small watercourses can be excercised by municipalities, through the area of which the watercourse flows, natural or corporate bodies, or organisational state bodies, to which the small watercourse serves or with which activity the watercourse is connected. Model and content of request of small water course administartion designation and detailed specification is shown in the above-mentioned Regulation No 470/2001 Coll.

To ensure public administration and wide public know-how of administration of a particular watercourse the „The watercourse evidence“ was es-

Table 6.1.2
Book value of tangible fixed assets associated with watercourses in billions CZK

Administrators of watercourses in competence of MoA	2006	2007
Elbe River Board, s.e.	8.46	8.47
Vltava River Board, s.e.	7.51	7.53
Ohře River Board, s.e.	7.90	7.99
Povodí Odry, s.p.	4.90	4.94
Morava River Board, s.e.	6.85	6.87
Total River Boards, s.e.	**35.62**	**35.80**
AWMA	8.61	8.90
Forests of the CR, s.e.	2.56	2.60
Total	**46.79**	**47.30**

Source: MoA

tablished, which is access within the WATER – Information system of Public Administration, i.e., www.voda.gov.cz.

The book value of tangible fixed assets associated with watercourses rose to the value CZK 47.3 billion in 2007. Unlike the preceeding period the year-on-year increase was only half, i.e., CZK 0.51 bill.

The year-on.year increase expresses primarily increases in tangible fixed assets (TFA) gained through renewal and planned development in the area of entrusted assets in the form of regular investment construction and ongoing inclusion of received assets and completed waterworks. In 2007 no waterworks which could significantly influence the indicator expressing the book value of tangible fixed assets were completed, granted permission for use and put into operation by any of the administrators of watercourses. Concrete values of TFA in book values for the individual watercourse administrators with year-on-year development (increases in TFA) are given by table 6.1.2.

Loupnice river, WW Janov

In 2007 all River Boards, state enterprises. were given new Foundation Charters, namely in connection with the change of the Rules of Organisation of the Ministry of Agriculture. On 15.9.2007 the administration of agenda of foundation activity was shifted from the division of water managemnt of Ministry of Agriculture to the department of foundation activity.

All changes in the last year resulted from the above-mentioned organisational changes of statutory representatives and from the changes in the structure of members of the board of trustees in the individual River Boards, s.e. Apart from the change of all the foundation charters it was also necessary to carry out an update of all the River Boards, s.e. statutes.

The supervision activity of the individual River Boards, state enterprises is performed by relevant inspection bodies. In 2007 the following comprehensive and tightly focused inspections were carried out.

Orlice river, Třebechovice pod Orebem

The Ministry of agriculture

As in previous years the Water Management Programme Financing Department carried out in particular inspections of the fulfillment of conditions and drawing of financial resources in the context of the individual programmes of „Flood Prevention. In this year a total of 6 of these inspections were performed, specifically at the Vltava, Elbe, Orda and Morava River Boards, s.e. No fundamental faults were detected during these inspections.

Inland revenue offices

In 2007 these bodies of state administration performed a total of 6 financial inspections focussing on legitimacy of grants usage control and adherence to budget rules and discipline in the Vltava, Elbe, Odra and Morava River Boards, s.e. No faults were detected during these inspections.

Czech Social Security Administration

In 2007, the district branches of these institutions performed a total of 11 inspections on insurance premiums, the performance of sick-pay insurance and the performance of tasks in pension insurance on all of the River Boards, s.e. No serious faults were detected during these inspections.

Health Insurance Company

The duty of the employer in the field of paying of premiums for health insurance was inspected in the Elbe, Ohře and Odra River Boards, s.e. No shortcomings were discovered on the basis of this investigation.

Morava river, Rohatec

Regional hygiene station

Inspections were performed from the part of Regional Hygiene Stations on the excercise of state health supervision in the area of adherence to regulations for the protection of public health. A total of two inspection investigations were performed on the Vltava and Morava River Boards, s.e. No faults were discovered during these investigations.

Safety at Work Inspectorate, Bureau of Labour and Trade Union of Timber Pressing, Forestry and Water Management Workers of the Czech Republic

Safety of Work Inspectorate together with the Bureau of Labour and Trade Union of Timber Pressing, Forestry and Water Management of the Czech Republic gradually carried out in all River Boards, s.e. a total of 8 inspections focused on regulations adherence of safety and protection at work and on control of state support. On the basis of these investigations no serious shortcomings were ascertained in this area.

Inspections performed by other bodies of state administration

The Ministry of Transport (MoT) performed 3 inspections of the Vltava River Board, s.e. focussing on checking of working procedures, checking tenders and the utilisation of financial resources. The Ostrava City Council also performed similar investigation of the Odra River Board, s.e. focussing on an investigation of statutory control of requirement of investment grant legitimacy requested within phase II of Programme of flood prevention. The Customs and excise office performed 4 financial investigations focused on examination of correct consumer tax in the Vltava and Elbe River Boards, s.e. A complex investigation of adherence to obligations designated by the regulations on fire prevention was carried out by relevant Fire brigades – 1 investigation in the Ohře and the Elbe River Boards, s.e. Inspection was also performed by State administration of tangible reserves in the Elbe and the Morava River Boards, s.e. Investigation of nomenclature and shredding rule was performed by the State paper office in the Elbe River Board, s.e. The Morava River Board, s.e. underwent the inspection by the Czech telecommunications office, State energetic inspection and Moravian provincial archive in Brno. For most of the completed inspections no serious shortcomings were ascertained, and the minor shortcomings were then operatively eliminated.

Inspection activity for the Agricultural Water Management Administration is performed by the relevant control bodies. In 2007 the following comprehensive and tightly focused inspections were performed.

The Ministry of Agriculture

The Department for Programme Financing in Water Management performed ongoing public-sector site inspections of the AWMA in the sense of section 13, paragraph 1 of Act No 320/2001 Coll. The subject of control was the verification of the use of financial resources for events paid within the framework of the subprogramme 229 013 – „Small watercourses administrated by AWMA„. Within the contet of inspections, no faults were discovered, and there was no breach of the criteria of the Ministry of Agriculture regulations for providing and and drawing of resources from the state budget for financing of the programme 229 010. A total of 3 events were inspected.

The Ministry of the Environment

An inspection was carried out from the point of resolving of rectification of flood damage in the CA AWMA Vltava. No faults were detected during the inspection.

Financial directorate

In the course of 2007 a public inspection of public funds management in the years 2005 and 2006 including management of funds within financing assets reproduction in the years 2003-2004 was carried out by the Financial directorate in Brno. Protocol of ascertained faults and insufficiencies will be resolved pursuant to the Act No320/2001 Coll. as amended.

Tax office

An investigation from the point of income tax in the CA AWMA Vltava was carried out. No faults were detected during the inspection.

General Health Insurance Company and employee insurance companies

The duty of employer in the area of premiums for health insurance payment was inspected in the CA AWMA Ohře and the CA AWMA Odra. No serious faults were detected during the inspections and no financial sanctions were drawn against AWMA.

Czech Social Security Administration

Branches of this administration performed inspections on insurance premiums, sick pay insurance and social security in the CA AWMA Elbe and the CA AWMA Odra. No shortcomings were detected during inspections.

6.2 River Boards, state enterprises

The year-on-year increase of the overall yields of River Boards, state enterprises reached 5.7 % i.e., increase of yield by more than CZK 216 mill. in the absolute sum. Mainly grants from the state budget including other operational grants, which are methodologically included in the struc-

Table 6.2.1
Structure of yields of River Boards, s.e. in 2007 in thous. CZK

Indicator	Elbe River Board, s.e.	Vltava River Board, s.e.	Ohře River Board, s.e.	Odra River Board, s.e.	Morava River Board, s.e.	Total
Payments for abstractions of surface water	705 464	572 041	433 855	443 036	420 267	**2 574 663**
Generation of electricity	34 429	151 919	209 510	50 120	14 982	**460 960**
Income from use of water storage (heading-up) facilities	13 896	112 977	2 768	0	4 956	**134 597**
Other incomes	115 334	73 143	74 837	34 911	46 423	**344 648**
Grants from state budget	171 343	103 028	24 258	10 491	97 172	**406 292**
Oher operational grants	188	45 463	0	811	19 755	**66 217**
Total River Boards, s.e.	**1 040 654**	**1 058 571**	**745 228**	**539 369**	**603 555**	**3 987 377**

Source: MoA, River Boards, s.e.

Table 6.2.2
Delivers of surface water for payment in the years 2000 – 2007 in thous. m³

River Boards, s.e.		2000	2001	2002	2003	2004	2005	2006	2007
Elbe River Board, s.e.	a)	534 300	508 435	571 365	803 416	815 491	777 041	748 522	765 070
	b)	43 630	43 279	41 618	36 334	39 182	39 818	46 518	39 396
Vltava River Board, s.e.	a)	276 626	264 802	266 916	286 889	274 084	262 532	263 685	260 008
	b)	185 072	171 924	167 878	173 773	163 896	160 483	161 528	155 382
Ohře River Board, s.e.	a)	176 183	176 403	169 092	170 975	162 934	155 315	161 071	152 636
	b)	63 206	60 263	57 807	58 951	57 033	53 644	55 385	52 410
Odra River Board, s.e.	a)	175 883	166 799	173 275	172 795	163 874	165 044	171 301	164 087
	b)	69 434	66 255	72 167	74 183	70 729	72 682	75 001	71 979
Morava River Board, s.e.	a)	141 902	132 680	135 366	165 653	145 185	154 770	162 336	174 803
	b)	38 768	39 398	38 112	38 256	36 969	34 953	34 128	33 554
Total River Boards s.e.	**a)**	**1 304 894**	**1 249 119**	**1 316 014**	**1 599 728**	**1 561 568**	**1 514 702**	**1 506 915**	**1 516 604**
	b)	**400 110**	**381 119**	**377 582**	**381 497**	**367 809**	**361 580**	**372 560**	**352 721**

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

Table 6.2.3
Price for abstractions for flow cooling in the years 1998 – 2007 in CZK/m³

River Boards, s.e.	1998	1999	2000	2001	2002	2003	2004	2005	2006	2007
Elbe River Board, s.e.	0.53	0.61	0.67	0.67	0.65	0.39	0.40	0.40	0.40	0.44
Vltava River Board, s.e.	0.55	0.70	0.76	0.81	0.86	0.91	0.92	0.93	0.94	0.96
Morava River Board, s.e.	0.49	0.53	0.56	0.60	0.53	0.41	0.49	0.54	0.56	0.62

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

Table 6.2.4
Price for other abstractions of surface water in years 1998 – 2007 in CZK/m³

River Boards, s.e.	1998	1999	2000	2001	2002	2003	2004	2005	2006	2007
Elbe River Board, s.e.	1.16	1.39	1.54	1.71	1.88	2.04	2.20	2.35	2.51	2.70
Vltava River Board, s.e.	1.15	1.41	1.55	1.65	1.70	1.79	1.90	2.00	2.11	2.24
Ohře River Board, s.e.	1.67	1.87	1.99	2.11	2.23	2.33	2.41	2.53	2.71	2.85
Odra River Board, s.e.	1.40	1.59	1.74	1.80	2.01	2.08	2.12	2.40	2.53	2.70
Morava River Board, s.e.	2.10	2.27	2.53	2.66	2.89	3.06	3.12	3.26	3.49	3.88
Average price River Boards, s.e.	**1.39**	**1.59**	**1.76**	**1.90**	**2.10**	**2.23**	**2.44**	**2.42**	**2.56**	**2.68**

Source: River Boards, s.e., WMRI T.G.M.
Note.: The unit price per m³ is given without value added tax.
Calculated by weighted average.

Table 6.2.5
Payments for abstraction of surface water in the years 1998 – 2007 in million CZK

River Boards, s.e.	1998	1999	2000	2001	2002	2003	2004	2005	2006	2007
Elbe River Board, s.e.	556	530	532	536	566	613	669	669	678	705
Vltava River Board, s.e.	357	383	401	408	438	495	508	513	547	572
Ohře River Board, s.e.	368	375	367	397	399	427	420	393*)	434*)	434*)
Odra River Board, s.e.	273	279	294	301	347	359	347	396	433	443
Morava River Board, s.e.	264	266	277	287	300	368	359	362	394	420
Total River Boards, s.e.	**1 818**	**1 833**	**1 871**	**1 929**	**2 050**	**2 262**	**2 303**	**2 333**	**2 486**	**2 574**

Source: River Boards, s.e.
Note: *) Since 2005 without revenues for transport and pumping of water.

ture of yields were concerned in this increase. After the clearance of sales and other yields from grants, and after the deduction of extra other yields from 2006 in the amount exceeding CZK 300 mill. the the increase only by 4 % occured.

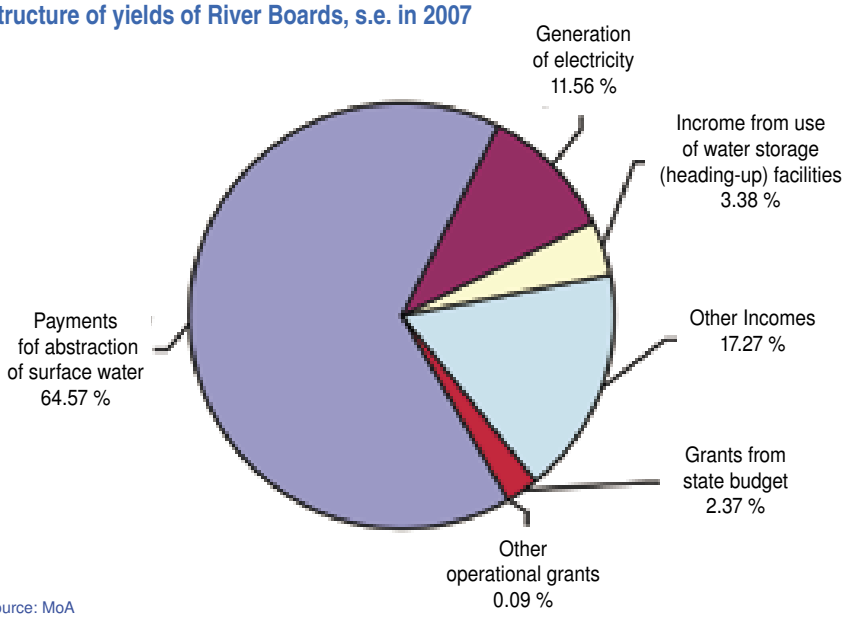
The overall yield of River Boards, s.e. was influenced by the rise of revenues for surface water abstractions nearly by CZK 89 million, this corresponds to the year-on-year increase in the amount of 3.6 %. Lower increase of payments for surface water abstractions was balanced by a sharper increase in revenues for electricity generation, which showed a year-on-year increase by more than CZK 76 mill. and reached nearly CZK 461 mill. On the other hand the incomes for the use of the heading-up facilities showed a year-on-year decrease, which fell by 14 %, which means a failure in revenues of almost CZK 22 mill. In year-on-year comparison the item of other incomes fell to almost a half, but it is necessary to note, that it involves mainly the unplanned items, which show considerable year-on-year fluctuations. This is also the case from 2006, when these other incomes were significantly influenced by the yield from the sold assets of the Vltava River Board, s.e. exceeding the amount of CZK 300 mill. and thus this item was doubled.

There was a change in long-term condition, when the proportion of grants on total yields fell annually since 2003 and on the other hand the volume of the grants shows an increase (unlike the preceeding year the volume of grants reached a fivefold).

Structure of yields of the River Boards, s.e. in 2007 is expressed in Table 6.2.1. Graph 6.2.1 clearly shows the proportion of the individual types of revenues out of the overall yields of the River Boards, s.e.

Development of overall surface water for payment delivery in technical units in a longer timeline is shown in Table 6.2.2. Prices for the individual sorts of surface water abstarctions are shown in Table 6.2.3 and 6.2.4. Payments for surface water abstractions in a ten-year timeline is shown in Table 6.2.5.

Graph 6.2.1
Structure of yields of River Boards, s.e. in 2007



Source: MoA

The prices of surface water in the context of other abstarctions grew by almost 4.7 %, which in comparison with 2006 represents a year-on-year increace in the rate of growth. These are materially directed prices in which it is possible to include only economically justifiable costs, reasonable profit and tax according to the relevant tax regulations.

Apart form the flow cooling and other abstractions also the levels of abstractions and prices of surface water for the purposes of the charged agricultural irrigation and flooding of artificial depressions in landscape have been investigated since 2003. With the exception of the Odra River Board, s.e. in 2007 abstarctions for the purpose of agricultural irrigation in the total amount of 754 thous. m^3 were executed, which in the year-on-year increase in comparable structure represents the increase by 140 thous. m^3 in surface water abstractions for the stated purposes. This category of abstractions is fairly fluctuating and does not show explicit signs of underlying trends. The most significant participation in this increase in abstractions of surface water for the purpose of agricultural irrigation was the one of the Morava River Board, s.e., a sharper decrease is shown only by the Elbe River Board, s.e. Surface water abstractions for flooding of artificial depressions in landscape were realized only by the Ohře River Board, s.e. similarly to the preceeding years, where a sharp increase by 1.13 mill. m^3 in this category of abstractions occured. Abstractions for flooding were realized in the amount of 5.69 mill. m^3.

Current prices in current conception do not express the value of surface water, but the price of service – i.e., faciliation of deliveries, which are ensured by the River Boards, s.e. to the users of water. These prices are subject to regulation in the form of systematic regulation pursuant to the Act No 526/1990 Coll., on prices and rules designated by the resolution of the Ministry of Finance (MoF) on prices regulation, i.e., appropriate determinations, pursuant to list of goods with regulated prices, which are published in the Price bulletin. In 2007 the River Boards, s.e. showed in total a rise in earnings for surface water abstractions, which means in absolute value increase by app. CZK 88 mill, which means a decelleration of rate of year-on-year increase in this category of earnings by 3 %. Most of the state water management companies show an increare in revenues of surface water abstraction in the range from CZK 25 to 27 mill. The exception was only the Odra River Board, s.e., which only reached the increase by CZK 10 mill. and Ohře River Board, s.e., which had in the last year comparable period the highest increase in revenues in this category and on the other hand, this year it was the only one to have stagnated on the level of the year 2006.

The favourable hydrological situation also continued in 2007 and it enabled the increase of revenues from electrical energy from own small hydroelectric power stations by more than CZK 76 million, and revenues in this area reached somewhat less than CZK 461 million.

Table 6.2.6
Own small hydroelectric power stations of River Boards, s.e. in the years 2002 – 2007

River Boards, s.e.	Indicator	2002	2003	2004	2005	2006	2007
Elbe River Board, s.e.	Number of SHEP	15	17	17	17	19	19
	Installed capacity in kW	2 677	4 876	4 876	4 876	5 217	5 217
	Electricity generation in MWh	9 974	7 792	15 284	19 135	18 619	19 270
	Incomes in thous. CZK	15 107	14 590	24 109	30 786	31 873	34 429
Vltava River Board, s.e.	Number of SHEP	14	15	16	16	17	17
	Installed capacity in kW	9 600	15 500	15 900	15 300	18 400	18 400
	Electricity generation in MWh	35 873	43 030	67 706	74 050	73 485	83 568
	Incomes in thous. CZK	49 992	62 363	103 649	115 982	126 279	151 919
Ohře River Board, s.e.	Number of SHEP	20	20	20	20	20	20
	Installed capacity in kW	16 750	16 750	16 677	16 677	16 677	16 677
	Electricity generation in MWh	106 363	75 560	87 465	96 967	96 188	107 876
	Incomes in thous. CZK	161 747	111 312	137 879	157 570	167 066	209 510
Odra River Board, s.e.	Number of SHEP	14	14	14	14	14	14
	Installed capacity in kW	4 750	4 985	4 985	5 103	5 103	5 103
	Electricity generation in MWH MWh	31 019	20 250	24 292	20 649	20 801	25 827
	Incomes in thous. CZK	41 604	27 798	36 484	35 049	35 033	50 120
Morava River Board, s.e.	Number of SHEP	14	14	14	14	13	16
	Installed capacity in kW	3 612	3 612	3 612	3 612	3 400	3530
	Electricity generation in MWh	14 476	12 412	13 803	14 415	14 483	8709
	Incomes in thous. CZK	21 603	18 324	21 221	23 125	24 394	14 982
Total River Boards, s.e.	**Number of SHEP**	**77**	**80**	**81**	**81**	**83**	**86**
	Installed capacity in kW	**37 389**	**45 723**	**46 050**	**45 568**	**48 797**	**48 927**
	Electricity generation in MWh	**197 705**	**159 044**	**208 550**	**225 216**	**223 576**	**245 250**
	Incomes in thous. CZK	**290 053**	**234 387**	**323 342**	**362 512**	**384 645**	**460 960**

Source: MoA, River Boards, s.e.

Table 6.2.7

Other incomes of River Boards, s.e. in the years 1999 – 2007 in thous. CZK

River Boards, s.e.	1999	2000	2001	2002	2003	2004	2005	2006	2007
Elbe River Board, s.e.	54 754	145 989	124 730	173 429	68 368	87 233	92 256	162 403	115 334
Vltava River Board, s.e.	49 222	55 481	79 505	191 391	136 859	85 855	77 430	304 594	73 143
Ohře River Board, s.e.	55 922	66 836	57 809	65 606	67 525	59 410	73 068	80 937	74 837
Odra River Board, s.e.	31 033	49 113	28 208	47 853	41 618	34 712	35 656	41 780	34 911
Morava River Board, s.e.	41 786	54 879	46 462	44 975	55 643	48 960	58 411	61 959	46 423
Total River Boards, s.e.	**232 717**	**372 298**	**336 714**	**523 254**	**370 013**	**316 170**	**336 821**	**651 673**	**344 648**

Source: River Boards, s.e.

The revenues for elecricity an increase in a year-on-year proportion of the total revenues and the rank second after the main source of yields – the payments for surface water abstractions. Similarly to the preceeding period, also in 2007 the number of small hydroelectric power stations (SHEPS) rose by three, all in the Morava River Board, s.e. The highest earnings for electricity are as traditionally in the Ohře River Board, s.e. which disposes the highest number of own small hydroelectric power stations, which it is currently operating. Revenues for electricity in the amount exceeding CZK 150 mill. are recorded also in the Vltava River Board, s.e. More detailed information about the total number of own SHEP in the individual River Boards, s.e., their installed capacity, electricity generation and incomes is given in Table 6.2.6.

Other incomes of other River Boards, s.e. are the sum of less important items and involve mainly land rentals, non-residental premises and water sites and other business activities,of which the earnings from machine mechanisms delivery and from road transport, from the laboratory operation and from project and engineering activity and the item of financial yields also partake on the total level, are the most imporatnt. This item is significantly influenced by a range of unplanned items, as insurance benefits, increased received interests and often also the amount of transfers of some defined revenues, which are related to preceeding periods, but were always realized in this year. With regard to the unplanned items and the fluctuation, which cannot always be predicted, the other incomes may show significant year-on-year fluctuations. The yield from the sold assets in the Vltava River Board, s.e. influenced the category of other incomes by the amount exceeding CZK 300 mill. As early as in the year 2006, which cannot be repeated in other years of common management and it is not possible to keep to such abnormally high yields in the planning of financial flows in following years. That is why at the beginning of evaluation the revenues and other yields were commented both after the clearance of grants influence and these extra unrepeated financial yields.

Financial sources for major activities of the River Boards, state enterprises are annually maintained by a number of grants both of operational and investment character. Without the state grants it would not have been possible to rectify the flood damage in the preeceeding years and the systhematic activity would not have been started, which make sit possible to realize flood-protection measures, to estimate the flood land and elaborate a number of conceptual studies.

Table 6.2.8 gives the total operational (non-investment) and investment grants of individual River Boards, s.e. allocated in 2007. Except for the grants from the budget of the Ministry of Agriculture also the financial resources of the State fund of transportation infrastructure, Ministry of the Environment through PHARE funds took part in the grants and in the flood protection measures also some regional authorities contributed.

Table 6.2.8

Grants allocated to River Boards, s.e. in 2007 in thous. CZK

River Boards, s.e.	Operational grants	Investment grants	Total grants
Elbe River Board, s.e.	171 531	55 745	**227 276**
Vltava River Board, s.e.	142 538	89 794	**232 332**
Ohře River Board, s.e.	24 258	25 272	**49 530**
Odra River Board, s.e.	11 302	51 225	**62 527**
Morava River Board, s.e.	105 101	342 064	**447 165**
Total River Boards, s.e.	**454 730**	**564 100**	**1 018 830**

Source: MoA, River Boards, s.e.

In 2007 the total volume of grants rose by 9.76 %, but in different rate of the impact of operational and investment grants. Almost a fivefold increase was reached by the grants of operational character, which were in 2007 allocated in the total amount of almost CZK 455 mill. Unlike this fact the investment grants recorded a fall by 22.5 %, which is in the absolute volume a fall by almost CZK 272 mill. A shift in favour of operational grants is mainly related to the programmes aimed at prevention, and rectification of flood damage from the previous years. The rise in operational grants affected the reintroduction of theallowance for operation and maintenance of waterwayst, which was not rendered in the Vltava River Board, s.e. and Elbe River Board, s.e. and subsequently by the Morava River Board, s.e. in the last four years. From the total amount of CZK 564 mill. investment grants constitute 8.34 % on building and reconstruction of waterways. This grant exceeding the amount of CZK 47 mill. is provided from the State fund of transporation and infrastructure (SFTI").

Since the previous years there has been an incerase in total costs by CZK 323 mill., namely as a result of incrase of external repairs by CZK 292 mill. Other items were slightly decreased or stagnated. The highest rise in costs appeared in the Elbe River Board, state enterprise, namely in the item of repairs by more than CZK 163 mill. unlike in 2006. The comapny tried to compensate this uncommonly high rise by decreasing other costs items (material, services) and in lower rate also in the field of energetics and fuels. The rise of total costs appeared showed also in other River Boards, state enterprises, which tried best to cope with rectifying of flood damage.

An overview of costs of the River Boards, s.e. in 2007 and their comparison to the preceeding year is given in Table 6.2.9.

Table 6.2.9

Costs of River Boards, s.e. in the years 2006 and 2007 in million CZK

Type of costs	Elbe River Board, s.e.	Vltava River Board, s.e.	Ohře River Board, s.e.	Odra River Board, s.e.	Morava River Board, s.e.	Total River Boards, s.e.
Depreciations						
2006	150.4	175.1	173.5	129.5	111.8	**740.3**
2007	150.4	181.6	174.2	125.5	120.5	**752.2**
Repairs						
2006	117.3	224.6	124.5	82.8	89.3	**638.5**
2007	280.8	314.2	137.0	95.0	103.5	**930.5**
Material						
2006	71.9	24.6	18.6	39.1	39.2	**193.4**
2007	45.4	24.5	22.1	37.0	43.5	**172.5**
Energy and fuels						
2006	37.3	27.6	26.0	4.8	11.7	**107.4**
2007	36.5	28.7	24.8	5.3	11.3	**106.6**
Personal costs						
2006	357.5	313.6	238.4	170.8	251.1	**1 331.4**
2007	378.6	335.4	253.5	181.6	267.0	**1 416.1**
Services						
2006	106.9	92.3	30.1	34.5	28.2	**292.0**
2007	68.8	81.8	30.2	46.6	36.4	**263.8**
Financial costs						
2006	1.0	4.7	0.3	1.5	0.3	**7.8**
2007	0.8	4.8	0.3	1.3	0.3	**7.5**
Other costs						
2006	37.7	83.1	25.9	-9.2	23.6	**161.1**
2007	63.5	19.9	31.3	22.5	8.7	**145.9**
Total costs						
2006	**880.0**	**945.6**	**637.3**	**453.8**	**555.2**	**3 471.9**
2007	**1024.8**	**990.9**	**673.4**	**514.8**	**591.2**	**3 795.1**

Source: River Baords, s.e.

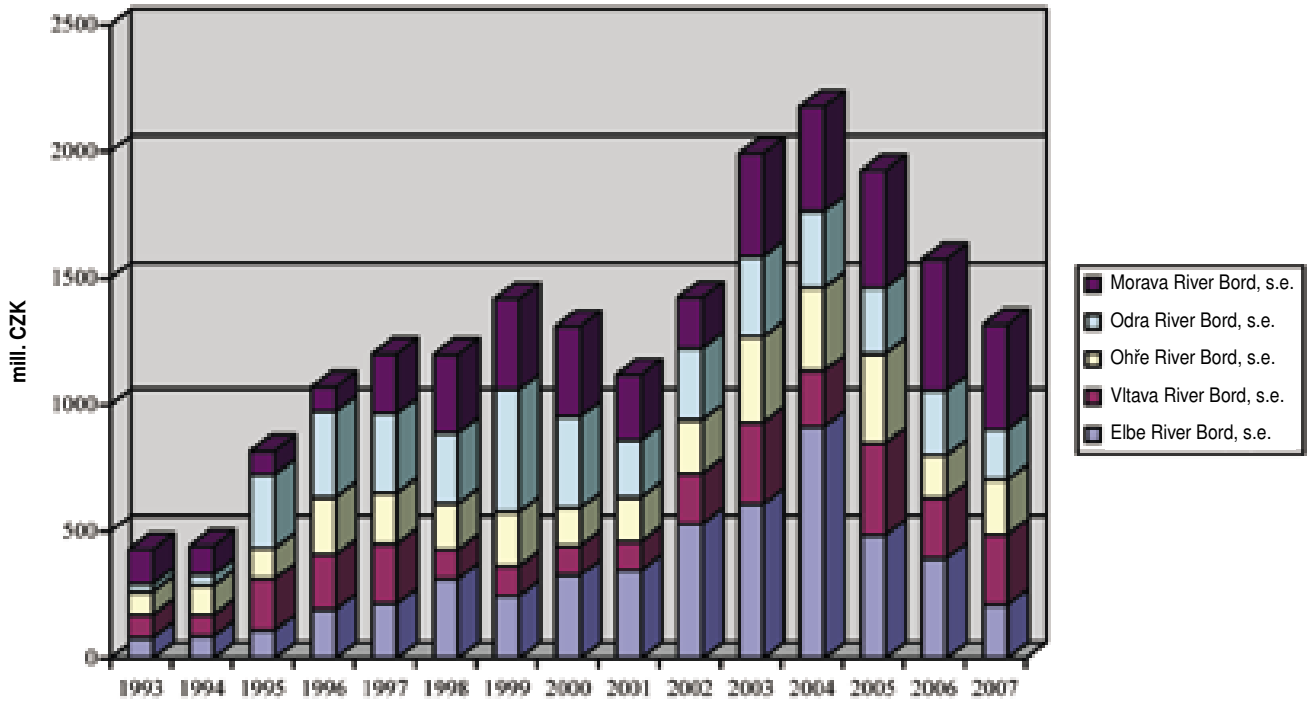
In the last year the River Boards, state enterprises invested CZK 1 316.1 mill. into the implementation of investments, of which CZK 734.9 mill. was drawn from own resources and further a total of more than CZK 581 mill. of investment resources unsecured by own resources were used.

Drawing of investment resources in a longer timeline is clearly shown in Table 6.2.10 and Graph 6.2.2. Since 2005 there has been a gradual decrease of expended resources on realisation of investment actions. It is evident from the previous comments that the decrease in operational sphere was exceeded, but the trend in invesmnent build-up is influenced by a much longer delay, because the preparation and realisation of the total renewal and reconstruction in the form of investment effort (in comaprison with renewal and reconstruction) is more demanding in terms of time and realisation.

The economic result of all River Boards, state enterprise was profit only. Within the profit financial resources in the amount over CZK 192 mill. were gathered. Unlike the preceeding period the total economic result is lower by more than CZK 100 mill., parly because of the selling of the construction part of a small hydroelectric power station in Mířejovice by the Vltava River Board, state enterprise, which influenced the result of management form the previous period. In reality except for the Odra River Board Company, state enterprise there was an improvement in results in comparison with 2006.

Graph 6.2.2

Development of investment construction of River Boards, s.e. in the years 1993 – 2007 in millions CZK



Source: MoA, River Boards, s.e.

Table 6.2.10

Investments of River Boards, s.e. in the years 1998 – 2007 in millions CZK

River Boards, s.e.	1998	1999	2000	2001	2002	2003	2004	2005	2006	2007
Elbe River Board, s.e.	313.4	248.4	328.5	347.1	529.1	607.6	915.2	485.2	394.9	212.0
Vlatava River Board, s.e.	115.7	116.3	115.2	114.1	199.3	321.6	219.0	362.4	236.6	275.2
Ohře River Board, s.e.	180.2	212.5	148.2	173.4	212.8	339.8	329.5	354.4	170.4	215.7
Odra River Board, s.e.	279.1	484.4	361.6	226.8	282.3	316.3	301.3	260.6	254.7	199.7
Morava River Board, s.e.	311.0	357.3	356.8	257.8	200.5	407.4	411.9	462.3	518.2	413.5
Total River Boards, s.e.	**1 199.4**	**1 418.9**	**1 310.3**	**1 119.2**	**1 424.0**	**1 992.7**	**2 176.9**	**1 924.9**	**1 574.8**	**1 316.1**

Source: MoA, River Boards, s.e.

Table 6.2.11

Results of River Boards, s.e. (profit, loss) of the years 2000 – 2007 in thous. CZK

River Boards, s.e.	2000	2001	2002	2003	2004	2005	2006	2007
Elbe River Board, s.e.	19 859	17 166	4 774	26 542	39 445	36 777	6 132	15 798
Vltava River Board, s.e.	37 838	48 735	- 45 525	45 752	42 008	34 376	177 869	67 625
Ohře River Board, s.e.	11 825	12 415	11 334	28 274	16 817	17 070	47 735	71 817
Odra River Board, s.e.	19 617	22 575	23 002	38 671	11 877	16 680	56 401	24 595
Morava River Board, s.e.	20 647	17 939	24 512	32 170	37 142	13 038	11 054	12 417
Total River Boards, s.e.	**109 786**	**118 830**	**18 097**	**171 409**	**147 289**	**117 941**	**299 191**	**192 252**

Source: River Boards, s.e.

The share of the individual River Boards, s.e. in the overall economic results and development of the profit over the last eight years is documented by Table 6.2.11. A more detailed alocation of attained profits to the individual funds and proposal for covering of loss in the concrete River Boards, s.e. is given in Table 6.2.12.

The average calculated number of workers in River Boards, state enterprises in 2007 rose by four workers to a total state of 3 568 workers.

A sharp increase was recorded in the Morava River Board, s.e., which shows the increase of 8 workers. An increase was also detected in the Elbe River Board, s.e., namely by 3 working places. Other River Boards, s.e. show decrease on the other hand. The situation in the development of labour in the context of significant watercourse administrators is displayed in Table 6.2.13.

The average monthly salary in River Boards, s.e. displayed a year-on-year increase by CZK 1 317 and it represented an average wage in the absolute value of CZK 23 954. Concrete average wages are given in Table 6.2.14, the year-on-year increase ranges from CZK 1 197 in the Vltava River Board, s.e. up to CZK 1 507 in the Ohře River Board, s.e. The Morava River Board, s.e. continues to record the lowest average wage in he amount of CZK 22 052.

Table 6.2.12

Allocation of profits for the year 2007 in thous. CZK

River Boards, s.e.	Profit	Alloration of profit or covering of loss					
		Reserve fund	Cultural and Social Need Fund	Investment fund	Social fund	Bonus fund	Accrued losses
Elbe River Board, s.e.	**15 798**	1 580	5 450	3 768	0	5 000	0
Vltava River Board, s.e.	**67 625**	0	5 000	56 125	0	6 500	0
Ohře River Board, s.e.	**71 817**	31 617	9 000	22 200	0	9 000	0
Odra River Board, s.e.	**24 595**	0	6 000	11 595	0	7 000	0
Morava River Board, s.e.	**12 417**	1 242	7 000	0	0	3 000	1 175

Source: River Boards, s.e.

Table 6.2.13

Number of workers of River Boards, s.e. in the years 2006 and 2007 (average calculated state)

River Boards, s.e.	2006	2007
Elbe River Board, s.e.	940.7	943.4
Vlatava River Board, s.e.	811.4	808.7
Ohře River Board, s.e.	606.1	605.2
Odra River Board, s.e.	462.7	459.8
Morava River Board, s.e.	743.3	750.8
Total River Boards, s.e.	**3 564.2**	**3 567.9**

Source: River Boards, s.e.

Table 6.2.14

Average salary in CZK achived in the individual River Boards, s.e. in the years 2000 – 2007

River Boards, s.e.	2000	2001	2002	2003	2004	2005	2006	2007
Elbe River Board, s.e.	15 641	16 565	17 941	18 750	20 125	21 781	23 036	24 318
Vlatava River Board, s.e.	15 819	16 526	18 444	19 073	20 556	21 909	23 414	24 611
Ohře River Board, s.e.	15 704	17 085	18 435	19 420	20 661	22 091	23 464	24 971
Odra River Board, s.e.	14 717	15 811	17 516	18 362	19 656	21 050	22 337	23 817
Morava River Board, s.e.	14 663	15 820	16 216	16 899	17 975	19 233	20 798	22 052
Average wages in River Boards, s.e.	**15 330**	**16 396**	**17 724**	**18 505**	**20 072**	**21 243**	**22 637**	**23 954**

Source: River Boards, s.e.
Note: Calculated by weighted average.

6.3 Agricultural Water Management Authority

The activity and management of the Agricultural Water Management Authority was in 2007 in compliance with the basic objectives arising from the Deed of Foundation aimed mainly at the ensuring of administration, operation and maintenance of watercourses and main drainage equipment, the acquisition and technical renewal of investment assets administrated by the Ministry of Agriculture, programme solving and financing, rectification of flood damage, realisation of flood control, landscape-shaping programmes of the Ministry of the Environment, creation of informational systems, surface water monitoring and ensuring the operation of the organisational element.

In 2007 the AWMA secured the execution of administration of small water courses with a total length of 35 835 km. Of which the rate of adjusted watercourses constitutes 14 394 km. In comparison with the year 2006 the number of reservoirs administrated by AWMA rose, the number of which

is now 505. The book value of these administered tangible fixed assets is almost CZK 8.9 billion.

On the basis of the results of assets inventory performed as of 31.12.2007 the AWMA administarted also the extensive assets enlisted in the category of main draining devices. These assets involve a total of 12 185 km of opened and piped water channels, 138 pumping stations, 13 reservoirs associated with drainage systems and 815 culverts. The book value of these assets is CZK 3.1 billion.

The administration of the entrusted assets in the total book value of more than CZK 12 billion was secured in 2007 by total of 381 employers with an everage wage of CZK 17 582.

In 2007 AWMA targetted its attention mainly to finalization stage I of the Flood prevention programme and preparation and initiation of implementation of of the events within stage II of the flood prevention. For stage II of the programme (2007 – 2012) AWMA plans a realization of events in the amount of CZK 1.2 billion. The aim of these measures is to adjust drainage conditions in the catchment areas so that flood wawes resulting from heavy or persistant rain are limited or ameliorated. The subject of the implemented measures will be mainly the construction, reconstruction and renewal of reservoirs and dikes and increase in the flow capacity of the watercourse riverbeds.

The activity of the AWMA in 2007 was significantly influenced also by floods in September 2006. The floods mainly occured in the area of the territorial scope of OP Morava and the Dyje and OP Odra. After the fall of the level of increased flows the employers monitored the situation within their territorial scope, they ensured the rectification of emergency conditions, they took part in the flood commissions activities and subsequently evaluated and recorded the incurred flood damage. The scope of the flood damage on the entrusted assets was evaluated at almost CZK 39 mill.

Within the the optimalization of water regime of landscape and with the use of financial instruments of the programme MoE 215 110 – „Programme of revitalization of river systems“ the AWMA also took part on the realization of many constructions and measures aimed at the renewal of natural character of small watercourses in 2007. AWMA also actively partaked on the preparation of newly originating national programme or operational environmental programme with the aim to ensure uninterrupted implementation of these important landscape-shaping measures.

Morava river, weir Kroměříž

A big amount of AWMA employers´ effort in the course of the year was aimed at resolving the actions of the programme 229 010 – „Development and renewal of the material technical base of the MoA“ (sub-programme 229 013). Through this programme building work in the amount of CZK 87 mill. was realized. In 2007 the widening of activities in the sense of settlement of land below water works in the administration of AWMA as amended by section 50 and 56 of Water Act. The settlement of land was resolved together with individual owners in the course of the year pursuant to the internal directive of AWMA.

In 2007 within the ensuring of administration and care for the entrusted assets a significant rise in the activities maintained by the MoA by the gross up of grant on ensuring regular functioning and operation of watercourses and waterworks onto the total financial amount

Table 6.3.1

Utilisation of individual non-investment financial resources of AWMA in 2007 in millions CZK

Activity	Source	Budget	Reality
Maintenance and repair of watercourses	SB	169.72	168.97
Operation of watercourses and associated waterworks	SB	24.50	24.39
Countryside care programme	SB	0.07	0.07
Flood prevention	SB	0	0
Maintenance of MDF	SB	60.50	60.38
Operation of MDF	SB	11.29	10.81
Other non-investment expenses	SB	20.51	20.50
Total		**286.59**	**285.12**

Source: AWMA
Note: Non-investment expenses are given in individual tables.

Table 6.3.2

Covering of expenses of AWMA for maintenance and repair of watercourses and waterworks in millions CZK in the years 2003 – 2007

Source for covering expenses	2003	2004	2005	2006	2007
Budget of the MoA – watercourses and reservoirs	122.4	102.4	90.1	81.5	169.7
Budget of the MoA – MDF	0	0	17.5	19.4	60.5
Countryside Care Programme	0.3	0.2	0.2	0.1	0.1
Flood prevention measures	26.1	24.2	0	0	0
Total state budget	**148.8**	**126.8**	**107.8**	**101.0**	**230.3**
State Land Reclamation Fund	0	1.5	1.5	0	0
Total	**148.8**	**128.3**	**109.3**	**101.0**	**230.3**
Ellimination of flood damage from resources of Land Fund of the Czech Republic	0	0	0	0	0
Maintenance and repair of main land reclamation equipment from resources of Land Fund of the Czech Republic	59.9	54.8	0	0	0
Total expenses	**208.7**	**183.1**	**109.3**	**101.0**	**230.3**

Source: AWMA

Table 6.3.3

Non-investment expenses for watercourses, maintenance and repairs of main drainage facilities administered by AWMA in 2007 according to regions in millions CZK

Catchment area	Maintenance and repair of watercourses	Operation	Rectifiation of flood damage	MDF maintenance	MDF operation	Total
Vltava	55.3	0.8	13.0	24.3	0.6	**94.0**
Elbe	36.0	3.5	2.8	14.0	2.8	**59.1**
Ohře	12.5	1.3	1.6	3.4	0.1	**18.9**
Morava	51.6	13.8	24.1	12.8	6.9	**109.2**
Odra	13.6	4.9	10.7	5.9	0.4	**35.5**
Total	**169.0**	**24.3**	**52.2**	**60.4**	**10.8**	**316.7**

Source: AWMA

Table 6.3.4

Compositiopn of revenues of AWMA in millions CZK in the years 2003 – 2007

Revenues	2003	2004	2005	2006	2007
Payments for abstraction of water	2.6	2.7	3.9	4.2	2.9
Rents of water management constructions	5.3	5.0	5.2	5.4	3.4
Other revenues	1.0	1.4	5.1	2.7	4.7

Source: AWMA

Table 6.3.5

Rectification of flood damage from the years 2000, 2002, 2006 and 2007 on watercourses administerd by AWMA in 2007 in millions CZK

Source – programme	Investment costs	Non-investment costs	Total
Programme 229 112	-	-	-
Programme 229 113	-	-	-
Programme 229 114	3.57	52.23	55.80
Total	**3.57**	**52.23**	**55.80**

Source: AWMA

Table 6.3.6

Structure of investments and financial sources of AWMA in millions CZK in the years 2004 – 2007

Structure of investments	Financial sources	2004	2005	2006	2007
Adjustment of watercourses	State budget – MoA	36.7	41.5	80.5	93.6
	Special-purpose fund (replacement recultivation)	0.04	0	0	0
	State fund for cultivation of land	0	0	0	0
Studies of outflow conditions	State budget	3.3	0	0	0
Revitalisation of watercourses	State budget	24.8	22.3	26.1	14.4
Flood prevention measures	State budget	81.3	58.6	55.9	20.5
	European Investment Bank	53.0	129.0	12.1	0
Rectification of flood damage from the year 1997	State budget	0.08	0	0	0
	European Investment Bank	0	0	0	0
Rectification of flood damage from the year 1998	State budget	0	0	0	0
Rectification of flood damage from the year 2000	State budget	17.2	0.5	0	0
Rectification of flood damage from the year 2002	State budget	7.5	21.3	1.1	0
	European Investment Bank	41.7	113.1	0	0
Rectification of flood damage from the year 2006	State budget	-	-	1.6	3.6
Rectification of flood damage from the year 2007	State budget	-	-	-	-
Total		**265.6**	**386.3**	**177.3**	**132.1**

Source: AWMA

of CZK 169 million. These financial resources were used mainly on weed cutting, cleaning, repairs to objects ensuring flood protection, liquidation of non-native invasive species of plants (giant hoqweed, Japanese knotweed) and the maintenance of bank vegetation. A part of the financial resources (CZK 5.75 mill.) was used in compliance with the Supplement No11 to the Act No. 622/2006 Coll., on state budget of the Czech Republic for 2007, for solving primary intervention from the reason of arisen emergency situations.

Non-investment expenses were in 2007 drawn for rectification of flood damage of 2006, for the operation of watercourses and waterworks, Programme of landscape care, solving section 50 and 56 of Water Act ond on operation and maintenance of main draining devices. As a part of the maintenance of MDF CZK 60.4 mill. was drawn in the last year, mainly on cutting and cleaning of channels for ensuring the outflow of water from drainage systems. Part of the resources (CZK 0.5 mill.) was used on rectification of emergency situations.

A summarized overview of the true utilisation of these financial resources and on the measures of non-investment character in 2007 is shown by Table 6.3.1.

An overview of the financial resources used in the recent years out of the individual financial resources for maintenance and repairs of watercourses and wetworks is given by Table 6.3.2.

The allocation of non-investment expenses to maintenance and operation of watercourses and main drainage facilities in the administration of the AWMA in 2007 according to the individual areas is given in Table 6.3.3.

The incomes of the AWMA have the character of incomes from own activities, and other incomes consist of additional, incidental and other incomes. The attained incomes in 2007 came to a total of CZK 11 mill. (the original plan of incomes was exceeded by CZK 2.8 mill.) of this payments for abstractions of surface water were CZK 2.9 mill. The price of surface water for the year 2007 was desiganted in the amount of 1.24 CZK/m^3. This is the price not including value added tax, because as an organisational unit of the state the AWMA does not bill this tax.

The price composition of revenues of the AWMA is given in Table 6.3.4.

Among the priority activities of the organisation in 2007 ranked the rectification of flood damage of 2006. On the basis of terrain examination the range of damage was estimated at CZK 200 mill. Resources for rectification of flood damage of 2006 were drawn by the AWMA within the programme 229 114 in the amount of CZK 55.8 mill.

An overview of the recources drawn for the rectification of flood damage din the course of 2007 is shown by Table 6.3.5.

In 2007 the AWMA implemented an investment construction at a total level of app. CZK 132.1 mill., including the implementation of flood-prevention measures in the amount of CZK 20.5 mill., rectification of flood damage of 2006 in the amount of 3.6 mill. and events provided by PRRS in the amount of CZK 14.4 mill. The structure of the resources is given in Table 6.3.6.

The AWMA ensures the operation of the monitoring system of ascertaining and evaluating of the surface water quality in the whole CR totether with other organisations. In 2007 it monitored a total of 972 profiles on small watercourses and small water reservoirs. In the samples it monitores the basic physical and chemical indicators enabling in-time identification of minor communal and agricultural sources of pollution, but also heterogenous substances indicating the likehood of contamination by heavy metals and some specific organic substances. On chosen profiles also hydrobiological monitoring is carried out. The AWMA within activity actively cooperates with other watercourse administrators, state institutions, research institutes and scientific organisations.

Olše river, Karviná - Darkov

Within the implementation of the Framework directive the AWMA annually secures the network of operational monitoring together with the River Boards, s.e. Also as a proved professional subject it significantly partakes on executing the requirements arising from the Council directive 91/676/EHS (Nitrate directive).

From the point of informational technologies the organisation took part on the preparation and elaboration of background papers for the Water management informanional gateway in the area of evidence of buildings to water-management meliorations of land, preparation of background papers for CEVT 10, it continuously provided the update of information within the evidence of surface water quality in the monitored profiles and CER. As amended by Act No 183/2006 Coll. and Regularion No. 500/2006 Coll. The AWMA elaborated territorial analytical background papers and in the date pursuant to the order it provided the offices of the territorial planning. The creation of private computer network was finished. The whole organisational structure is therefore interconnected and the operation of intranet project networks was commenced.

Dyje river, WW Nové Mlýny

6.4 Forests of the Czech Republic, state enterprise

The main task of the Forests of the Czech Republic, state enterprise is the mamagement in forests, which are state-owned and also one of its most imporatnt activities is the administration of designated small watercourses. Forests of the Czech Republic, state enterprise administrated mainly the small watercourses and mountain streams, which are found in the spring areas of mountains and foothills with a high proportion of forest coverage.

Within the care for the entire catchment areas of mountain steams, Forests of the CR, s.e. administrates the small watercourses outside the territory intended for the performance of the function of a forest, despite the fact, that they flow through agricultural land and intravilan of municipalities. Currently the Forests of the CR, s.e. administrates a total of 19.6 thous. km of watercourses.

The excercise of administration of watercourses contains activities designated by the Water Act and implemeng regulations. In the case of the performance of the duty of regulating mountain streams and ravines (in connection to the forest management in the Czech lands it has been carried out since 1884) this is a public, non-commercial service with the aim of stabilising the outfolw conditions in the catchment areas.

Care for watercourses in the context of Forests of the CR, s.e. contains administration of fixed assets associated with watercourses in a book

value of over CZK 2.6 billion (mainly adjustments of watercourses, flood-prevention measures, reservoirs). The administration of watercourses is methodologically managed by the department of water management at the headquarters of the company and ensured by a total of 87 employees at the 7 administrations of watercourses (AW) according to the catchment areas.

Measures on watercourses in the administration of the Forests of the CR, s.e. were financed from own resources and partly grant resources. The grants principially involved measures carried out in the state interest through section 35 of Forestry Act, credit of the European Investment Bank and finance from the state budget for programmes of the MoA: Flood prevention and programme for the rectification of flood damage to the state water management assets. Also from the funds of the EU, the Operational Agriculture Programme is used. Regions aslo partly contribute even to the measurements on small watercourses. Activities carried out in connection with the administration of watercourses are of non-commercial nature, and in relation to the overall expended financial resources they bring practially no profit.

In 2007, activities focussing primarily on the following were performed in the water management section of Forests of the CR, s.e.:

- excercising the administration of designated small watercourses as directed by Water Act and associated regulations,
- implementation of investment and non-investment events focussing on flood prevention and protection, anti-erosion measures and events of the public interest pursuant to section 35 of Forestry Act,
- finalizing rectification of flood damage (RFD) of 2006 and RFD of 2007 mainly in Moravia,
- ensuring project and engineering preparation of events prepared for implementation in the following years,
- other activities aimed at care for banks and bank vegetation, revitalisation of previously badly adjusted watercourses, and out-of-production forest functions, support of endangered species of organisms, liquidation of invasive plant species etc.

Opava river, Petrův pond

In connection with the watercourse administration the Forests of the CR, s.e. invested through its organisational units – Watercourse Administration, a total of CZK 486.8 mill., of which the expenses of non-investment character were CZK 233.2 mill. Of this amount of investments CZK 122.1 mill. are the own resources. Events were aimed at preventive flood-protection measures (FPM) and on the construction and reconstruction of objects of control of mountain streams in the areas affected by floods. The measures are implemented mainly in the aim of creating retention areas for interception of wash-loads, stabilisation of gradient of watercourses by transverse objects and ensuring flood protection by capaciting watercourse riverbeds in intravilans of municipalities. On the reconstruction and mainenance of basic means of mountain streams control a total of CZK 253.6 mill. was used, of this CZK 212.0 mill. of own resources. In the given amounts all costs connected with the watercourse administartion are included.

A significant activity of the Forests of the CR, s.e. in the area of water management was the rectification of flood damage (FD) after three waves of floods in 2006 and of the flood of 2007 in the turn of August and September mainly in Moravia. It involved mainly capaciting of riverbeds, rectification of wash-loads and reconstruction of cantilever walls, pavings, transverse object and dikes. On RFD a total of CZK 86.1 mill. was used, of this CZK 49.5 mill. from own resources.

Morávka river, Vyšší Lhoty

Measures in the catchment areas

Watercourse administration (WA) – the Elbe catchment area continued to rectify the flood damage of 2006 (the events of non-investment character were finalized and other investment events started). Among the important events we can include the renewal of retention area Hylváty on the Knapovecký stream near Ústí nad Orlicí, rectification of flood damage Veselka (Rovensko pod Troskami) in the Semily district, tributary of the Hradecký stream in Nové Hrady, Ústí nad Orlicí district and the Lubenský stream in the Svitavy district.

From the EU Operational programme Agricuture grants the event of control of the mountain stream Potok od Vlčích jam in Kryštofovo valley in the Liberec area was terminated and the investment – engineering preparation of events in the Operational programme Environment started (proposed revitalisations of in the past badly adjusted watercourses, renewal of retention areas etc.).

Within the grant programme Flood protection these events started: the Městecký stream in Vojnův Městec in the district Žďár nad Sázavou, next stage of the adjustment of the Těchonínský stream in the area of Ústí nad Orlicí and the Nekořský stream and adjustment of the Žďárský stream in the area of Trutnov.

Among the bigger events realized in compliance with section 35 of Forestry Act, i.e., in public interest, we can mention the Dolský stream in the area of Žamberk and the Černostudniční stream in the Jablonec nad Nisou district.

On this WA as traditionally the reintroduction of crayfich in the foothills of the Orlice Mountains and newly also in the Žďár Hills and reintroduction of brook minnow and hucks in the in the Protected landscape Area of the Jizera Mountains.

Among the most significant activities of the WA – *the Vlatava catchment area* in 2007 it is possible to include the implementation of the construction Adjustment of the Olešenský stream in Ledeč nad Sázavou. Partly reimbursed from the grant resources were eg. events of RFD on the Okrouhlický stream in the district Benešov and flood-protection measures on the Baba near Čáslavi.

The investment event Rectification of erosion craks on the Kabelský stream in the Novohradské Mountains was started. It was proposed in compliance with the requirements of the state protection of nature for survival of the pearl-oyster.

In WA – *in the Berounka catchment area* from the most significant events we can mention termination of the rectification of flood damage on the Kudibal stream in the Rokycany area, finishing the construction of retention dike on the V Pánvích stream in the Beroun district and adjustment of the current riverbed drops in the Klučná in the Rakovník area.

Also the reconstruction of the retention reservoir Nad mlýnem in the Domažlice area was terminated. It was financed as amended in section 35 of Forestry Act and from own resources of the Forests of the CR and recontruction of two more small reservoirs in the Domažlice area, namely „Na Zámečku“ and „U Růžovské školky“ was carried out.

Also the extensive riverbed reparation of the Stroupinský stream in the municipality Žebrák in the Beroun district was started.

WA – Ohře catchment area in 2007 out of the significant constructions it finished eg. investment events financed in compliance with section 35 of Forestry Act: stabilisation of Falcká ravine on km 1,400 – 1,820 (2 dikes and reparation of the ravine floor) in the Žatec area, the Načetínský stream (Zelený vrch) in the Krušné Mountains and the Lesní stream near Šluknov. Also the next stage of the mountain stream control and stabilization of ravines were started, including improvement of historical control activities on the Struhařský stream in the area of Podbořany and from the grants Flood prevention the control of the mountain stream of the Křižanovský stream stage I in the district of Teplice was carried out.

More significant non-investment events are the adjustments of mountain streams - the Moravanka by Ústí nad Labem, controlled from the Operational Programme Agriculture, the Dobranovský stream (Radvanec in the Česká Lípa area) and the Zalužanský stream in the Teplice area.

Among the most imporatnt activities of WA – *Odra catchment area in 2007* it is possible to mention starting events cofinanced from the grant programme Flood prevention. 6 construc-

Dědina river, Skalka

Table 6.4.1

Structure of financing of Forests of the CR, s.e. – administrations of watercourses in 2007 in millions CZK

Forests of the CR, s.e.	Total own resources	Total grants	Of this flood damage	
			Own resources	Grants
Investments	122.1	111.1	18.1	24.8
Non-investments	212.0	41.6	31.4	11.8
Total	**334.1**	**152.7**	**49.5**	**36.6**

Source: Forests of the CR, s.e.

Table 6.4.2

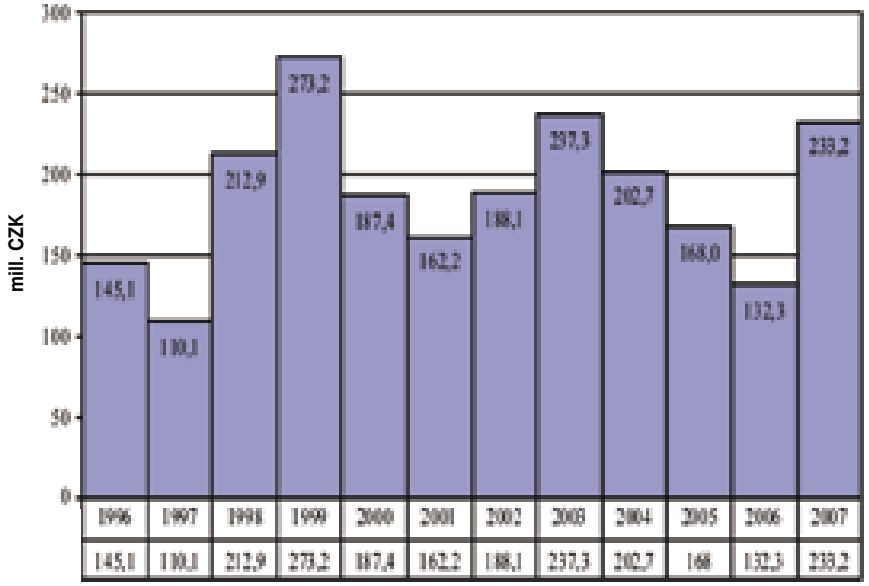
Income of Forests of the CR, s.e. for surface water in the years 2001 – 2007 in thous. CZK

Year	2001	2002	2003	2004	2005	2006	2007
Incomes	8 639	9 790	9 390	10 530	9 483	9 581	10 010
Price per m³ *)	1.17	1.23	1.24	1.33	1.35	1.39	1.42

Source: Forests of the CR, s.e.
Note: *) Unit price for m³ is placed without value added tax.

Graph 6.4.1

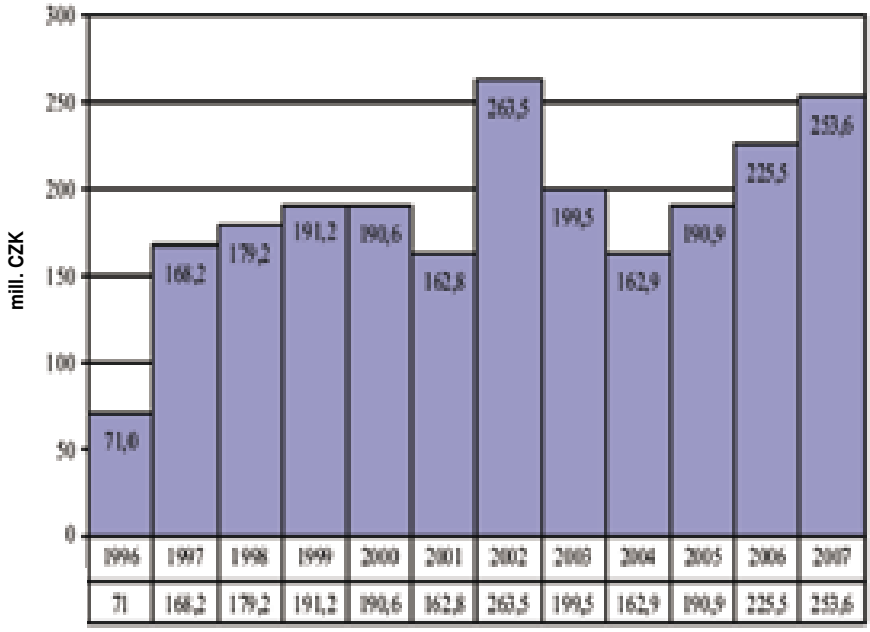
Investent expenses of Forests of the CR, s.e. in the years 1996 – 2007 in millions CZK - watercourses



Source: Forests of the CR, s.e.

Graph 6.4.2

Investment expenses of Forests of the CR, s.e. in the years 1996 – 2007 in millions CZK – reparation and maintenance of watercourses (total costs)



Source: Forests of the CR, s.e.

tions in the Moravia-Silesia region were started. One of the most significant is the flood protection on the Middle Opava on km 0.950 – 1.747, which resolves the protection of Vrbno pod Pradědem against flooding water and water during floods. The constructions on the Opavice were terminated, which among others contributed to the migration transibility of other part of this course in the foothills of Hrubý Jeseník for water organisms.

From the resources of the Moravia-Silesia region (almost CZK 11.4 mill.) seven constructions were financed.

Activity of WA – *the Morava catchment area was mostly filled with rectification of flood damage from spring of* 2006. The constructions were finished, eg. rectificatio of flood damage on the Jestřábí stream, the Divoký and Bušínovský stream in the Šumperk area, the Javoříčko and the Nepřívazský stream in the area of Olomouc, rectification of flood damage on the Solanecký stream in the district of Vsetín, RFD on the Lutoninka in the area of Zlín and FD on the Rusava in the district of Kroměříž. Other events are in progress and they will be finished in 2008.

Even here, within the grant programme Flood prevention, events were carried out on the Hodorfský stream and the reconstruction of the Provazný stream in the Vsetín area, first stage of the tributary of the Pozlovický stream in Podhradí in the Zlín area and also the flood-prevention measures on the Hrabovský stream in Hrabová u Dubicka and the Oskava in the area of Šumperk and on the Kněhyně course in the district of Vsetín were commenced. It the forests measurements in public interest are carried out, financed as amended by section 35 of Forestry Act, eg. events on the Kopná stream between Zlín and Vsetín, retention objects on the Kameňák stream in the Zlín area, system of transverse objects on the tributary of the Klenkovský stream in the Luhačovice area and also partly the event on the Zděchovka in the Vsetín area.

Grant from the EU from the Operational Programme Agriculture were used in the implementation of the Radkovský stream control repairs in Karolinka in the Vsetín district. From the significant events fully reimbursed by Forests of the CR, s.e.

in 2007 eg. control of the Štávnice tributary in Luhačovice, retentail object Podbrdí in Podkopná Lhota, lapač splavenin on the Mraznice and mountain stream Medůvka by Hranice na Moravě control or the Neratovský stream in the Vsetín are were implemented.

In WA – *the Dyje catchment area the flood damage of* 2006 was definitively rectified – three investment events (FD on the Lomnička in the Lomnička u Tišnova municipality, the Lesoňovický stream by Bystřice nad Perštejnem, the Černý stream in the Polička area) and 4 non-investment events (FD on the Korouhevský stream in Korouhev municipality, the Kohoutovický stream in Ždírec nad Doubravou, the Janovický stream by Nové Město na Moravě and the Vrtěžířský stream by Bystřice nad Perštejnem).

The second stage of the grant programme Flood prevention with events on the Leštínský stream – polder, the Novosvětský stream in Blansko district, the Oslavička in Třebíč district and the Křeslický stream in Podhradí nad Dyjí. The most significant construction is the polder on the Leštínský stream above Číchov municipality in Třebíč district with the amount of work of app. CZK 11 mill.

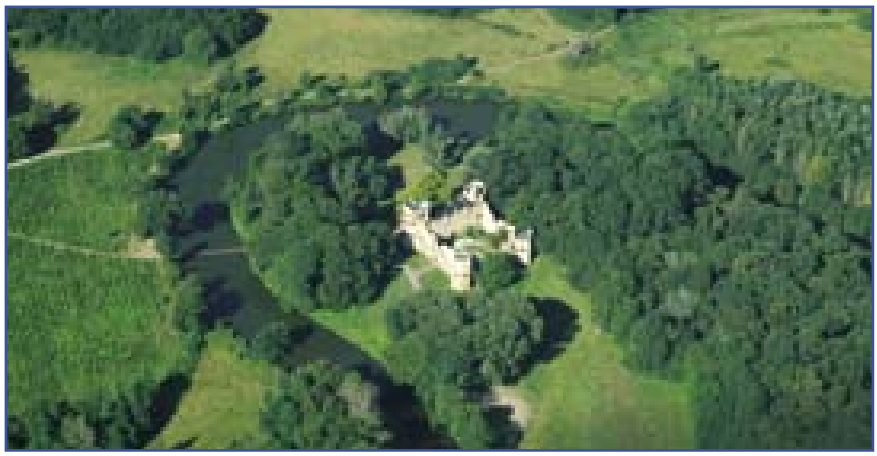
The graphs 6.4.1 and 6.4.2 in the longer timeline survey the total annual investment expenses and resources spent on repairs and maintenance.

Development of the Forests of the CR, s.e. revenues for surface water abstractions and unit prices is given in Table 6.4.2.

6.5 Waterways

Competence in the field of care for the development and modernisation of waterways of importance for transport continued to be excercised, as in previous years, by the Ministry of Transport, in particular in care for the development of the most imporatnt system of waterways in the Czech Republic – the Elbe-Vltava waterway.

According to the „European Agreement on the Main Inland Waterways of Significance“ (AGN) the main European water waterway E 20 of the Elbe and its branch E 20-06 of the Vltava a waterway of international significance, and it remains the only navigable water connection of the Czech Republic to the western Eurpean network of waterways. From the waterworks of Ústí nad Labem – Střekov to Chvaletice on the Elbe and to Třebenice on the Vltava upstream navigability is ensured by a system of waterworks, from Střekov to the state border of the Czech Republic with Germany in the regulated section navigation operation it depends on the state of water according to the flow of the time. Until November 2007 on the Elbe in the section Mělník – Chvaletice, as a result of the spring flood of 2006, there was a worsening of navigation graught because of flood deposits in the navigating tract, the amount of which needed to be rectified programatively during a long period.



Dyje river, Lednice

In 2007 from the resources the State Fund of Transport infrastructure (SFTI) within the financing and aheadfinancing of resources from the Structural Funds of the EU, works connected with reconstruction, modernisation and construction of waterways in the total amount of almost CZK 390 mill. were carried out.

For the programme development of waterways from the budget of State Fund of Transport Infrastructure in the area of care of the Ministry of Transport (MoT) concerning the waterways development, works in the amount of CZK 389.7 mill. were carried out. The proportion of resources in the amount of CZK 100.3 mill. on the aheadfinancing of financial resources from the Structural Funds of the EU within the Operational Programme Infrastructure was comparable to the last year.

In coparison to the preceeding year these expenses from public resources represent a fall by 34.3 %. On such a significant fall in implemented resources mainly the suspension of the construction for lengthening the Elbe upstream navigability to Pardubice, concretely the preparition and works in advance of the construction „Lock Přelouč II“ took part.

Since 2005 the standpoints of the department of transport and the environment on the renewal process EIA having been getting closer on a compromise solution for construction improving the navigation conditions on the lower Elbe by one weir in the area of the city of Děčín. This sulution also includes the building of a hydroelectric power station with the aim of increasing the share of renewable enrgy sources. This process has not been finished yet.

From the mentioned CZK 389.7 mill. from the budget of SFTI the Elbe River Board, s.e. implemented CZK 35.9 mill. and the Vltava River Board, s.e. CZK 11.2 mill. The other resources were implemented by the state investor of the MoT – Directory of waterways in the amount of 342.6 mill. Except for this investment grant the Elbe, Vltava and Morava River Board, s.e. got an operational grant for repairs and maintenance of waterways in the amount of CZK 37.9 mill.

In the course of the last year securing preparotory and building work for modernisation of current waterways and for the future development of waterways on the Vltava to České Budějovice, with assumed more important use of financial resources from the EU for the department of water transport, including the support of development of recreational and sport sailing within the Operational Programme Transport were secured.

Anna Herynková, 9 years, Filozofská basic school, Prague 4 „Water under us“ (Prague)

Water supply and sewerage systems

7.

7.1 Drinking water supply

V 2007, 9.525 mill. inhabitants i.e., 92.3 % of the entire popupation of the Czech Republic were supplied from water supply systems.

In all water supply systems 682.8 mill. m^3 of drinking water was produced. 531.7 mill. m^3 of drinking water was delivered for a charge (invoiced), of which 342.4 mill. m^3 of drinking water was for wouseholds. Drinking water looses reached 126.0 mill. m^3, i.e., 18.6 % of the water intended for consumption.

Data supplied by the CSO was acquired on the basis of a set of 1 467 reporting units (i.e., 255 operators of water supply systems and sewerage system and a chosen set of 1212 municipalities which operate the water management infrastucture themselves). Values of indicators are published after the adjustment to professional completed calculations of ČSÚ. Primary data ascertained in the statements VH 8b-01 has not been published by CSO since 2004.

Štítary, water preparing plant

Trends and development of indicators in the field of drinking water supply are displayed in Table 7.1.1 and Graph 7.1.1.

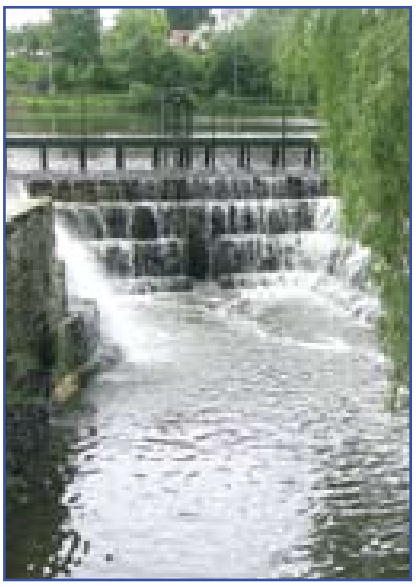
Drop in the proportion of inhabitants supplied with drinking water is caused by significantly sharper increase in the number of inhabitants than in the number of supplied inhabitants. From the economic point of view the decrease in year-on-year manufactured water by 2.3 % with the currnent rise of the invoiced water is very positive. Specific amount of water invoiced to households rose by one liter per person a day and it is 98.5 liters, while the specific amount of invoiced water remained on the level of the last year. This shows evidence of onward decrease of water consumption in industry. The fall of year-on-year water losses per one supplied person by 6 liters per person a day is more than 2 m^3 per one inhabitant a year.

Table 7.1.1

Supply of water from water supply systems in the years 1989 and 2001 – 2007

Indicator	Unit of measurement	1989	2001	2002	2003	2004	2005	2006	2007
Inhabitants (median state)	thous. inhab.	10 364	10 287	10 201	10 201	10 207	10 234	10 267	10 323
Inhabitants trully supplied with water from water supply systems	thous. inhab.	8 537	8 981	9 156	9 179	9 346	9 376	9 483	9 525
	%	82.4	87.3	89.8	89.8	91.6	91.6	92.4	92.3
Water produced from water supply systems	million m^3/year	1 251	754	753	751	720	699	699	683
	% as of 1989	100.0	60.3	60.2	60.0	57.6	55.9	55.9	54.6
Total invoiced water	million m^3/year	929.4	535.6	545.3	547.2	543.5	531.6	528.1	531.7
	% as of 1989	100.0	57.6	58.7	58.9	58.5	57.2	56.8	57.2
Specific need from produced water	l/person/day	401	231	225	224	211	204	202	196
	% as of 1989	100.0	57.5	56.1	54.7	52.6	50.9	50.4	48.9
Spec amount of water invoiced in total	l/person/day	298	164	163	163	159	155	153	153
	% as of 1989	100.0	54.9	54.7	54.7	53.4	52.0	51.3	51.3
Specific amount of water invoiced for households	l/person/day	171.0	104.0	103.0	103.0	102.0	98.9	97.5	98.5
	% as of 1989	100.0	60.7	60.2	60.2	59.6	57.8	57.0	57.6
Loss of water per 1 km of piping	l/km/day	16 842 *)	9 141 *)	8 358 *)	7 783 *)	6 113	5 770	5 673	4 893
Loss of water per 1 supplied inhabitant	l/person/day	90 *)	57 *)	53 *)	52 *)	45	43	42	36

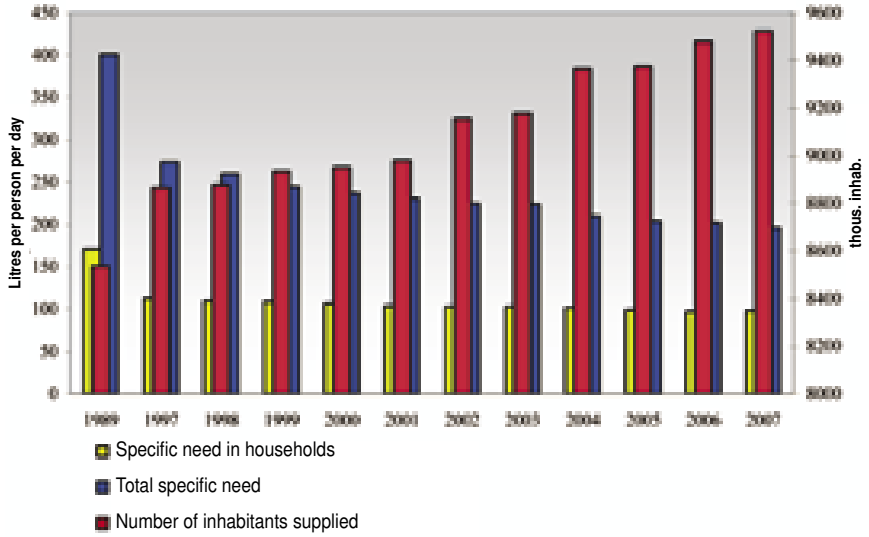
Source: CSO
Note: *) Data for water supply systems of main operators.



Onomyšlský stream, pond Žišov

Graph 7.1.1

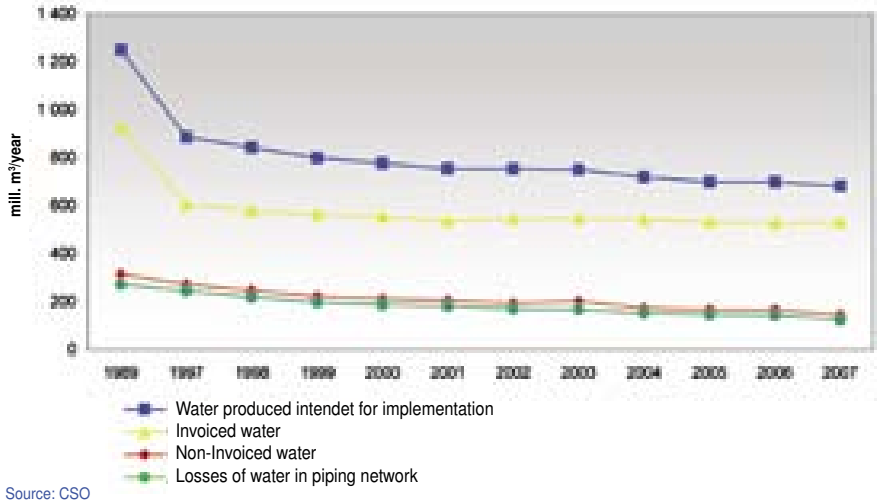
Development in the number of supplied inhabitants and specific need of invoiced water in the years 1989 and 1997 – 2007



Source: CSO

Graph 7.1.2

Development of values for volume of water produced from water supply systems and total invoiced water in the years 1989 and 1997 – 2007



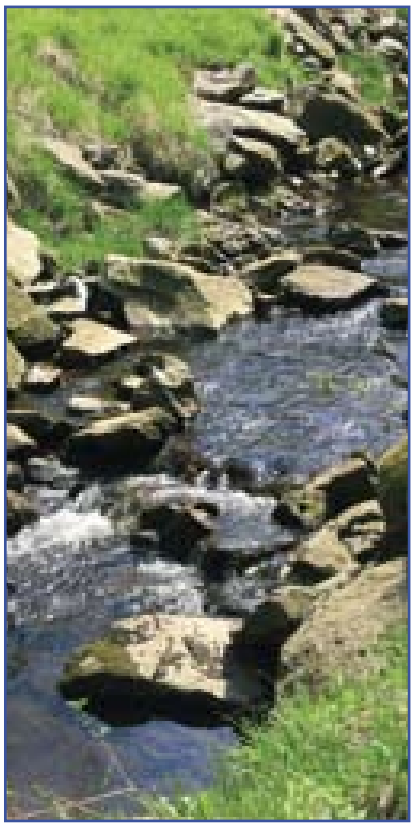
Source: CSO

Table 7.1.2

Supply of inhabitants, production and delivery of water from water supply systems in 2007

Region, territory	Inhabitants		Water produced from water supply systems	Water invoiced	
	Trully supplied water from water supply	Proportion of inhabitants supplied with water out of total number		Total	Of this for households
	(number)	(%)	(thous. m³)	(thous. m³)	(thous. m³)
Capital Praque	1 192 800	99.7	128 051	87 429	56 031
Central Bohemia Region	978 859	82.5	49 966	49 445	33 037
South Bohemia Region	574 775	91.0	37 696	29 399	19 311
Plzeň region	457 333	82.1	33 926	27 787	16 438
Karlovy Vary region	300 609	98.4	22 865	17 119	10 711
Ústí nad Labem region	789 386	95.6	62 719	45 246	28 036
Liberec region	382 370	88.5	31 667	22 520	13 724
Hradec Králové region	501 842	91.2	34 044	26 192	16 702
Pardubice region	487 470	95.8	32 272	25 872	16 121
Vysočina region	476 626	93.0	25 996	23 319	14 721
South Moravia region	1 074 581	94.6	68 456	57 211	38 134
Olomouc region	562 775	87.9	32 033	26 944	18 038
Zlín region	529 561	89.8	32 893	25 852	16 209
Moravia-Silesia region	1 216 091	97.3	90 220	67 362	45 204
Czech Republic	**9 525 078**	**91.96**	**682 804**	**531 697**	**342 417**

Source: CSO



The gratest proportion of inhabitants supplied with drinking water from water supply systems in 2007 was in the capital Prague (99.7 %) and in the Karlovy Vary region (98.4 %), the lowest proportion of inhabitants supplied with drinking water was in the Plzeň region (82.1%) and in the Central Bohemia region (82.5 %).

The length of the water supply network in 2007 was extended by a total of 1 104 km and reached a length of 70 539 km.

The year-on-year increase of length per one supplied inhabitant is 21.3 % unlike in 2006, which represents an increare by 1.3 m per 1 supplied inhabitant. In 2007 on 1 supplied inhabitant there is 7.4 m of waterpipes. New construction and annex of existing water systems related to the lower increase of supplied inhabitants leads to decreasing effectivity of the whole system of water supply.

The number of water supply connections increased by 28 633 and reached the number of 1 842 120.

The number of installed water metres increased by 45 071 and reached the number of 1 856 847.

7.2 Removal and treatment of communal waste water

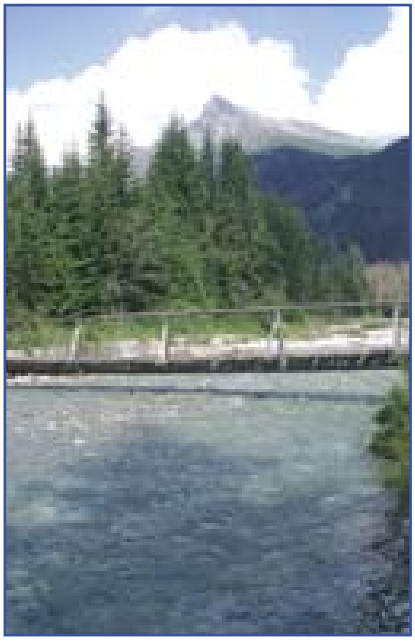
In 2007 8.344 mill. inhabitants of the Czech Republic lived in households connected to the sewerage systems. A total of 519.3 mill. m³ of waste water was discherged into sewerage systems. Of this amount 95.8 % of waste water (not including rain water) was treated, which represents 497.6 mill. m³.

The trends of development in sewerage and treatment of waste water from sewerage systems are documented over the longer timescale by Table 7.2.1 and Graph 7.2.1.

The amount of discharged waste water into sewerage system not including rainwater fell by 40.8 % unlike in 1989, while in 1989 the proportion of treated waste water was 71.5 %. Compared with 1989 there was an increase of proportion of treated waste water from water discharged into sewerage systems by 24.3 %. In total 95.8 % of waste water discharged into sewerage systems not including rainwater was treated in 2007.

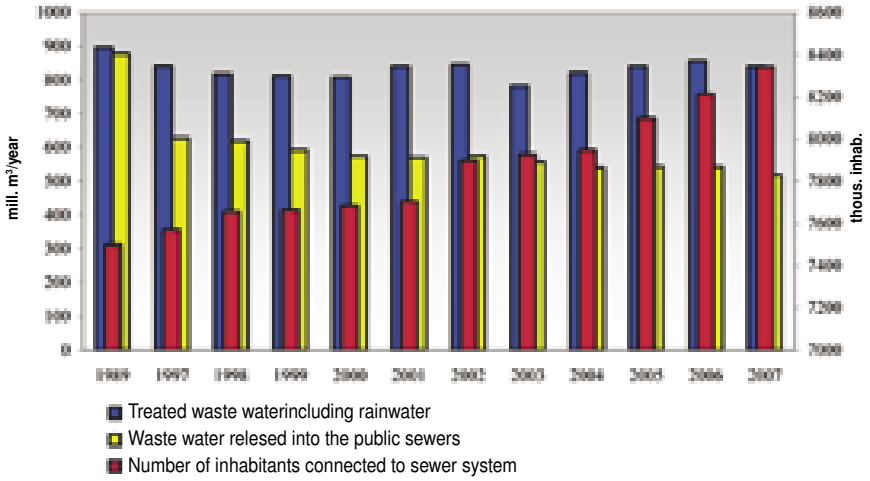
In 2007 the length of the sewerage system was extended by 1 060 km and reached the length of 37 689 km.

According to the data of the CSO, the total number of waste water treatment plants increased by 51 in comparison with the preceeding year 2006 to a number of 2004 water treatment plants in the Czech Republic.



Graph 7.2.1

Development of number of inhabitants living in houses connected to a sewerage system and amount of discharged and treated waste water in the years 1989 and 1997 – 2007



Source: CSO

Table 7.2.1

Removal and treatment of waste water from sewerage systems in the years 1989 and 2001 – 2007

Indicator	Unit of measurement	Year							
		1989	2001	2002	2003	2004	2005	2006	2007
Inhabitants (median state)	thous. inhab.	10 364	10 287	10 201	10 201	10 207	10 234	10 267	10 323
Inhabitants living in houses connected to sewerage systems	thous. inhab.	7 501	7 706	7 899	7 928	7 947	8 099	8 215	8 344
	%	72.4	74.9	77.4	77.7	77.9	79.1	80.0	80.8
Waste water discharged into sewerage systems (without rainwater) total	mill. m³	877.8	570.7	576.3	558.1	539.7	543.4	542.0	519.3
	% as of 1989	100.0	65.0	65.7	63.6	61.5	61.9	61.7	59.2
Treated waste water including rainwater [1]	mill. m³	897.4	841.4	846.2	782.7	821.5	841.5	857.4	841.2
Treated waste water excluding rainwater	mill. m³	627.6	544.8	533.6	527.4	509.7	513.9	510.6	497.6
	% as of 1989	100.0	86.8	85.0	84.0	81.3	82.0	81.4	79.4
Ratio of treated waste water to untreated waste water without rainwater [2]	%	71.5	95.5	92.6	94.5	94.4	94.6	94.2	95.8

Source: CSO
Note: [1] In 1989 and 2001 to 2003 it involved data for sewer systems of main operators.
[2] Involves the share of water dischrged into sewer systems.

Table 7.2.2

Number of inhabitants living in houses connected to sewerage systems and amount of discharged and treated waste water in 2007 in the individual regions

Region	Number of inhabitants living in houses connected to sewerage systems for public use		Waste water discharged into sewerage systems for public use	Treated waste water without rainwater	
	Total	Proportion out of overall number of inhabitants	Total	Total	Proportion
	(number)	(%)	(thous. m³)	(thous. m³)	(%)
Capital Prague	1 192 660	99.7	76 292	76 292	100.0
Central Bohemia region	793 310	66.8	51 351	51 247	99.8
South Bohemia region	536 736	85.0	37 143	35 396	95.3
Plzeň region	432 368	77.6	32 349	30 729	95.0
Karlovy Vary region	283 750	92.8	16 354	16 173	98.9
Ústí nad Labem region	680 847	82.5	34 541	33 618	97.3
Liberec region	297 885	68.9	16 636	16 467	99.0
Hradec Králové region	401 732	73.0	24 992	23 257	93.1
Pardubice region	354 358	69.6	22 371	21 317	95.3
Vysočina region	426 629	83.2	22 190	18 170	81.9
South Moravia region	982 566	86.5	55 598	53 679	96.5
Olomouc region	480 670	75.0	29 066	28 029	96.4
Zlín region	492 877	83.5	27 284	25 811	94.6
Moravia-Silesia region	987 835	79.1	73 164	67 396	92.1
Czech Republic	**8 344 223**	**80.8**	**519 331**	**497 581**	**95.8**

Source: CSO

7.3 Development of water supply and sewerage charges

In 2007 according to the investigation of the Czech Statistical office the average price of water supply charge (including VAT) was 24.60 CZK/m³ and the average price of sewerage charge was 21.50 CZK/m³. Unlike in 2006 the price of water supply charge rose by 5.2 % and the price for sewerage charge by 11.1 %.

Table 7.3.1
Implementation prices for water supply and sewerage charges in 2006 and 2007

Indicator	Unit	2006	2007	Index 2007/2006
Total water supply charge	mill. CZK	12 349.00	13 084.00	1.06
Total invoiced water	mill. m³/year	528.00	532.00	1.01
Average price of water supply charge	CZK/m³	23.38	24.60	1.05
Total sewer charge	mill. CZK	10 477.00	11 142.00	1.06
Waste water discharged into sewers	mill. m³/year	542.00	519.00	0.96
Average price for sewer charge	CZK/m³	19.33	21.50	1.11

Source: CSO

Before the force of amendment to Act No 76/2006 Coll., i.e., until 2006, the information about the average price for water supply charge and sewerage charge determined on the basis of data, which if asked, the chosen operators of water supply systems and sewerage systems sent to the MoA. By the Amendment of Act the duty of the owners or operators, if they are authorized by the owner, pursuant to Regulation section 36 paragraph 5 of Act No 274/2001 Coll. On water supply systems and sewerage systems, to sent the MoA every year, by 30.6. of the calendary year at the latest, full information about the complete billing of all items of the calculation of the price for water supply and sewerage charges in the preceeding calendar year. In view of the date of handing of the billing it is not possible to evaluate and elaborate the data before this publication closing. For this reason only the data gathered by the CSO investigation is used.

According to the ivestigation of CSO the highest average price for water supply charge was located in the Central Bohemia region, where

Fountain in Vraclav

Table 7.3.2

Consumption of water, price of water supply and sewer charges in 2007

Region	Specific amount of invoiced water total	Specific amount of invoiced water for households	Average price of water supply charge	Average price of sewer charge
	(l/person/day)	(l/person/day)	(CZK/ m³)	(CZK/ m³)
Capital Prague	200.7	128.7	24.8	26.5
Central Bohemia	138.4	92.5	27.9	20.4
South Bohemia	140.1	92.0	27.3	19.1
Plzeň	166.5	99.8	22.6	17.9
Karlovy Vary	156.0	97.6	27.6	22.5
Ústí nad Labem	157.0	97.3	27.3	26.9
Liberec	161.3	98.3	26.3	25.2
Hradec Králové	142.9	91.2	22.7	22.2
Pardubice	145.4	90.1	22.5	23.4
Vysočina	134.0	84.6	24.1	17.1
South Moravia	145.9	97.2	23.0	24.8
Olomouc	131.2	87.8	23.3	20.8
Zlín	133.7	83.8	24.9	20.1
Moravia-Silesia	151.7	101.8	21.9	14.8
Czech Republic	**152.9**	**98.5**	**24.6**	**21.5**

Source: CSO

it reached the value 27.90 CZK/m³. In proportion to the statewide average it was 11.8 % higher. The highest average price for sewerage charge was in the capital Prague, which in the amount of 26.50 CZK/m³ was 23.3 % higher than the statewide average. On the other hand the lowest average price for water supply charges (21.90 CZK/m³) and sewerage charges (14.80 CZK/m³) was located in the Moravia-Silesia region. The average prices in individual regions are given in Table 7.3.2.

Difference in price of water supply charge and sewerage charge among the individual companies operating-water supply systems and sewerage systems is given by the initial conditions for operating in a given region, eg. spatial distribution of consumption areas, level of usage of water supply and sewerage system capacity etc.

Bělá river, Deštné in Eagle mountains

Jana Rizaková, Milada Horáková basic school „Meeting water“ (Hradec Králové region)

Fisheries and fishpond management

8.

8.1 Fisheries and fishpond management in 2007

Fishery in the Czech Republic can be divided into two basic areas – production fishery and management in fishing districts.

Areas of fishponds in the Czech Republic pepresent approximately 52 thous. ha, of this 42 thous. ha is used for herding of fish. In the fishponds annual increase of approximately 460 kg of fish.ha^{-1} takes place. The species representation of sealable fish is relatively stable and it has not changed compared to the preceeding years. Carp partakes on the total volume of herded fish by 87.8 %, herbivorous fish (silver carp, white amur) by 3.7 %, salmon fish (mainly rainbow trout and American char) by 3.8 %, common tench by 1.3 %, carnivorous fish and other types of fish by 3.4 %.

Market production of fish in the Czech Republic in 2007 reached 20.4 thous. t, which is in comparison with 2006 a fall by mere 16 t. Fish production from trouting was 748 t. The consumption of freshwater fish according to the estimate of the Angling federation in the CR ranged around 1.4 kg/person/year in 2007.

Vrchlice river, Velký pond

Table 8.1.1

Overview of production of fish intended for direct consumption in the years 2003 – 2007

Indicator of production and consumption of fish	2003	2004	2005	2006	2007
Production in thousand tons	19.70	19.40	20.50	20.40	20.40
Of this: export in thousand tons	9.60	9.90	9.30	10.00	10.45
Catches in reservations in thousand tons	5.30	4.70	4.20	4.60	4.30
Consumption per personin kg/year^{-1}	1.49	1.46	1.40	1.40	1.40

Source: MoA and Fishery Association of the Czech Republic

Table 8.1.2

Measures 2.3 – Fishery

Number of sub-measure	Name of sub-measure
Sub-measure 2.3.1	Processing of fish and marketing of fish products
Sub-measure 2.3.2	Cultivation of aquatic organisms - aquaculture
Sub-measure 2.3.3	Activities performed by experts in fishery and promotional measures

Source: MoA

Hloučela river, Podhradský pond

The processing of fish is associated with the actual production of fish. Every year 9 to 11 % of market production of freshwater fish is processed in the Czech Republic. In 2007 1 904 t of fish were processed in the weight alive, which was 9.3 % of the market production of freshwater fish.

A component of this branch is also the recreational and sport angling practised on water sites proclaimed by the state as fishing districts. The number of fishing districts on the territory of the Czech Republic exceeds 2 000 with the area of approximately 42 thous. ha. 350 thous. of registered members of all fishing districts are concerned with recreational angling. They caught approximately 4.3 thous. t of fish in 2007.

Hutní river, WW Zaječice

With the accession of the Czech Republic into the EU widening of grant possibilities into the fishery sector in the programming period 2004-2006 within the Operational programme Development of countryside and multifunctional agriculture occured. It involved the acquisition 2.3. Fishery, which was co-financed from the fund FIFG EU, where it was possible to ask for financial help for three sub-measures:

At present the following support measures are mainly used:

- National departmental support concerning aquaculture and freshwater fishing, Checking of Performance, Special Consultation for Animal Production, Support for Non-production Functions of Fishponds and Genetic Sources.

Vltava river, WW Lipno

- Operational programme Fishery for the programming period 2007 – 2013, where the aplicants can draw financial resources within the priority axis 2 – for productive investments into aquaculture, for protection of water environment, for acquisition in the area of health of fish and investments into processing of fish and their introduction on market. Within the priority axis 3 – it involves acquisitions in public interest, acquisition for protection and development of water organisms and plants, acuisition for the support and development of new markets, propagation campaigns and pilot projects.

8.2 Changes in the state of fishponds

The programme of the Ministry of Agriculture 229 210 – „Renewal, dredging and reconstruction of fishponds and reservoirs", the aim of which was the overall improvement of the technical state of fishponds and the reinforcing of water management and non-production functions of fishponds with regard to their flood prevention and landscaping significance, was terminated.

In 2007 a total of 34 events were financed for CZK 230.928 mill. It involved the events under construction from previous year. For sub-programme 229 218 – „Rectification of damage on fishponds and reservoirs after the floods in August 2002" in 2007 the programme 129 130 – „Support for renewal, dredging and reconstruction of fishponds and construction of reservoirs" will follow, and will be carried out in similar manner. Renewal and reconstruction of fishponds and reservoirs will be aimed at improvement of their water management and out-of-production functions. The emphasis is put on strengthening of reinforcing abilities. Also the attention will be paid to the improvement of fishpond and reservoir operation safety in connection with the flood situations. To support the retenion the dredging of the most sludgy fishponds will be carried out and it will be possible to also support the construction of reservoirs for flood and drought protection. Thanks to the excerience from previous years, when the number of floods increased, it was possible to include rectification of flood damage caused by possible flood in 2007. Up to now the documentation of this programme has not been authorized, and within its framework none of the events could have been paid for.

Vltava river, WW Lipno

Flajánský stream, WW Fláje

Martin Kadlec, 15 years, Krucemburk basic school „Earth´s interface - water“ (Vysočina region)

State financial support for the water management

9.

9.1 Financial support of the Ministry of Agriculture

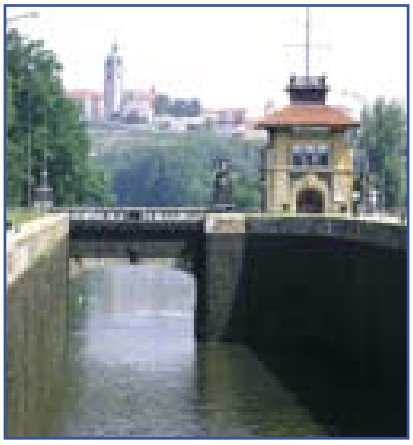
In 2007 within the framework of the programmes of the Ministry of Agriculture 229 030 – „Construction and technical renewal of water supply systems and water treatment plants“, 229 040 – „Construction and technical renewal of waste water treatment plants and sewerage systems“ and 229 310 – „Construction and renewal of infrastructure of water supply systems and sewerage systems“ focussing on the implementation of measures to fulfill the directives of the EU in the field of water supply systems and sewerage systems, and for the actual development of the field of water supply systems and sewerage systems, support was provided at an overall level of approximately CZK 1.8 billion.

Programme 229 310 is a grant programme of the MoA, which according to the approved documentation will be gradually implemented in the years 2006 – 2010, and which replaced the winding down programmes 229 030 and 229 040. Within these original programmes sub-programmes 229 039 and 229 049 for the support of rectification of flood damage of the infrastructure of water supply systems and sewerage systems in connection with the spring flood of 2006 were established and programmes 229 030 and 229 040 were prolonged until the end of 2007.

The above mentioned supprort was provided to investors both in the form of grants and in the form of interest-free loans from the sources of loan resources from the European Investment Bank (EIB) or the Council of Europe Development bank (CEB). Within the programmes of the MoA 229 030 and 229 312 (measures aimed at water supply systems) a total of 199 events in 2007 were granted support from the state budget it a total amount of approximately CZK 899 mill. and within the programmes of the MoA 229 040 and 229 313 (measures aimed at sewerage systems) a total of 118 events were granted support from the state budget in 2007 in a total amount of approximately CZK 721 mill.

Of this within the flood programmes 229 039 – „Support for rectification of flood damage on the infrastructure of water supply systems“ and 229 049 – „Support for rectification of flood damage on the infrastructure of sewerage systems“ in 2007 the support in the form of grant was granted to 32 events in the total amount of CZK 65 mill. These programmes terminated in 2007, in 2006 – 2007 a total grant to 34 events of these programmes was supplied in the total amount of CZK 70 mill.

In 2007 also the loan drawdown of the CR from EIB was terminating on the basis of the loan contract „Czech Republic – framework loan for water management intended for reconstruction, improvement, modernisation and extension of water management systems in the CR“, realized on the basis of Order of the Government of the CR No 1179 from the year 1999 and also the loan from the CEB. In 2007 a total of 16 events were granted support from the above mentioned grants in the total amount of CZK 161 mill.



Vraňansko-Hořínský floating channel

In 2007 the Ministry of Argriculture implemented programmes, the aim of which was the renewal of water management assets of the watercourse administrators within the rectification of flood damage from previous years, implementation of flood-protection measures, renewal, dredging and reconstruction of fishponds and reservoirs and providing care for state assets on small watercourses and on main drainage facilities. In this year also the rectification of flood damage of 2006, caused to natural and corporate bodies on dikes and fishpond objects was financed.

Table 9.1.1

Financial resources of state budget provided in the context of the programmes of the MoA 229 312 (229 030), 229 313 (229 040) in 2007 in mill. CZK

Form of support	Water supply systems and water treatment plants	Sewerage systems and waste water treatment plants	MoA total
Refundable financial assistance	0	0	0
Grants	898.747	720.823	1 619.570
Total	**898.747**	**720.823**	**1 619.570**

Source: MoA

Table 9.1.2

Development of state support for construction of water supply systems, treatment plants, sewerage systems and waste water treatment plants in the context of the MoA in the years 2004 – 2007 in mill. CZK

Financial source	2004	2005	2006	2007
Refundable financial assistance	4	0	0	0
Grants of state budget	1 563	1 746	925	1 620
Support of state budget	**1 567**	**1 746**	**925**	**1 620**
Advantageous loan	653	754	486	161
Support – total	**2 220**	**2 500**	**1 411**	**1 781**

Source: MoA

Table 9.1.3

State financial resources provided by the MoA in 2007 for capital and ongoing expenses in the context of programme financing in the programmes 229060, 229 110 and 229 210 in mill. CZK

Registration number of programme	Name of programme	Expenditure on financing of programmes
229 060	Flood prevention	332.841
229 110	Rectifying consequences of flood on state water management assets	385.725
229 210	Renewal, dredging and reconstruction of fishponds and reservoirs	230.928

Source: MoA

Table 9.1.4

State financial resources provided by the MoA in 2007 for capital and ongoing expenses in the context of programme financing in the programmes 129 120, 129 130 and 129 150 in mill. CZK

Registration number of programme	Name of programme	Expenditure on financing of programmes
129 120	Flood prevention II	193.826
129 130	Renewal, dredging and reconstruction of fishponds and reservoirs	0.000*)
129 150	Support for planning in the field of water	41.000

Source: MoA
Note: *) In was not possible to initiate the financial support – the documentation of the programme has not been approved yet in 2007.

Table 9.1.5

Non-investment supprort provided by the MoA in 2007 for other measures in water management in mill. CZK

Name of support	Level of provided support	Recipient of support
Administration of small watercourses *)	193.366	Agricultural Water Management Authority
Administration of maindrainage facilities *)	71.197	Agricultural Water Management Authority

Source: MoA
Note: *) Maintenance also included.

Table 9.1.6

Utilisation of financial resources in chosen events within the programme 129 120 - „Flood prevention II“ in mill. CZK

Administrators of watercourses	Name of event	Time of implementation	Total costs	Grants in 2007
Forests of the CR, s.e.	The Middle Opava, km 0.900 – 1.747 and floating solids trap	07/2007 – 11/2009	14.443	4.500
Elbe River Board, s.e.	The Tichá Orlice, Brandýs nad Orlicí, improvement of flood protection of the city by reconstruction of watercourse adjustment and by pound locks	07/2007 – 12/2010	7.254	0.500
Morava River Board, s.e.	The Morava, Olomouc – Černovír, dike LB	03/2007 – 12/2008	39.850	26.217
Ohře River Board, s.e.	Reconstruction of the Úštěcký stream in Úštěk, r. km 19.605 – 20.213	01/2008 – 12/2008	13.145	0.500
Vltava River Board, s.e.	Reconstruction of Novořecká dike r. km 3.52 – 6.25	10/2007 – 06/2008	129.625	56.457

Source: MoA

Table 9.1.7

Utilisation of financial resources OF/from state budget in 2007 in the context of programme 129 120 according to individual administrators of watercourses in mill. CZK

Owners and administrators	Utilisation in 2007	
	Investment	Non-investment
Elbe River Board, s.e.	6.278	0
Vltava River Board, s.e.	58.358	0
Ohře River Board, s.e.	9.111	0
Odra River Board, s.e.	37.853	0
Morava River Board, s.e.	26.617	0
Forests od the CR, s.e.	42.992	0
AWMA	12.617	0
Administrators of small water courses - municipalities	0.000	0
Total	193.826	0

Source: MoA

Drawing of financial resources on capital and ongoing expenses is given in following tables.

In 2007 the Ministry of Agriculture initiated ensuring of programme 129 120 – „Support for flood protection II“, which contains other four programmes, thematically focused on support for flood-protection measures with retention, support for flood-protection measures along watercourses, support for increse of waterwork safety and support for marking out flood land and outflow situation studies. The matter-of-fact focus of the programmes enables their interconnection and as a result also the increase of effects of flood prevention on watercourses.

The subject of the sub-programme 129 122 – „Support for flood prevention measures with retention“ is the construction and renewal of dried-up reservoirs (polders), construction and renewal of reservoirs, reconstruction of existing reservoirs and polders and also reconstructions of objects in the flood spillway areas.

Sub-programme 129 123 – „Support for flood-protection measures along watercourses“ is aimed at increasing capacity of watercourse riverbeds, dikes, alleviation riverbeds and tunnels, increasing flow capacity of weirs, reconstruction of pound locks and stabilisation of watercourse riverbeds.

The aim of sub-programme 129 124 – „Support for improving safety of waterworks“ is a reconstruction of existing waterworks with the aim of improving their safety during floods and improving manipulation possibilities of waterworks in the operative flood management. Priority is given to measures which may increase the effect of other flood-protection measures on a watercourse below a waterwork.

Sub-programme 129 125 – „Support for marking out floodland and outflow situation studies“ is mainly aimed at identification of flood extent and marking out the extent into maps. Here belongs also marking out of areas endangered by extra floods originating as a result of waterwork dam failures or ruptures, retenting surface water. The outputs of the flood land proposals, authorized by the water law authorities, constitute one of the

area limits and serve the offices of public administration mainly for issuing building licence. The studies of outflow situation are the source of information about flood land before and after implementation of the proposed flood-protection measures, about quantification of flood damage extent and about evaluation of efficiency of the proposed technical and non-technical measures.

Implementation of the measures of programme 129 120 are ensured by watercourse administrators (River Boards, s.e., Forests of the CR, s.e. and the AWMA). Through the institute of so-called proposer, the programme anables participation of municipalities, associations of municipalities, cities and regions into the process of proposing flood-protection measures, when the realization of the by them proposed measures is ensured by administrators of watercourses.

In the framework of programme 129 120 – „Flood prevention II" 10 investment constructions of flood-protection measures with retention, 72 investment constructions of flood-protection measures along watercourses, 4 investment constructions aimed at improving safety of waterworks were under construction and 57 marking-outs of flood land and outflow situation studies were finished in 2007. In the following Table 9.1.3 some more important events of programme 129 120 are shown.

Apart from the programmes aimed at prevention, in 2007 it was necessary to rectify flood damage caused by the floods of 2006 on state water management assets through the implementation of sub-programme 229 114 – „Rectifying consequences of floods of 2006", which is a part of programme 229 110 – „Rectification of flood damage on state water management assets".

Within the sub-programme 229 114 a total of 481 were implemented in 2007. The highest number of events was ensured by the AWMA – 183 events and the next highest number of events was ansured by the Vltava River Board, s.e. – 124 events. In the following Table 9.1.5 some more important events of this sub-programme are shown.

Programme 229 060 – „Flood prevention", valid for the period 2002 – 2005, terminated in 2007 for the reason of complicated preparation of two most imporatnt flood-protection measures after two prolongations of the programme.

Within the programme 229 060, prolonged until the end of 2007, the construction of two investment events of the Morava River Board, s.e. were finished, where in the course of preparation and implementation complications occured. These are investmnet events called: the Moravská Sázava – Poldr Žichlínek and Olomouc stage I.

In 2007 the Ministry of Agriculture started the implementation the programme 129 130 – „Renewal, dredging and reconstruction of fishponds and construction of reservoirs".

Administration of the programme 129 130 was held up for the reacon of shifting the term of validation and subsequent delays of the authorization process of the programme documentation. For this reason no grants were drawn from the state burget resource.

In 2007 17 events financed from own resources in the invesrors were started, no event has been finished in terms of construction.

The aim of the programme is improvement of the technical state of the fishpond fund of the Czech republic and renewal of water manegement functions of fishponds and reservoirs with emphasis on improving their safety during the flow of high water, including prevention against the danger of

Table 9.1.8

Overview of costs of selected events in the context of sub-programme 229 114 – „Rectifying consequences of flood of year 2006" in mill. CZK

ISPRO-FIN 229 114	Name of event	Realisation	Total costs of event	Investor
1017	The Podmileský stream, r.km 0.0 – 0.5 (Klášterec) – reconstruction	09/2007 – 01/2008	2.812	Ohře River Board, s.e.
1018	The Jiřetínský stream, r.km 0.9 – 1.4 (Horní Jiřetín) – reconstruction	09/2007 – 10/2008	6.103	Ohře River Board, s.e.
1019	The Bílina, r.km 4.8 – 5.0 (Trmice) – reconstruction	08/2007 – 11/2007	2.371	Ohře River Board, s.e.
2202	FD on the Lomnička, c.a. Lomnička	06/2007 – 06/2008	1.963	Forests of the CR, s.e.
2351	FD 03/06 on the Bohdašínský stream – Nové Město nad Metují	08/2007 – 06/2008	1.185	Forests of the CR, s.e.
2703	RFD on the Jestřábí stream km 0.000 – 1.400	08/2007 – 12/2007	2.545	Forests of the CR, s.e.
2706	RFD on the Kateřinický stream km 1.939 – 2.168	11/2007 – 06/2008	1.923	Forests of the CR, s.e.
2763	RFD on the Hutiský stream, km 1.894 – 2.700	11/2007 – 05/2008	2.695	Forests of the CR, s.e.
3068	RFD station Havlíčkův Brod	11/2006 – 11/2007	0.756	AWMA
3117	The Dlouhá river – FD 2006	10/2006 – 06/2007	1.269	AWMA
3147	The Šumice 01 – FD 2006	07/2007 – 12/2007	1.355	AWMA
3163	The Jamník	11/2006 – 12/2007	1.241	AWMA
3239	WC Luha C – Break	07/2007 – 12/2008	0.888	AWMA
3308	MDF Grygov – FD 2006	11/2007 – 12/2007	1.349	AWMA
4243	WW Želivka, reconstruction of the riverbed and baffle platform	01/2007 – 05/2007	2.355	Vltava River Board, s.e.
4304	The Nežárka, r. km 11.503, reconstruction of weir Metel	06/2007 – 11/2007	3.051	Vltava River Board, s.e.
4350	FD on the Dobrovodský stream, r.km 6.330 – 9.510, reconstruction of control	06/2007 – 09/2008	5.272	Vltava River Board, s.e.
4355	The Vltava,r.km. 71.2 – 71.4, reconstruction of the left bank	06/2007 – 12/2007	3.968	Vltava River Board, s.e.
4366	The Sázava, r.km 0 – 2.5, Davle, rectification of wash – loard – version B	08/2007 – 11/2007	9.382	Vltava River Board, s.e.
4408	The Klabava – Rokycany, r.km 19.40 – 20.75, reconstruction of control	07/2007 – 11/2007	3.360	Vltava River Board, s.e.
5001	The Jičínka, Kunín, km 3.500 – 5.000	09/2007 – 12/2007	1.970	Odra River Board, s.e.
5002	The Odra, Nová Ves, km 18.580 – 18.730	10/2007 – 12/2007	1.903	Odra River Board, s.e.
6007	The Stěnava, Broumov, reconstruction of riverbed	06/2007 – 06/2008	9.036	Elbe River Board, s.e.
6011	The Loučná, Moravany – Karle, reconstruction of riverbed	07/2007 – 12/2008	4.886	Elbe River Board, s.e.
6012	The Chrudimka, WW Seč, reconstruction of riverbed	07/2007 – 12/2007	3.196	Elbe River Board, s.e.
6016	The Jizera, Josefův Důl – Ml. Boleslav, reconstruction of riverbed	06/2007 – 06/2008	5.787	Elbe River Board, s.e.
6025	The Elbe, WW Lobkovice, reconstruction of riverbed	04/2007 – 12/2008	16.630	Elbe River Board, s.e.
6026	The Elbe, VD Obříství, reconstruction of riverbed	04/2007 – 12/2007	12.669	Elbe River Board, s.e.
9106	The Dyje, km 127.500 – 130.800, Znojmo, reconstruction of the course	11/2006 – 10/2007	2.610	Morava River Board, s.e.
9155	The Morava, Lobodice, Uhřičice – reconstruction of the course and dikes	11/2006 – 08/2007	1.842	Morava River Board, s.e.
9161	The Hlučela, Hamry – reconstruction of bank wall	11/2006 – 06/2007	1.923	Morava River Board, s.e.
9222	The Oskava, Liboš – reconstruction of weir	09/2007 – 02/2008	2.546	Morava River Board, s.e.

Source: MoA

extra flood occurance, and dredging of accumulation areas of fishponds and reservoirs with the aim of restoring their funcion. The next aim of the programme is the support for construction of new reservoirs, which will participate in the system of flood prevention, during the droughts they will help to improve the flows and they will as well serve for extensive herding of fish. Both goals of the programme are aimed at decreasing the consequences of extreme hydrological situations, i.e., floods and droughts.

For the duration of the programme 129 130 the rectification of flood damage on dikes and fishpond objects and reservoirs caused by flood and individually exceeding CZK 250 thous. will be solved, providing that for these damage resources above the framework of resources validated in the state budget for programme 129 130 will be released.

In 2007 the programme 229 210 – „Renewal, dredgind and reconstruction of fishponds and reservoirs“ terminated.

In 2007 34 remaining events were financed (under construction from previous years). Elaboration of the final evaluation of the programme will be carried out until the end of June 2008.

Rectification of flood damage, caused to corporate and natural bodies on dikes and objects damaged by floods in the spring months of 2006 and floods in the period 28.5. – 2.7.2006, is solved by direct grants from financial resources of department 329 – the Ministry of Agriculture, provided in compliance with the regulations approved by the European Comission.

On the date 31.12.2007 the direct grant in the amount of CZK 10.792 mill. was given to the affected subjects, who asked for support for rectification of damage on dikes and fishpond objects after the spring flood.

On the date 31.12.2007 the affected subjects, who asked for support for rectification of dsmage on dikes and fishpond objects afetr the floods from May to July 2006, were given the direct grant in the amount of CZK 2.409 mill. The support may be given on the basis of valid national legislation until 31.12.2008.

Table 9.1.9

Utilisation of financial resources in 2007 in the context of the sub-programme 229 114 – „Rectifying of consequences of flood of year 2006“ in mill. CZK

Owners and administrators	Utilisation in 2007	
	Investments	Non-investments
Elbe River Board, s.e.	2.232	140.830
Vltava River Board, s.e.	0.000	103.028
Ohře River Board, s.e.	6.439	7.199
Odra River Board, s.e.	0.000	3.853
Morava River Board, s.e.	1.784	30.173
Forests of the CR, s.e.	22.564	11.824
AWMA	3.568	52.231
Total	**36.587**	**349.138**

Source: MoA

In 2007 the Ministry of Agriculture started the programme 129 150 – „Support for process of planning in the field of waters“.

The aim of the programme is support for subjects which take part on catchment area mapping, or accredited professional subjects, which directly take part on preparation of background material for plans of the catchment areas. The support is purposefully bound and is provided for capital expenses.

In 2007 two events were financially ensured within the programme 129 151 – „Support for information process of planning in the field of water“ and six events within the programme 129 152 – „Support for background material elaboration for the process of planning in the field of water“.

Sub-programme 229 013 – „Small watercourses administered by the AWMA“.

Within the context of sub-programme 229 013 the AWMA partially constructed 30 investment constructions, of this 8 constructions were completed in this year (2 reconstructions of reservoirs and 6 adjustments of small watercourses) in 2007. In addition, the implementation of 10 constructions was prepared, the processing of 6 sets of project documentation was ensured for repairs to minor watercourses, reservoirs and polders.

Table 9.1.10

Termination of financial resources drawing in 2007 within the framework of the programme 229 060 – „Flood prevention“ in mill. CZK.

Owners and administrators	Utilisation in 2007	
	Investments	Non-investments
Elbe River Board, s.e.	3.011	0
Vlatava River Board, s.e.	0.000	0
Ohře River Board, s.e.	0.000	0
Odra River Board, s.e.	0.000	0
Morava River Board, s.e.	291.399	0
Forests of the CR, s.e.	0.086	0
AWMA	7.923	0
Administrators of small watercourses - obce	30.422	0
Total	**332.841**	**0**

Source: MoA

Table 9.1.11

Drawing financial resources in 2007 within sub-programme 229 212 – „Renewal, dredging and reconstruction of fishponds and reservoirs“ in mill. CZK

Owners and administrators	Utilisation in 2007	
	Investments	Non-investments
Corporate bodies	38.790	154.834
Natural bodies	11.398	19.299
Allowance organisation (civil associations)	0.000	6.607
Total	**50.188**	**180.740**

Source: MoA

Table 9.1.12

Drawing financial resources in 2007 within the programme 129 150 – „Support for the process of planning in the field of water“ in mill. CZK

Owners and administrators	Utilisation in 2007	
	Sub-programme 129 151	Sub-programme 129 152
Elbe River Board, s.e.	0.000	5.139
Vltava River Board, s.e.	0.000	15.139
Ohře River Board, s.e.	0.720	4.419
Odra River Board, s.e.	0.950	3.494
Morava River Board, s.e.	0.000	10.139
Total	**1.670**	**38.330**

Source: MoA

Within this programme also financing of the preparation and ensuring of implementation of 12 events (including purchase of 7 of them), the construction part of which is financed by the MoE from the programme of revitalisation of river systems.

Within this programme AWMA 2007 implemented purchase of land in a total of 50 events (including purchase pursuant to section 50 and 56 of Water Act) for CZK 4.745 mill. and the area of over 28 ha in 2007.

A total of CZK 93.625 mill. of the state budget investment resources was invested within this sub -programme in 2007.

In the following overview some more significant events under construction within the sub-programme 229 013 are mentioned:

Adjustment of the Luha watercourse

Total costs: CZK 17.596 mill., invested by the year 2007: CZK 17.204 mill.

Reconstruction of the Anenský stream

Total costs: CZK 10.781 mill., invested by the year 2007: CZK 10,721 mill.

the Leska

Total costs: CZK 12.757 mill., invested by the year 2007: CZK 12.546 mill.

the Ludina

Total costs: CZK 27.933 mill., invested by the year 2007: CZK 23.218 mill.

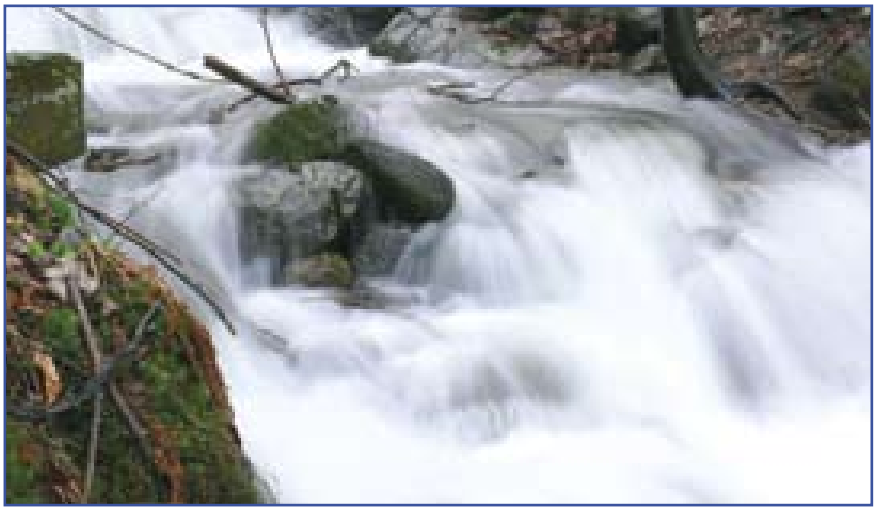
the Hejtmánkovický stream, stage I

Total costs: CZK 11.097 mill., invested by the year 2007: CZK 9.396 mill.

Reconstruction Hať 2. construction

Total costs: CZK 12.128 mill, invested by the year 2007: CZK 12,102 mill.

State financial resources are also used for the measurements in water management pursuant to section 102 paragraph 1 letter b), i), k) of the Water Act. The non-investment support is granted within the ongoing expenses of the specific indicator „Support for water management total“ the sections of the Ministry of Agriculture for maintenance of minor watercourses, reservoirs and dried-up reservoirs, for operation of minor water courses, water and dried-up reservoirs and related objects, also for maintenance and operation of main drainage facilities.



Úpa river, Velká Úpa

Maintenance of minor watercourses, water and dried-up reservoirs

Within this support, i.e., for the maintenance, repairs, care for the state assets on minor watercourses, water and dried-up reservoirs and related objects and for care for non-adjusted minor watercourses administrated by the AWMA, in 2007 non-investment resources from the state budget in the value of CZK 168.973 mill. were used. A total of 1720 non-investment events were finished and implemented (including 100 primary interventions), maintenance of 1380 km of minor watercourses, i.e., almost 4 % of the total length of minor watercourses administrated by the AWMA was carried out.

Operation of minor watercourses, water and dried-up reservoirs and related objects

Within this support the non-investment resources from the state budget in the amount of CZK 24.393 mill. were invested in 2007. TheAWMA implemented and finished 310 operational measures.

Maintenance of the main drainage facilities

Within this support, i.e., for the maintenance, repairs, care for the state assets administrated by the AWMA on the main drainage facilities and related objects, the non-investment resources from the state budget in the amount of CZK 60.383 mill. were invested in 2007. A total of 869 non-investment events (including 7 primary interventions) were implemented and finished and maintenance of 991 km of main drainage facilities,i.e., over 8 % of the total lenght of the drainage facilities administrated by the AWMA was carried out.

Operation of main drainage facilities

Within this supporty non-investment resources from the state budget in the amount of CZK 10.814 mill. were invested in 2007. The AWMA implemented and finished 108 operational measures.

Table 9.2.1

Utilisation of grants according to type of measure supported by MoE in 2007 in thous. CZK

Sub-programme	Number	Number of events	Grants
Revitalisation of natural function of watercourses	215 112	15	53 181
Establishment and revitalisation of the system of ecolological stability elements bound to water system	215 113	8	15 840
Removal of transverse obstacles on watercourses and support for such technical solutions, which do not contain them (addition and construction of fish ladders)	215 114	3	13 503
Revitalisation of retencion ability of landscape	215 115	24	60 094
Elaborating the conception of structural and nature-like flood-protection and anti-erosion measures in accordance with the plans of main catchment areas	215 116	15	35 000
Construction and renewal of WWTP and sewerage system, including establishment of artificial wetlands	215 117	58	248 457
Revitalisation of natural function of watercourses with revitalisation of retention ability of landscape	215 118	17	27 896
Total		**140**	**453 971**

Source: ANLP CR

9.2 Financial support of the Ministry of the Environment

The basis of the financial supports of the Ministry of the Environment is the Programme of revitalisation of river systems. The aim of this programme is to suprot renewal of natural environment and resources used by man. The programme assumes gradual attaining of targets for preservation and support of the biodiversity, favourable settlement of water situation in landscape, increasing quality and cleanness of water and functional usage of land in the affected areas. The support from this programme is mainly aimed at revitalisation of natural functions of watercourses, promoting revitalisation of elements of ecosystem territorial stability bound to the water regime, rectification of unnatural transverse obstructions on watercourses, renewal of landscape retention ability and solving problems with sewering and treating of waste water.

Water regime is one of the most sensitive and most important elements of landscape. Human activity affects the natural water cycle, makes the quality of surface water and groundwater worse – and subsequently makes the state of the enviromnent worse. Since 2003 the Programme for the revitalisation of river systems (PRRS) has included solutions to problems with the removal and treatment of waste water.

In 2007 financial resources were provided for implmentation of revitalisation measures in the context of these sub-programmes:

a) revitalisation of natural function of watercourses (sub-programme 215 112),

b) establishment and revitalisation of elements of the system of eclological stability linked to the water system(sub-programme 215 113),

c) removal of transverse obstacles on watercourses and support for such technical solutions which do not contain them – addition and construction of fish ladders (sub-programme 215 114),

d) revitalisation of retention ability of landscape (sub-programme 215 115),

e) reconstruction of technical elements and dredging of production fishponds (subprogramme 215 116 – is terminated),

f) construction and renewal of WWTP and sewerage systems including establishment of artificial wetlands (sub-programme 215 117),

g) revitalisation of natural function of watercourses with revitalisation of retention ability of landscape (sub-programme 215 118).

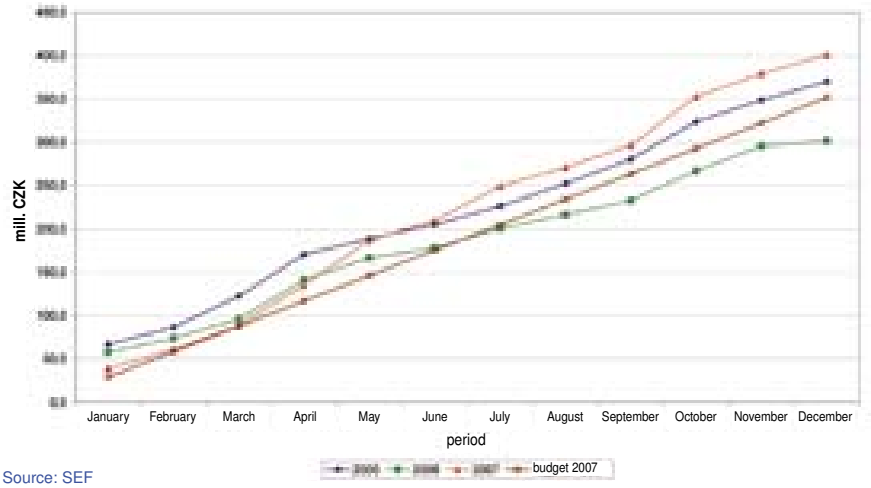
PRRS is the grant programme of the MoE. Financial resources for the programme are detached each year from the state budget. Their granting is determined by the MoE Regulations (Directive of the MoE No 5/2006 from 10.3.2006 on issuing of Regulations for granting financial resources within the Programme for revitalisation of river systems – programme 215 110). The programme is ensured by the MoE through the department of care for landscape and its organisational provision is provided by the Agency for nature and landscape protection in the CR (ANLP CR). On regional level the events are judged by local appropriate regional advisory boards within the departments of ANLP CR. The applicant may be the owner of land or water management consruction, on thich the revitalisation measures should be implemented, watercourse administrator, land tenant, state of non-profit organisations (always with a writent consent of the owner) or municipalities, associations of municipalities and water joint-stock companies.

In 2007 from the revitalisation sub-programme grants 140 events in the amount of CZK 393.284 mill. were financed from the reserve fund by CZK 60.687 mill. In the previous year 2006 the budget of PRRS was over CZK 370.434 mill., which was app. by CZK 22.85 mil. less. The total of 140 events for the total amount of CZK 453.971 mill. were financed.

Dyje river, WW Znojmo

Graph 9.3.1

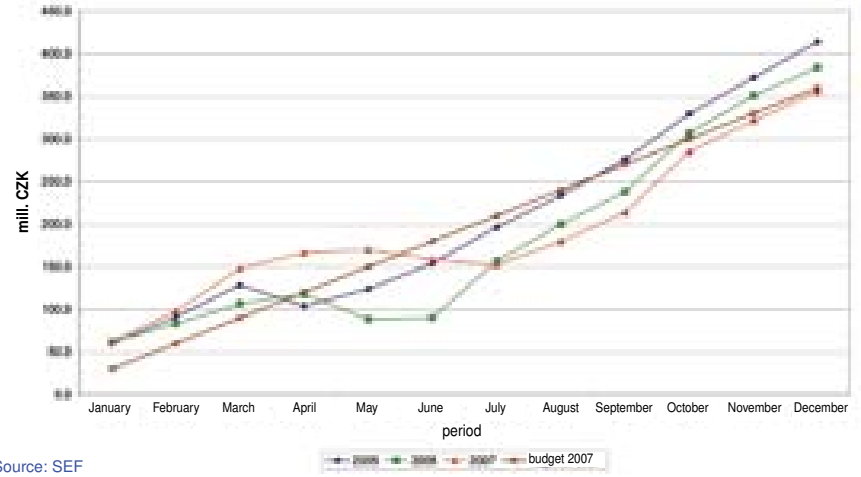
Development of incomes from charges in the element of waste water in the years 2005 – 2007 in mill. CZK



Source: SEF

Graph 9.3.2

Development of incomes from chrges in the element of grounwater in the years 2005 – 2007 in mill. CZK



Source: SEF

9.3 State Environmental Fund

The important provider of finacial support for implementation for protection and improvement of the state of the environment in its individual elements is a specifically aimed institution – State environmental fund of the CR. It is one ob the basic economical instruments for fulfilling the obligations arising from the international conventions concerning environmental protection, the Eu membership and implementing the State environmental policy.

The State environmental fund (SEF) was established and its activity is adjusted by Act No 388/1991 Coll., on State environmental fund of the CR, as amended by the Act CNR No 334/1992 Coll., Act No 254/2001 Coll. And Act No 482/2004 Coll., to which the implementing regulations are connected – fund statute, rules of procedure of the fund council, directive of the MoE on granting financial resources from the fund and directive supplements, which adjust the conditions for granting support for appropriate period. The administrator of the fund is the MoE.

Incomes of SEF are composed of mainly payments for polluting or damaging the individual components of th environment, of the tranche of the advanced loans and their interests and yields from the deposited disponsible resources on time deposits. The minister of the environment decides de iure about utilisation of financial resources from the fund on the basis of recommendation of advisory body – the fund council. These incomes are not part of state bugdet.

Support from SEF is situated, in compliance with the obligations resulting from the international conventions and State policy of the environment, mainly to the area of water protection, environment, handling waste and the area of nature protection and care for landcape. To the support of individual ecological projects financing the resolutions of the minister on granting support from the fund as amended by section 3 and 4 of Act No 388/1991Coll. are issued, namely in the form of grants, loans and benefit for part settlement of the interests.

SEF is an imporatnt center source, which participates on state ecological policy excercise and approximation strategy of the MoE; it was established by the implementation authority of the Cohesion Fund (CF) and mediating subject for the Opeartional programme infrastructure (OPI) – it involves the European Regional Development Fund (ERDF). Within SEF the payment unit for mentioned programmes was established.

From the composition of incomes and expenses according to the elements of environment it follows that from the total incomes of the fund implemented to 31.12.2007 in the amount of CZK 2 602.4 mill. (incomes from the charges and penalties according to the elements of the environment, and financial sanctions, interests from deposits, interests from loans, instalments from loans, incomes from financial settlements, loan return premiums from previous years, other incomes) the incomes from charges for waste water discharge came to CZK 401.0 mill. (15.4 %) and incomes from charges for groundwater abstractions CZK 355.6 mill. (13.7 %). The concrete development of incomes are documented by Graphs 9.3.1 and 9.3.2.

The overall financial expenses of the fund to 31.12.2007 came to CZK 1 566.1 mill. (not including the costs of the fund office and MUFIS), on which the element water (including CF and OPI) partaked by CZK 995.8 mill., which is 63.6 %. The overall financial structure of the financial expenses of the fund in th element water (including CF and OPI) including division into grants and loans is documented by Table 9.3.1. Here also the allowance for the payment from commercial loan is included in the grants, which in the element water protection came to CZK 1.3 mill.

In the area of water protection (national prigrammes) 20 resolutions granting support for construction of waste water treatment plans and sewerage systems and ensuring moniforing of state of water for the year have been issued in this period by the minister of the environment; of this a total of 8 resolutions on events within the programme 1.2 and a total of 12 resolutions within the programme 1.6. The sum of overall expenses on implmentation of individual events (expressed as the base for the calculation of support) was CZK 478.8 mill., whereas the total granted support of SEF will come to CZK 279.1 mill. (of this the grants CZK 279.1 mill.). Granting financial support will enable rectification of pollution in the amount of 117.21 t CHSK and 57.66 t of absorbable substances a year.

In the area of water protection a resulution granting support for the construction of waste water treatment plants and sewerage systems was issued by the minister of environment in the field of water protection within OPI in this period within the programme 3.2.A. The sum of implemented financial expensed for implementation of individual events (expressed as the base for the calculation of support) was CZK 111.6 mill., whereas the support from ERDF will be CZK 72.6 mill. and from SEF 16.7 mill. (of this CZK 11.2 mill. grant and loan with 1.5 % interest CZK 5.5 mill.). Granting financial resources will enable the ractification of pollution in the amount of 69.22 t CCO and 31.72 t absorbable substances a year.

Table 9.3.1

Implemented financial expenses of Fund for the element of water in 2007 in thous. CZK

	Grant	Proportion (%)	Loan	Proportion (%)	Podpora total	Proportion (%)
Water total	**902.7**	**61.9**	**93.1**	**87.3**	**995.8**	**63.6**
Of this NP	685.5	47.0	72.6	68.0	758.1	48.4
Of this CF	155.0	10.6	7.3	6.8	162.3	10.4
Of this OIP	62.2	4.3	13.2	12.4	75.4	4.8

Source: SEF

Table 9.3.2

Support of Fund in 2007 in thous. CZK

Subjekt podpory	Grants CF + OIP	Proportion (%)	Loan CF + OIP	Proportion (%)	Podpora total	Proportion (%)
Business subjects of the CA PO	39 172	18.0	7 959	38.9	47 131	19.8
NGOs and similar organisations	9 597	4.4	781	3.8	10 378	4.4
Municipalities	115 023	53.0	7 109	34.7	122 132	51.4
Public budget	46 390	21.4	1 108	5.4	47 498	20.0
Budget organisations established by municipalities	7 056	3.2	3 528	17.2	10 584	4.4
Total	**217 238**	**100.0**	**20 485**	**100.0**	**237 723**	**100.0**

Source: MoE

9.4 Financial support from foreign cooperation and the EU

Projects of water management character were supported financialyy within a number of programmes in 2007. It involves for example the programme Interreg IIIA, the individual measures of which include constructions for protection of the environment and flood prevention. Another programme was also the European Fund for Regional Development, which was mainly aimed at flood protection and programmes of crossborder cooperation CR-Saxony, CR-Austria, CR-SR and the programme of transnational cooperational Interreg IIIB CADSES. Documentation to the above mentioned programmes including granted and used support is administrated by the Centre for regional development Prague.

In 2007 from the programmes of crossborder cooperation Interreg IIIA a number of projects of water management chracter were implemented. In the measure 1.2. of the programme CR-Poland (Infrastructure for protection of the environment and flood protection) the implementation of project waste water drainage Krnov – Kostelec with the grant from the ERDF in the amount of CZK 38 326 thous. (total expenses of the project were CZK 52 475 thous.) was finished. Another project implemented within this programme was the improvement of flood protection of the city of Turnov with the grant in the amount of CZK 8 220 thous. (total costs of the project were CZK 10 960 thous.).

A number of projects of water management charcter ware implemented also within the programme of crossborder cooperation CR-Saxony within the measure 3.1. Environment. At the start of 2007 projects of sewering the object of lake Chmelař lake

Blanice river, Myšenec - Maletice

in Úštěk (grant CZK 8 337.2 thous. from ERDF/total costs of the project CZK 11 116.3 thous.) and reconstruction of the water intake structure, which is part of the water supply system in the monucipality of Potůčky (CZK 3 337.5 thous. from ERDF/total costs of the project CZK 4 450 thous.) were accounted. This project is connected to the previously succesfully implemented construction of sewerage system and transfer of waste water in the municipalities Potůčky-Johanngeorgstdt supported by ERDF. In 2007 also the modernisation of WWTP Vejprty was finished (CZK 9 702 thous. from ERDF/total expenses of the project CZK 12 936 thous.). At the same time also the construction of WWTP and a section of sewerage system in Horní Podluží continued (planned grant from z ERDF CZK 8 644.1 thous.).

The programme CR-Austria the bilateral project the Dyje – Thaya examines the state of ecology and elaborates propositions for improvement of the state of ecology of water. Within the programme of crossborder cooperation CR-SR project documentation for the finishing the sewerage sytem and WWTP in Rokytná municipality was elaborated in 2007 ang supported by the amount of CZK 721.2 thous. from ERDF.

Projects thematically connected with water management are implemented aslo within the programme of Transnacional cooperation Interreg IIIB CADSES. In 2007 the project RainDrop, the partners of which were the CR and the city of Karviná and Microregion Vsetínsko. This project was aimed at know-how exchange in the area of rain water regulation, unification of municipal sewerage system and reduction of negative influences of the hydrological balance and water quality within CADSES of the region (the contribution from ERDF in the amount of CZK 14 338.3 thous.). Within the programme Interregional cooperation Interreg IIIC the project COMMUNITY RIVERS, the main aims of which were to improve education, methods and materials for ecological education and increase the participation of local people in the river administration (grant from ERDF in the amount of CZK 3 476.3 thos.) was accounted in 2007.

Table 9.4.1

Drawing public resources (the EU and the CR) up to 31.12.2007 within the framework of Operational programme „Development of countryside and multifunction agriculture“ in sub-measure 2.1.2. a 2.1.3. in mill. CZK

Sub-measure	Number of projects paid for	Amount for projects paid for
2.1.2.	37	73
2.1.3.	92	426
Total	**129**	**499**

Source: MoA

The Ministry of Agriculture is the managing body of the Operational programme „Development of countryside and multifunction agriculture“, which was terminating and financed also in this very year 2007.

Within this programme CR had the opportinity to draw financial support from the fund EAGGF – benchmark part of the EU for co-financing projects in the area of water management. It involved two sub-measures within the measure 2.1. – „Development of countryside“, i.e., sub-measure 2.1.2. – „Renewal of the potential and preserving the agricultural landscape“ and 2.1.3. – „Operation and safeguardind functioning of the agricultural water sources“.

Within the sub-measure 2.1.2. – „Renewal of potential and preservation of agricultural land“ projects for renewal of agricultural production potential and flood prevention were put forward. To 31.12.2007 a total of 59 resolutions were issued within the sub-measure 2.1.2. in total amount of CZK 122 mill.

Within the sub-measure 2.1.3. – „Operating and ensuring funtioning of agricultural water sources“ projects concerning reconstruction of fishponds and agricultural reservoirs, reconstruction of safety spillway and outlet mechanisms, including these objects and also the equipment of these objects and projects aimed at purchase and renewal of constructions for water management ameliorations of land. On the basis of approved reallocation from December 2006 in 2007 12 resolutions were issued in the amount of CZK 57 mill. for projects within the framework of investment project:

a) renewal of agricultural production potential and 11 resolutions in the amount of CZK 50 mill. on the investment project

b) flood prevention. To 31.12.2007 160 resolutions were issued on projects within 2.1.3.in total amount of CZK 716 mill.

Kamenička river, WW Kamenička

Kristian Rolant, 14 years, Liberec basic and nursery school for physically disabled children „Drops searching their way“ (Liberec region)

Legislative instruments

10.

10.1 Water Act and implementing regulations

The year 2007 did not bring any change of the Water Act, which would appear in the Collestion of Laws of the CR, except for the cohesion with the new Building Act No 183/2006 Coll. force. The last year 2007 can be characterized as a year of future legislative changes, namely from the below mentioned reasons.

On 31.10.2007 the government was given the Water Act amendment dealing with the attempt to make the flood-protection measures easier to implement and their enforcement in public interest. This happened on the basis of government decree from 10.5.2006 No 496 to financing flood-protection measures ensured by the MoA. This decree enabled the minister of agriculture together with the ministers of local development and of the evnironment to establish an expert work group for amending the Water Act or Building Act, or both these acts for easier implementation of flood-protection measures and for their enforcement in the public interest and draft of this amendment or these amendments submitted to the government.

The amendment shows also the tasks arising from the government decree from 22.11.2006 No 1325 for Overall analysis of incidence performed by the bodies of municipal authority units, elaborated in order to optimalize the execution of public administration by the bodies of municipal authority units.

Also in 2007 work on the preparation of so-called „major" amendment of the Water Act was initiated, with the deadline for handover to the government until 30.6.2008. The aim of the amendment can be summarized into three main areas:

1. transposition of European regulations, namely:

- directive of the European Parliament and the Council 2006/118/ES from 12.12.2006 on the protection of groundwater against pollution and worsening of the state and
- directive of the European Parliament and the Council 2007/60/ES from 23.10.2007 on evaluating and managing flood risks.

2. Decreasing the administrative burden,

3. solving problems of the putting the Water Act into practice.

In the half of the year a lot of subjects affected by Water Act were adressed with the aim of handing over of the suggestion to the amendment with the term from the beginning of October. Approximately 450 suggestions arrived, concerning almost all the enactments of law. 4 thematical work groups were established to analyse the suggestions, 2 lead by the MoA and 2 by the MoE, considering, with the presence of the public, the state administration, protection of water, watercourses and flood protection, and a free group coordinating the work of work groups.

It is necessary to mention that the „major" amendment of the Water Act is also included in the process of evaluating the regulation impacts (RIA), which are binding from 1.11.2007. Simply said, the purpose of RIA process is not to implement excessive regulation and withdraw the existing excessive regulation.

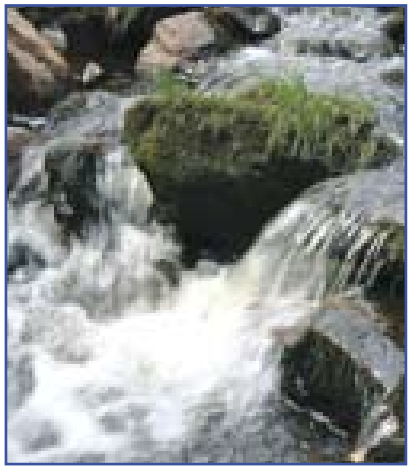
In 2008 partial changes of the Water Act in connection with the transposition of some regulations of the European Communities can be expected, namely:

- directive of the European Parliament and the Council 2006/7/ES on operating the quality of water for bathing and on overruling the directive 76/160/EHS,
- directive of the European Parliament and the Council 2004/35/ES on responsibility for the environment in connection with the prevention and reparation of damage to the environment and a
- directive of the European Parliament and the Council 2006/21/ES on handling waste from the mining industry and on changing the directive 2004/35/ES.

In the course of 2007 in the Collection of laws of the CR were published a number of implementing regulations to the Water Act which also became effective.

It involves the following regulations to the Water Act:

- Decree No. 7/2007 Coll., which amends the Decree No 7/2003 Coll., concerning the water right evidence, as amended by the Decree No 619/2004 Coll., prepared by the MoA in cooperation with the MoE,
- Decree No 23/2007 Coll., concerning the details of designation of waterworks in the filed in the cadaster of fixed assets of the CR, prepared by the MoA in the agreement with the Czech land-surveying and cadestral office,
- Decree No 209/2007 Coll., which amends the Decree of the MT No 241/2002 Coll., concerning designation of reservoirs and watercoures on which the navigation of craft with combustion engines is forbidden, and concerning the scope of conditions of the use of surface water for navigation as amended by the Decree No 39/2006 Coll., prepared with the MT in the agreement with the MoE,
- Order of the Government No 219/2007 Coll., which amends the Order of the Government No103/2003 Coll., concerning designation of vulnerable areas and usage



and storage of manor and barnyard manor, crop rotation and implementation of anti-erosion measures in these areas, prepared by the MoE in cooperation with the MoA,

- Order of Government No 229/2007 Coll., which amends the Order of Government No 61/2003 Coll., concerning indicators and values of acceptable pollution of surface water and waste water, proprieties of licence for waste water discharge into the surface water and into sewerage systems and sensitive areas, prepared by the MoE,
- Order of Govermment No 262/2007 Coll., concerning proclaiming the obligatory part of the Plan of the main catchment areas of the Czech Republic, prepared by the MoA.

At the start of 2008 in the Collection of acts of the CR the Decree No 40/2008 Coll., prepared in 2007, which amends the Decree of the MoA No 432/2001 Coll., concerning the documentation of resolution request and concerning terms of licence, agreements and pronouncement of the water right office, as amended by subsequent regulations and Decree No 7/2007 Coll., which amends the Decree No 7/2003 Coll., on water right evidence, as amended by the Decree No 619/2004 Coll.

On the basis of five proceedings of the interpretational comitee for the Water Act and related legal enactments in the competence of the MoA, the MoA published on its websites eight interpretations concerning the questions of the Water Act in 2007 and at the start of 2008.

10.2 Implementing regulations for the act concerning water supply and sewer systems

In March 2007 a Methodological instruction for orientation indicators of calculation of acquisition (updated) price of objects into the Selected data of the evidence of assets of water supply systems and sewerage systems, for Plans of development of water supply systems and sewerage systems and for Plans of financing the renewal of water supply systems and sewerage system was issued under the reference number 8114/2007-16000 and substituted the methodological instruction from 2002. This methodological instruction will designate the new coefficients for the need of evaluating the infrastructural assets of the water supply systems and sewerage systems on the price level of 2006.

Vesnický stream, WW Jezeří

In 2007 four conferences of the interpretational comittee concerning the Act No 274/2001 Coll., concerning water supply systems and sewerage systems for public use and the interrelated legal enactments in the competence of the MoA took place. During these conferences 3 new interpretations were validated and simultaneously a revision of existing interpretations resulting from the amendment of Act concerning water supply systems and sewerage systems and its implementing Decree No.428/2001 Coll. A total of 6 interpretations were dicussed and subsequently validated.

10.3 Other regulations

Within the other regulations colective and separate methodological instructions for the proceeding of professional water management bodies, eventually for the order of the government and related legislative were issued in 2007.

It concerns the following methodological instructions for the activity of water right offices, water course administrators and users of water:

- common methodological instruction of the MoA and MoE for the proceeding of water right office and CEI in the case of applicants for issuing of the licence for surface water and groundwater abstraction, who has been abstracting water without authorisation (reference number 5725/2007-16000) and
- methodological instruction of the department of water protection of the MoE to the Order of the Government No 229/2007 Coll.

10.4 Inspection of excercise of state administration in the field of water management

The Ministry of Agriculture

Control and supervision activity carried out by the Ministry of Agriculture was implemented according to the „Plan of controls of the regional authority for the years 2006 and 2007“ of The Ministry of the Interior in 2007.

Controls of the MoA aim to increase the efficiency of the methodological help not only in relation to the regional authorities but also municipalities, mainly the municipalities with widened competencies. For this reason each year a number of chosen at random water law authorities, mainly municipalities with widened competencies. The number of controlled municipalities increases annually. In 2004 only four municipalities were controlled, in 2005 it was nine municipalities, in 2006 the control was carried out in 16 municipalities and in 2007 even in 22 municipalities.

Among the main aims of control activity belongs providing error free excercise of state administration in the area of water management on all levels of water right offices. Apart from this these controls bring positive results in the intensification of comunication between the central water right office and offices on lower instance. The MoA also aims to involve more the regional authorities to the control of municipalities belonging to their area of interest and to learn more about the problems occuring in the first-instance administrative authorities.

From the point of matter-of-fact focus of the controls it is possible to mention, that the conrtols focus mainly on proper application of individual regulations of the Water Act, Act concerning the water supply systems and sewerage systems and related implementing regulations in the competence of the MoA. Because the agenda of the water right offices is importantly related to the excercice of state administration carried out in the form of administrati-

Table 10.4.1

Control of the state administration carried out by the MoA on the level of regional authorities in 2007

Region	Date of control
Liberec	31.1.2007
Pardubice	28.2.2007
Moravia-Silesia	15.3.2007
Vysočina	19.4.2007
South Bohemia	21.5.2007
Capital Prague	28.6.2007
Karlovy Vary	28.8.2007
Zlín	15.11.2007

Source: MoA

ve procedure, it was necessary to also ensure the adherence to legal norms of the administative authority. In connection with the waterworks and the regulation section 115 paragraph 1 of Water Act the procedure pursuant to regulation of the Building Act and its implementing regulations was controlled. From the point of individual controlled areas the emphasis was put mainly on adherence to administrative time limits, the actual administrative procedure, including providing background evidence material and construction of administrative decisions and also supervision, both of technically-protective of the watercourses and the water legal authorities of adherence to legal regulations and administrative decision by natural and corporate bodies.

Table 10.4.2

Control of the state administration excercise provided by the MoA on the level of municipal offices in 2007

Municipality	Date of control
Pelhřimov	17.7.2007
Nepomuk	23.7.2007
Blovice	23.7.2007
Luhačovice	24.7.2007
Uherský Brod	24.7.2007
Vizovice	25.7.2007
Valašské Klobouky	25.7.2007
Jablunkov	1.8.2007
Třinec	1.8.2007
Karvinná	2.8.2007
Bohumín	2.8.2007
Jičín	7.8.2007
Nová Paka	7.8.2007
Litomyšl	8.8.2007
Česká Třebová	8.8.2007
Hlinsko	14.8.2007
Krnov	16.8.2007
Bruntál	16.8.2007
Šumperk	4.9.2007
Jeseník	5.9.2007
Humpolec	11.9.2007
Chotěboř	11.9.2007

Source: MoA

The subject of control activity of the regional authorities and the Prague magistrate was the excercise of state administration in the section of water management excercised on the level of municipal office of municipalities with the widened competencies and mandated municipal offices. In comparison with the results of controls from the previous year it is possible to state that there has been an increase in intensity of control activity of subordinated water right offices. The communication and transfer of information from the MoA, through regional authorities, to the water right offices of the first instance improved, mainly thanks to the regularly held meetings and trainings.

Both resorts also very actively cooperated with the water right offices during the coordination of campaign for handling water. This campaign made the year 2007 a bit specific. The agenda of the water right offices sharply increased and the number of accepted requests increased by hundreds of percent. In the course of attending the requests also a amount of questions rapidly increased, concerning expiration of licence.

It is necessary to say the the level of excercise of the transmitted activity in water management of municipal offices differs. The individual water right offices work within the possibilities which are limited by personal and material equipment. Similarly to the preceeding years it is possible to say that the work of the state administrative is not disturbed but for quicker advancement of the administrative procedure and for better quality of decision making it would be necessary to increase the number of workers of municipal offices who are educated in the water management administration. This increase of personnel would enable a better supervision activity.

The excercise of the administration in the water management in the CR in 2007 can only be positively evaluated. The state administration is on all levels of water right offices is very carefully excercised and this corresponds to the high standard of the work done. The proof supporting this statement may be the fact that no fault detected during the inspections was so significant that there would have to have been imposed a measure for reparation.

The Ministry of the Environment

Department of the state administration excercise of the Ministry of Enviroment in compliance with the rules of organisation dealed similarly with the preceeding years with the individual appeals against the first-instance decisions of the Czech Environmental Inspectorate, the Prague magistrate and regional authorities.

After examining all appeals the documents were returned to appropriate first-instance bodies. The MoE also actively participated in the campaign concerning expiration of the licence in the area of waste water discharge. On the basis of a big amount of questions from the side of the water right offices and individual aplicants to the department of water protection issued a Methodological instruction of the department of water proection section paragarph 1 letter e) and section 38 of the Water Act No. 254/2001 Coll. and article 2 point 2 of the Act No 20/2004 Coll. Concerning the procedure of the water legal authorities in connection with the expiration of the licence for waste water discharge into the surface water or groundwater. In 2007 after a longer pause 2 meetings of the department of the water protection of the MoE with the water legal authorities were held. The main theme of these meetings were the expirations of the licence and also the amendment NV 61.

Svratka river, WW Vír

Barbora Kovářová, 15 years, JAK basic school, Lysá nad Labem „Winter in water“ (Central Bohemia region)

11. Priority tasks, programmes and core documens in water management

11.1 Planning in the field of water

On 23.5.2007 the government authorized the Plan of the main cachment areas of the Czech Republic by the resolution No 562 and subsequently on 3.10.2007 the obligatory part of the Plan of the main catchment areas of the Czech Republic was issued within the Order of The Government No. 262/2007 Coll.

The plan of the main catchment areas of the Czech Republic is a conceptual document in the field of water for the period 2007 – 2012 and with the outlook also to the second half of this century. It is linked to the Conception of water management policy of the MoA for the period after the accession to the EU for years 2004 – 2010 and State environmental policy 2004 – 2010 and it integrated the intentions and aims of other departmental policies of the central offices and it creates a framework for the care for water on the territory of the Czech Republic in conformity with the policy of the MoA. The Plan of the main catchment areas of the Czech Republic is divided into the obligatory and directive part and as a whole it will be updated every six years.

The Plan of the main catchment areas of the Czech Republic contains specific and framework aims and framework instruments for attaining the targets of individual areas of public interest:

a) protection of water as an element of the environment,
b) flood protection and protection against other harmful effects of water,
c) sustainable use of water resources and water management for ensuring the requirements on water management services, mainly for the purpose of drinking water supply.

It also contains the financing strategy, delimination of the relation of the main catchment areas to the area districts of the regions and international catchment areas, requirements on elaborating the catchment area plans and requirements of compilation of the national area plans of the international Elbe, Odra and Danube catchment areas.

The binding part of the Plan of the main catchment areas of the Czech Republic proclaimed by the order of the government is an universaly binding legal regulation for:

a) proposition of measures for ensuring the framework aims from the side of central administrative authorities including ensuring the financial resources for implementation of proposed measures,
b) providing conceptional documents related with water and water management,
c) providing plans of the catchment areas,
d) compiling requested levels of common plans of the international catchment areas.

Except for the Plan of the main catchment areas of the Czech Republic also the work on preparation of catchment area plans continued and next steps arising from the Framework directive. The CR, through the MoE and in cooperation with individual international commissions for the protection of the Elbe, Danube and Odra, handed over to the European Commission a report on the monitoring programmes pursuant to the Framework directive Article 8 of the Framework directive. 2007 was also the first year of opearation of these monitoring programmes. Implementation of monitoring programmes had to fight the unsolved financing of these activities.

On the basis of the monitoring programmes and collected data the MoE continued in developing systems for evaluation of state of water IS Arrow. Because these complicated work and appropriate methodologies for evaluation of state of water and water formations have not been finished yet, in September 2007 the common methodology of the River Board Companies, s.e. for evaluation of the chemical and elological state and risk surface water formations, ecological potential of the surface water formations and chemical and quantitative state of the surface water formations in the first plans of catchment areas were addopted. On the basis of these documents programmes of the measures for individual water formations will be proposed.

Programmes of measures are directly connected to the identified problems in individual catchment areas. From 1.4. the preparatory overviews of imporatnt problems with handling water in individual catchment areas were made accessible for six months for suggestions of the public, which were authorised by the appropriate regional authorities after the evaluaiton of incoming suggestions and after obtaining the view-points of the MoA and the MoE.

Ušovický stream, WW Mariánské Lázně

During 28.3. and 29.3.2007 under the patronage of the International commission for the protection of the Elbe catchment area (ICPE) the Intermanional Elbe forum took place in Ústí nad Labem. The first day was organized in the form of seminar for general public and over 160 people participated. The first and the second part of the seminar was dedicated to information about implemented programmes of water state monitoring, management of data for these programmes and Report 2007 and a common time plan and programme of works for elaborating the International plan of the Elbe catchment area. In the third part three lectures of speakers from the public administration, NGOs and water users on the significant problems with handling water in the International Elbe catchment areas were held. The second day was conceived as the meeting of a narrower panel of water users, interest groups, representatives of state and communal administration and ICPE. In the circle of almost 40 participants a moderated discussion of the important problems with handling water took place.

The methodological operation of the planning process rested upon, except for the mentioned methodologies for evaluating the state of water and risk development and the Arrow, the prepatation of methodology for using the article 4 of the Framework directive (2000/60/ES), which enables under clearly defined conditions postponing the attainment of targets defined by this directive by 6, respectively 12 years. Elaboration of the methodology was ensured by the MoA.

After the agreement of the MoA and the MoE and the compilers of the plans of the catchment areas, no individual methodological instruction was issued for the year 2007. For the process of planning coordination and information transmission two conferences of the Commitee for planning in the field of water were held. At the same time a number of meetings of appropriate commissions on the level of individual catchment areas were held.

Within the framework of the task of the Plan of the main catchment areas of the Czech Republic fulfillment and as a background material for the plans of catchment areas in cooperation

Libocký stream, WW Horka

with the water course administrators, Agency for the nature preservation and landscape protection of the CR and both ministries types of measures for flood protection in 17 priority areas mentioned in the Plan of the main catchment areas of the Czech Republic were proposed.

In 2007 the compilants of the plans of the catchment areas and other subjects directly participating on preparotion of the plans had the opportunity to ask for grants from the newly established grant programme 129150 – „Support for the process of planning in the field of water“ for the first time. In 2007 the grants in the total amount of CZK 40 mill. were allocated as a support for individual grant claimants.

11.2 Plans for development of water supply and sewerage systems

In 2007 the work on proceesing the plan for development of water systems and sewerage systems on the territory of the Czech Republic pursuant to section 29 paragraph 1 letter c) of the Act No 274/2001 Coll., concerning the water supply systems and sewerage sytems for public use and concerning the change of some related acts, as amended by the later regulations continued. The termination of work including evaluation of influences on the environment and public health is assumed at the end of 2008.

The plan of development of water supply systems and sewerage systems for public use on the territory of the Czech Republic will be a strategical document of the state policy in the area of water supply systems and sewerage systems exceeding the regulations of departmental policies of the central water authorities within sharing competencies.

This Plan for development of water supply systems and sewerage systems on the territory of the Czech Republic (PDWSSSSCR) is a long-term concept in the area of water supply systems and sewerage systems with a prospect to the year 2015. It is connected to other strategic documents and documents of the departmental policy, mainly to the Concept of water management policy of the MoA for the period after the accession to the EU for years 2004 – 2010 and the Plan of main catchment areas of the Czech Republic. It also respectds the requirements arising from the actual regulations of the EC.

PDWSSSS CR is created by the bottom-up system and that is why it is based on the syntesis of information from 14 elaborated, discussed and by authorities of individual regions authorised Plans for development of water supply systems and sewerage systems of regions (PDWSSSR). PDWSSSSR is the summary of data from the individual regions with emphasis on the interregional intentions. From PDWSSSSR all the useful background information, not including the data which were processed above the framework of the assignment and which can be marked as above-standard was taken over.

In the framework of PDWSSSSCR a new information system of state administration in the area of water supply systems and sewerage systems of all levels is originating and will be created by the programme and database of

PDWSSSSCR. The information system PDWSSSSCR will become one of the intruments for evidence of basic demografic, balance, technical and economic data from the field of water supply systems and sewerage systems.

Pursuant to the legal order of the CR and the law of the European Communities, together with the preparation of the document also its influence on the environment including assesment of conditions of realisation of the PDWSSSSCR and the requirements for the environment protection is assesed.

In October 2007 the MoA published on its website the basic information about the preparation of PDWSSSSCR and about the procedure of assesment of the influence of this conception on the environment and public health with the aim to enable active participation both of the professional and non-professional public on the preparation of this document. Also a proposition of a Comprehensive report and Description of iterregional system of water supply and sewerage systems in all regions of the CR was published.

Pursuant to section 29 paragraph 1 letter d) of the Act No 274/2001 Coll., concerning the water supply systems and sewerage systems for public use and concerning the change of some related acts, as amended by later regulations, the MoA considers and files the proposed changes and updates of the PDWSSSSR, which are the basic element of the planning in the field of water supply systems and sewerage systems.

PDWSSSSR is the base for drawing grants of the EC and national financial sources for the construction and renewal of the water supply systems and sewerage systems infrastructure. They involve crucial constructions for implementing the Council directive 91/271/EHS, concerning the treatment of municipal waste water within the transitional period which ends for the Czech Republic on 31.12.2010. As a consequence among the duties of all claimants for granting and drawing state financial support belongs the documentation of conformity of their technical and economical solution with the valid PDWSSSSR.

PDWSSSSR are (similarly as PDWSSSSCR will be) the base for elaboration of, in the next paragraph specified ground planning documentation, in compliance with the Act No

183/2006 Coll., concerning territorial planning and building regulation, as amended by later regulations, namely with the activity of the municipal office of a municipality with widened competencies (water legal authority), building office and for the activity of the municipality in the individual or transfered incidence.

PDWSSSSR are the background for elaboration of the principles of the territorial development and PDWSSSSR results from them in case that these principles have already been elaborated. The territorial plan of a municipality and the regulation plan are not the background material for the PDWSSSSR.

PDWSSSSR are utilized by the MoA, the MoE, regions (regional authorities), municipalities with widened competencies (water legal authorities), municipalities, owners and operators of water supply systems and sewerage systems and profeccional and non-professional public.

In 2007 the MoA issued a total of 423 approaches to proposed changes of the technical solving of drinking water supply, sewering and treatment of waste water, which represents a rise by 121 approaches unlike in the previous year. The MoE issued 15 approaches to the changes and updates of PDWSSSSR. Its number is influenced by the fact that the MoE expresses itself only in the area of the changes in seweraging and treatment of waste water and only if asked by individual regional authorities.

Ohře river, WW Kadaň

11.3 Programmes and instruments for reducing pollution of surface water

Programme for reducing surface water pollution by dangerous harmful substances and extremely dangerous harmful substances

By the Order of the Government of the Czech Republic No. 339 from 14.4.2004 the Programme for reducing suraface water pollution by dangerous harmful substances and extremely harmful dangerous substances was approved. This order designates the duty to process each two years, starting with 2006, information about the advancement of realization of this programme and put it forwart to the government as a part of the Report of the state of water protection in the Czech Republic in the appropriate year. With regard to termination of processing of this report as of 2007 and on the basis of the Order of the Government No 770 from 2007 the realization of this programme will be put forward as a part of the Report on the state of water management in the Czech Republic in the course of the given year.

Commitement for elaboration of this programme results from article 6 of the Framework directive. This was transposed into the enactment section 38 paragraph. 5 of the Act No 254/2001 Coll., concerning water and changing some other acts (the Water Act), as amended by later regulations.

The Programme for reducing surface water pollution by dangerous harmful substances and extremely dangerous harmful substances (Programme) is valid for the whole territory of the CR for the period 14.4.2004 –

31.12.2009, it concerns all substances or groups of substances harmul for the water environment (or through it) introduced in the Supplement No 1 of the Water Act. The programme specificates main measures related to the water protection and other instruments, which are not directly related to the water protection but as a result contribute to its protection.

Main instruments concerning water protection:

Extremely dangerous harmful substances

Waste water discharge containing extremely harmful dangerous substances, given in Supplement No 1 of Water Act may be carried out only on the basis of a licence from water authority (section 38 paragraph 3 of the Water Act). Acceptable values of indicators of surface water pollution (emission standards) containing extremely harmful dangerous substances must be stated for industrial branches and types of production enumerated in the Supplement No 1, Part C to the Order of the Government No 61/2003 Coll., concernning indicators and values of allowable pollution of surface water and waste water, requisites of the licence for waste water discharge into surface water and sewerage systems and concerning sensitive areas, as amended by the Order of the Government No 229/2007 Coll. (NV 61), to the date of the admission of the Czech Republic in the EU, for some branches of industry or ways of use to 31.12.2009.

On the territory of the Czech Republic app. 100 significant economic subjects or their plants are located, which according to BCEA are within the force of the Part C Supplement No 1 to the OG 61.

In the following text the state of each of the extremely dangerous harmful substances is mentioned, the dischage of which from the point sources of pollution is relevant. Among the most significant sources of pollution by mercury belong the companies concerned with the chemical production (amalgam electrolyzers in two companies), refinement of metals and handling the dangerous waste. The facilities use in most cases the newest technological procedures and the slight exceeding of the emission standards pursuant to OG 61 or limits from the licennce occurs only rarely. To the small sources of pollution by mercury belong mainly the stomatological facilities, of which app. six thousand is recorded in the CR. To 31.12.2005 the facilities were equipped with amalgam separators with the minimal efficiency of 95 %. There are continuous replacements of electrical equipment containing mercury by those which do not contain this dangerous substance. The manufactory of vat dyes, manufacture of fluorescent lamps and use of phenylmercurynaphtenate in the manufactory of sealers and varnish.

Lipkovský stream, Lipka

Extraction of cadmium according to part C Supplement No 1 to the OG 61 involves 14 economic subjects. They deal with cadmium metallurgy and non-ferrous metals, manufactory of negative accumulator matter, respectively Ni-Cd galvanic cells, manufactory of manure and surface adjustment. These facilities in most of the cases use the newest technological procedures, in two cases it involves technologies without waste water production. In the case of cadmium plating, in which half of the objects is engaged, the emission standards expressed in gr of discharged cadmium related to the amount of fabricated cadmium are not satisfied. This is caused by the very small amount of cadmium used in the process of electrocoating (units of kilograms a year). Each year there is a gradual decrease of cadmium consumption and its compounds for surface adjustment and in the glass industry or dissolving of there facilities.

The only significant source of water pollution by tetrachlormethane, hexachlorbenzene and hexachlorbutadiene is the manufactory of tetrachlorethene and tetrachlormethane by perchloration (Association for chemical and metalurgical production, inc.). Emission standards designated by the Order of the Government No 61/2003 Coll. Are not exceeded. Integrated register of pollution indicates emissions of hexachlorbenzene in the waste water only until the year 2005 (18 kg), but the emissions in waste are significant. In the case of tetrachlormethe only emissions into air are recorded and hexachlorbutadiene is recorderd only in waste.

Chloroform is used in significant amount as an organic solvent in pharmaceutical facilities (only 2 subjects in the CR). Emission standards estimated by the OG 61 are not exceeded. In smaller amount chloroform is used for cleaning bottles used for production of precious metals. The usage of chloroform as an solvent in the production of carbidope was finished in the year 2005. The intergrated register of pollution showed the emissions of this substance into the air only for the year 2004 and every year in waste (5 to 9 t).

Production of 1,2-dichlorethane (1,2-EDC) is carried out in the CR in only one company. In the year 2005 and 2006 the emission standards OG 61 were performed. With regard to the then unsatisfactory situation the number of monitoring of pollution has been altered since 2005 to a daily measurement. The 1,2-EDC is now used only for production of another substance vinylchloride. In the technological process of production no waste water is produced. In a small amount 1,2-EDC is used as solvent in the pharmaceutical production.

Labe river, Nymburk

Trichlorethene and tetrachlorethene are still being used mainly as solvents and degreasing agents before the surface adjustment of metals in app. 65 subjects in the CR. Licence to waste water discharge with content of trichlorethene or tetrachloretheme is carried out in app. 30 % subjects, mainly where the waste water from regeneration of sorbent filling entraping this dangerous substance from the sucked-up air of from the working environment. Most of the subjects handling trichlorethene or tetrachlorethene are coping with or have coped with the old ecological burden by these substances. Emission standards OG 61 for waste water discharge with the content of dangerous substances are fulfilled. Pollution is monitored with the help of AOX indicator. Emission standards for the content of tetrachlorethe in waste water from the production of tetrachlorethene and tetrachlormethane by perchloration are fulfilled. In the years 2005 – 2006 the usage of trichlorethene or tetrachlorethene for degreasing of metals was finished in ten companies. The consumption is decreasing year by year, its usage remains in cases when the technological substitute for other ecologically acceptable degreasers is not possible and acceptable. The Integrated register of pollution mentions emissions of these substances only into the air (it has decreased sinnce 2004 by one half) and in waste.

Dangerous substances

With regard to the extent of substances this group is not individually discussed. Discharge of water containing dangerous substances is subjected to the licence of the water authority. Electronic evidence of selected data from the legitimate administrative resolutions is carried out pursuant to the Regulation No. 7/2003 Coll., concerning water evidence, as amended by the Regulation No 619/2004 Coll. The duty of water authorities to record also all previously rendered decisions in the electronic evidence is extended until 31.12.2009. Management of database Central evidence of water resolutions is in the competence of the MoA.

Integrated prevention

The operators of the facilities within the competence of the Act No 76/2002 Coll., concerning integrated prevention and reducing pollution, concerning integrated register of pullution and concerning the change of some acts (Act concerning integrated prevention), as amended by later regulations and which started to operate before 30.10.2000, had the duty to have an integrated licence on the date of 31.10.2007. New facilities must have an integrated licence on the date of setting in operation. Conditions for handling dangerous and extremely dangerous substances are part of the integrated licence, which must not be less strict than the ones enacted by constituent acts. In the CR 1 545 facilities to which the obligation to have the integarated licence refers to are reported. To 31.10.2007 this obligation was fulfilled by 1 218 facilities which is app. 79 %. In the phase of the process of licencing was a total of 287 companies and 40 companies did not have the integrated licence.

Integrated register of pollution

The user of a registered substance which must be reported in the Integrated register of pollution (IRP), is obliged to according to section 22 of Act No 76/2002 Coll. to find out, evaluate and announce the MoE emissions and transfers of substances given in the Order of the Government No 368/2003 Coll., if their amount in emissions or transfers exceeds or equals the amount given by this regulation. In 2004 (first year of reporting) a total of 874 facilities reported, in 2005 it was 985 facilities and in 2006 their numrer rose to 1 059. Emissions into water and transfers into water and transfers in waste water were announced by 74 out of 985 facilities in 2005, in 2006 it was 84 facilities out of 1 059. Among the most significant emission of dangerous substances into water (above 1 t a year) range arsenic, phenols, fluorides, cyanides, copper, nickel and zinc.

Controlling activity within handling dangerous substances

The CEI focuses on subjects which handle dangerous substances or extremely dangerous harmful substances within its controls and controlls how these subjects fulfill the enactment section 39 paragraph 2, 4 and 5 of the Water Act. In case of detecting shortcomings remedial reasures are inflicted according to section 112 or section 42 of the Water Act, in the case of detecting shortcomings of more important kind, eventually detecting threat of surface water pullution by these substances penalties are inflicted according to section 116 letter c) of the Water Act.

The amount of discharged waste water containing mercury, cadmium and organohalogenic compounds pursuant to section 90 of Water Act can reach the values of 393 kg Hg in 2005 (was not charged), 1 596 kg Cd in 2005, 11 340 kg AOX in 2005, 67 kg Hg in 2006, 11.5 kg Cd in 2005 and 42 561 kg AOX in 2006.

The CEI in cooperation with regional authorities and integrated inspection bodies pursuant to the Act No 353/1999 Coll., concerning prevention of serious accidents which was annuled and compensated by the Act No 59/2006 Coll. (in force since 1.6.2006), in 2006 it controlled 81 subjects of group B and 27 subjects of group A (a total of 157 subjects is in the agenda of the act). Apart from

the approved plan of controls also unreported controls occured in cooperation with the regional authorities, aimed at finding out the real amount of dangerous chemical substances and comparing to data in the report and security documentation.

Other regulations concerning water peotection:

Regulations related to marketing products

Conditions of marketing chemical preparations and circulation are determined by the Regulation No 221/2004 Coll., which designates lists of dangerous chemical substances and dangerous chemical preparitons, the marketing of which is forbidden or the marketing or circulating of which is restricted as amended by the Regulation No 109/2005 Coll., Regulation No 78/2006 Coll., Regulation No 284/2006 Coll. And Regulation No 540/2006 Coll., not only for chemical preparitions, which are dangerous on the basis of their dangerous features referred to in section 2 of act, and also those which are of specific danger to the environment or to the human health with regard to its content of dangerous substances. The change of requirements occured in washing detergents for washing textiles with the concentration of phosphorus of more than 0.5 % of its weight, which cannot be marketed since 1.7.2006 and cannot be circulated since 1.10.2006 . This restriction does not apply to the washing detergents used for washing in industry and in institutions where it is carried out by trained workers and also does not affect the washing detergents intended for export or distribituion into other member tsates of the EC.

Biocide preparations must not contain other basic substances than the mentioned the list of the basic substances (section 3 paragraph 5 of Act No 120/2002 Coll.), and other active siubstances than the ones given in the Supplement No II of the Committee regulation (ES) No 1451/2007, namely until 14.5.2010 (section 35 of Act No 120/2002 Coll.).

The process of implementing REACH (Registration, Evaluaction Authorisation of Chemicals) policy is significant – it is the new system of control

of chemical substances. It designates to use only the chemical substances with known features until 2020 at the latest in such way that does not damage the environment or the human health. Technical, scientific ans administrative aspects of the REACH system will be governed by the European agency for chemical substances. To ensure the high level of human health protection and environmental protection a great attention will be paid to the extremely dangerous substances as for example cancerogenic, mutagenic, toxic for reproduction atp., the use of which may be restricted and their compensation by safer alternative substances or technoligies may be requested. Regulation No 1907/2006 came into force on 1.6.2007. Preregistration and subsequent registration of legislatively designated chemical substances, preparations and substances contained in products (subjects from which they can be released whenused) will be started on 1.6.2008.

Regulations concerning protection of air

Act No 86/2002 Sb., concerning air protection and change of some other acts, as amended by later regulations is the basic constituent act for air protection. From the point of undirect water protection mainly the regugulating of emissions of volatile substances (Regulation No 355/2002 Coll.) and Order of the Government No 615/2006 Coll., which designates the emission limits for other stationary sources of pollution, namely the products from coke (PAU emissions), production of 1,2-EDC, vinylchloride and chlorine (mercury).

Regulations concerning phytosanitary care

Preparation, not including the preparations intended for use pursuant to section 44 and 45 of Act No 326/2004 Coll., as amended by Act No 131/2006 Coll., parallel preparations pursuant to section 53 (of the same act) and preparations licensed for use pursuant to section 37 paragraph. 2, can be marketed and used if theyare registered by the phytosanitary administration (section 31 of Act No 326/2004 Coll., as amended by the Act No 131/2006 Coll.). Fulfilling the mentioned obligations is controlled by inspectory of SPA when marketed and used for treatment. In purpose for the control by the director of the office annually a „Plan of post-regulation control“ is issued and its excercise is evaluated. Adherence to the obligations also relates to mechanisation instruments, aplication of phytosanitary preparations and their storage.

In the years 2006 – 2007 pursuant to the Act No 156/1998 Sb., concerning fertilizers, as amended by later regulations, to the Central instutute for supervising and testing in agriculture 454 requests for registration and 570 requests for prolonging the order for registration were given. A total of 412 orders for registration of manure and adjuvants and 337 orders for prolongation of operation of the order for registration were given. Within the registration anylysis of samples for fulfilling the limits proceeds. Subsequently the fertilizers are controlled within the long-term supervision, on the base of which, 20 orders were annuled on account of exceeding limits for risk substances. The number of controls pursu-

ant to the Regulation No 274/1998 Coll. and No 103/2003 Coll. rose twice in 2007 unlike in 2006. No defects were detected only in rase cases.

Regulations concerning waste management

The problem of waste is resolved by the Act No 185/2001 Coll., concerning waste, as amended, together with consequential implementing legal enactment. Within the framework of the activity of CEI in 2005 88 hazardous waste damps were controlled, of this 33 of the group S-NO (hazardous waste) and 55 damp of group S-IO and S-OO. In 2006 a control of all hazardous waste damps was carried out (group S-NO – 31) and of another 98 damps of other groups at random. Checkup of the technical state of all operated damps was finished in 2005.

CEI did not register any important breach in peple operating facilities for using or rectifying waste oils which must follow the indicators of quality of waste oils, mainly the content of PCB. Also the report to the EC is performed (not periodical) concerning the evidence of substances and preparations contained in the machinery, which may contain substances with PCB. The owners of PCB, waste PCB and owners or operators of machinery containing PCB are obliged to elaborate and send the ministry a plan of gragual rectification of PCB, waste PCB and machinery containing PCB or a plan of decontamination of waste or machinery containing PCB for the period 2009 to 2010 until 31.3.2009.

According to the retrograde intake of waste oil evaluation in 2005 a total of 103 533 t was marketed. The total production of waste oils according to the Information system of the waste mamagement (ISWM), 30 963 t in 2005, is approximately only a quarter of the production of fresh lubricants. According to the professional estimates of The Czech Association of Petroleum Industry and Trade Podle (CAPIT) annualy app. 50 % of the consumption of fresh oils is collected and the data from the retrograde intake of oils from the amount which was retrogradely intaken 98.8 % was used. In 2006 according to the CAPIT statistics a total of 136 029 t of oils were marketed. The total production of waste oils in 2006 was 32 867 t. De-

Odra river, Poodří

velopment of analyzed area does not fully correspond to the Plan of waste management in the CR.

Until the end of 2005 these targest were attained: full utilization of industrial Ni-Cd accumulators of full utilization of the ferrous substances was attained and salvage was obtained and the material utilisation of 85 % of weight of the total amount of accumulators marketed. Until 2010 the higher material utilisation of lead accumulators will continue, so that the salvage and material utilisation will be 95 % of weight, from the total amount of lead accumulators marketed, the goal is according to the current trends attainable. According to the evaluation of data from the evidence of of retrograde intake of galvanic cells and batteries in 2006 3 069 t was marketed, a total 194 t of other batteries and accumulators was collected (this classification roughly corresponds to the item of portable batteries and accumulators) i.e., the salvage of 6.3 % corresponding to 19 gr a year per inhabitant. The material utilisation of retrogradely taken in batteries and accumulators was 56.2 % in 2006. The big proportion of batteries and accumulators is not retrogradely taken in and probably ends in communal waste. In 2006 a total amount of 1 731 t of other batteries and accumulators were produced (portable batteries and accumulators).

Regulation concerning transport

Transport of dangerous things in the road transport and railway transport is guided by appropriate international contracts (Contract ADR concerning international road transport of dangerous things and Agreement RID – the rule of international railway transport of dangerous doods). For the transport of dangerous things in the domestic navigation only water crafts apt to this transport pursuant to the conditions designated by the Regulation No. 223/1995 Coll., concerning aptitude of the water crafts for the operation on domestic waterways, as amended by later regulations can be used.

For elaborating this report in the part dedicated to fulfilling the Programme for decreasing the surface water pollution with dangerous substances and with extremely dangerous substances for the period 2006 – 2007 the following bodies secured background material: CEI, the MoT, the MLD, the MoI, the MoH, the MoA, the MoE, State phytosanitary administration, the Central instutute for supervising and testing in agriculture, and WMRI T.G.M.

Programme for decreasing pollution of surface water suitable for the life and reproduction of fish and other water organisms

The Order of the Government No 71/2003 Coll., concerning designation of wwater suitable for life and reproduction of fish and other water organisms and concerning ensuring and evaluation of state of quality of these waters, as amended by the Order of Goverment No 169/2006 Coll., designating the surface waters suitable for life and reproduction of orifinal species of fish and other water organisms, with division into carp and salmon waters, for the purpose of incrasing safety of these waters against pollu-

tion and improving their quality, so that they could become permanently suitable for the maintenance of life of fish belonging to the original species ensuring permanent diversity or to species whose presence is suitable.

This order also adjusts the method of ascertaining and evaluating the state of the mentioned surface waters. When amended a new section 4a was added in which the programme of decreasing the pollution of surface waters is described, which contains an overview of surface waters and indicators, in which they do not accomplish stated values of indicators of quality. The actual overview is published in Supplement 3 of this Order of the Government. In November 2006 in the Bulletin of the MoE (volume XVI, number 11) a common Methodological instruction of the MoE and the MoA was published to secure the fulfilment of the programme of decreasing surface water pollution of waters suitable for the life and reproduction of original species of fish and other water organisms.

The current state of investment measures, which this material contains was evaluated to 31.12.2007. The degree of realisation of constructions ranges at about 64 – 65 %. The impact of newly realised constructions on water quality will be visible in follownng periods.

Constructions for protection of water quality implemented in 2007

From the most significant events in the sources of pollution above 2 000 EO in 2007 the following waste water treatment plants were finished (N = nitrification, DN = denitrification, BP = biological removal of phosphorus, CP = chemical reloval of prosphorus).

New communal WWTPs (18 119 EO total): Solnice (3 400 EO, N, DN, CP), Strachotín (3 019 EO, CP), Zbiroh (3 000 EO), Brněnec (2 300 EO, N, DN, CP), Obříství (2 200 EO, N, DN), Bratronice (2 100 EO, N, DN, CP), Tymákov (2 100 EO, N, DN).

New neutralisation stations: Ostroj, inc., Opava (144 m^3/d), Galvan CZ, L.L.C., Ostrava (144 m^3/d), METAL Ústí nad Labem, inc. (100 m^3/d).

Dyje river, weir Bulhary

Also reconstructed or enlarged in 2007:

Existing communal WWTP: Liberec (190 333 EO, N, DN, BP, CP), Frýdek-Místek (120 000 EO, N, DN, CP), Holešov (54 000 EO, N, DN), Příbram (50 000 EO, N, DN, CP), Mariánské Lázně Chotěnov (22 000 EO, N, DN, CP), Lanškroun (17 750 EO, N, DN, CP), Horní Počernice - Čertousy (13 330 EO, N, DN, CP), Lázně Bělohrad (9 900 EO, N, DN, CP), Dobřany (9 600 EO, N, DN, CP), Líně (joined Zbůch+Sulkov) (5 475 EO, N, DN, CP), Rajhrad (5 000 EO, N, DN, CP), Karolínka (4 700 EO, N, DN, CP), Zeleneč (4 000 EO, N, DN, CP), Chotěšov (3 100 EO, N, DN), Zvole (3 000 EO, N, DN, CP), Libušín (2 500 EO, N, DN), Nové Hrady (2 500 EO, N, DN), Nehvizdy (2 260 EO, N, DN, CP), Sedlec-Prčice (2 250 EO, N, DN), Senohraby (2 200 EO, N, DN, CHP), Zdice (reconstruction and preserving original capacity).

Existing industrial WWTP: Olšanské papírny, inc. (3 400 EO, N).

Action programme within the directive of the Council 91/676/EHS (so-called Nitrate directive)

Action programme addopted pursuant to article 5 Nitrate directive is the most effective and also the most expensive system of measures within the implementation of this directive. Action programme represents a system of obligatory measures in vulnerable areas (section 33 of the Water Act), the aim of which is to reduce the risk of washing out nitrogen into surface and groundwater.

Among the basic measures of the action programme in the Czech Republic, which is processed in compliance to Supplement No III of Nitrage directive belong:

a) region in which it is forbidden to use certain kinds of fertilizers and barnyard manure,
b) stating minimal capacity of barnyard manure store houses, which enable to store barnyard manure in the time during which it is forbidden to fertilize,
c) restricting the application of fertilizers and barnyard manure, correponding to correct principles of farming with consideration to soil-climatic conditions (soil type and class, inclination of land, temperature, precipitation),
d) methods of harnessing and management of land (on inclined, wet, flooded, frozen soils and near waters),
e) measures mentioned in the action programme, which must ensure that in no agricultural company in the vulnerable area the amount of annually applied barnyard organic manure, organic and organomineral manure, which contains more than 170 kg of nitrogen (N)/ha/year will not be exceeded.

Action programme is proclaimed in the Order of the Government No 103/2003 Coll., as „using and storage of manure and barnyard manure, crop rotation and performing anti-erosion measures in the vulnerable areas“. Pursuant to article 5 of Nitrate directive the action programme lasts four years and after this period it is evaluated and revised. The first action programme was announced for the period 2004 –2007.

11.4 WATER – Information system of the Czech Republic

The ministry of Agriculture and the Ministry of the Environment continued in 2007 with the implementation of interdepartmental project called WATER – Informa-

Labe river, Děčín

tion system of the Czech Republic. The main aim of this project was to provide non-professional public, enough credible and relevant data about water for deciding, education and general know-how, preferably in unified and effective manner and in one palce. From this view the systhematic building of Central evidence of watercourses became a basic element of work even in 2007.

In the same way as in the preceeding years, the main classification of the internet pages of the Water Management Information Portal was preserved into three tabs, these being:

- Current information
- Records of PAIS
- Project PAIS – WATER

The basic idea of internet pages functioning is the fact that it is a decentralized (distributed) system, where the individual applications (evidences) are run by those subjects which are the authors of the data. Basically those are not individual applications which utilize the central services of the access portal, which functions as a guidepost to the individual data bases.

Within the tab „Current information" no significant functional changes in individual applications occured in 2007. In the course of the year a number of design chages occured, which significantly contributed to better presentation and easier searching of the demanded information, not only during flood situations. A substantial novelty is that since 2007 the public have a unique opportunity to be constantly informed about the imporatnt information even througt mobile devices supporting WAP technology. Currently the public can find on the wap pages mainly up-to-date information about the amount and flow of water in watercourses, state of water level in reservoirs, amount of rainfall including important contacts on River Boards, s.e. Everything is available on the internet pages www.voda.gov.cz/wap.

Within the tab „Records of PAIS" in 2007 the MoA, in the cooperation with the watercourse administrators, participated on the implementationof the following planned project tasks which were succesfully and fully performed in the planned dates. The central part of the work applied primarily to the building up of central record of watercoures (CRWC). The CRWC watercourses layer in the ratio scale 1:10 000, which is the basic supproting and linking record of ISPA – WATER and will be used for further territorial links of the phenomena of other records and for the subsequent updating of layers of watercourses in linked public administartion information systems, was succesfulyi implemented into the operation information systems of the River Boards, s.e. At the same time within the gateway the layer of watercourses in ratio scale 1:10 000 was made accessible with the identification of watercourses administrated by the River Boards, s.e. (administration). At the end of 2007 also the works on implementation of border and crossborder waters into CEWC10.

Within the Central evidence of reservoirs (CER) the evidence of small watercourses in competence of AWMA was made accessible (app 518 reservoirs) and in competence of Forests of the Czech Republic (app 446 reservoirs were made accessible), including territorial segmentation, which enlarged the presented data about reservoirs in competence of the River Boards, s.e.

Also works on elaborating the transparent information of Evidence of waterworks to water management ameliorations of land from the resources of the AWMA. Within this an elaboration of the proposition for the life cycle of waterworks for water management ameliorations of land at the administrator of the register of AWMA for the purpose of publication of data within PAIS-WATER was carried out, including support for linking the evidence with operational activity of the technical evidence of waterworks for water management ameliorations of land at the administrator.

Within the Technical record of phenomena and features on watercourses (ISyPo TE) in 2007 the methodology of integation of register of records of PAIS including the initiation of preparation of procedure for the territorial identification imlementation in ratio scale 1:10 000 in the current version and orthophotomap in exposed terrains was carried out. At the same time the recorded items are bound to selected phenomena of CTRP.

Within the framework of Central evidence of Water legal Decisions, in 2007 work was performed applying primarily to the system updating and regular statistical evaluations. At the same time works on the new version of the Editor of water legal evidence (eWLE) including building up new communication environment in the XML format was started.

The resort of the MoE is is charged with administrating of a total of 12 records within the interdepartmental project PAIS – WATER, which informs about the state of surface water and grounwater. It involves mainly the record of hydroecological zones, record of water formations including heavily influenced water formations and artificial water formations, record of the state of surface water and groundwater formations (since 2010), record of ecological potential of heavily influenced and artificial water formations (since 2010), record of protected areas of natural accumulation of waters, record of protection zones of water sources, records of sensitive areas, records of vulnerable areas, record of areas of surface waters used for bathing, record of flooded areas, record of surface waters, which are or should become permanently suitable for life and reproduction of original species of fish and other water organisms and record of surface water quality in the state monitoring network. The first filling of above mentioned records (pursuant to the Regulation No 391/2004 Coll.) with available data occured (not including evidence posponed by the regulation) until the years 2004 and 2005. In 2006 transmission of this records to new scales, mainly the scale 1:10 000 for surface water and 1:50 000 for groundwater was carried out. In 2007 update of all records were implemented and update and works were carried out on making the attributive data in the format XML accessible. Also the elaboration and filling metadata pursuant to CSN ISO 19115 Geographical information – metadata (again including accessibility in the XML format).

On the basis of the proceedings of the Governing project committee and the Coordination team a single internet address www.voda.gov.cz. was created in 2007. The existing valid internet addresses serve only for redirecting to these pages. At the same time a new logo of the portal was created and approved, which characterizes presenting information from the field of waters of the CR (symbol of inverted drops), which are guaranteed by the state administration (tricolour).

www.voda.gov.cz
www.water.gov.cz
www.voda.gov.cz/wap

11.5 Reporting activity of the Czech Republic to the EU

Preparation and elaboration of reports for individual directives of the EU for the European Commission, which are in the competence of the Ministry of the Environment proceeded also in 2007 in compliance with performing the tasks arising from implementation plan for the area of the environment and from the requirements of the directive.

Pursuant to the Order of the Council No77/795/EHS from 12.12.1977 the report establishing common procedure for information exchange concerning the surface freshwater quality in the Communities was eleborated. To the elaboration of the Record data from all specified profiles not including the profile Berounka-Beroun were included. This profile has not been monitoring for the reason of inaptitude for the purpose of water quality monitoring, and it was substituted by the profile Berounka Srbsko. Data from this profile have been reported for a number of years for the purpose of information exchange pursuant to the Order of the Council No.77/795/EHS are reported as data from the profile Berounka Beroun. The profile Ohře Louny does not represent the entire catchment area, on this profile only limited scope of assigantion is elaborated. Representative profile is the profile Ohře Terezín, which is included in the programme of situational monitoring. The profile Bečva Dluhonice does not represent the entire catchment area, for this reason in 2007 the monitoring within the programme of situational monitoring was shifted into the profile Bečva Troubky, which is the conclusion profile of the Bečva.

Overall the European Commision was sent the data from the following profiles:

Bečva - Dluhonice, no of station 4010
Ohře - Louny, no of station 4006

Odra - Bohumín, no of station 1163
Ohře - Terezín, no of station 1109

Berounka - Srbsko, no of station 1089
Dyje - Pohansko, no of station 0402

Morava - Lanžhot, no of station 0401
Vltava - Zelčín, no of station 0105

Labe - Děčín, no of station 0104
Labe - Obříství, no of station 0103

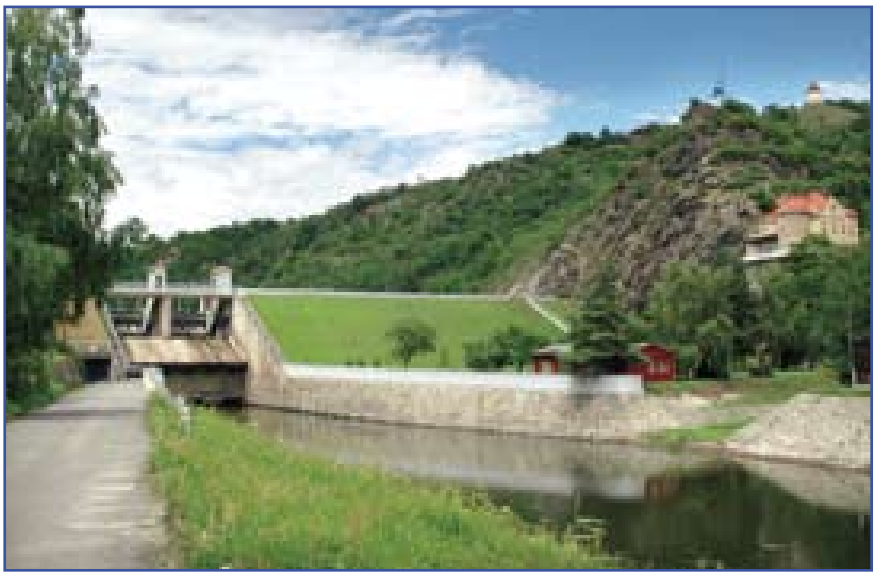
In February 2007 the Eurppean Commission was sent the Updated report of the Czech Republic from December 2004 concerning programmes of implementation of the Council directive 91/271/EHS from 21.5.1991 concerning municipal waste water (pursuant to article 17 of the directive).

The Council Directive No 91/271/EHS concerning municipal waste water treatment is of a great imporatnce for the Czech Republic from the point of both protection of waters and improving their state, and for economical-sicial impacts of its implementation.

Ohře river, WW Skalka

The CR proclaimed the whole territory a sensitive area and mainly for this reason the CR was granted the transition period until 31.12.2010 for the construction of sewerage sytems and waste water treatment plants in the aglomerations in the size of 2 000 - 10 000 equivalent ihabitants (EI) and for the construction of tercial treatment in aglomerations over 10 000 EI. Updated Report of the CR concerning programmes of implmentation of the directive is according to the requirements of the directive related to 31.12.2004 and also involves the data for dates designated in the Ac tof admission for the transition period to this directive (31.12.2006 and 31.12.2010). For aglomerations above 10 000 EI the CR should have ensured conformity with article 5, paragraph. 2 of the Directive for 18 enumerated aglomerations to the admission date (1.5.2004), for 36 other aglomerations until 31.12.2006 (total of 54 aglomerations). For other aglomerations over 2 000 EI a transitional period was negotiated until 31.12.2010. The list of 54 resolved aglomerations is part of the report. It involves the following 54 aglomerations: Kuřim, Přelouč, Vlašim, Sušice, Turnov, Kralupy nad Vltavou, Český Těšín, Hranice, Třinec, Orlová, Šumperk, Krnov, Uherské Hradiště, Karviná, Znojmo, Olomouc, České Budějovice, Brno, Bystřice pod Hostýnem, Rychnov nad Kněžnou, Frenštát pod Radhoštěm, Uničiv, Kyjov, Vysoké Mýto, Zábřeh, Vrchlabí, Veselí nad Moravou, Lovosice, Roudnice nad Labem, Ústí nad Orlicí, Vyškov, Litoměřice, Moravská Třebová, Žďár nad Sázavou, Písek, Polička, Bruntál, Kopřivnice, Rakovník, Nový Jičín, Vsetín, Kolín, Benešov, Chrudim, Trutnov, Kroměříž, Hodonín, Děčín, Teplice, Most, Přerov, Havířov, Zlín a Ústí nad Labem. In these aglomerations the requirements of the directive for cetral refernce are fulfilled and the rest of the inhabitants not connected to the sewerage system ensures the treatment of waste water by individual methods of treatment and they can be connected to the sewerage system in the future.

In September the European Commission was also sent the Report of the Czech Republic concerning revision of vulnerable areas for Nitrate directive, impemented in March 2007.



Dyje river, WW Znojmo

The Nitrate directive imposes in article 3, paragraph 4 to all member states to review and if needed to adjust or complete the list of defined vulnerable areas at least every four years whereas they will consider the changes and facts which were fot possible to forecast during the last definition. The member states will announce the Commitee the implemented changes or the complements in the list of the defined vulnerable areas in six months. In March 2007 the first revision of vulnerable areas according to the amount of the mentioned requirement of the Nitrate directive and Order of the Government No 103/2003 Coll, concerningdefinifion of vunerable areas and using and storage of manor and barnyard manor, crop rotation and anti-erosion measurements implementation in these areas was carried out. Revised definition of the vulnerable areas was elaborated on the basis of bounding background materials cited by the maetioned government order and other accessible background materials, whereas the emphasis was put on evaluating nitrate concentration in compliance with the requirements of the Nitrate directive and on evaluating trends of development of nitrace concentrations in the areas and individual monitoring profiles. Small part of the vulnerable areas from the original definition was cancelled within the revision, because it was evidenced by the more detailed data that in this areas a long-term trend of decreasing the concentrations occured, on the other hand other areas were added thanks to the current background materials. The total proportion of vulnerable areas on the area, repectivelly the agricultural land of the Czech Republic has slightly increased (from 45.5 to 49.9 % a.l.) in comparison with 2003. For evaluation the background materials concerning concentrations of nitrates and their development in previous 5 to 15 years were used. On the basis of this evaluation 27 new areas were chosen (P1 – P27), where the concentrations of nitrates and evident worsening of the state occurs. On the other hand in 22 areas (Z1 – Z22) the long-term concentrations of nitrates were under 25 mg/l (mostly under 15 mg/l) with the decreasing trend these areas were cancelled.

In 2007 also the Report concerning implementation of the Council directive No 76/160/EHS, concerning the quality of water for bathing was elaborated (administrator of this directive is the Ministry of Health, the report was elaborated in the intentions of given directive, which was substituted by a new Directive No 2006/7/ES, concerning the control of quality of waters intended for bathing) in 2006.

Report on the quality of water intended for bathing of people and its most imporatnt chracteristics for the recreational season 2007 was handed to the Commission in December 2007. The report is annually, after elaboriting the results, displayed on the portal of the European Commission:

http://ec.europa.eu/water/water-bathing/index_en.html.

Markéta Machová, 14 years, Bílina grammar school „Ice crack“ (Ústí region) ***- price of the minister***

International relations

12.

The Czech Republic develops the principles of water protection and management on the basis of hydrological catchment areas and hydrogeological zones, exceeding the borders of the states in compliance with the Convention EHK OSN concerning protection and using the border watercourses and international lakes and with the Framework directive.

The CR is the contract side of the Convention EHK OSN concerning protection and using border watercourses and international lakes (Convention UNECE) since May 2000 and its experts take part in the events of related activities concerning the area of intergated operation of water sources and related ecosystems, monitoring and evaluation of the state of waters, flood protection and preparation for changes of climate, protection of water against accident pollution from the industrial sources, maintenence of the cross-border cooperation on border waters and unified international catchment areas and water and human health. Within the Convention UNECE and the document „Doccummentation for payments for services, which are provided by the ecosystems in the water protection“ came into existence. On its basis a study analysing the legislative and economic conditions in the CR and containing propositions for utilisation of the recommendation on national level was published. On the occasion the sixth ministry conference of the MoE for Europe, within the Convention UNECE the evaluating report on interantional rivers in the region EHK OSN „Our waters: Joining Hands across Borders“ was prepared. In 2007 activities related to the adaptation to global changes were newly started.

Within the Convention UNECE a new contract document concerning the connection of water and human health, Protocol concerning water and health (Protocol) was originated. The first session of the contract sides of the Protocol took place in January 2007 in Geneve. The session issued a control of preparation of aims to the Protocol in individual contract sides, it established financial support and mechanism of financing of activities within the Protocol, discussed the possibility of enlarging Protocol by states outside the region of UN ECE, and authorised the programme of work and common declaration. For the purpose of implementation of individual tasks professional working groups were established for monitoring of the ilnesses caused by water, for indicators and reporting and extreme weather variation. Further information about the Convention of UN ECE and protocol on www.unece.org/env/water.

Divoká Orlice river, border watercourse

12.1 International cooperation on border waters

Thirty percent of state borders are formed by water courses. Cooperation on border waters, which are not only the watercourses forming these borders but also watercourses crossing the borders, is adjusted by the bilateral international or intergovernmental contracts and agreements. Their excercise is ensured by bilateral commissions for water management matters on border waters, or government representatives for border waters.

Contract between the Czech Republic and the Federal Republic of Germany on cooperation on border waters in the field of water management

The purpose of the tenth session of the Czech-German commission for border waters (Commission CR-FRD) was to discuss and legalize the results of the ninth session of the standing commission Bawaria and the ninth session of of the standing commission Saxony. The commission CR-FRD also discussed the up-to-date questions of the coopeartion on border waters, mainly the principles concerning individual fields of cooperation, lists of border waters and urgent points of the cooperation with the standing CR-FRD border comission.

Comission CR-FRG also discussed point 4. „Implementation of Framework directive 2000/60/ES on border waters“, point 6.2 „Restriction of validity of the water legal decisions on the Czech side“ and point 7.4 „Principles for honouring work, functions and deliveries, and also the common takeover and common invoicing of the water management measures (article 5, paragraph 1, letter c) of the contract)“. Within point 6.1 the intention of financing and construction of a stable accident profile Elbe in the border profile with FRG. This order should serve for prevention of pollution by petrolleum substances from spreading to FRG, caused by accidents.

Teplá river, WW Podhora

The results of the discussion are given in the Protocol concerning the tenth session of the Czech-German commission for border waters", which was signed at the end of discussion by both representatives, put forward by the head of the resorts concerned to attitude and authorised by the minister of the environment. Protocol can be found on the web pages www.ochranavod.cz.

Contract between the Czechoslowak Socialist Republic and the Republic of Austria on adjustment of water management questions on border waters

On 23. – 26.4.2007 the fifteenth meeting od the Czech-Austrian commission for border waters (Commission CR-A) on the territory of Austria in Schärding took place. It discussed matters concerning adjustment and maintenance of border watercourses, international acceptance and invoicement of works on border wetercourses, keeping the border waters clean, hydrology, navigation questions, border questions, water management studies and planning.

Commission CR-A also authorised the records of international acceptances of construction measures and invoicement of works on Czech-Austrian border waters, drawn by professionals and updated „Directive for warning duty on Czech-Austrial border waters". One of the important decisions of the Commission CR-A was establishment of working group of experts, established for the purpose of solving pollution of the watercourse Dyje on the Czech state territoty by Austrian chemical plant in Pernhofen. Both sides of the contract informed about the activity within the meeting of government representatives CR-A Commission(27. – 28.11.2007 in Prague).

The result of the meeting of Commission CR-A is given in the protocol in bilateral agreement and signed Protocolfrom the fifteenth meeting of the Czech-Austrian commitee for border waters,which was intedepartmentally discussed and approved by the minister of the environment. The authorised protocol is displayed on the web pages www.ochranavod.cz.

Agreement between the government of the Czech Republic and the government of the Slowak Republic on cooperation on border waters

In 3. – 5.4.2007 on the territory of the Slowak Republic in Modra – Harmónia the seventh meeting of the Czech-Slowak comission for border waters (Comission CR-SR), which discussed the matters concerning the adjustment and maintenance of the border water courses, iternational acceptance and invoicement of works on border waters, keeping the border waters clean, hydrology, navigation questions, border questions and water management study of planing.

Within its seventh meeting the Comission CR-SR authorised the reports of working groups for 2006 and plans of work for 2007. Both sides of the contract informed about the actual trilateral meeting of government representatives of the Czech Republic, the Republic of Austria and the Slowak Republic for border waters. The purpose of this meeting was to discuss cooperation in the field of creating a common syseém for the protection of border area against consequences of extra events.

The result of the meeting is shown in the Protocol from the seventh meeting of the Czech-Slowak commission for border waters, which was interrdepartmentally discussed and authorised by the minister of the environment. The approved protocol is displayed on the web pages www.ochranavod.cz.

Convention between the government of the Czechoslowak Republic and the government of People´ Republic Poland on cooperation on border waters

In 22. – 24.10.2007 the ninth meeting of government representatives for cooperation in the field of water management took place in Hradec Králové, where the results of the activity of individual working groups for the period from the eight meeting were authorised. The works involved planning in the field of water management, hydrologic questions, hydrogeology and flood prevention, watercourse adjustment, supply with water and amelioration of border areas, protection of border waters from

Přísečnice river, WW Přísečnice

pollution and questions of implementation of the Framework directive on Czech-Polish border waters. The working groups of both contract sides were given tasks in individual areas of cooperation and the plans for work for following periods were authorised. In connection with the implementation of the framework Directive on border waters the principles of the Czech-Polish working group were authorised and information about the procedure of works in the delimination of Czech-Polish crossborder formations. Also the information about activities in the Lužická Nisa catchment area were accepted in the sense of adressing the German representative for border waters with the aim to start trilateral cooperation in the area of the Lužická Nisa catchment area. In the area of protection of border waters afainst pollution they acceted the annual report on the state of quality of border waters monitored in 2006 and they stated that there has been an improvement unlike in 2005.

The actual results of the meeting of representatives are given in the Protocol from this meeting, which was signed by both representatives, inerdepartmently discussed and authorised by the minister of the environment. Protocol can be found on the pages www.ochranavod.cz.

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

Dyje river, Vranov nad Dyjí

International cooperation of the Czech Republic in the area of water protection is implemented mainly within the international commissions for protection of the unified catchment areas of the Elbe, Danube and Odra on the basis of the Agreement concerning International commission for Elbe protectionn, Conventions concerning cooperation on protection and sustainable use of the Danube and Agreement concerning Inrernational commission for the protection of the Odra against pollution. Within these activities the CR also contributes to necessary support of the North, Black and Baltic Sea and takes part on implementation of framework directives in these intermational catchment areas.

Within all commissions in compliance with the Framework directive programmes of monitoring were prepared pursuant to article 8 of the framework directive and in March 2007 were sent in the form of common summary reports concerning the programme of monitoring in the Elbe, Danube and Odra catchment areas to the European Commission. In the international commission for Elbe protection the Czech Republic executes the presidency for three years.

Hostenický stream, Hostenice

Agreement concerning International commission for Elbe protection

ICPE is the most important panel of the Czech-German cooperation in the field of water protection in the Elbe catchment area. Ist activity is aimed at decreasing pollution of the Elbe and its tributaries, improving the state of ecosystems related to water, monitoring programmes and observation of water quality, prevention from accident pollution and in the last years mainly coordinated fulfilling of the requirements of the Framework directive and improvement of flood protection. ICPE published in March 2007 a Common survey report for the European Commission concerning minotoring programmes in the international Elbe catchment area (Report 2007) to involve the public into the process of implementation of the Framework directive in the Elbe catchment area in the competence of ICPE the International Elbe forum was established (IEF). The first IEF took part in March 2007 in Ústí nad Labem. In May 2007 a publication of the ICPE called „Hydrological evaluation of flood in the Elbe catchment area in spring 2006“ was issued.

On the twentieth ICPE meeting, which was held on 23. and 24.10. 2007 in Dessau, the procedure of implementation of the the Framework directive in the international Elbe catcment area was prediscussed.

The Common time plan final wording and programme of works for drawing up the International plan of the Elbe catchment area, document for suggestion of the public pursuant to article 14 of the Framework directive conterning the important problems of handling water in the international Elbe catchment area, outline of the International plan of the Elbe catchment area and international plan for Elbe monitoring were authorised. Also the discussion of the problems of measurements for decreasing concentration of haloethers in the Elbe was held. Within the amendment to the International warning and alarm system plan of the Elbe adjustments of Alarm model of the Elbe were carried out. ICPA accepted the updated List of potentially dangerous facilities for the quality of water in the Elbe catchment area and asked the sides of the contract to give the material to appropriate offices for internal usage. On the twentieth meeting of the ICPA it was approved that the Federal Republc of Germany will hold the presidency of ICPA after the CRN in the period from 1.1.2008 to 31.12.2010. Further information concerning ICPA are on www.ikse-mkol.org.

Convention concerning cooperation for water protection ans sustainable use of the Danube

V 2007 the fourth Danube day was celebrated for the fourth time in the Danube states, which takes place on the day of the Convention signature, i.e., 29. June. As a part of the celebrations in the Czech part of the Morava catchment area held by the Union for river Morava in cooperation with the MoE, the MoA and the Morava River Board Company there was a celebration. The children from the Morava catchment area took part in the international school art competition „Young artists for Danube" held by the International commission for protection of Danube (ICPD). For the winners from individual areas the ICPD there was prepared a trip to Hungary and the main winner got the international price.

The tenth meeting of the ICPD was held on 4. and 5.12.2007 in Vienna with the presidency of Romania. Delegations from all 14 contract sides of the Convention, chairmen of individual expert groups, delegates of 19 monitoring organisations and workers of the secretariate of ICPD took part in this meeting. ICPD authorised a report of auditors from thepcreceeding period, budget and the amount of fees for the next period. It discussed the work of individual expert groups aimed mainly at fulfilling the objectives of the Framework directive, it was informed about the implementation of the Directive in individual catchment areas of the Sáva, the Tisa, the Prut and the Danube delta concerning the termination of the first phase of intrecalibrational training in the Easternuropean intercalibration group (EC GIG), the course of which was coordinated by the ICPD secretariate. For leadership of the next phase of the intercalibrational training on rivers in EC GIG the Czech Republic enrolled in cooperation with Hungary, and on the lakes Romania enrolled. ICPD listened to the information about the course of the Common Danube research carried out in the period from August to September 2007 with the help of a number of ships in the whole Danube catchment area including its tributaries, with the attention of the public and the media. In the course of the research the chemical, biological and hydrological and hydromorphological indicators were observed. The results will be used for evaluation of the Framework directive. The participants of the tenth meeting of the ICPD were informed about the important uccess of the ICPD, which is the appraisal with the Thiess Riverprize in Austral-

Lužická Nisa river, White church

ian Brisbane. The price bounds its onwer to hand over experience from the management of the catchment area to other river commissions. Further information can be obtained on the ICPD pages www.icpdr.org.

Convention conterning the International commission for protection of the Odra against pollution

The convention concerning the International commission for protection of the Odra against pollution is carried out within the International convention for the protection of the Odra against pollution (ICPOP), the activity of which for the year 2007 was discussed on the ninth plenary meeting of the International commission for the protection of the Odra against pollution, which took place on 11. – 12.12.2007 in Wroclaw. On the meeting the reports of activity of individual work groups were announced and taken into account. Among the most important activities in 2007 belonged:

- finishing the „Reports of monitoring of the state of surface water and groundwater and protected areas“ for the International catchment area of the Odra (ICAO),
- structure of the Plan for ICAO,
- the way of coordination of putting together the Plan of ICAO and schedule of its preparation,
- the list of important crossborder water management problems,
- elaborating the conceptions of graphical information system ICPOP (project GIS 1 ICPOP - GIS-WFD-RBD Odra and the project GIS 2 ICPOP Oder - Flood and Data Management /Oder-FlaDaMa/),
- monitoring of implementation of Action programme of flood protection in the Odra catchment area,
- publication „Monitoring implementation of the Action programme of flood protection in the Odra catchment area“ and common brochure ICPOP and World Wildlife Fund (WWF) concerning flood protection and nature protection,
- flood protection and river valleys protection (in cooperation with the NGO ecological organisation WWF,
- update of the potential sources of accident pollution in the Odra catchment area and adjustment of the Accident plan for the Odra,
- update of the International warning and alarm plan and implementation of the terrain international accident training.

ICPOP also debated the procedure for the change of the existing Agreement concerning ICPOP in connection with the accession of the Czech Republic and Poland into the EU and with that related resignation of the EC from the ICPOP agreement. During 6. – 7.11.2007 an international conterence of ICPOP took place in Wroclaw concerning the implementation of the Framework directive in the Odra catchment area with the aim of presentation of the Framework directive and exchange of experience in this area. 136 people took part in the conferrence, mainly the representants of government organisations who are responsible for implementation of the Framework directive in the contract states and representants of the NGOs. Within the tenth plenary meeting the presidency of ICPOP was given to the Polish delegation. Detailed information is available on www.mkoo.pl.

Skalická Morávka river, Podbeskydská upland

Michaela Nerudová, 14 years, Česká Třebová grammar school „Bubbles“ (Pardubice region)

Research and development in water management

13.

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

In 2007, Ministry of Agriculture financed specific purpose research and development in the field of water management as part of research projects with more than CZK 17 mill.

Compared to 2006 there was a decrease in specific purpose financial resources by CZK 957 thous. Overall in 2007 a total of CZK 17 418 thous. was expended on support for water management research and development (R&D) in the context of the departmental Research Programme of the MoA 2003 – 2007, departmental Research Programme in the agricultural sector 2007 – 2012 and National Research Programme (NRP) CZK 17 418 thous. R&D projects started in 2003 received an amount of CZK 4 744 thous., CZK 4 869 thous. was provided to R&D projects initiated in 2004 and CZK 4 553 thous. went to R&D projects initiated in 2005, in 2006 no new projects were initiated. In 2007 four new R&D projects concerning the issues of water management and focusing on soil and water protection with permanently sustainable development of the agrarian sector, the creation, revitalisation and protection of the culture of the landscape, forests and bodies of water and rationalisation of water management were started. In 2007 these projects received an amount of CZK 3 252 thous.

An overview of the research and development projects is summarized in Table 13.1.1. All the publicly accessible data about these projects is available on the internet pages of the Council for Research and Development www.vyzkum.cz in the Central Evidence of Projects. Data about the results from solutions of the R&D terminated in 2007 is also available in the Register of Information about Results (RIR). Other information about research and development in the area of water management can also be found on the pages of the National Agency for Agricultural Research of MoA www.nazv.cz.

One part of the NRP (provider Moa) is the thematic programme „Competitiveness within Sustainable Development", the sub-programme"Utilisation of Natural Resources". The priorities of this sub-programme include the development of technology for the treatment and cleaning of water and improving the effectiveness of managing water in the landscape with the aim of ensuring the cleaniness and quality of drinking water, and avoiding and amelliorating the consequences of hydrological extremes (floods and droughts).

Table 13.1.1

Research and development projects in the field of water management financed from the chapter of the Ministry of Agriculture in 2007

Project no	Name of project	From to	Coordinator	Financial resources (thous. CZK)	Programme
QF3013	Development of hydric effects of forests of small mountain catchment areas	01.01.2003 31.12.2007	Research Institute of Forestry Management and Hunting	1 027	NRP
QF3028	Development of new technoligies for the breeding of economically significant river species of fish and crayfish threatened by the degeneration of the natural environment	01.03.2003 30.11.2007	South Bohemia University in České Budějovice	1 132	MoA
QF3094	Changes in properties of drained and long-term irrigated soils and impacts on soil and water protection	02.01.2003 31.12.2007	Research institute of Ameliorations and Soil Conservation	520	NRP
QF3098	Increasing anti-erosion effectiveness of crops grown	01.01.2003 31.12.2007	Research institute of Ameliorations and Soil Conservation	1 315	MoA
QF3100	Evaluation of growth of climatic drought in agriculture and lessening of consequences by irrigation	01.03.2003 31.12.2007	Research institute of Ameliorations and Soil Conservation	750	NRP
QF4061	Lanscape plans for microregions in connection with the resolution of landscape measures of a significant watercourse	01.02.2004 30.12.2007	Research institute of Ameliorations and Soil Conservation	1 236	MoA
QF4062	Verifying influence and extent of adding grass cover to land and land reclamation in selected localities on the nitrate burden of surface water and groundwater as the basis for measures in Action Programmes	01.02.2004 31.12.2007	Research Institute of Ameliorations and Soil Conservation	1 509	MoA
QF4124	Protection of water in drained source areas	01.02.2004 31.12.2007	Research Institute of Ameliorations and Soil Conservation	364	MoA
1G46036	Inovations of process for water treatment and ensuring high quality of drinking water in distribution systems	01.04.2004 31.12.2008	Czech University of Technology in Prague, Construction Faculty	1 090	NRP
1G46040	Monitoring and evaluation of extreme outflow conditions in catchment areas of small watercourses from the aspect of prevention and lessening of flood damage	01.04.2004 31.12.2008	Research Institute of Ameliorations and Soil Conservation	670	NRP
1G57016	Rainfall-outflow conditions of mountain forests and their possibilities for amelliorating extreme hydrological situations – floods and droughts	01.02.2005 31.12.2008	Mendel Agricultural and Forestry University in Brno	945	NRP
1G57040	Methodology for designing and building optimal variants of flood-prevention and anti-erosion measures (FPAEM) for amelliorating extreme hydrological situations – floods and droughts in the landscape	01.02.2005 31.12.2008	Czech Agricultural University in Prague	1 088	NRP
1G57071	Integrated approach for resolution to the use of rainwater in the urban area	01.02.2005 31.01.2008	University of Technology in Brno	520	NRP
1G58052	Research into solution for degradation of drinking water quality during its accumulation	01.12.2005 31.12.2008	Water Management Research Institute T. G. Masaryk	1 149	NRP
1G58095	Forecasting soil-agrohydrological models of soil water retention in the Czech Republic into the database of the EU countries	01.12.2005 30.11.2009	Czech Agricultural University in Prague	851	NRP
QH71015	Risk minimisation of cyanobacterial metabolite occurence in technologic processes of fishery sector	01.05.2007 31.12.2011	Mendel Agricultural University in Brno	1021	MoA
QH71201	Reliability and safety of water management reservoirs in changing climate conditions	01.05.2007 31.12.2011	Czech University of Technology in Prague	682	MoA
QH72085	Diferentiation of erosion control measures according to soil erodibility and rain erosivity	01.05.2007 31.12.2011	Czech Agricultural University in Prague	580	MoA
QH72203	Proposals for support of suitable agricultural technologies and proposals of new indicators for improvement of soil and landscape water retention capability	01.05.2007 10.12.2010	Research Institute for Agricultural Economies	969	MoA
Total				**17 418**	

Source: MoA

The research programme of MoA 2003 – 2007 contains the sub-programme Competitiveness in sustainable development with thematical scope Rationalisation of managing water. This thematical scope is further divided into research directions Technology for the treatment and cleaning of water, Integration and rationalisation of water management in the landscape and ameliorating the consequences of hydrological extremes – floods, droughts.

The sub-programme in the agrarian sector 2007 – 2012 is included in the sub-programme Protective and considerate procedures of management, which includes the research direction Interaction of soil, water and environment. The aim of this research direction is to propose possibilities of increasing retention and accumulation of water in the landscape, to propose optimal ways of management in protective areas of water sources and so on.

In 2007 the Research Institute for Ameliorations and Soil Conservation continued work on the research intention Ameliorating the adverse natural and anthropogenic impacts on the soil and water.

Research and development in the field of protection, preservation and utilisation of basic natural resources – soil and water in agriculture and the development of the countryside area is dealt with in the years 2004 – 2008 by Research Institute of Ameliorations and Soil Conservation (RIASC). In 2007 this research intention MZE0002704901 was supported by financial resources in the amount of CZK 33 511 thous.

In addition to the described participation in research projects financed by MoA, the RIASC also participated in projects of the Ministry of Education, Youth and Sports.

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

In 2007 the main research organisation in the competence of the Ministry of the Enviromnent dealing with the issue of research tasks dealing with the problems of water protection, was the Water Management Research Institute T.G. Masaryk. The Czech Hydrometeorological Institute dealt with the other important tasks or at least played an important role in solving them.

2007 was the third year of the implementation of the research intention MoE0002071101 – Research and Protection of the Hydrosphere – research into relations and processes in the water component of the environment, focussing on the impact of anthropogenic pressures, its permanent use and protection, including legislative instruments. The provider of the grant is the Czech Republic – MoE. The recipient of the grant was the WMRI T.G.M. In 2007t he solving the science and research projects from the field of water protection (including associated areas)was performed within the programme of the Government Research and Development Board. It involves the projects given in Table 13.2.1.

In 2007 from the resources of the MoE a tree-year project VaV-1D/1/5/05 – Development of methods of predicting the droughts and flood situations on the basis of infiltration and retention properties of the soil cover of the CR was finished, the main administrator of which was the CHMI. Its aim was to supply such data about the rate of saturation of the soil profile, retention capacity of soils, infiltration and permeability of soils, utilisable water capacity and outflow, which will enable elaboration and modelation of forecasts of the flood states and drought forecasts both for smaller and bigger catchment areas and also for the whole territory of the Czech Republic. For estimating the level of saturation of the soil profile the model AVISTO will be used for the selected number of climatologic stations, which works opeartively in the day course. Areal simulations of individual characteristics of the water regime will be enabled by the modelling system MIKE SHE.

In 2007 from the resources of the MoE the project SP/1c2/121/07 – Map of risks arising from the flood danger in the CR, which is based on elaborating of individual problems for completing the currently used or proposed procedures of the risk analysis of the flood land and proposal of procedures for more effective performance of the duties of the CR arising the the newly accepted directive 2007/60/ES concerning evaluating and managing flood risks.

Another new project in 2007 was SP/1c4/16/07 – Reseach and implementation of new instruments for forecasting floods and outflow within the securing the warning and forecasting duty in the Czech Republic is dealing mainly with the research of the influence of inputs in the probatility weather forecast on hydrological modeling by creating a methodology for long-term probability hydrological forecasts and evaluation of their use in the field of water management.

Table 13.2.1

Research and development projectsin the field of water management financed from the chapter of the MoE in 2007

Project no	Name of project	From to	Coordinator	Financial resources (thous. CZK)
SP/1c2/121/07	Maps of risks arising from the flood danger in the CR	2007 – 2011	Water Management Research Institute T. G. Masaryk	15 184.4
SP/1c4/16/07	Research and implementation of new instruments for forecasting floods and outflow within securing of the warning and forecasting duty in the Czech Republic	2007 – 2011	Czech Hydrometeorological Institute	12 360.6
VaV-1D/1/5/05	Development of methods for predicting drought states and flood situations on the basis of infiltration and retention properties of soil cover of the Czech Republic	2005 – 2007	Czech Hydrometeorological Institute	5 953.0
SP/2e7/229/07	Anthropogenic pressures on the state of soil, sources of water and water ecosystems in the Czech park of the inmternational Elbe catchment area	2007 – 2011	Water Management Research Institute T.G. Masaryk	78 016.0
VZ-MZP0002071101	Research and Protection of the Hydrosphere – research into relations and processes in the water component of the environment, focussing on the impact of anthropogenic pressures, its permanent use and protection, including legislative instruments	2005 – 2011	Water Management Research Institure T.G. Masaryk	429 009.3
Total				**540 523.3**

Source: MoE

Explanation of abbreviations in the text

AOPK	Agency for the Protection of Nature and the Countryside of the Czech Republic
AOX	absorbable organic halogens
AWMA	Agricultural Water Manangement Authority
BCO_5	five-day biochemical consumption of oxygen
BIO	hydrobiological monitoring
CA	catchment area
CAPIT	The Czech Association of Petroleum Industry and Trade
CCO_{cr}	chemical consumption of oxygen, oxidation by pottasium dichromate
CCO_{Mn}	chemical consupmtion of oxygen manganese
CEB	Council of Europe Development Bank
CEI	Czech Environmental Inspectorate
CEP	Central evidence of projects
CER	Central evidence of reservoirs
CEWC	Central evidence of watercourses
CF	the Cohesion Fund
CHMI	Czech Hydrometeorological Institute
Convention UNECE	Convention UNECE concerning the protectiona nd use of border watercourses and international lakes
CPOP	International Commission for the Protection of the Odra from Pollution
CSN	Czech state norm
CSO	Czech statistical office
CTRP	central technical record of phenomena
DDD	1,1,dichloro-2,2-bis(p-chlorophenyl) ethane
DDE	2,2-bis(p-chlorophenyl)1,1-dichloroethylene
DDT	1,1,1-trichloro-2,2-bis(p-chlorophenyl) ethane
DEHP	di(2-ethylhexyl) phthalate
DIS	dissolved inorganic salts
DOC	dissolved organic carbon
DS	dissolved substances
EDTA	ethylenediaminetetraacetic acid
EI	equivalent inhabitant
EIB	the European Investment Bank
EIC	evaluation of impacts of the control
EQN	environmental quality norm
ERDF	the European Regional Development Fund
EU	the European Union
eWLR	editor of water law evidence
FCSN	Fund of Cultural and Social Needs
FD	flood damage
FPM	flood protection measures
ICPD	International Commission for the Protection of the Danube Catchment Area
ICPE	International Commission for the Protection of the Elbe Catchment Area
IEF	the International Elbe forum
IOCA	the International Odra catchment area
IRP	integrated register of pollution
ISWM	Information system of waste management
LF CR	Land Fund of the Czech Republic
MCPA	2-methyl-4chlorophenoxyacetic acid
MCPP	butylglckoester (herbicide)
MCSS	monitoring of chemical state of sediments
MF	the Ministry of finance
MLD	the Ministry for Local Developmdent
MN	monitoring of nitrates
MoA	the Ministry of Agriculture
MoD	the Ministry of Defence
MoE	the Ministry of the environment
MoH	the Ministry of Health
MoIT	the Ministry of Industry and Trade
MoT	the Ministry of Transport
MPSP	monitoring of point sources of pollution
MUFIC	Municipal financial company
NACE	Branch classification of economic activity
N	long-term average
$N\text{-}NH^{4+}$	ammoniac nitrogen
$N\text{-}NO^{3-}$	nitrite nitrogen
NRP	National research programme
NTA	nitrilotriacetic acid
O_2	dissolved oxygen
OECD	Organisation for Economic Co-operation and Development
OG 61	Order of the Government No 61/2003 Coll. (as amended by the Government Order No 229/2007 Coll.)
OPI	Operational programme Infrastructure
P_{total}	total phosphorus
PAH	polyaromatic hydrocarbons
PAIS	Public Administration Information System
PBDE	polybrominated diphenylethers
PCB	polychlorinated biphenyls
PDTA	1,3-propylenediaminetetraacetic acid
PDWSSSSCR	Plans for development of water supply systems and sewerage systems on the territory of the Czech Republic
PDWSSSSR	Plans for development of water supply systems and sewerage systems of regions
p,p‘ DDT	1,1,1-trichlor-2,2-bis(p-chlorfenyl)-ethane
Protocol	Protocol concerning water and health
PRRS	Programme for Revitalisation of River Systems
Q_{ma}	long-term average monthly flow
Q_N	maximum flow achieved or exceeded once every N years
R	reservoir
R&D	research and development
RFD	rectification of flood damage
RIASC	Research institute of Ameliorations and Soil Conservation
RIO	register of information about outcomes
SB	state budget
SEF CR	State Environmental Fund of the Czech Republic
SFTI	State Fund of Transport Infrastucture
SHEP	small hydroelectric power station
SR	small reservoir
SS	solid substances
TFA	tangible fixed assets
TOC	Total Organic Carbon
UNDP	United Nations Development Programme
WA	watercourse administration
WCI	Watercourse identifier
WHO	World Health Organization
WMRI T.G.M.	Water Management Research Institute T.G.M.
WSS&SS	Water supply systems and sewerage system
WW	waterworks
WWF	World Wildlife Fund
WWTP	waste water treatment plant

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