MINISTRY OF AGRICULTURE
OF THE CZECH REPUBLIC

MINISTRY OF THE ENVIRONMENT
OF THE CZECH REPUBLIC

REPORT ON WATER MANAGEMENT IN THE CZECH REPUBLIC

2010

As at 31 December 2010

MINISTRY OF AGRICULTURE
OF THE CZECH REPUBLIC

Report on Water Management in the Czech Republic in 2010
As at 31 December 2010

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Department of State Administration of Water Management and River Basin
Ministry of Agriculture of the Czech Republic

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Each chapter is introduced with a picture from the children competition for pupils at primary school level, organized as part of the World Water Day 2011 celebration.

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Report on Water Management in the Czech Republic

As at 31 December 2010

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

Dear Readers,

The „Report on Water Management of the Czech Republic in 2010" is the 14th edition of the summary report which provides annually an overview of the water management system and the management of the quality of waters in the competence of the Ministry of Agriculture of the Czech Republic and the Ministry of the Environment of the Czech Republic. It contains information on the status of waters in the Czech Republic, water management activities and trends that determine and influence water use. The „Blue Report", as it is briefly called, brings traditionally the results of work of both ministries and related institutions in areas associated with water.

The Ministry of Agriculture of the Czech Republic as the central water authority executes its authority in water management through watercourse administrators, i.e. the five River Boards, state enterprises, the Forests of the Czech Republic, state enterprise and in 2010, last, also through the Agricultural Water Management Administration. In the autumn of that year, I issued a decision on the transformation of the Agricultural Water Management Administration and transfer of its powers to the five other watercourse administrators so that it enters the forthcoming year as a „residual" organizational unit of the state, which is responsible solely for the management of the main drainage facilities. The year 2010 was, therefore, a year of preparation for a transfer of administration of minor watercourses in a total length (according to a scale of 1:10 000) of more than 46 thousand km. The reason for this breakthrough step were, until that time often discussed, efforts to eliminate problems with the maintenance of streams and torrents and to better protect people in smaller municipalities and settlements against sudden floods.

2010 was a year with above-average rainfall, it was even the most waterish year over the past 37 years. In the period between May and October, in total four waves of flood situations occurred, during which flood activity degree 3 was recorded. I am glad that immediately afther the spring floods a programme to remedy their impacts was launched, together with the continuation of the programmes to remedy the impacts of floods from the previous years. Considerable efforts in the area of water management were represented also by work on programmes aiming to establish and improve flood control measures. I find it gratifying that we manage more and more to balance a preparation of the so-called technical and the so-called nature-friendly flood control measures. Consistency between the Ministry of Agriculture and the Ministry of the Environment in this matter I consider essential, since both types of measures are working, if they mutually complement and build on each other. The will for cooperation is therefore a good basis for the future.

In 2010, three-year work was completed to produce major amendment to the Water Act which was afterwards approved by the Parliament of the Czech Republic and became effective on 1 August 2010. Its main objective was to complement the implementation of the European Community legislation and remove certain shortcomings, which in the practical application of the Act over the past years emerged. A significant goal as well was to reduce administrative burdens faced by water users.

As this „Blue Report" shows, the year 2010 for water managers was characterized by a number of major tasks and responsible work. I believe that this document will bring plenty of quality and interesting information about their activities.

Ivan Fuksa
Minister of Agriculture of the Czech Republic

Dear Readers,

We present a publication called the Report on Water Management of the Czech Republic in 2010 known rather to the general public as the Blue Report. This report provides a comprehensive overview of the status of water protection and water management in the Czech Republic.

Water as a fundamental component of the environment and at the same time the basic need of human society is in terms of competence split between the Ministry of the Environment of the Czech Republic and the Ministry of Agriculture of the Czech Republic. The basis of being successful in this field is a close and constructive cooperation of the two sectors which is also proved by this jointly prepared report. Without the good cooperation of our sectors it would not be possible to carry out planning in the field of waters, ensure high quality monitoring of waters, effective flood control and national agricultural policy with minimum adverse impact on the indiviual components of the environment or implement joint geo-environmental measures.

One of the most important financial tools for protection and improvement of the environment is the Operational Programme Environment which offers in the years 2007–2013 more than EUR 5 billion from European funds. This programme, which was prepared by the Ministry of the Environment of the Czech Republic in cooperation with the European Commission brings to the Czech Republic funds to support the individual projects in a number of areas, among which the most important one and also the largest one in terms of the amount of financial resources is the Priority Axis 1 – Improvement of Water Management Infrastructure and Reduction of Flood Risk, supporting projects aimed at improving the status of surface waters and groundwaters, the quality and supply of drinking water and at reducing flood risk.

In 2010, in total four significant flood situations with reaching flood activity degree 3 were recorded. The main flood event of the year was the third extreme episode at the beginning of August, having especially afflicted the Liberecký kraj region. The issue of floods continues to be highly relevant and in the recent years the attention of the public has been focused in particular on flood control and remedying of flood damages. The Blue Report provides detailed information about projects and financial resources in this field. And flood control measures are exactly those that are supported under the Priority Axis 1 of the Operational Programme Environment where the sum of more than EUR 100 million has been allocated for flood risk reduction in the years 2007–2013. The ever more discussed category of flood control measures includes the so-called nature-friendly flood control measures, for which it is possible to use also financial support from the Priority Axis 6 of the Operational Programme Environment called Improving the State of Nature and Landscape and Optimization of Landscape Water Regime. This field of support has been allocated approximately EUR 224 million for the period 2007–2013.

I trust that the Blue Report for the year 2010 will not only provide you with valuable information about water in the Czech Republic but also contribute to raising the awareness that water belongs to the riches of nature which must be valued and that its protection and daily use cannot be taken for granted and comprises a number of activities requiring considerable efforts to ensure them.

Tomáš Chalupa
Minister of the Environment of the Czech Republic

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Filip Vig – 10 years
Aloisina výšina basic school, Liberec, Liberecký kraj region

Hydrological balance

1.1 Temperature and precipitation

In terms of temperature, the year 2010 showed the average. With the mean temperature of 7.2 °C it did not reach, by -0.3 °C, the value of the long-term average. The temperature variation represented the first negative annual value after the preceding 13 years with the positive variations. The year 2010 was also the third year with the negative temperature variation since 1990 (1991 -0.1 °C and 1996 -1.0 °C).

First half of the year 2010 (both winter and spring) showed average temperature values. A more significant variation (-2.2 °C) from the long-term average was only shown by cold January with the mean temperature of -5 °C. In the second half of the year there were only two months with average temperature values (August and September), three months showed temperatures above the average (June, July, November) and two months showed temperatures below the average (October, December). The period of the year with temperature values above the average was summer with a variation of +3.3 °C. Warm weather appeared in June which showed the mean temperature of 16.6 °C (1.1 °C above the average) – and especially in July with the mean temperature of 20 °C (3.1 °C above the average). The vegetation period (with the mean temperature of 14.1 °C) did not show more significant variations from the average. The temperature of the autumn season as a whole can be considered to have reached the average, although its last two months showed (with regard to usual annual trends) a reverse trend and cold October with the mean temperature of only 6.1 °C (1.9 °C below the average) preceded warm November with the mean temperature of 5 °C (2.3 °C above the average). The last month of the year was very cold, with the mean temperature of -4.9 °C it reached a variation of -3.9 °C from the average. So far, similarly significant December variation (the highest over the last 37 years) in the Czech Republic was recorded only in the cold year 1996. Absolutely the coldest month of the year 2010 was January with the mean temperature of -5.0 °C, the mean temperature below the freezing point was also shown by February (-1.8 °C) and December (-4.9 °C). The warmest month was July (20.0 °C), followed by August (17.0 °C) and June (16.6 °C).

The Olešnice stream – torrent regulation in Ondřejovice

In terms of precipitation, the year 2010 on the territory of the Czech Republic was highly above the average and also the moistest one over the last 37 years. The average precipitation amount on the entire territory of the Czech Republic reached 867 mm, which represents 129% of the long-term precipitation average. Compared to the year 2009, this figure was by 123 mm higher.

In 2010, the average precipitation amount in Bohemia was by 5% lower than on the territory of Moravia and Silesia. From the viewpoint of the total precipitation amount distribution in the

Table 1.1.1

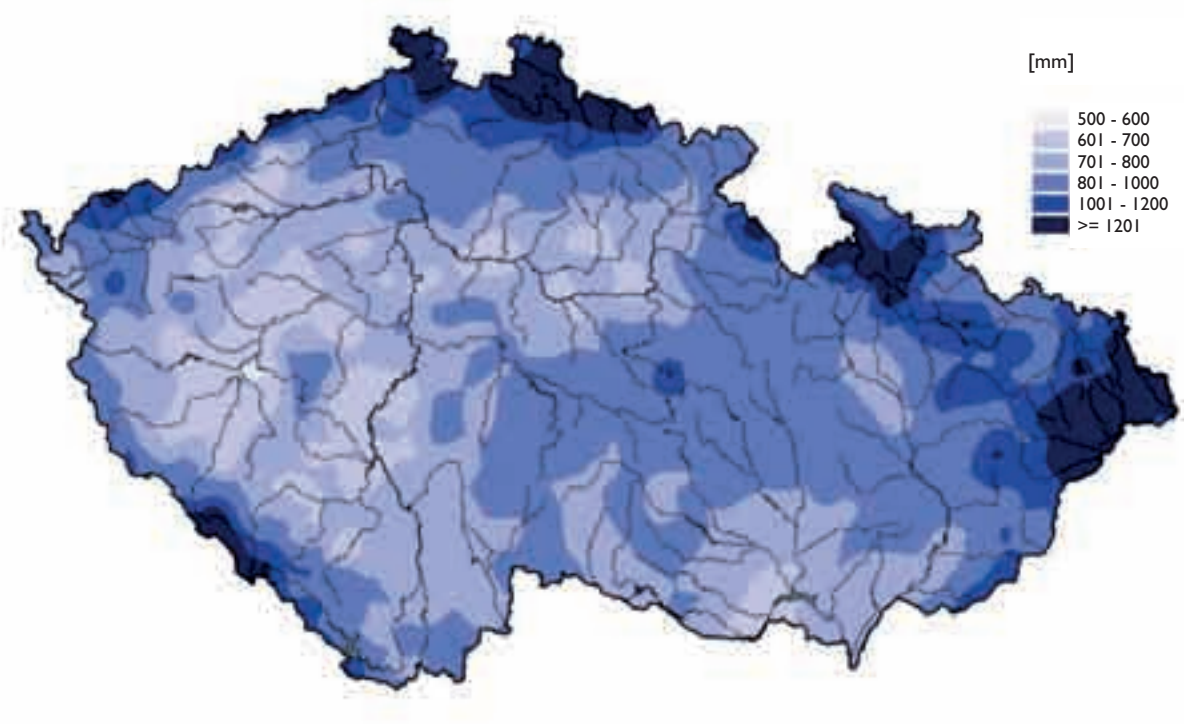
Renewable water sources in the years 2001–2010 in millions of m³

Item	Annual values									
	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010
Precipitation	63,960	71,298	40,695	53,629	57,730	55,837	59,544	48,818	58,676	68,692
Evapotranspiration	48,537	48,533	29,319	41473	42,872	37,617	46,194	37,394	44,090	46,824
Annual inflow [1)]	761	1,341	524	640	781	1,070	637	462	714	781
Annual runoff [2)]	16,184	24,106	11,900	12,796	15,639	19,290	13,987	11,886	15,300	22,649
Surface water sources [3)]	6,600	6,506	3,758	4,270	5,489	5,317	4,673	4,503	5,112	8,788
Usable groundwater sources [4)]	1,440	1,625	1,195	1,224	1 305	1 345	1,244	1,209	1,266	1,594

Source: Czech Hydrometeorological Institute

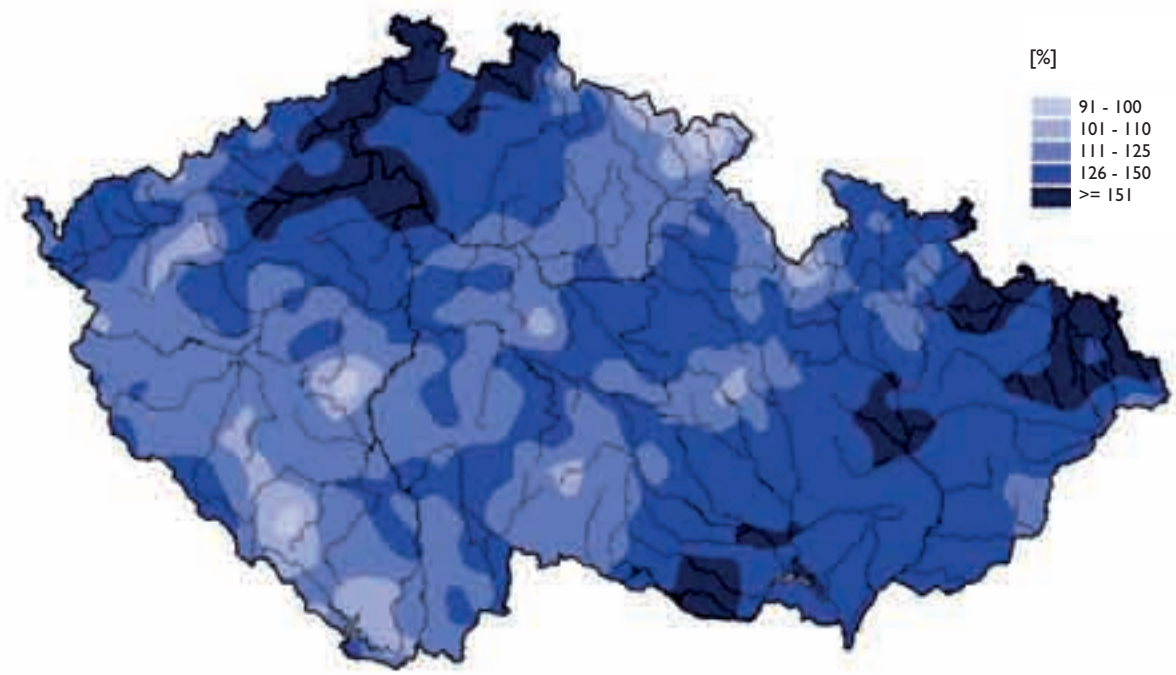
Note: [1)] Annual inflow to the territory of the Czech Republic from neighbouring states.
[2)] Annual runoff from the territory of the Czech Republic.
[3)] Determined as the flow in the main catchment areas with 95% probability.
[4)] A qualified estimate, specification in more detail is published by Czech Hydrometeorological Institute not sooner than the second half of 2011.

Figure 1.1.1
Total precipitation amount in the Czech Republic in 2010 in mm



Source: Czech Hydrometeorological Institute

Figure 1.1.2
Total precipitation amount in the Czech Republic by % of the average over the period 1961–1990



Source: Czech Hydrometeorological Institute

individual main river basins, relatively the highest rainfall amount was recorded in the Morava River Basin (approx. 132% of the average) and in the Oder River Basin (approx 128% of the average) and less in the Elbe River Basin (approx. 125% of the average), which also corresponded to runoff conditions in this year.

In the course of the year 2010, months with precipitation amounts ranging around the average alternated with moister ones. Average precipitation amounts were only reached by three months, namely March with 33 mm (83% of the long-term average), April with 48 mm (103% of the average) and June with 75 mm (89% of the average). The smallest precipitation amounts were recorded in February with 26 mm (68% of the average) and especially in very dry October with the mean precipitation amount of 13 mm only, which corresponded to 31% of the average. The remaining months were rather rich in precipitation, which applied to moist January with 59 mm (140% of the aver-

age), July with 118 mm (149% of the average), November with 65 mm (132% of the average) and December also with 65 mm (135% of the average). In 2010, relatively the highest precipitation amounts were recorded in May (133 mm and 179% of the average), in August (149 mm and 191% of the average) and in September (84 mm and 162% of the average). Overall, the precipitation activity on the territory of the Czech Republic in the first half of 2010 (except for May) was ranging around the average, but, in the second half of the year, precipitation exceeding the average (except for October) prevailed. For most of the year, precipitation amounts on the territories of Bohemia and Moravia were rather evenly distributed. A significantly larger difference was recorded only in May, in Bohemia with rainfall having reached by 70 mm (i.e. by approx. 60%) less than in Moravia, and then in August, when on the contrary rainfall amounts in Bohemia substantially exceeded (by approx. 30%) those in Moravia.

On the map of areal distribution of annual precipitation amounts there are clearly evident relatively moister eastern part of the country and the region of North Bohemia, i.e. areas that in 2010 were most often afflicted by flood events. The highest precipitation amounts reaching between 150 and 200% of the long-term average were received in 2010 by catchment areas of the Elbe, the upper Dyje River, the middle Morava River, lower reaches of the Opava River, the Oder River and the Olše River and also by rain shadow areas of the Krušné hory Mountains. Relatively the driest regions (from the viewpoint of the long-term average with average to slightly above-average precipitation reaching 90 to 120% of the long-term average) were the regions of north-east and south-west Bohemia. More intense precipitation events causing local flooding of watercourses or smaller floods were occurring rather frequently throughout the year 2010. Precipitation causing regional flood events occurred mainly at the turn of February and March, at the end of March, during May until the beginning of June, in August, at the beginning of September and also at the end of September.

1.2 Runoff

In terms of runoff, the year 2010 reached values above the average. This was significantly contributed to by four flood situations in the period between May and October. Average annul flows in catchment areas of the Elbe and Vltava rivers mainly ranged between 110 and 160% Q_a, the only exception was the Sázava River catchment area with average annual flows reaching the value of approx. 180% Q_a. Average annual flows in the Oder River, the Morava River and the Dyje River catchment areas were higher, having ranged between 170 and 220% Q_a, except for the upper part of the Morava River catchment area, where they reached the value of approx. 130% Q_a.

The first quarter of the year 2010 reached the values of around the average to slightly above the average. During February, flow rates were increasing on watercourses in the northeast part of the Czech Republic, mainly in the Oder River (172% Q_m) and the Bečva River (153% Q_m) catchment areas. In March, due to snow thawing, flow rates increased mainly in the Lužnice River (171% Q_m) and the Sázava River (157% Q_m) catchment areas.

At the beginning of the second quarter of 2010, slight declines of flow rates were occurring. Major effects were shown by the first significant flood situation, which during May afflicted mainly the Oder River, the Olše River, the Bečva River and the Morava River catchment areas. Mean flow rates in these catchment areas reached very high values above their long-term averages, with the maximum in the Olše River catchment area (826% Q_m). June also reached runoff values markedly above the long-term average, except for the northeast part of the Czech Republic mean flow rates on the most of the territory reached the values of at least the double of Q_m. In the Jihlava River, the Svratka

The Bystrý Stream - flood control measures in Frýdek-Místek region

River, the Dyje River and in the lower Morava River catchment areas monthly averages reached the values of between 320 and 440% Q_m. On the contrary, flow rates ranging around the average or slightly below the average were recorded in the Jizera River, the Berounka River and the Ohře River catchment areas.

During July, mean flow rates gradually declined to reach long-term July averages. Nevertheless, in certain catchment areas (the Jihlava River, the Svratka River and the Dyje River catchment areas) flow rates continued to be slightly above the average, in maximums reaching the values of only up to 150% Q_m. On the contrary, in August there occurred more marked flood situations, with overall mean values having increased to between 150 and 450% Q_m. Only in the Oder River, the Olše River, the Bečva River and the Morava River catchment areas mean flow rates did not exceed the value of 120% Q_m. A similar situation occurred in September, with mean flow rates in almost all catchment areas having exceeded the value of 140% Qm. In the Jizera River, the Oder River, the Olše River, the Jihlava River and the Bečva River catchment areas mean flow rates even increased to the values of between 320 and 430% Q_m.

The last quarter of 2010 was slightly above the average, with some exceptions, monthly flow rates did not decline below the value of 110% Q_m. Relatively the lowest flow rate values (except for the Jizera River and the Ohře River catchment areas) were recorded in the period October – November and December which were similar from the viewpoint of runoff (most often with mean flow rates between 130 and 210% Q_m).

1.3 Groundwater regime

As regards groundwater recharge for most of the rock structures in the whole of the Czech Republic, the year 2010 can be considered rather significant. From the long-term viewpoint and also compared to the preceding years, shallow groundwater circulations showed above-average values, deeper groundwater horizons then showed average values. Due to favourable temperature and precipitation conditions not only shallow aquifers, but also deeper groundwater horizons received good recharge, with only minor fluctuations of groundwater levels and yields at the end of the year.

At the beginning of 2010, mainly deeper groundwater horizons showed predominantly deficit values, while shallow aquifers, in average, were comparable with long-term characteristics. In January, shallow aquifers continued to show a slight increase from 2009, the yields remained steady. Shallow groundwater levels rose more in the southern parts of the country (the Berounka River, the Vltava River, the Dyje River catchment areas), less then in the northwest of the country (the lower Elbe). This was also corresponded to by 82% of the wells with the groundwater level in January exceeding long-term monthly averages, compared to the north of Bohemia with 22% only. With regard to the long-term monthly cumulative frequency curve (it was calculated for the period between 1971 and 2000, the value < 50% indicates the above-average status, the value > 50% indicates the below-average status), above the average were catchment areas in the southern part of Bohemia and in the whole of Moravia (the Oder River – 29%, the Berounka River – 45%). Northern parts of Bohemia (the Elbe catchment area) remained below the average (values ranging between 57% and 69% of the long-term monthly cumulative frequency curve). A high value was reached in the total year-to-year increase for shallow aquifers (89%).

The percentage of the springs with above-average yields at the beginning of the year was low (27% in average). Their frequency rose from the west to the east (17–33%). Also the classification in the individual catchment areas, with regard to the long-term

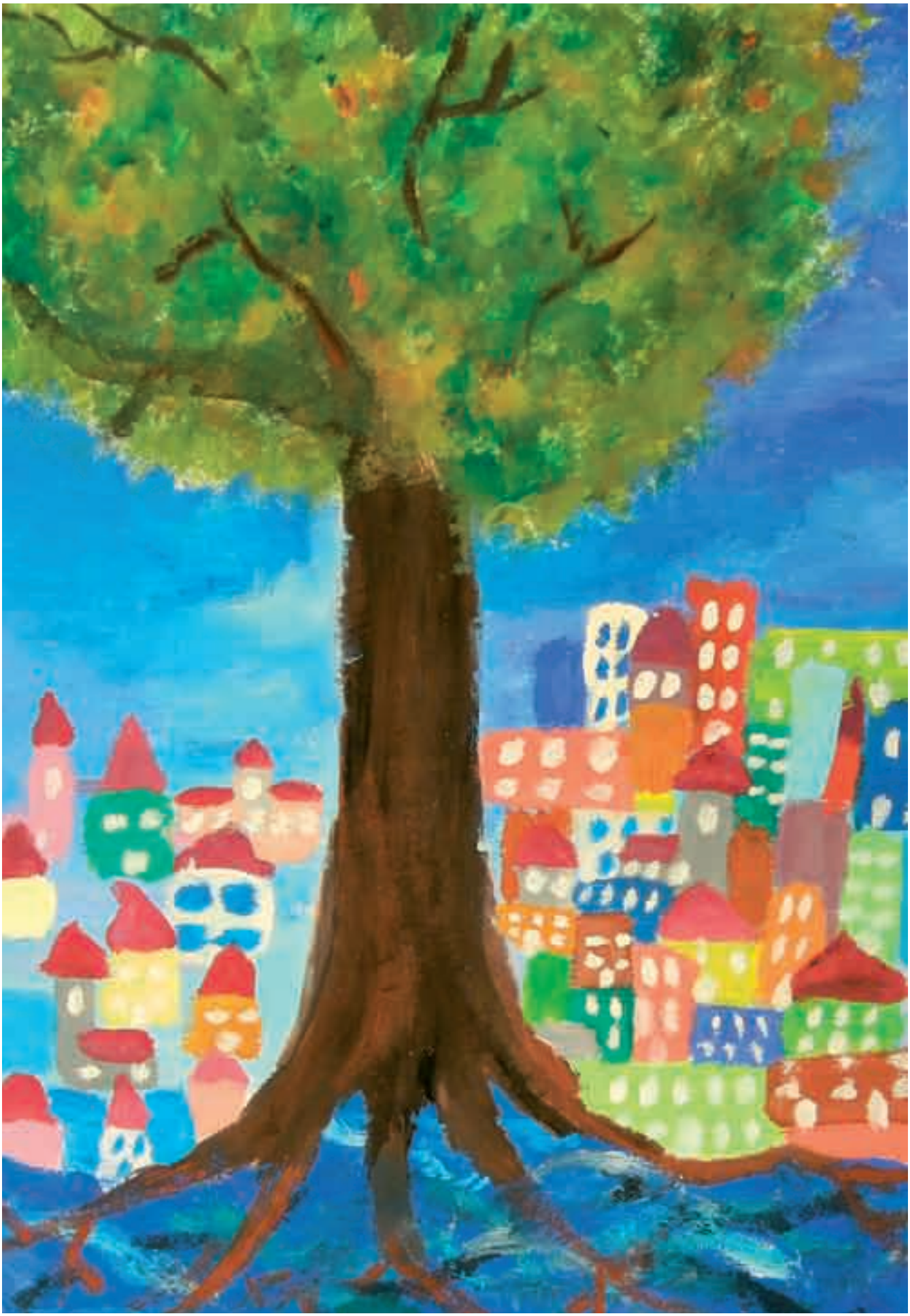
The Ondřejnice River channel restoration in Stará Ves

The Porubka River - torren regulation after flood in 2010 in Ostrava-Svinov

monthly cumulative frequency curve, was improving from the west to the east (the lower Elbe – 75%, the Oder River – 55%). Significant positive year-to-year changes continued to be recorded on the Berounka River, the Vltava River and the Dyje River, in the Oder River catchment area only one third of the springs reached the yield values from the year 2009. At the end of February, particularly deeper groundwater horizons reached their annual minimums. In the major part of the country, groundwater yields and levels dropped to reach below-average values (for springs 58–86% of the long-term monthly cumulative frequency curve, for shallow wells 52–78% of the long-term monthly cumulative frequency curve). Only shallow groundwater levels remained above the average in southern regions of the country (the Vltava River catchment area – 47% of the long-term monthly cumulative frequency curve, the Dyje River – 35% of the long-term monthly cumulative frequency curve). A turn occurred not sooner than during thaw at the end of March. Shallow groundwater levels in all areas rose to above-average values and reached their spring maximums within the range of the long-term monthly cumulative frequency curve values from 18% (the Dyje River catchment area) to 42% (the lower Elbe catchment area). The yields coninued to rise to reach their maximums in April (the Oder River catchment area – 31% of the long-term monthly cumulative frequency curve, the lower Elbe catchment area – 65% of the long-term monthly cumulative frequency curve). The most significant positive changes occurred for springs in the Berounka River catchment area with a 100% monthly increase and a 75% annual increase (having thus balanced a deficit from the preceding five years).

With the onset of the vegetation period a favourable trend in groundwaters was slowed down. Due to rainfall-rich May in the north-east of the country (the Oder River and the upper Morava River catchment areas) and June in southern regions (the Vltava River and the Dyje River catchment areas), again 88% of wells and 66% of springs reached or exceeded the average values of the long-term monthly cumulative frequency curve, in the north-east regions even the values of spring maximums were exceeded. In the Morava River and the Oder River catchment areas these were annual maximums. A year-to-year increase was recorded for 96% of groundwater levels and 80% of groundwater yields. The subsequent groundwater trends in western regions of the country were differing from those in eastern regions. The Bohemian catchment areas in the western part responded to warm July by rapid declining of groundwater levels and yields, on the contrary, the eastern regions due to frontal precipitation remained at high values. In Bohemia, this deficit was again balanced by rainfall-rich August. An increase for 96% of the levels and 66% of the yields returned groundwaters to the values reached in May or June on the major part of the country.

The autumn months showed, in average, a steady status, and in the northwest of Bohemia they showed a gradual increase in the values. In December, in the lower Elbe and the Berounka River catchment areas groundwaters reached their annual maximums. Also other assessed catchment areas kept until the end of the year 2010 high values both for the exceedance curve and the measured variables. Shallow aquifers in December were classified according to the long-term monthly cumulative frequency curve from 8% (the Dyje River catchment area) to 20% (the lower Elbe, the Oder River catchment areas), springs from 27% (the upper Elbe catchment area) to 43% (the lower Elbe catchment area). The majority of the wells and three quarters of springs were above the long-term average and all wells and 84% of springs showed a year-on-year exceedance of their values.



Veronika Surkovová – 10 years
Jablonec nad Nisou – Mšeno basic school, Liberecký kraj region

2. Flood situations in 2010

2.1 Flood courses

In 2010, in total four significant flood situations reaching Flood Activity Degree III (hereinafter referred to as "FAD") were recorded. The main flood event of the year became the third extreme episode, which occured at the beginning of August and afflicted predominantly the Liberecký kraj region.

The first extreme flood episode began on 13/14 May in the area of the Novohradské hory Mountains with significant rainfalls (in amount of up to 110 mm/24 h). The Malše River level at its upper stretch reached FAD III. In the east of the country there occurred rainature trends in the Oder River and the Bečva River catchment areas. From 17 May, extreme rainfalls were recorded especially at the northern windward side of the Beskydy Mountains. In the area of the Lysá hora Mountain precipitation amounts reached the level of as much as 180 mm/24 h. First, FAD III was reached on the Jičínka River, the Lučina River and the Stonávka River, this was followed by exceeding FAD III on the Ostravice River, the Olše River, the Bečva River and the Oder River. On 17 May in the morning, the Lubina River in Petřvald reached the level of Q_{50}. The Oder River culminated in Svinov at a level of Q_{20}. Waters contributed by the Ostravice River and its tributaries from the Beskydy Mountains were transformed by reservoirs – on the lower reach of the Ostravice River flows at a level of Q_{20} only were recorded. Worth mentioning is particularly the extremity of the Olše River peak flows in Věřňovice, where on 17 May even the level of Q_{100} was reached. The Morava River culminated in stations Kroměříž and Spytihněv at a level of Q_{20}. In Strážnice, the flow even at a level of as much as Q_{50} was reached.

The second flood situation followed after a ten-day pause at the beginning of June. It occurred due to precipitation between 1 June and 3 June 2010. Rainfalls were less intense (50 to 60 mm/24 h), but they were received by highly saturated catchment areas. They mostly occurred in the Hrubý Jeseník Mountains and the Nízký Jeseník Mountains and in the flysch area of the Karpaty Mountains, having also afflicted lowland areas of the Morava River tributaries. Compared to the flood in May, the core of this event was somewhat more to the south. In addition to the Beskydy Mountains also the Jeseníky Mountains and the area of the Bílé Karpaty Mountains were afflicted to a larger extent. This was responded to by reaching a level of Q_2 on the Morava River in Olomouc. In the Svratka River catchment area a flow of Q_5 was reached, in some of smaller tributaries there occurred even more extreme values (between Q_{20} and Q_{50} – the Litava River). A high level of between Q_{10} and Q_{20} was reached by the Dřevnice River and the Olšava River. The total runoff through the Morava River in Strážnice subsequently reached again the value of Q_{50} (similarly to that reached in the first flood episode).

The third extreme flood situation occurred at the beginning of August, having afflicted mainly the Jizerské hory Mountains and the Frýdlant area. Rainfall significantly strengthened by the windward side of the Jizerské hory Mountains was recorded on 6 August in the afternoon, having reached the highest intensity on Saturday on 7 August. It was a combination of lasting rainfall with intense storms. The centre of the most intense rainfall activity was at the northwest foothills of the Jizerské hory Mountains. Rainfall afflicted almost the whole of the catchment area of the Černá Nisa River and the upper part of the catchment area of the Blatný potok stream and the Kamenice River. In the Černá Nisa River catchment area hourly amounts exceeded 50 mm. The core of the most intense rainfall was in the area of Hejnice. Overall, precipitation totals reached the amounts of up to 250 mm/48 hours. Rainfall occurred almost on the entire territory of Bohemia, only in Moravia having been insignificant in terms of floods. Watercourses in the Frýdlant area mostly culminated at levels of between Q_{20} and $Q1_{00}$ – sporadically even these levels were exceeded. The Lužická Nisa River reached extreme flows around the level of Q_{100} in the stretch before the state border and also further downstream of its confluence with the Mandava River in Žitava, where peak levels even exceeded the values from the year 1897. Similarly extreme values were also reached by the Smědá River. Heavily afflicted in the Jizera River catchment area were those parts that are most open from the northwest (Jizerka and Mumlava), having reached flow values of between Q_5 and Q_{10}. Towards the east the extremity of responses declined (the Stěnava River in Meziměstí).

The fourth flood episode was recorded at the end of September. The highest precipitation amounts (between 26 and 29 September) occurred in the area from the western Krkonoše Mountains as far as the northern part of the Krušné hory Mountains. The Šluknov area received rainfall amounts of between 170 and 200 mm over four days, the Jizerské hory Mountains and the České středohoří Mountains received approx. 120 to 150 mm over the same period. Significant rainfall amounts were also received by an extensive area of the Ralská and Jičínská upland and the Středolabská and Jizerská table-land. In the Mrlina River and the lower Jizera River catchment areas, rainfall amounts reached the level of approx. between 100 and 110 mm over three days. The preconditions for runoff response were formed by a preceding intense saturation of the catchment areas concerned in August. The watercourse responses reached mostly the level of between Q_1 and Q_5, for the lower Ploučnice River and the Kamenice River then the level of between Q_{10} and Q_{20}. A specific situation occurred in the lower Jizera River, the Mrlina River and the Cidlina River catchment areas. The strongest response was shown by the Mrlina River (supplied from an extensive pond system), which reached even the level of Q_{50}.

The only event of an extreme local flood was caused by an intense storm on 9 June, when in the evening hours the Hřenská Kamenice River catchment area received heavy rainfall (approx. 100 mm/1-2 h). In response to that, rapid flow rises to reach even the level of Q_{100} occurred.

All the above-mentioned flood situations were documented in detail, the respective reports are available at the Czech Hydrometeorological Institute.

Hydraulic structure Mlýnice overflowing – flood in August 2010, the Liberec area

2.

The Bečva River – flood in May 2010, Troubky

Safety spillway during flood peak in May 2010, hydraulic structure Morávka

2.2 Remedying flood damages

The programme 229 110 "Remedying flood damage to state-owned water management property" included in 2010 the following sub-programmes:

- 229 114 "Remedying of the impacts of floods in the year 2006" – the sub-programme implementation was completed on 31 December 2010,
- 229 115 "Remedying of the impacts of floods in the year 2007" – the sub-programme implementation was completed on 31 December 2010,
- 229 116 "Remedying of the impacts of floods in the year 2009" – the sub-programme implementation is under way,
- 229 117 "Remedying of the impacts of floods in the year 2010" – this sub-programme was established in response to flood situations in the given year. Sub-programme 229 117 was launched on 27 July 2010. The expected date of completing this sub-programme implementation is 30 June 2013. The applicants for support aimed at the remediation of flood damage to state-owned water management property are the River Boards, s. e. and the Forests of the Czech Republic, s. e.

The objective of the programme 229 110 is to remedy flood damage to state-owned water management property in order to ensure a trouble-free function of stream channels and water management structures.

The programme 129 140 "Support for remedying flood damage to infrastructure of water supply systems and sewerage systems" included in 2010 the following sub-programmes:

- 129 143 "Support for remedying flood damage caused by floods in 2009" – the sub-programme implementation is under way,
- 129 143 "Support for remedying flood damage caused by floods in 2010" – this sub-programme was established in response to flood situations in the given year. The expected date of completing this sub-programme implementation is 31 December 2012. The applicants for support for remedying flood damage to infrastructure of water supply systems and sewerage systems are municipalities, associations of municipalities and water management joint-stock companies with the majority equity participation of towns and municipalities.

The financial performance of the above-mentioned sub-programmes under the programmes 229 110 and 129 140 is included in Chapter 9.1 of this report.

Ministry of the Environment launched a programme 115270 Remediation of Damage Caused by Natural Disasters. Under this programme, a sub-programme 115271 Floods 2010 was established by the Ministry of the Environment. Through this sub-programme, the Strategy of Recovery of Land and Property adopted by the Resolution of the Government of the Czech Republic No. 556/2010 of 4 August 2010 and No. 692 of 29 September 2010 is implemented.

The measures which can be implemented under this sub-programme are as follows:

1. Reconstructions, repairs of waste water treatment plants and sewerage systems,
2. Decontamination of land,
3. Decontamination or remediation of other damage to surface waters and groundwaters, including wells,
4. Rehabilitation of damage to migration passability and recovery of ecological stability of landscape,
5. Recovery of natural function of watercourses.

With regard to administratively demanding character of project preparation, the drawing of financial resources under this sub-programme will start not sooner than from the year 2011.

The Ploučnice River – flood in August 2010

Jan Obořil – 9 years
Heyrovského basic school, Brno, Jihomoravský kraj region

Quality of surface waters and groundwaters

3.1 Surface water quality

Current surface water quality in comparison with the 1991–1992 two-year period

The map of the quality of waters in selected watercourses of the Czech Republic was produced with regard to both the 1991–1992 two-year period and the 2009–2010 period, under CSN 75 7221 standard Water Quality – Classification of Surface Water Quality.

Every year the Report on Water Management in the Czech Republic compares the current status of water quality to the status of water quality in the 1991–1992 two-year period. With regard to the scope of indicators monitored at that time, only a basic classification could be used for this comparison. Figure 3.1.1 shows that despite significant improvement of water quality, some river stretches in the Czech Republic are still classified in water quality Class V.

To produce the above presented map of quality of water in watercourses of the Czech Republic for the period 2009–2010, river basin administrators provided the data from 324 profiles of the water quality monitoring network. The respective monitored hydrometric profiles are classified in the following water contamination classes under the CSN 75 7221 standard:

Class I: unpolluted water – surface water status that was not significantly affected by human activity, with water quality indicators that do not exceed values corresponding to the natural standard background in the respective watercourse,

Class II: slightly polluted water – surface water status that was affected by human activity to an extent that water quality indicators attain values allowing the existence of a rich, balanced and sustainable ecosystem,

Class III: polluted water – surface water status that was affected by human activity to an extent that water quality indicators attain values that may not be conducive to conditions allowing the existence of a rich, balanced and sustainable ecosystem,

Class IV: heavily polluted water – surface water status that was affected by human activity to such an extent that water quality indicators attain values that are conducive to conditions allowing the existence of only an unbalanced ecosystem,

Class V: very heavily polluted water – surface water status that was affected by human activity to such an extent that water quality indicators reach values that are conducive to conditions allowing the existence of only a heavily unbalanced ecosystem.

Radioactivity

In surface waters radiological indicators are monitored on a long-term basis in selected hydrometric profiles of the national monitoring network. These profiles are situated at locations of nuclear power plants currently in operation and in watercourse stretches affected by the discharge of mine waters and by the seepage from refuse dumps at locations where uranium ores were formerly mined or treated. In 2010, the number of available laboratory results was markedly limited – for this reason, surface water quality cannot be classified in full extent of the formerly monitored national network.

The Elbe, The Vltava River and the Hořinský canal

In 2010, the volume activity of tritium in surface waters of the Vltava River in the hydrometric profile downstream of the outlet of waste waters from the Temelín nuclear power plant did not exceed the value of 30 Bq/l, which meets the pollution standard set by the Government Decree No. 229/2007 Coll. The detected activities were also lower, compared to the values from the preceding years. Total volume activity alpha and beta was detected in values categorized as unpolluted water quality. Other activation and fission products produced during nuclear power plant operations were not detected. To assess the volume activity of tritium in the surroundings of the Dukovany nuclear power plant, no results of the laboratory analyses were provided.

Increased values of radiological indicators were detected in past years in the vicinity of uranium ore deposits in the Příbram area, in surface water of the Kocába River at the Višňová hydrometric profile and in the Drásovský stream at the Drásov profile (under the CSN 75 7221 standard, surface water quality values corresponded to Quality Class V). Nevertheless, the results of the laboratory analyses for the year 2010 were not provided, similarly to the data on surface waters in the vicinity of the Rožínka Mine, where uranium ores are mined and treated.

From the area of the Stráž pod Ralskem deposit the results were only available from a limited number of hydrometric profiles. The available data give evidence of continuing contamination reducing. All earlier monitored hydrometric profiles could not be assessed (profiles on the Ploučnice River situated closer to the deposit, such as Mimoň, Osečná, Břevniště are not available).

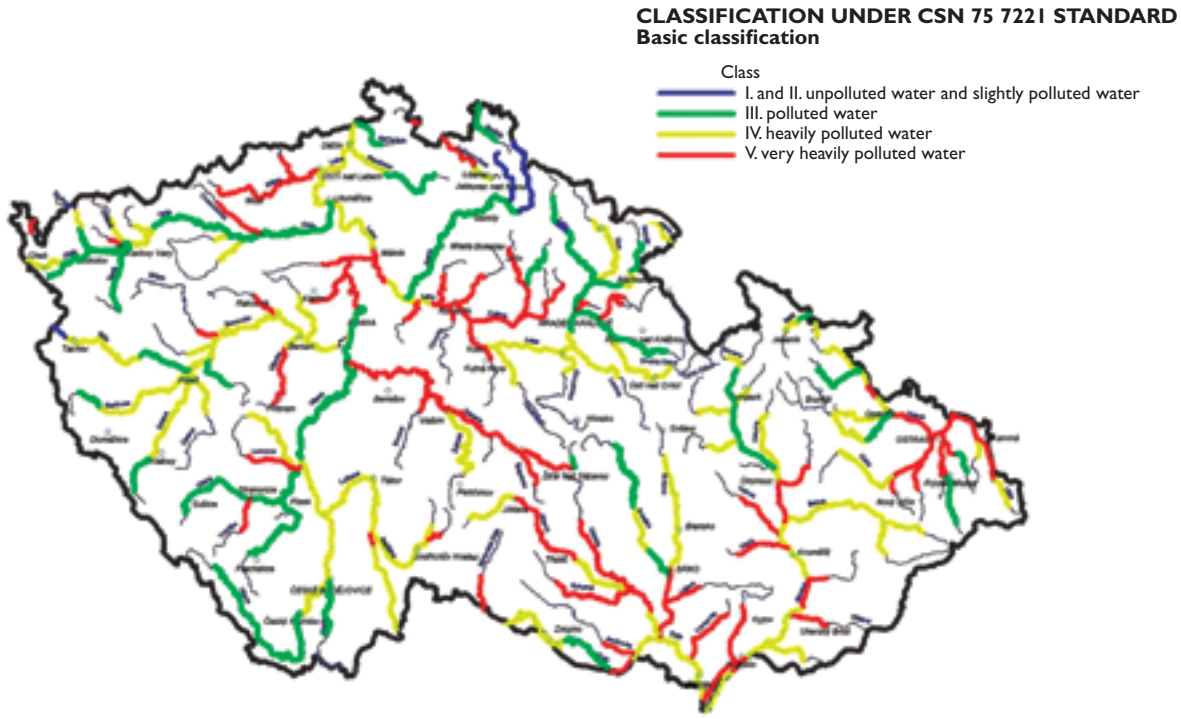
Water quality in water reservoirs and other reservoirs

As regards precipitation amounts, the year 2010 was above the average, and as regards annual volume of inflow, it was highly above the average. The quality of water in reservoirs was affected by typical increased flow rates and early occurrence of higher water temperatures. A number of reservoirs showed mainly eutrophication of water (i.e. the process caused by increased contents of mineral nutrients, especially phosphorus compounds and also nitrogen in waters).

3.

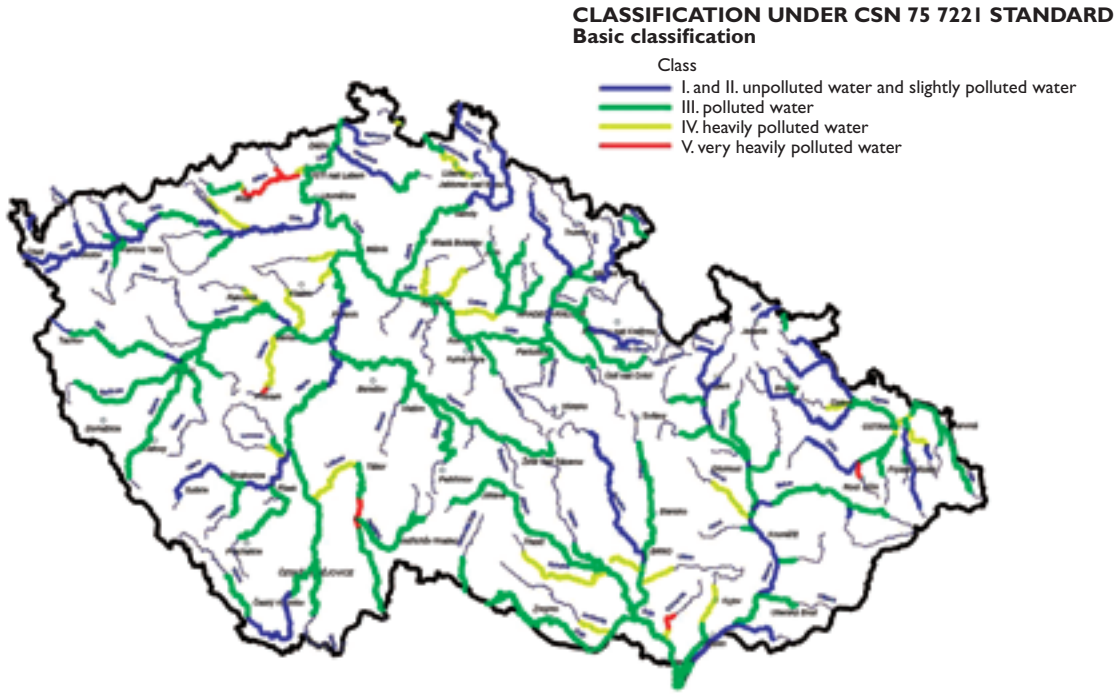
During the year problems with water quality occurred in water supply reservoirs and reservoirs used for drinking water supply purposes: Křižanovice, Vrchlice, Hamry, Seč, Lučina, Římov (increased contents of humic substances), Karhov, Pilská, Láz, Obecnice, Chřibská, Vír, Fryšták, Mostiště, Boskovice, Bojkovice, Ludkovice, and in reservoirs used for purposes other than drinking water supply: Les Království, Pařížov, Rozkoš, České údolí, Orlík (lower part, moderately), Brno, Novomlýnské nádrže reservoirs, Luhačovice, Vranov, Křetínka, Moravská Třebová, Jevišovice, Oleksovice, Žermanice, Baška and Olešná. In the overall assessment it can be stated that the impaired water quality (for example, in the Vrchlice reservoir) in the year 2010 was satisfactorily resolved in terms of operation: there were no restrictions in water supply to the population. Aerial application of lime eliminating the adverse effect of peaty waters (particularly in the period of snow thawing) with a low alkalinity and low pH, which has already been used for several years, had a positive effect on the quality of water in the Souš reservoir.

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



Source: Czech Hydrometeorological Institute

Figure 3.1.2
Quality of water in watercourses in the Czech Republic in 2009–2010



Source: T. G. Masaryk Water Management Research Institute, public research institution, based on the data from River Boards, s. e.

The Dětřichovský stream – polder No. 5

Water in some of the reservoirs not used for drinking water supply (such as Seč, Rozkoš, Les Království, Pařížov, České údolí, Orlík (lower part), Brněnská přehrada, Žermanice, Baška, Olešná) was in summer months categorized as less suitable or unsuitable for recreation.

Minor watercourses and small reservoirs monitored by the Agricultural Water Management Authority in 2010

The Agricultural Water Management Authority, in cooperation with other organizations, provides operation of the national monitoring system for survey and assessment of surface water status. In the year 2010, the Agricultural Water Management Authority monitored in total 855 hydrometric profiles on watercourses and small reservoirs.

Water samples were monitored with regard to basic physical and chemical indicators, allowing at an early stage to identify minor contamination originating from municipal and agricultural pollution sources as well as extraneous substances indicating potential contamination of the environment by heavy metals and certain specific organic substances. Also the hydrobiological monitoring was performed at the selected profiles. In the field of the monitoring system operation and conceptual framework, the Agricultural Water Management Authority cooperated with the Ministry of the Environment, with all of the River Boards state enterprises, the Czech Hydrometeorological Institute, the T. G. Masaryk Water Management Research Institute – public research institution, the Crop Research Institute, the Research Institute for Soil and Water Reclamation, the Faculty of Science of Masaryk University in Brno, the State Phytosanitary Administration and the Academy of Sciences of the Czech Republic.

Within the process of implementation of the so-called Water Framework Directive, the Agricultural Water Management Authority prepared as every year the operational monitoring network, in cooperation with the River Board state enterprises. In its capacity as an appointed expert body it significantly participated in fulfilling the requirements of the Council Directive 91/676/EEC (Nitrate Directive) as regards the monitoring of pollution from agricultural sources.

Statistically evaluated results of this monitoring are published on the website of the Agricultural Water Management Authority (www.zvhs.cz). Access to data and other information for the public is also provided through the Salamander information system (https://is2ms.monsms.cz). Nitrate monitoring data is presented on the Nitrate portal (https://is2ms.monsms.cz/nitr). The information system of the Agricultural Water Management Authority is a part of the water management portal of public administration information system (www.voda.mze.cz). Monitoring results are also forwarded to the information system Arrow of the Ministry of the Environment, to the data warehouse of the extraneous substances monitoring of the Ministry of Agriculture and based on specific needs and requirements to all stakeholders (controlling and inspection bodies, scientific institutions, state administration, local councils etc.).

Quality of water used for bathing during the bathing season 2010

The most frequent problems with water quality are connected with a huge presence of cyanobacteria, which every year results in imposing ban on bathing in some localities.

The quality control of recreational waters in the Czech Republic is carried out under the Act No. 258/2000 Coll., on the protection of public health, as amended, Decree No. 135/2004 Coll., establishing sanitary requirements for bathing pools and saunas and sanitary requirements regarding sand used in sandboxes in outdoor playgrounds, Act No. 254/2001 on water (Water Act) and on amendments to some acts, as amended and Decree No. 159/2003 Coll., establishing surface waters used for bathing, as amended by Decree No. 152/2008 Coll. The Council Directive 76/160/EEC of 8 December 1975, on the quality of waters for bathing, was fully implemented into the above mentioned legal regulations. At present, the implementation of the new Directive of the European Parliament and of the Council No. 2006/7/EC is being finalized.

Recreational waters used for outdoor bathing are divided in the Czech Republic to outdoor bathing pools and surface waters used for bathing (so-called bathing areas).

The most frequent problems with water quality are connected with a huge presence of cyanobacteria, which resulted in proclaiming ban on bathing in certain localities. During the bathing season 2010, the bodies responsible for the protection of public health proclaimed in total sixteen bans on bathing (of that three bans in bathing pools and thirteen in bathing areas). Czech Republic accepted the recommendation of the WHO as the limit values for the cyanobacteria indicator, i.e. three-level classification of water quality, with a ban on bathing issued if the presence of water bloom is identified by visual inspection.

Due to unsatisfactory microbiological quality of water, no ban on bathing was issued in the bathing season 2010.

Salmon and carp waters in the year 2010

Salmon and carp waters are designated by legislation as surface waters which are suitable for the life and reproduction of the indigenous fish species and other aquatic animals (pursuant to the Government Order No. 71/2003 Coll., on the designation of surface waters which are suitable for the life and reproduction of the indigenous fish species and other aquatic animals and on detecting and assessing the status of quality of these waters, in the wording of the Government Order No. 169/2006 Coll.).

3.

For the purposes of this report, the assessment was performed only for the data available from the period 2009–2010 (50% of hydrometric profiles demarcating the delimited waters). Government Order No. 71/2003 Coll. (similarly to the Directive 2006/44/EU) allows in the event that no sufficient number of data is available, to assess whether pollution limits are met according to the maximum value measured for the given period. To assess whether pollution limits were met in the remaining 50% of hydrometric profiles, for the purposes of this report therefore only the earlier period of 2008–2009 was used (also here only the maximum value of pollution limits was available). With regard to the method of the performed assessment, therefore, it cannot be clearly documented whether, compared to the preceding period, the status is improved or impaired. Only a framework information on meeting pollution limits for salmon waters and carp waters in the Czech Republic was acquired.

Based on the assessment of the available data collected in hydrometric profiles demarcating the delimited waters, it was established that pollution limits under the order were met in 76% of these waters (82% of salmon waters and 70% of carp waters). Nevertheless, these assessed 50% include rather only hydrometric profiles situated in lower stretches of the watercourses in the Czech Republic. Should we use for the latter 50% of (not assessed) hydrometric profiles the status from the period 2008–2009, it can be stated that pollution limits are met by 69% of fish waters (76% of salmon waters and 60% of carp waters).

For almost all hydrometric profiles failing to meet pollution limits for salmon waters (only those assessed for the period 2009–2010) this is caused by excessive values of ammonia ions. Problems with insufficient amount of dissolved oxygen occurred for 6 hydrometric profiles. With regard to lack of data it was not possible to assess whether the limits for free ammonia, which is toxic to fish, were met. For the assessment, therefore, only the value of concentration of ammonia ions (without softening) was used, which is allowed by the Government Order No. 71/2003 Coll. (similarly to the Directive 2006/44/EU).

Quality of suspended matter and sediments

The quality of surface waters is also assessed from the viewpoint of quality of suspended matter and sediments as integral parts of the aquatic environment. The constant matrix is preferably bound to by numerous pollutants, whose detection in water samples is often problematic, failing to provide reliable information on the occurrence of the pollutant in watercourses. In the year 2010, the monitoring of the chemical status (quality) of suspended matter and stream sediments was carried out in 47 hydrometric profiles on main watercourses and their significant tributaries in the Czech Republic. This was carried out under the monitoring programme, which followed up with the surveillance monitoring programme conducted in the years 2007–2009.

In 2010, the monitored indicators were contents of heavy metals, metalloids and specific organic substances including the majority of priority pollutants with relevance to the constant matrix. The spectrum of substances monitored on a long-term basis was extended for additional hazardous substances or priority hazardous substances (Annex II of the Directive 2008/105/EC) with relevance to sediments (chloroalkanes C10–13, brominated diphenylethers, DEHP, alkylphenols, tributyltin compounds) and based on new scientific findings also for certain potentially hazardous substances (with possible endocrine and toxic effects) such as bisphenol A, musk compounds, triclosan and a number of pesticides currently in use. The sampling frequency for suspended matter was four times a year and for sediments twice a year.

The assessment of the chemical status of suspended matter and sediments, similarly to the preceding years, was based on classification of measured values into categories under the Guidance Document of the Department for Environmental Damage of the

The National Natural Monument Skalická Morávka after the flood in 2010, the Beskydy Mountains

Ministry of the Environment "Criteria for Soil and Groundwater Pollution" from 1996 in accordance with the Guidance Document of the Ministry of the Environment for the Contaminated Land Risk Assessment No. 9/2005. The exceedance of category B limit is assessed as increased pollution which may be of negative effect on human health and individual environmental compartmens, the exceedance of category C limit represents pollution which may pose a significant risk to human health and other environmental compartments. For selected substances, also possible exceedance of Environmental Quality Standards (EQS) listed in the Government Order No. 23/2011 Coll. is mentioned.

It can be stated that contents of the monitored substances in constant matrices, similarly to the preceding years, largely corresponded to the level of natural values or moderate pollution. Potential risk level was reached only locally for PAH group substances, mercury, arsenic, cadmium, lead and DDT group.

In suspended matter matrix, of the total number of 184 samples, the limit for risk posing pollution (limit C) was exceeded for benzo(a)pyrene (6.5% of measured values) and sporadically for benzo(a)anthracene (1.6%), benzo(b)fluoranthene (1%) and arsenic (0.5%). Values indicating increased pollution (category B) were also identified in contents of benzo(a)pyrene (5% of measured values) and sporadically in contents of benzo(a)anthracene, benzo(b)fluoranthene, arsenic and cadmium. In sediments, values exceeding the limit were identified for benzo(a)pyrene (4% of measured values), benzo(a)anthracene (2% of measured values), benzo(b)fluoranthene (2% of measured values), indeno(1,2,3-c,d)pyrene (2% of measured values) and sporadically for lead, mercury and cadmium and p,p´ DDT. Except for polyaromatic hydrocarbons, increased pollution and risk posing pollution (categories B and C) was identified solely in the Bílina River in Ústí nad Labem and in the Ohře River upstream of the Nechranická reservoir.

Looking at the long-term trend in constant matrix pollution, no major changes in the contamination have been identified. As regards metals, the status is stabilized, only for mercury in sediments of the Bílina River in Ústí nad Labem, similarly to the preceding year, a signal of increased pollution and possible impairment of pollution load was identified. For the Bílina River, on the contrary, a further reduction in contents of arsenic in suspended matter and sediments was identified. Lower as well is the number of cases with contents having exceeded the category of risk posing values. Also the status of beryllium pollution in the Ohře River can be similarly assessed (especially upstream of the Nechranická reservoir the contents in suspended matter showed a long-term excessive pollution load) – in 2010 a significant decline of contents by up to 50% was recorded.

The limits of increased pollution and risk posing pollution were most often exceeded, similarly to the year 2009, by some of PAH group substances – benzo(a)pyrene, benzo(a)anthracene and benzo(b)fluoranthene and indeno(1,2,3-c,d)pyrene. Their higher concentrations were repeatedly detected in suspended matter of the upper Oder River (Jakubčovice) and the Oder River downstream of the Ostrava-Karviná agglomeration, the Svitava River in Bílovice, the Morava River in Raškov, the Lužická Nisa River in Hrádek nad Nisou and also in other hydrometric profiles, such as in the upper Elbe, the Otava River, the Dřevnice River and the middle Morava River courses. Locations showing the increased contamination were identical to those in the preceding year – higher pollution by PAH group substances most frequently occurs in the zone Bohumín – Raškov – Vestřev – Hrádek nad Nisou. With regard to the detected PAH values, only insignificant differences between industrially polluted localities (the Ostrava area), urban localities and

The Smědá River in Bílý Potok

localities with predominantly small heating sources (Bílovice, Raškov) can be pointed out. The majority of other monitored and identified PAH group substances were evaluated to belong to the category of slight pollution.

Pesticide substances, with ban on their production and use having been imposed in the past, are still found in a number of watercourse in residual contents. Also in 2010, it was similar, with slightly increased contents of substances belonging to DDT series (most frequently isomers p.p´ DDT´, o,p´ DDT and their metabolites p,p´ DDD and o,p´ DDD and p,´p DDE) having been detected in sediments of the majority of the monitored watercourses. The maximum pollution values, sporadically also in the category of risk posing values (extreme content of p,p´ DDT in amount of 4 170 ug.kg-1), were repeatedly identified in the Bílina River in Ústí nad Labem, further in the Lužická Nisa River in Hrádek nad Nisou and in the Vltava River in Zelčín. Contents of DDT in the Bílina River and the lower Elbe downstream of Děčín in the long run reach the highest values in the Czech Republic. The above mentioned extreme value approx. 40 times exceeded the usually monitored level of the Bílina River pollution and belongs to the highest values measured over the last 10 years. The contamination of sediment probably relates to rainwash from the contaminated areas or unsecured landfills from industrial areas during torrential rains. As regards other pesticides, hexachlorobenzene was detected (in slightly increased values) again particularly in the Bílina River and the lower Elbe downstream of Děčín. Hexachlorobenzene pollution is a persisting problem faced by the Bílina River downstream of the Spolchemie plant; average annual value of its content in sediment 100 times exceeded the EQS value. Higher HCB values were also measured in the lower Elbe in Prostřední Žleb at a level of 10 times exceeding the EQS value. HCB in lower values was also detected in the middle Morava River and the Oder River. Slight contamination by alachlor persists in the Sázava River and the Berounka River.

3.

The monitoring of pesticides currently in use demonstrated, through constant matrix, the highest effect of pesticide application for glyphosate and its metabolite AMPA (substances subject to review for the possible identification as priority substances or priority hazardous substances); high values were detected in the overwhelming majority of suspended matter and sediment samples (except for watercourse stretches in submontane regions). The highest contents (on order of first mg.kg-1) were measured in the Ohře River in Želina, the Bílina River in Záluží and Ústí, the Ostravice River in Ostrava, and in hydrometric profiles of the middle Morava River and the middle Elbe. As regards other 25 demonstrably occurring pesticides, slightly increased contents were detected for terbutryne in the Bílina River and the lower Elbe downstream of Děčín; for terbutylazine especially in the Ohře River, for ethofumesat in the Bečva River and the Ostravice River, for diuron in the Ploučnice River, for paraquat in the Vltava River and its tributaries and in the Cidlina River. In the majority of suspended matter samples also metolachlor was identified. In slightly increased values it was measured in summer months in the Berounka River, the Jizera River, the Dřevnice River, the middle Morava River and the middle Elbe. Overall, the pesticides in use were detected more frequently (and also in higher values) in suspended matter, compared to sediments.

Chlorobenzenes represent long-term typical pollution of the middle Elbe in the stretch downstream of Pardubice. In the category of slight pollution they traditionally occurred mainly in Valy, Lysá nad Labem and Obříství. In sediments they were detected in higher values also in the Bílina River, the Ohře River, the lower Vltava River and in Březí.

Summary contents of PCB group substances in approx. 50% of suspended matter samples corresponded to slight pollution. The highest values were identified in suspended matter of the Lužická Nisa River in Hrádek nad Nisou, in the Oder River in Svinov, in the middle and lower Elbe, in the Bílina River in Ústí nad Labem and in the Ploučnice River. In sediments, PCB contents reached values higher on order, compared to suspended matter. In the largest amounts they accumulated in the Bílina River, the lower Elbe downstream of Děčín, in the Ploučnice River and in the Lužická Nisa River.

As regards newly monitored priority substances listed in Annex II of the Directive 2008/105/EC, the presence of DEHP was detected in all hydrometric profiles. The highest contents of DEHP occurred in the middle Morava River in Kroměříž and Spytihněv, in the Bílina River in Ústí nad Labem and Záluží and in the Elbe in Valy. None of the measured DEHP values exceeded the EQS value. Also chloroalkanes C10-13, on the use of which ban was imposed in 2004, and which are categorized in priority hazardous substances, were detected in the majority of the monitored hydrometric profiles. Higher values were particularly reached in the representative profile of the Vltava River, in the Olše River in Věřňovice, the Bílina River in Ústí nad Labem, the Oder River in Bohumín and the Ohře River in Želina and Terezín. The EQS value was only exceeded in the Oder River in Bohumín. PBDE (polybrominated diphenylethers) surprisingly in the majority of cases did not exceed the detection limit. Measurable contents (most often congeners 99, 153 and 154) were only detected in the upper Elbe, in the Mže River in Stříbro and in the Dyje River in Pohansko. The values were relatively low and did not exceed the EQS value. Tributyltin (cation) was detected only in suspended matter of the middle Elbe, the lower Vltava River in Březí, the Lužická Nisa River, the Svratka River and the Svitava River.

The priority substances also include 4-nonylphenol and 4-terc octylphenol from alkylphenol group. The presence of 4-nonylphenol in constant matrix was not detected, octylphenol was identified only in a few localities. Overall, the occurrence of these substances in constant matrix can be considered insignificant. Bisphenol A, a candidate substance (mentioned in connection with the presence in foodstuff packaging and in a number of countries considered toxic and banned) was identified in the majority of the monitored profiles. The highest contents were detected in sediments and suspended matter of the Bílina River in Ústí nad Labem and the Lužická Nisa River in Hrádek nad Nisou.

As regards other potentially hazardous substances, galaxolide and tonalide, i.e. substances belonging to the group of synthetic aromatic compounds were detected in all hydrometric profiles; the highest contents (on order of first mg.kg-1) occurred again in the Bílina River in Ústí nad Labem and the Lužická Nisa River in Hrádek nad Nisou. As regards triclosan (bactericidal agent, the

source of which are mainly municipal waste waters and which is usually found below outlets from waste water treatment plants), pollution was identified downstream of larger urban agglomerations on the Elbe, the Morava River, the Oder River, the Ohře River and the Bílina River, and also in representative profiles of smaller watercourses (the Lužnice River, the Jizera River, the Orlice River). The highest contents of triclosan were identified in suspended matter of the Lužická Nisa River in Hrádek nad Nisou, the Bílina River in Ústí nad Labem and the Olše River in Věřňovice. Methyltriclosan, a triclosan metabolite with endocrine effects, was identified only in the Bílina River.

As regards the negative effects on the aquatic ecosystem and human health, persisting occurrence of high contents of metals, some organochlorinated pesticides and PAHs in watercourses in regions with a high concentration of industrial plants and with a long-term anthropogenic load, i.e. in the Bílina River, the Ohře River, the Lužická Nisa River and the Oder River needs to be mentioned. In addition to classical pollutants, in a number of rivers there are demonstrably present also other not routinely monitored chemical substances with probable toxic and endocrine effects, whose presence and cumulation in the aquatic environment may represent in the future a potential risk to aquatic ecosystems.

Accumulation bio-monitoring of surface waters in the year 2010

In the year 2010, similarly to the preceding years, the contamination of biomass by harmful substances was monitored in 21 representative profiles of the main watercourses in the Czech Republic as a part of surface water surveillance monitoring. In this accumulation bio-monitoring the following biotic matrices were selected for surface water quality evaluation: zebra mussel Dreissena polymorpha (18 localities monitored), biofilm (21 localities monitored), fish – Leuciscus cephalus (European chub – 12 localities monitored), juvenile stages of fish – the fry (21 localities monitored) and benthic organisms (Hydropsyche sp., Erpobdella sp., Gammarus sp. – 21 localities monitored).

The assessed pollutants are substances with very low solubility in water (in water samples they are mostly below detection limit) and they easily accumulate in fats. Among heavy metals the monitored pollutants are lead, cadmium, mercury, chromium, zinc, copper, nickel and arsenic, and among specific organic substances indicator PCB congeners (PCB-28, PCB-52, PCB-101, PCB-138, PCB-153, PCB-180), chlorinated pesticides (o,p and p,p DDT isomers and $\alpha,\beta,\gamma,\delta$,-HCH isomers), HCB, PBDE (congeners 28, 47, 99, 100, 153 and 154), polyaromatic hydrocarbons (PAH) - (the sum of compounds: fluoranthene, benzo(b)fluoranthene, benzo(k)fluoranthene, benzo(a)pyrene, benzo(ghi)perylene, indenol(1,2,3–cd)pyrene) and biochemical parameters (biochemical markers) in fish (European chub).

Organisms selected for evaluation purposes are those that accumulate best the individual pollutants (the concentration is expressed in $\mu g.kg^{-1}$ of dry matter (for organic substances) and in $mg.kg^{-1}$ of dry matter (for metals), similarly to the preceding years).

Chlorinated pesticides

As regards chlorinated pesticides, the values monitored were DDT concentrations and products of its decomposition (DDE, DDD) in fish (European chub) and in juvenile fish. In all of the monitored profiles the highest concentration was identified for the p,´p -DDE isomer (product of the partial degradation of DDT), where the detected values, similarly to the preceding years, were higher by one order compared to the p,´p -DDD isomer values and by two orders compared to the p,p -DDT isomer values.

DDT values (the sum of o,p‘ and p.p‘ -DDT, -DDE, -DDD congeners) in fish muscle tissue (European chub) ranged from 49 $\mu g.kg^{-1}$ (the Sázava River in Nespeky) to 307 $\mu g.kg^{-1}$ (the Berounka River in Srbsko). High values were also identified in the Elbe in Schmilka and Obříství, the Bílina River in Ústí nad Labem and the Svratka River in Židlochovice. HCH values ranged from 4.6 $\mu g.kg^{-1}$ (the Elbe in Obříství) to 60 $\mu g.kg^{-1}$ (the Bílina River in Ústí nad Labem). DDT concentrations in juvenile fish ranged from 56 $\mu g.kg^{-1}$ (the Lužnice River in Bechyně) to 665 $\mu g.kg^{-1}$ (the Svratka River in Židlochovice). The second highest value was measured in the Dyje River in Pohansko (620 $\mu g.kg^{-1}$). For hexachlorobenzene, the highest values were measured in the Bílina River in Ústí nad Labem, both in fish muscle tissue and fry.

In benthic organisms (Erpobdella sp.), the highest DDT, HCB and HCH values were identified in the Bílina River in Ústí nad Labem. DDT values differed by one order from other monitored profiles (1,462 $\mu g.kg^{-1}$ DDT, 334 $\mu g.kg^{-1}$ HCB and 3.7 $\mu g.kg^{-1}$ HCH). In all of these cases the concentrations probably result from sites contaminated by the chemical or agricultural production.

Polyaromatic hydrocarbons

In 2010, polyaromatic hydrocarbons were evaluated in biofilm, where the measured values are by order higher, compared to other matrices. The concentrations of polyaromatic hydrocarbons ranged from 709 $\mu g.kg^{-1}$ (the Ohře River in Terezín) to 6,830 $\mu g.kg^{-1}$ (the Otava River in Topělec). High values were also identified in zebra mussel Dreissena polymorpha. The second highest value was measured in the Opava River in Děhylov (5,390 $\mu g.kg^{-1}$). Results from the Oder River in Bohumín (where considerably high values were measured in the preceding year) are not available as the sampling device was destroyed by high water levels). Similarly, no values are available for the Lužická Nisa River, where also high concentrations were measured in 2009. High concentrations were also identified in the Svratka River in Židlochovice and the Elbe in Debrné.

Polychlorinated biphenyls and polybrominated diphenylethers

The highest concentration of polychlorinated biphenyls (the sum of 6 PCB indicator congeners) in benthic organisms was identified, similarly to the year 2009, in the Elbe in Schmilka profile (167 $\mu g.kg^{-1}$), high values were also measured in the Lužická Nisa River, the Jizera River and the Oder River representative profiles. The lowest value was identified in the Elbe in Debrné (32 $\mu g.kg^{-1}$). The highest concentration of PBDE in benthic organisms was again identified in the Bílina River (21 $\mu g.kg^{-1}$). Rather high values were measured in the Jizera River, the Lužická Nisa River and the Berounka River representative profiles. In zebra mussel Dreissena polymorpha, polybrominated diphenylethers ranged from 1 $\mu g.kg^{-1}$ (the Lužnice River in Bechyně) to 27 $\mu g.kg^{-1}$ (the Bílina River in Ústí nad Labem). The second highest concentration was identified in the Elbe in Debrné. The highest PCB values in zebra mussel Dreissena polymorpha were identified in the Elbe in Valy, Obříství and Schmilka profiles (178, 154 and 135 $\mu g.kg^{-1}$, respectively).

Heavy metals

The highest concentrations of heavy metals are regularly found in biofilm. The detected concentrations of the monitored heavy metals were identified in the following range:

Hg: 0.2 mg.kg^{-1} (the Morava River at Lanžhot) to 6.7 mg.kg^{-1} (the Bílina River at Ústí nad Labem),

As: 7.6 mg.kg^{-1} (the Sázava River at Nespeky) to 32.5 mg.kg^{-1} (the Bílina River at Ústí nad Labem),

Cd: 0.5 mg.kg^{-1} (the Sázava River at Nespeky) to 7.0 mg.kg^{-1} (the Berounka River at Srbsko),

Cr: 29.6 mg.kg^{-1} (the Elbe River at Obříství) to 60.5 mg.kg-1 (the Otava River at Topělec),

Cu: 25.7 mg.kg^{-1} (the Sázava River at Nespeky) to 131 mg.kg^{-1} (the Bílina River at Ústí nad Labem),

Ni: 22.5 mg.kg^{-1} (the Elbe River at Obříství) to 58.9 mg.kg^{-1} (the Bílina River at Ústí nad Labem),

Pb: 22.5 mg.kg^{-1} (the Bečva River at Troubky) to 178 mg.kg^{-1} (the Berounka River at Srbsko),

Zn: 107 mg.kg^{-1} (the Sázava River at Nespeky) to 483 mg.kg^{-1} (the Berounka River at Srbsko).

In general it can be stated that high values of heavy metals were, similarly to the preceding year, identified in the Bílina River in Ústí nad Labem (Hg, As, Cu, Ni). In the Lužická Nisa River at Hrádek nad Nisou, where high values were measured in 2009, the data are not available due to flood situations. High values were also identified in the Berounka River at Srbsko (Cd, Pb, Zn).

Biomarkers

The monitored biomarkers in fish give us the important information on adverse effects of the aquatic system contamination on the organism of fish and significantly complement the chemical monitoring system. These indicators mostly do not react to a specific pollutant but indicate complex pollution and help assess to what extent the aquatic ecosystem is affected by anthropogenic pollution. One of important indicators is the concentration of vitellogenin (VTG) in blood plasma showing pollution by xenoestrogenic substances affecting the reproduction system. VTG is a phospholipoprotein, which is synthesized in the liver of female fish. If the substances with an estrogenic effect are present in the aquatic environment (with regard to the fact that VTG synthesis also takes places in the liver of male fish), even degenerative changes in the genital organs of males as well as disorders of the endocrine system and the reproductive capacity of fish occur. Substances with estrogenic effect include some pharmaceutical products (drugs), tensides degradation products, components of cosmetic products, steroid substances, pesticides, mercury, etc.).

In 2010, the maximum VTG values were surprisingly identified in the Otava River hydrometric profile at Topělec (5,650 ng.ml^{-1}). In the preceding years, the values measured there were rather low, in 2006 the lowest. The minimum concentration was measured in the Ohře River at the Terezín profile (503 ng.ml^{-1}).

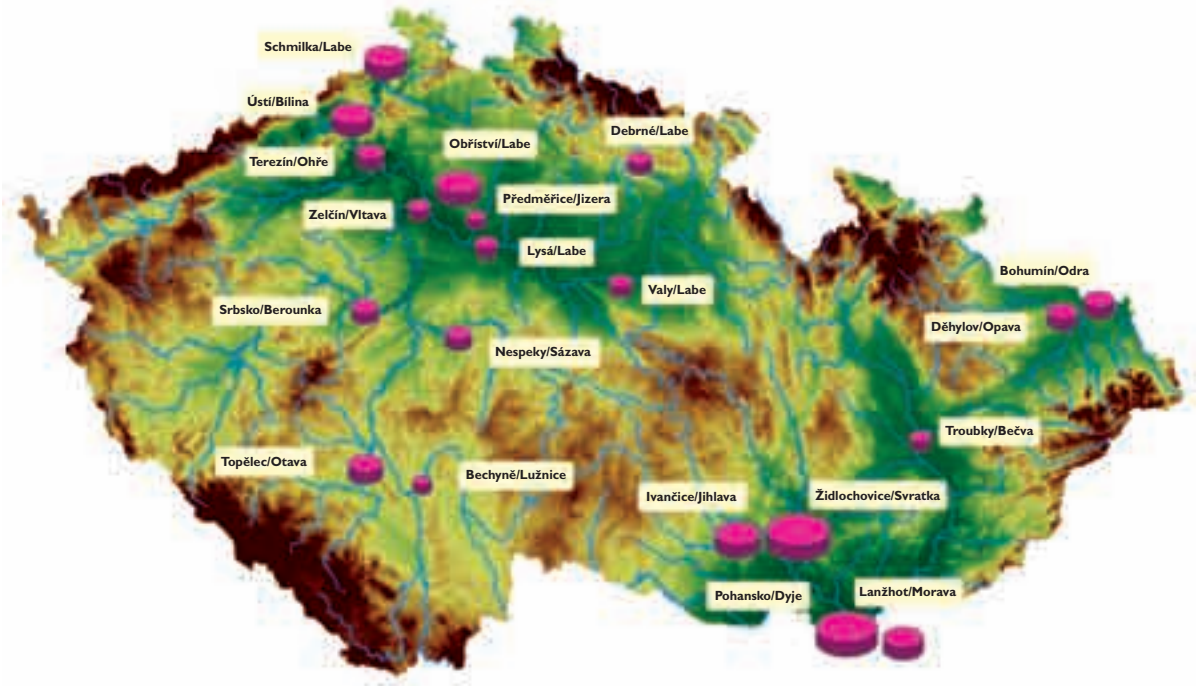
The effect of the specific place where fish were caught on the measured biomarker values (and also on the values of the monitored pollutants) cannot be unambiguously determined. Fish may migrate in distances of even several tens of kilometres downstream and upstream. Nevertheless, VTG values in European chub males are surely a warning signal of the fact that the aquatic ecosystem is not in good order.

Evaluation for the individual river basin districts

The upper and middle Elbe River basin district is an area with significant industrial sources of pollution, such as Spolana Neratovice, and urban agglomerations, such as Liberec, Jablonec nad Nisou, Mladá Boleslav. Similarly to the preceding year, rather high values of polychlorinated biphenyls (PCB) were detected in the Elbe River in Obříství, Lysá nad Labem and Valy hydrometric profiles. In the Lužická Nisa River at Hrádek nad Nisou, high concentrations of chlorinated hydrocarbons (HCH, DDT) and PCB were identified. Rather high concentrations of polybrominated diphenylethers (PBDE) were measured in the Jizera River representative profile; high values of arsenic were detected in the Elbe River at Debrné.

The Ohře River and the lower Elbe River basin districts are significantly affected by the chemical industry and contaminated sites (Spolchemie Ústí nad Labem). In the Bílina River high values of heavy metals and rather high concentrations of PBDE, DDT, HCH and HCB were identified. In the Elbe River bounda-

Figure 3.1.3
Contents of DDT in juvenile stages of fish in the year 2010



Source: Czech Hydrometeorological Institute

ry hydrometric profile, high PCB values and rather high DDT, HCH and HCB concentrations were measured.

The lower Vltava River basin district is characterized by the Vltava River representative hydrometric profile downstream of Prague, where high PCB values were identified.

The upper Vltava River basin district was evaluated in outfall hydrometric profiles of the Otava and the Lužnice Rivers. In the Otava River at Topělec, high PAH, DDT, Cr values and the highest VTG values were identified.

The hydrometric profile which is characteristic of the Berounka River basin district is the Berounka River representative profile at Srbsko, where high values of lead, cadmium and zinc occur. High DDT concentrations were identified in muscle tissue of European chub.

The Dyje River basin district is affected by contaminated land resulting from the agricultural production, which is documented by high DDT values (the sum of ortho- and para- isomers) in the Dyje River representative profile. The Svratka River downstream of the Brno agglomeration is markedly affected, with high PCB and DDT concentrations and, similarly to the preceding year, with the second highest VTG concentration having been identified in fish.

The Morava River basin district is characterized by the Morava River boundary hydrometric profile at Lanžhot. Compared to other monitored profiles, the values of the indicators monitored in the individual matrices were rather low.

The Oder River basin district is affected primarily by the Ostrava industrial agglomeration, and pollution is monitored in the Oder River boundary profile, where high concentrations of mercury and PAH are repeatedly found.

Summary evaluation of accumulation bio-monitoring of surface waters

The results of bio-accumulation monitoring in 2010 clearly show that the aquatic ecosystem contains (often in high concentrations) pollutants, which in water samples cannot be detected.

The Rychnovský stream channel restoration

The monitoring of the pollutants in several matrices confirms the complex contamination of the aquatic environment and shows that values monitored in a single matrix often may not provide true information on the status of environmental contamination.

For comparison with the limit values for biota pursuant to the new Government Order No. 23/2011 Coll. it is necessary to compare concentrations relative to the wet weight. The exceedances of these concentrations only occur for mercury, particularly in fish (mercury concentrations in muscle tissue range from 96 $\mu g.kg^{-1}$ of the wet weight (the Ohře River at Terezín) to 477 $\mu g.kg^{-1}$ (the Elbe River at Děčín), with the EQS value being 20 µg Hg per 1 kg of the wet weight. In other organisms (fry), max. five-fold exceedance of the EQS value for mercury was reached. For zebra mussel Dreissena polymorpha, the EQS value of 20 µg was exceeded in none of the hydrometric profiles.

Bio-monitoring has been proceeding since the year 2000, and so far no significant decrease in values of the monitored substances was observed. In addition, the negative reaction of fish to the contamination of the aquatic environment was confirmed.

3.2 Groundwater quality

In the year 2010 the national water quality monitoring network monitored 653 sites comprising 174 springs (the monitoring of springs documents natural drainage of groundwaters particularly in the Crystalline complex and local drainage of Cretaceous structures), 214 shallow wells (the wells are largely located in alluvial plains of the Elbe, Orlice, Jizera, Ohře, Dyje, Morava, Bečva, Oder and Opava Rivers) and 265 deep wells (the wells are concentrated mainly in the Bohemian Cretaceous Basin, the České Budějovice Basin and the Třeboň Basin areas and monitor the quality of deep aquifers). In total, 213 indicators were measured twice a year in the spring and autumn periods.

With regard to the requirements of the so-called Water Framework Directive, the evaluation of groundwater quality results in the year 2010 focused especially on hazardous substances. The Czech Hydrometeorological Institute compared the measured values of the groundwater quality indicators with:

- the values of the detection limits,
- the values of the A, B, and C criteria under the Guidance Document issued by the Ministry of the Environment on 15 September 1996 – the Criteria for Soil and Groundwater Contamination,
- the limits for drinking water under Decree of the Ministry of Health No. 252/2004 Coll., which stipulates the requirements for drinking water and the scope and frequency of the inspections.

The evaluation was performed especially for those indicators which in 2010 showed increased concentrations. In contrast to the groundwater quality evaluation from the preceding years, the data for the year 2010 for indicators from the pesticide substances group were compared only with the limit for drinking water (0.1 µg/l), which is identical with the limit for groundwaters pursuant to the Directive 2006/118/EC (at the moment of preparing the Guidance Document of the Ministry of the Environment of the Czech Republic of 15 September 1996 it was not technically feasible to determine a number of pesticides, the application of B and C normatives for assessing the measured concentration values of the monitored pesticides might there-

The Rožnovská Bečva River and the Vsetínská Bečva River confluence in Valašské Meziříčí

fore be misleading). Detailed evaluation results are presented in a separate report prepared by the Czech Hydrometeorological Institute, including eight maps illustrating the occurrence of selected groups of groundwater quality indicators.

From the evaluation of exceedances of normatives A, B and C (summary results see table 3.2.1) it results that in 2010 the highest percentage of exceedances of the most stringent normative C was recorded among indicators for chlorides (4.3% of all samples, 8.7% of samples from shallow wells, 2.1% of samples from other sites), ammonia ions (3.0% of all samples, 3.9% of samples from shallow wells, 2.6% of samples from other sites) and aluminium (1.8% of all samples, 1.4% of samples from shallow wells, 2.0% of samples from other sites). Values exceeding the normative C were less frequently found for fluorides (0.5% of all samples), nitrites (0.4% of all samples), from the group of metals for beryllium (0.3% of all samples) and from the group of volatile organic compounds for chloroethene (0.3% of all samples). As regards other indicators for evaluated groups (basic indicators, metals, volatile organic compounds and polycyclic aromatic hydrocarbons), values exceeding the normative C were recorded very sporadically (less than 0.3% of all samples). Values above the B limit and below the C limit were measured among indicators for chlorides (4.8% of all samples, 10.9% of samples from shallow wells), boron (3.4% of all samples, 4.0% of samples from deep wells and springs), ammonia ions (3.2% of all samples, 5.8% of samples from shallow wells), fluorides (1.6% of all samples, 2.1% of samples from deep wells and springs), aluminium (1.2% of all samples, 1.4% of samples from deep wells and springs), nitrites (1.2% of all samples, 3.1% of samples from shallow wells) and beryllium (1.0% of all samples, 1.2% of samples from deep wells and springs). The percentage of exceedances of the B limit for other indicators reached max. 0.3% of all samples.

The presence of indicators exceeding the B and C criteria values is most frequent in the groundwaters of shallow wells situated in alluvial deposits of the rivers that are most affected by anthropogenic activity. The summary of the number of sites where the B or C criteria values were exceeded at least for one indicator for at least one of the samples is presented in table 3.2.1. The comparison with the values for the year 2009, nevertheless, is affected by the above mentioned limitation of the pesticides evaluation for the year 2010 only according to the limit for drinking water.

Table 3.2.1

Summary of the number of sites where the B or C criteria values were exceeded at least in 1 indicator for the year 2010 (compared to 2009)

Sites	Number of sites	Number of sites where B or C was exceeded	% of sites where B or C was exceeded
Shallow wells	214	79	36.9 (49.5 in 2009)
Deep wells and springs	439	75	17.1 (23.3 in 2009)
All sites	**653**	**154**	**23.6 (31.9 in 2009)**

Source: Czech Hydrometeorological Institute

Hereinafter, a brief comparison of the groundwater quality indicators with the requirements for drinking water quality (Decree No. 252/2004 Coll.) is presented.

Organic substances are determined by, among others, the indicator of absorbance at a value of 256 nm (31.8% of samples above the limit values). Dissolved organic carbon was shown by 10.2% of samples above the limit values and chemical oxygen demand by permanganate by 9.9% of samples above the limit values. These determinations and mainly absorbance are also affected by concentrations of other (as regards toxicity, less significant) indicators, such as humic substances (3.5% of samples above the limit values). Other indicators showing concentrations above the limit values include nitrates with 12.4% of samples above the limit values, ammonia ions with 12.3% of samples above the limit valuues, chlorides with 9.1% of samples above the limit values, sulphates with 9.1% of samples above the limit values and fluorides with 2.8% of samples above the limit values from all sites. Increased concentrations, nevertheless, were mostly recorded for springs and deep wells. As regards the group of metals, especially nickel (5.5% of samples above the limit values), arsenic (5.5% of samples above the limit values), aluminium (3.8% of samples above the limit values) and boron (1.0% of samples above the limit values) need to be mentioned.

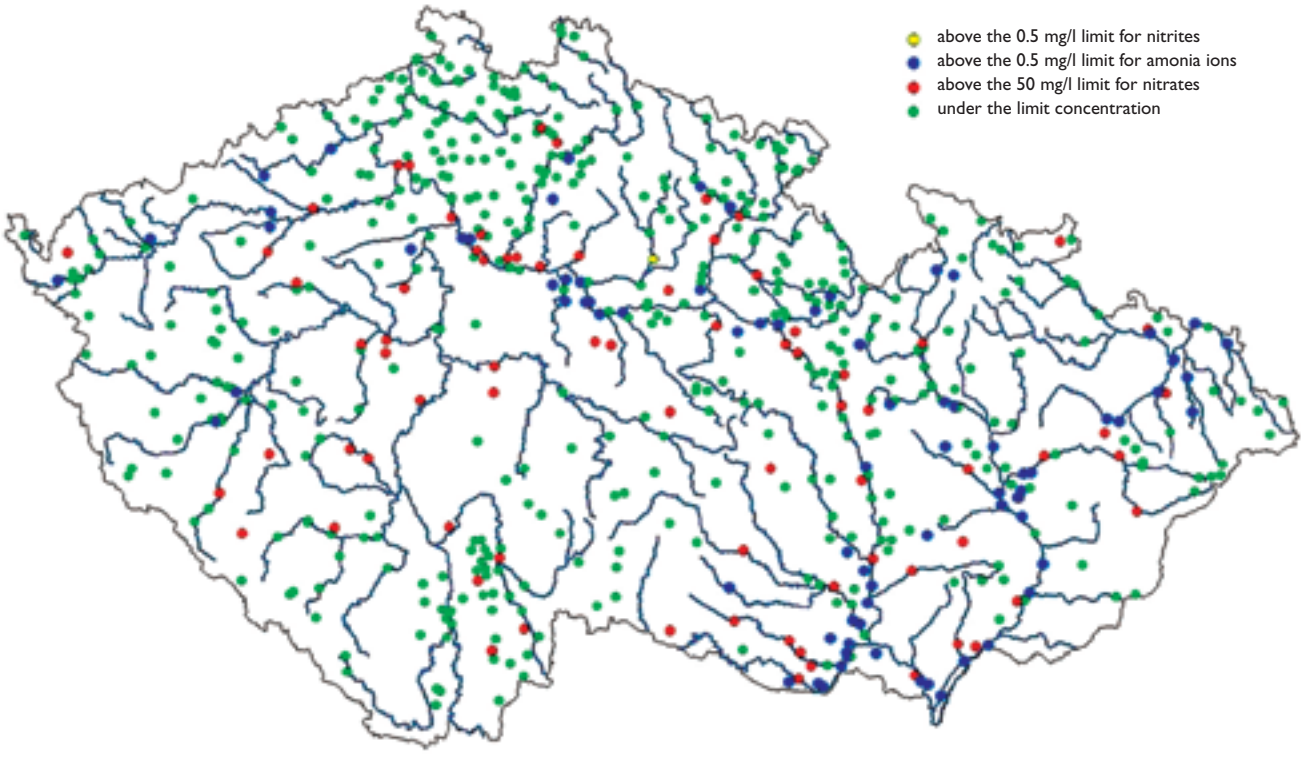
As regards the group of volatile organic compounds, concentrations exceeding the limit values occurred only sporadically, such as 1,1-dichloroethene (0.5% of samples above the limit values), chloroethene and tetrachloroethane (0.4% of samples above the limit values). As regards polycyclic aromatic hydrocarbns, the individual limit for drinking water was exceeded only by benzo(a) pyrene (0.9% of samples above the limit values).

As regards the numerous group of pesticide substances, the limit values for drinking water were most frequently exceeded by metabolites of herbicides alachlor, metholachlor and acetochlor, namely alachlor ESA (13.0% of samples above the limit values), metholachlor ESA (7.0% of samples above the limit values), acetochlor ESA (5.2% of samples above the limit values), acetochlor OA (2.0% of samples above the limit values), metholachlor OA (1.6% of samples above the limit values) and alachlor OA (0.8% of samples above the limit values). In addition, there occurred triazine pesticides, especially herbicide atrazine and its metabolites, such as hydroxyatrazine (2.6% of samples above the limit values), desethylatrazine (1.7% of samples above the limit values), atrazine (1.7% of samples above the limit values) and desethyldesisopropylatrazine (0.7% of samples above the limit values). Also hexazinone (1.7% of samples above the limit values) and bentazone (1.1% of samples above the limit values) can be mentioned. Other pesticides occurred less frequently (max. 0.5% of samples above the limit values). Groundwater samples with pesticide concentrations exceeding the limit values were mostly collected from shallow wells.

As regards radiochemical properties of groundwaters, the total volume activity alpha was monitored (23.2% of samples above the limit values).

To summarize the evaluation, it can be stated that among inorganic indicators more frequent occurrence of concentrations exceeding the limit values is shown by nitrates and ammonia ions. Ammonia ions are closer bound to the particular areas, even particular river basins, on the other hand, nitrates are more evenly distributed, thus indicating also areas with more intense agricultural activity. The occurrences of above-limit concentrations of organic substances from the groups of polycyclic aromatic hydrocarbons and volatile organic compounds are scarce to sporadic. Organic substances from the pesticides group occur much more frequently. Metabolites of alachlor, metholachlor and acetochlor occur virtually in all, even less densely populated regions, which indicates their application in agriculture and also their ability to accumulate in the environment.

Figure 3.2.1
Concentrations of nitrogenous substances in groundwaters, exceeding the limit in the year 2010 (exceedances of limit values under Decree No. 252/2004 Coll.)



Source: Czech Hydrometeorological Institute

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Čerčany basic school, Středočeský kraj region

Water use

4.1 Surface water abstractions

The Reports on water management in the Czech Republic in the past years stated that a year-to-year decrease in surface water abstractions rather ceased. Only in the year 2009, compared to 2008, it was possible to record a certain temporary decline of surface water abstractions. The year 2010 again shows rather stagnating abstractions in the total amount of 1, 573.4 million m³, compared to abstractions in 2009 in the amount of 1,571.5 million m³.

The monitoring of data on groundwater and surface water abstractions and on discharged waters is governed by Decree No. 431/2001 Coll., on the content of water balance, the method of its compiling and on the water balance data. Pursuant to the provision in Section 10 of this Decree, the scope of reported data changed so that now the registered abstractions (as well as waste water and mine water discharges) only include abstractions exceeding 6,000 m³ per year or 500 m³ per month. The source documents for retrieving the data are the reports submitted to the Czech Statistical Office by the respective river basin administrators before the deadline of 31 March of that year.

The data for the year 2010 were classified only based on the NACE according to Eurostat (incomplete acronym of the French expression "Nomenclature statistique des activités économiques dans la Communauté européenne"). In earlier years, classification according to the SCEA (sector classification of economic activities by the Czech Statistical Office, Prague 1998) was used. Table 4.1.1 shows detailed information on the classification of surface water and groundwater abstractions based on user groups.

Similarly to the preceding years, with a view to integrating the data provided by the individual River Boards, state enterprises, no water transfers and waters abstracted for fishpond systems were included in surface water abstractions.

The most significant increase in the percentage of water abstractions (by 2.5%) was observed in energy sector. In the year 2010, the total water abstractions in this sector amounted to 939.5 million m³, in 2009 to 916.6 million m³.

In the year 2010, in contrast to the situation in 2009, rather a decrease in water abstractions by agriculture (incl. irrigation), namely from 29.0 million m³ in 2009 to 25.3 million m³ in 2010 can be recorded. Nevertheless, there further remains a question, whether the reported amounts correspond to the real situation in the individual sub-basins, such as Blšanka in the Ohře River Basin). This fact is associated with the provision of Section 101 of the Water Act (compensation for humidity deficit of agricultural crops – only a part of abstracted water is charged, nevertheless, for the purposes of Decree No. 431/2001 Coll., all abstracted water must be reported).

The Vltava River – hydraulic structure Orlík

As regards surface water abstractions for public water supply networks, it can be stated that in 2010, compared to 2009, these abstractions decreased by 2.2% (a decrease from 357.0 million m³ to 349.0 million m³). As for industry (including exraction of mineral resources), in the year 2010 the abstractions, compared to the year 2009, again decreased from 260.2 million m³ to 250.8 million m³, i.e. by 3.6%.

As regards surface water abstractions registered by the individual River Boards, s. e. (Section 54 of the Water Act), in 2010 an insignificant increase was recorded in the Oder River Basin to 103.6% and in the Elbe River Basin to 101.9%, while other River

Table 4.1.1

Classification of users in the individual categories according to the NACE classification

Public water supply networks	NACE 36
Agriculture (incl. irrigation)	NACE 01 – 03
Energy sector (electricity and heat generation and distribution)	NACE 35
Industry (incl. extraction of mineral resources – excl. energy sector)	NACE 05 – 34
Other (incl. construction industry)	NACE 37 – 96
Total (excl. fishponds and transfers)	NACE 01 – 96
Public sewerage systems (excl. transfers)	NACE 37

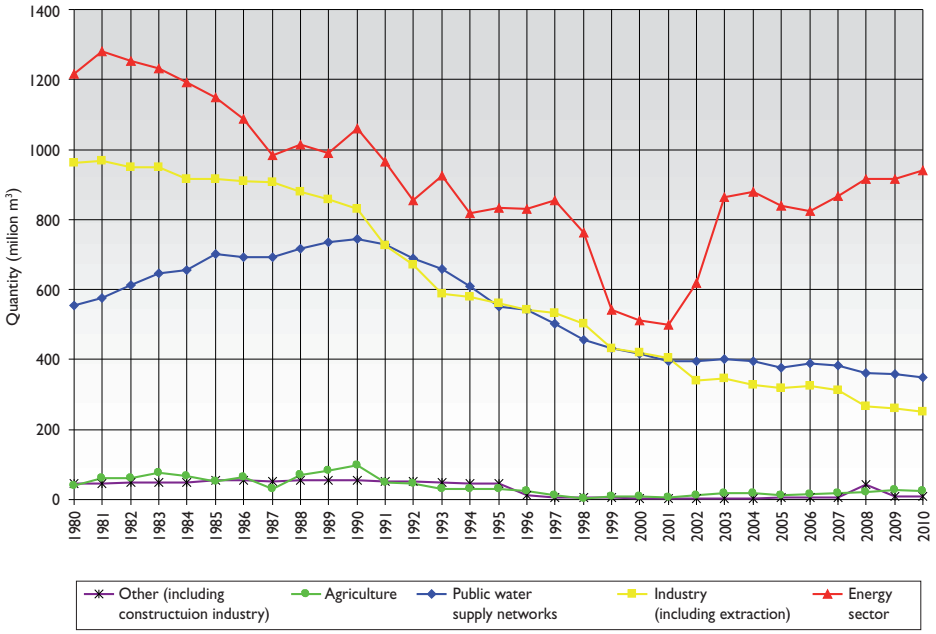
Source: Czech Statistical Office

Table 4.1.2
Surface water abstractions in the year 2010 exceeding 6,000 m³/year or 500 m³/month in millions of m³

River Board, state enterprise	Public water supply networks		Agriculture incl. irrigation		Energy sector		Industry incl. extraction		Other incl. construction industry		Total	
	Volume	Number	Volume	Number	Volume	Number	Volume	Number	Volume	Number	Volume	Number
Elbe River Board, s. e.	40.8	30	7.4	50	687.5	12	92.0	78	1.8	50	**829.5**	**220**
Vltava River Board, s. e.	146.0	45	0.8	13	54.5	18	40.0	71	5.9	39	**247.2**	**186**
Ohře River Board, s. e.	53.7	21	6.1	33	48.5	7	42.3	56	0.1	7	**150.7**	**124**
Oder River Board, s. e.	71.6	27	0.0	0	15.3	14	64.6	44	0.5	35	**152.0**	**120**
Povodí Moravy, s. p.	36.9	34	11.0	35	133.7	13	11.9	70	0.5	25	**194.0**	**177**
Total	**349.0**	**157**	**25.3**	**131**	**939.5**	**64**	**250.8**	**319**	**8.8**	**156**	**1,573.4**	**827**

Source: MoA, River Boards, s. e., T. G. Masaryk Water Management Research Institute – public research institution

Chart 4.1.1
Surface water abstractions in the Czech Republic in the years 1980–2010



Source: MoA, River Boards, s. e., T. G. Masaryk Water Management Research Institute – public research institution

Boards, s. e. recorded, compared to the year 2009, a decrease in water abstractions as follows: to 97.6% in the Vltava River Basin, to 95.8% in the Ohře River Basin, and to 97.0% in the Morava River Basin. As regards surface water abstractions for public water supply networks in 2010, an increase was recorded in the Elbe River Basin, namely to 103.0%. The remaining River Boards, s. e. recorded a decrease in abstractions as follows: in the Vltava River Basin to 97.7%, in the Ohře River Basin to 96.9%, in the Oder River Basin to 98.2% and especially in the Morava River Basin a significant decrease corresponding to 92.9% of water abstractions in 2009 can be recorded. As regards abstractions for agriculture, all River Boards, s. e. reported a decrease, compared to the year 2009. Abstractions for the energy sector increased most significantly in the Oder River Basin (by 173.9%). As regards water abstractions for industry (including extraction of mineral resources), rather a decrease or stagnation is reported by all River Boards, s. e.

The total charged abstractions increased from 1,506.0 million m³ in the year 2009 to 1,515.4 million m³ in the year 2010. The proportion of charged abstractions in 2010 amounted to 96.3% of the registered abstrations in total. The structure of the registered water abstractions in the respective river basins in 2010 is shown in table 4.1.2. The overall development of surface water abstractions since the year 1985 is shown in chart 4.1.1. After the year 1990 the improvement of price ratios in water services provided and also the change in the structure of industrial and agricultural production resulted in a significant decrease in water resources use in all water use areas. For example, we can see that surface water abstractions for public water supply networks decreased, compared to the year 1990, from 744.9 million m³ to 349.0 million m³. Thus, the abstractions in the year 2010 amount only to 46.9% of the volume abstracted in 1990. The most significant decrease occurred in the industrial sector, from 830.1 million m³ in the year 1990 to 250.8 million m³ in the year 2010, i.e. to no more than 30.2% of the volume abstracted in 1990. Similarly, a significant decrease can be seen in agriculture, where the abstractions decreased from 92.2 million m³ to 25.3 million m³, i.e. to no more than 27.4% of the volume abstracted in 1990. This fact, however, does not mean that water resources would

be less exposed to anthropogenic impacts. On the contrary, in the energy sector, for example, there was an increase in consumptive water use (the difference between abstraction and discharge) from 118.7 million m³ in the year 1990 to 135.2 million m³ in the year 2010.

Every year the impacts on water resources are regularly evaluated within the water balance, compiled under Decree No. 431/2001 Coll., on the content of water balance, the method of its compilation and the water balance data. The principle of water management evaluation through water balance is the aggregated evaluation of the requirements for maintaining the minimum discharge with the respective flow rates in control profiles. These flows involve all water management activities.

4.2 Groundwater abstractions

The total volume of abstracted groundwater remained, compared to the year 2009, in principle, at the same level (an increase by 0.3%). This fact shows that the decrease rate in this abstraction category reached its maximum during the previous periods – at present the abstractions tend to stagnate.

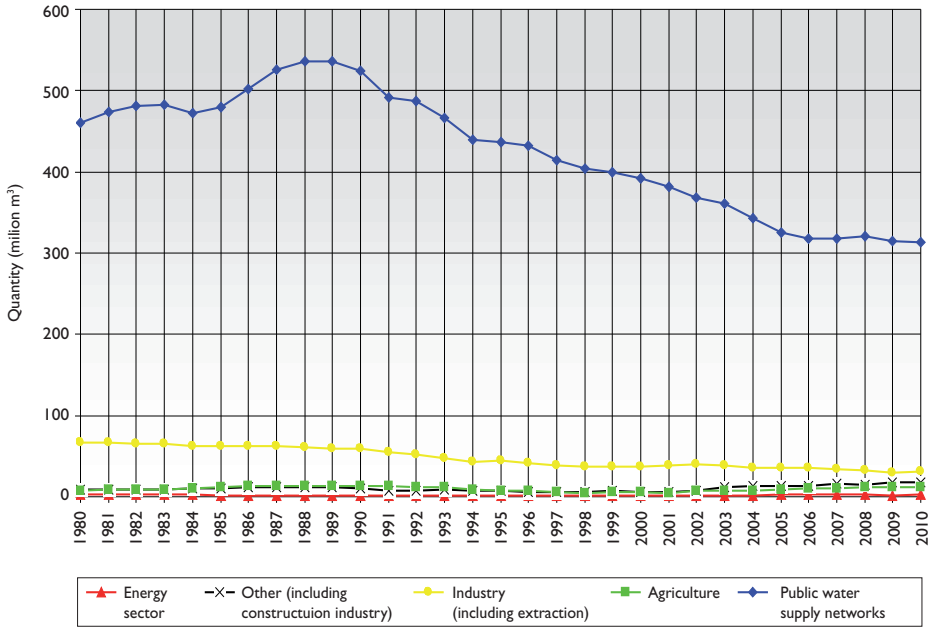
A certain change in the development trends showing a steady decrease occurred already in the year 2006. As regards groundwater abstractions for public water supply networks, it can be stated that compared to the year 2009 there was stagnation in the year 2010 (an insignificant decrease from 315.0 million m³ to 313.7 million m³, i.e. by 0.4%). The pattern of registered water abstractions in the respective river basins in the year 2010 is shown in table 4.2.1. In the year 2010, in total 4,220 groundwater abstractions, amounting to 377.6 million m³, were registered (this figure includes only abstractions exceeding 6,000 m3 per year or 500 m³ per month). As regards industry (including extraction of mineral resources), in the year 2010 the abstractions increased, compared to the year 2009, from 30.4 million m³ to 31.5 million m³, i.e. by 3.6%. In agriculture, compared to the year 2009, the abstractions insignificantly increased from 11.3 million m³ to 11.5 million m³, i.e. by 2%. The energy sector shows a more significant (but not with regard to the absolute value) increase from 2.2 million m³ to 2.7 million m³, i.e. by 23%.

Table 4.2.1
Groundwater abstractions in the year 2010 exceeding 6,000 m³/year or 500 m³/month in millions of m³

River Board, s. e.	Public water supply systems		Agriculture incl. irrigation		Energy sector		Industry incl. extraction		Other incl. construction industry		Total	
	Volume	Number	Volume	Number	Volume	Number	Volume	Number	Volume	Number	Volume	Number
Elbe River Board, s. e.	100.1	654	2.1	160	1.0	7	7.3	125	3.5	81	**114.0**	**1,027**
Vltava River Board, s. e.	33.7	560	4.1	285	0.5	10	9.5	118	8.2	336	**56.0**	**1,309**
Ohře River Board, s. e.	50.4	331	0.6	24	1.1	5	6.0	93	2.3	44	**60.4**	**497**
Oder River Board, s. e.	18.8	138	0.4	27	0.0	0	1.1	31	0.4	21	**20.7**	**217**
Morava River Board, s. e.	110.7	666	4.3	269	0.1	7	7.6	148	3.8	80	**126.5**	**1,170**
Total	**313.7**	**2 349**	**11.5**	**765**	**2.7**	**29**	**31.5**	**515**	**18.2**	**562**	**377.6**	**4,220**

Source: MoA, River Boards, s. e., T. G. Masaryk Water Management Research Institute – public research institution

Chart 4.2.1
Groundwater abstractions in the Czech Republic in the years 1980–2010



Source: MoA, River Boards, s. e., T. G. Masaryk Water Management Research Institute – public research institution

In the individual river basins the highest percentage of the total groundwater abstractions was recorded in the river basins administered by the Morava River Board, s. e. (33.5%); the lowest percentage of groundwater abstractions was recorded in the river basins administered by the Oder River Board, s. e. (5.5%).

Looking at the territorial pattern, the registered groundwater abstractions in total decreased in the following river basins administered by: the Vltava River Board, s. e. to 98.9% of the 2009 level and the Morava River Board, s. e. to 98.8% of the 2009 level. A slight increase was recorded by the Elbe River Board, s. e. (by 1.8%), the Ohře River Board, s. e. (by 0.8%) and by the Oder River Board, s. e. (by 3.0%).

4.3 Waste water discharges

In the year 2010, in total 2,142.1 million m³ of waste waters and mine waters were discharged into surface waters. Compared to the year 2009, this represented an increase by 7.4%. Similarly to the preceding years, with regard to the integration of data provided by the individual River Boards, state enterprises, these water discharges did not include waters discharged from fishpond systems.

Evaluation of the quantity and quality of discharged waste waters until the year 2001 was based on the data reported by water users under Directive No. 7/1977 U. V. issued by the former Ministry of Forestry and Water Management, on registration and evaluation of the balance of the resources and the quality of surface waters and groundwaters. Since 2002 this evaluation has been carried out under Decree No. 431/2001 Coll., on the content of water balance, the method of its compilation and on data for water balance. Pursuant to the provision in Section 10 of this Decree, the scope of reported data changed so that now the registered abstractions (as well as waste water and mine water discharges) include abstractions exceeding 6,000 m³ per year or 500 m³ per month. This resulted in an increased number of the registered entities. This data, which is reported and registered every year, includes information on the quantity of waste waters, including waters specified pursuant to the provision in Section 4 of the Act No. 254/2001 (Water Act), which were originally called special waters. These waters were pursuant to Section 2 of the Act No. 138/1973 Coll. (in force until 31 December 2001) mine waters and mineral waters. The obligation to report the above data related only to such cases where the discharged water quantity exceeded 15,000 m³ per year.

The meandering Oder River in the Protected Landscape Area Poodří

Since the year 2003, the data on the quantity of waste waters discharged into surface waters has been taken from the statistics of the Czech Statistical Office.

The largest percentual increase in the quantity of discharged waste waters compared to the year 2009 was observed in the category of public sewerage systems (by 14.0%). An unusual increase in the quantity of these discharged waste waters relates mainly to higher precipitation amounts in the year 2010 (see chapter 1). A slight increase was recorded in the energy sector and industry (including extraction of mineral resources), by 3.1% and 2.5%, respectively. A stagnation was observed in agriculture and a decrease was recorded in the category "other" (including construction industry), by 4.5%.

It is evident that compared to the year 2009 the annual quantity of discharged waste waters slightly increased but, with regard to a necessary correction (which needs to be taken into account considering extreme rainfalls in 2010), it can be stated that the annual quantity of discharged waste waters continued to stagnate or followed similar trends from the preceding years.

The users were classified in the respective groups according to the valid sectoral NACE classification.

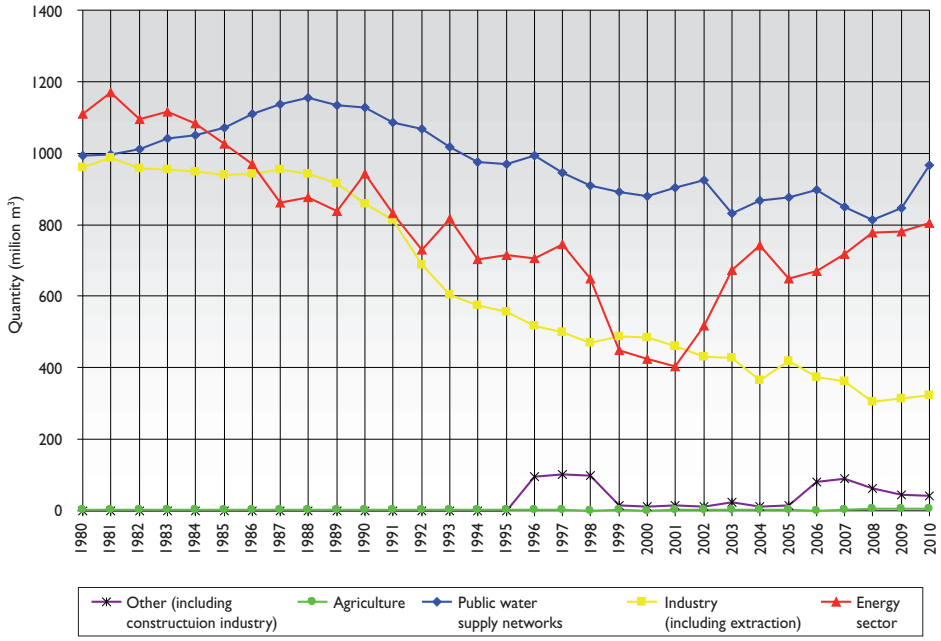
Table 4.3.1

Discharges of waste waters and mine waters into surface waters from sources exceeding 6,000 m³/year or 500 m³/month in the year 2010 in millions of m³

River Board, s. e.	Public sewerage systems		Agriculture incl. irrigation		Energy sector		Industry incl. extraction		Other incl. con- struction industry		Total	
	Volume	Number	Volume	Number	Volume	Number	Volume	Number	Volume	Number	Volume	Number
Elbe River Board, s. e.	199.4	568	0.0	3	651.7	21	92.4	175	3.9	93	**947.4**	**860**
Vltava River Board, s. e.	296.2	638	1.2	5	18.8	22	46.6	141	27.5	574	**390.3**	**1,380**
Ohře River Board, s. e.	84.6	256	5.7	2	25.4	24	91.7	163	2.9	22	**210.3**	**467**
Oder River Board, s. e.	130.6	328	0.0	0	8.3	13	70.4	85	5.8	72	**215.1**	**498**
Morava River Board, s. e.	255.5	1 011	0.2	5	100.1	14	20.8	123	2.4	71	**379.0**	**1,224**
Total	**966.3**	**2,801**	**7.1**	**15**	**804.3**	**94**	**321.9**	**687**	**42.5**	**832**	**2,142.1**	**4,429**

Source: MoA, River Boards, s. e., T. G. Masaryk Water Management Research Institute – public research institution

Chart 4.3.1
Discharges of waste waters in the Czech Republic in the years 1980–2010



Source: MoA, River Boards, s.e., T. G. Masaryk Water Management Research Institute – public research institution

The Elbe River – weir in Čelákovice

Natálie Juklová – 9 years
Psáry basic school and nursery school, Středočeský kraj region

Sources of pollution

5.1 Point sources of pollution

Surface water quality is affected primarily by point sources of pollution (municipalities, industrial plants and farms with intensive agricultural animal production). The level of water protection against pollution is most often assessed based on the development of the produced and discharged pollution.

Produced pollution means the quantity of contamination contained in produced (untreated) waste waters. In the context of the EU and OECD requirements, increased attention in the Czech Republic in the recent years has been paid to the collection of the data and the analyses of the produced pollution development. In the first place the extended scope of the measured data collection from a larger number of entities is being ensured within the framework of the so-called water management balance, in line with the requirements set by Decree No. 431/2001 Coll., on the content of water balance, the method of its compilation and on data for the water balance.

Production of organic pollution in the year 2010, compared to the year 2009, did not change significantly, having reached the following figures: BOD5 indicator increased by 4,426 tonnes (by 1.8%), the CODCr indicator increased by 7,771 tonnes (by 1.3%) and the DIS indicator increased by 96,420 tonnes (by 12.3%). In the SS indicator production in the year 2010 decreased by 1,849 tonnes (by 0.7%).

Discharged pollution is the contamination contained in waste waters discharged to surface waters. Compared to the year 2009, the discharged pollution increased in the year 2010 by 39 tonnes (by 0.5%) in the BOD5 indicator, by 1,685 tonnes (by 3.8%) in the CODCr indicator), by 634 tonnes (by 4.7%) in the SS indicator and by 69,345 tonnes (by 8.7%) in the DIS indicator. This means that the positive trend in the decrease of discharged pollution according to the BOD5, CODCr and SS indicators stopped in 2010. The increase was observed for almost all of the data reported by the individual River Boards, state enterprises. Only the BOD5 indicator decreased in the data reported by the Ohře River Board, s. e., the Elbe River Board, s. e. and the Morava River Board, s. e., and the CODcr indicator decreased in the data reported by the Ohře River Board, s. e. A partial decrease was also recorded for the SS indicator by the Ohře River Board, s. e. and the Elbe River Board, s. e. An increase for the DIS indicator was recorded by the Vltava River Board, s. e., the Elbe River Board, s. e., the Morava River Board, s. e. and the Oder River Board, s. e. A decrease for the DIS indicator was recorded by the Ohře River Board, s. e. Increased N-inorganic indicator was reported by all River Boards, s. e., except for the Ohře River Board, s. e. The development since the year 1990 in the discharged pollution and the pollution on which charges are imposed is shown in chart 5.1.1.

Central waste water treatment plant in Prague

Table 5.1.1
Produced and discharged pollution in the year 2010

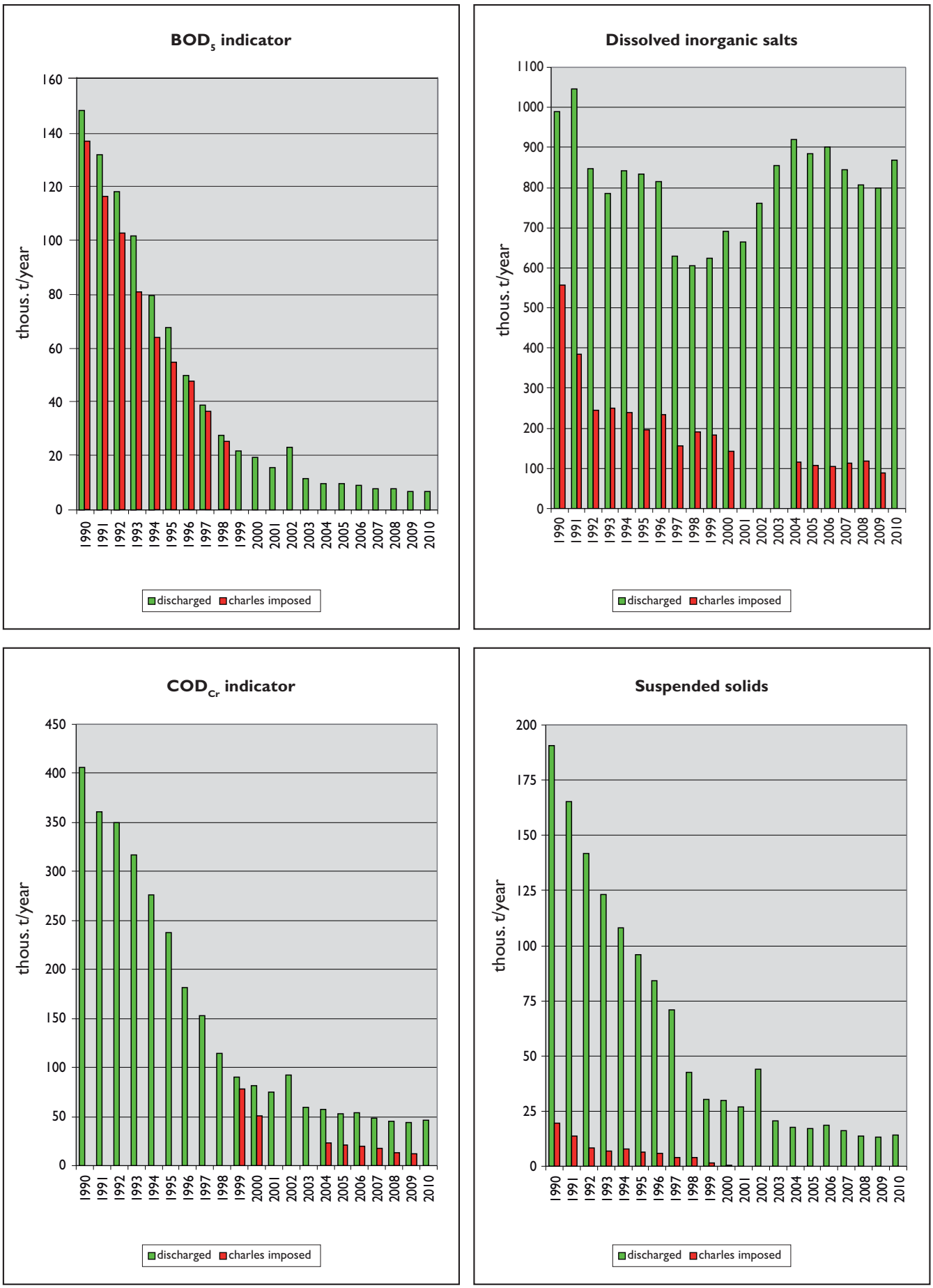
River Board, s. e.	Produced pollution in tonnes/year						Discharged pollution in tonnes/year					
	BOD_5	COD_{Cr}	SS	DIS*)	$N_{inorgan}$	P_{total}	BOD_5	COD_{Cr}	SS	DIS	$N_{inorgan}$	P_{total}
Elbe River Board, s. e.	47,343	118,948	51,554	207,586	7,205	1,142	1,885	12,396	3,802	205,677	4,586	276
Vltava River Board, s. e.	87,817	195,204	92,250	166,418*)	9,342	2,294	2,103	12,520	2,837	170,867	4,028	329
Ohře River Board, s. e.	16,137	59,401	15,000	137,160	2,017	659	597	4,460	1,864	123,858	1,121	220
Oder River Board, s. e.	37,201	77,883	36,750	220,844	3,395	568	1,077	7,826	3,246	220,844	1,496	131
Morava River Board, s. e.	61,249	140,229	73,934	150,759	6,864	1378	1,571	8,826	2,305	146,236	2,585	245

Source: T.G.Masaryk Water Research Institute – public research institution, from the source documents of the Czech Statistical Office and the River Boards, s. e.

Note: *) The quantity of produced and discharged pollution should be approximately identical (by common waste water treatment methods the concentration of DIS cannot be reduced). With regard to the reporting discipline, lower completeness of the data for produced than discharged pollution can often be observed.

5.

Chart 5.1.1
Discharged pollution and pollution on which charges were imposed in the years 1990–2010



Source: T.G.Masaryk Water Research Institute – public research institution, from the source documents of the Czech Statistical Office and the River Boards, s. e.

Between the years 1990 and 2010 the discharged pollution decreased in the BOD5 indicator by 95.1%, in the CODCr indicator by 88.7%, in the SS indicator by 92.6% and in the DIS indicator by 12.3%.

In the 1990–2010 period, the water management sector succeeded also in reducing the quantity of the discharged hazardous and especially hazardous harmful substances. A significant decrease was also observed for macronutrients (nitrogen, phosphorus) as a result of the fact that waste water treatment technologies in the new and the so-called intensified waste water treatment plants apply the focused use of biological removal of nitrogen and biological or chemical removal of phosphorus.

5.2 Area pollution

Surface water and groundwater quality is also significantly affected by area pollution, in particular the pollution from farming, atmospheric depositions and erosive runoff in the landscape. The importance of area pollution is increasing in parallel with the continued decrease in point source pollution. The proportion of area pollution is substantial especially as regards nitrates, pesticides and acidification, while it is less important as regards phosphorus. This proportion varies in different areas of the Czech Republic, depending on the settlement density, the proportion of waste water treatment, the intensity and the method of farming and the level of atmospheric deposition.

The main measures aimed at reducing area pollution of waters from agricultural sources are included in the Government Order No. 103/2003 Coll., on delimitation of vulnerable areas, the use and storage of fertilizers and manure, crop rotation and carrying out anti-erosion measures in these areas, as amended. This government order defines the "vulnerable areas" and declares an action programme.

The action programme is a set of measures in vulnerable areas to reduce water pollution caused by nitrates and prevent further contamination of water. The main measures of this action programme include imposing the ban on the use of mineral nitrogenous fertilizers and fertilizers with rapidly releaseable nitrogen in winter period in dependence on the crop/culture and climatic region (Section 6), crop rotation and carrying out soil erosion control measures and the determination of the total amount of nitrogen of organic origin applied in farming land within one agricultural company. The effectiveness of the action programme is evaluated in a four-year period on the basis of the monitoring and evaluation of the preceding action programme efficiency.

The monitoring includes:

- a survey of whether the action programme requirements in farming companies in vulnerable areas are fulfilled,
- evaluation of the field investigation in farming companies in vulnerable areas,
- evaluation of the development of soil nitrogen content with regard to the respective arable crops and the farming equipment used, including modelling the transport of nitrogen in soil and water during the next period,
- monitoring of the development in farming methods in vulnerable areas.

Pursuant to Section 33, Subsection 2 of the Water Act, the Ministry of the Environment of the Czech Republic is obliged to carry out, according to the Government Order No. 103/2003 Coll., a review of vulnerable areas not later than four years from coming into force of this Government Order, i.e. by 1 September 2011. The proposed amendments and modifications will be submitted by the Ministry of the Environment to the Government which after their adoption will issue the amendment to the Government Order. A review of the delimitation of vulnerable areas, based on Section 3 of the Government Order, is carried out by the T. G. Masaryk Water Management Research Institute, public research institution, authorized by the Ministry of the Environment. The first reviewed delimitation of vulnerable areas was declared by the Government Order No. 219/2007 Coll.

5.3 Accidental pollution

Surface water and groundwater quality is also affected by the adverse impacts of accidental pollution. In the year 2010 the Czech Environmental Inspectorate registered in total 139 accidental pollution events and events posing a threat to water quality, including 6 events in groundwaters.

Compared to the year 2009, the total number of accidents affecting water quality in 2010 increased by 28 events. The most numerous group of pollutants were oil and oil products: 61.1% of the total number of the registered events, followed by waste waters (10.1%) and chemical substances excl. heavy metals (6.5%). The character of pollutants was not identified for 15 accidents (10.8%). Classified by the cause (inflictor) of the accident, the most numerous were accidents caused in traffic (15.1%), followed by accidents associated with waste water and solid waste disposal (5.1%), accidents in agriculture, in hunting and game management and related activities (3.6%) and accidents caused by other inflictors (7.3%). The inflictor was not identified (according to SCEA) in 54.0% of all events (in the year 2009 it was 45.0% of all events). In 2010, the Czech Environmental Inspectorate imposed in total 554 financial penalties for breach of legal regulations in force in the field of water management, of which 508 penalties became fully effective and amounted in total sum to CZK 28,103 million.

The Chřibská Kamenice River in Všemily

Nguyen Thi Kieu Trinh – 12 years
Dolákova basic school and nursery school, Prague

6. Watercourse administration

6.1 Professional administration of watercourses

The territory of the Czech Republic is an important headwater area of the European continent, and from the hydrological point of view it may be called "the roof of Europe". The basic hydrographic system according to maps on a scale of 1:50 000 is constituted by approx. 79,000 km of watercourses and according to maps on a scale of 1:10 000 the watercourses reach a length of approximately 114,000 km (with both natural and regulated stream channels). Watercourses on the territory of the Czech Republic are divided into two categories: significant watercourses and minor watercourses. In the year 2010, the professional administration of watercourses was carried out in accordance with the provision of Section 47 of the Act No. 254/2001 Coll., on Water and on amendment to certain laws (the "Water Act"), as amended.

In September 2010, the phase of work on the so-called Central Register of Watercourses on a scale of 1:10 000 was completed. In this work, most important watercourse administrators, i.e. the River Boards, the Agricultural Water Management Administration and Forests of the Czech Republic participated. The registered total length of all watercourses drawn in maps on a scale of 1:10 000 is approx. 114,000 km.

The main watercourse administrators are the River Boards, state enterprises, the Agricultural Water Management Administration and Forests of the Czech Republic, state enterprise; all of them report directly to the Ministry of Agriculture. Together they are responsible for the administration of, according to maps on a scale of 1:50 000, about 95.3% of the total length of watercourses in the Czech Republic. Other entities involved, including the Ministry of Defence, the National Park Administrations and other natural and legal persons are responsible for approximately 4.7% of watercourse administration.

The structure of the professional watercourse administration arranged by the individual watercourse administrators is shown in tables 6.1.1. and 6.1.2.

The specific account of significant watercourses is published in Decree No. 470/2001 Coll., stipulating the list of significant watercourses and the method of carrying out the activities relating to watercourse administration, as amended by Decree No. 267/2005, which came into force as of 1 July 2005. It provides an overview of 814 watercourses included in the "List of significant watercourses", which forms Annex 1 to the above mentioned Decree. This list also includes the identifiers of significant watercourses (Central Register of Watercourses). The significant watercourses, with a total length of 15,538 km, are administered under the provision in Section 4 of Act No. 305/2000 Coll., on river basins, by the respective River Boards, state enterprises: the Elbe River Board, the Morava River Board, the Oder River Board, the Ohře River Board and the Vltava River Board. The backbone watercourses are the Elbe (370 km) with the Vltava River (433 km) in Bohemia, the Morava River (272 km) with the Dyje River (306 km) in South Moravia, and the Oder River (135 km) with the Opava River (131 km), in North Moravia and Silesia.

All the other watercourses (provision of Section 43 of the Water Act) are in the category of minor watercourses. The total length of minor watercourses drawn in maps on a scale of 1:50 000 is almost 63,500 km and in maps on a scale of

Table 6.1.1
Professional watercourse administration according to maps on a scale of 1:50 000

Category	Administrator	Length of watercourses in km	
		2009	2010
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
	Oder River Board, s. e.	1,111.39	1,111.39
	Morava River Board, s. e.	3,814.61	3,814.61
	Total	**15,538.01**	**15,538.01**
Minor watercourses	Agricultural Water Management Administration	38,888.97	38,836.21,[1)]
	Forests of the Czech Republic, s. e.	19,598.64	19,597.54
	River Boards, s. e. in total	1,281.42	1,304.23
	Ostatní správci [2)]	3,721.96	3,721.96
	Total	**63,490.99**	**63 459.94**
Watercourses in total		**79 029.00**	**78,997.95**

Source: MoA

Note: [1)] A decline of minor watercourses administered by the Agricultural Water Management Administration relates to the reassessment of some amelioration canals that pursuant to Section 43 of the Water Act are no more a watercourse.

[2)] Including National Park Administrations, the Ministry of Defence (authorities of military districts), municipalities and other natural and legal persons (e.g. mining companies).

Table 6.1.2
Professional watercourse administration according to maps on a scale of 1:10 000

Category	Administrator	Length of watercourses in km
		2010
Significant watercourses	Elbe River Board, s. e.	3,560.10
	Vltava River Board, s. e.	4,761.10
	Ohře River Board, s. e.	2,290.81
	Oder River Board, s. e.	1,111.39
	Morava River Board, s. e.	3,814.61
	Total	**15,538.01**
Minor watercourses	Agricultural Water Management Administration	46,091.00
	Forests of the Czech Republic, s. e.	24,793.00
	River Boards, s. e. in total	11,337.00
	Other administrators [1)]	7,388.00
	Other [2)]	9,303.00
	Total	**98,912.00**
Watercourses in total		**114,450.01**

Source: MoA
Pozn.: [1)] Including National Park Administrations, the Ministry of Defence (authorities of military districts), municipalities and other natural and legal persons (e.g. mining companies).
[2)] These are minor watercourses that spring on the territory of the Czech Republic and flow abroad. So far, the administrator for these watercourses was not designated and Section 48, par. 4 of the Water Act cannot be applied to these watercourses.

1:10 000 they reach almost a length of 99 thousand km. The administration of minor watercourses is carried out under the provision of Section 48 of the Water Act, based on the respective appointment by the Ministry of Agriculture (the provision of Section 48, subsection 2 of the Water Act). If no administrator of a minor watercourse is appointed, the watercourse in question is managed by the administrator of the receiving watercourse where the outfall of the minor watercourse is situated. It does so until the administration of the watercourse is established under Section 48, subsection 2 of the Water Act. The administration of minor watercourses may be carried out by the municipalities through the territory of which the minor watercourses flow, by natural or legal persons or, as the case may be, by the state organisational units using these minor watercourses or carrying out activities with which these watercourses are connected. The form and the content of the application for establishment of the administration of a certain minor watercourse is published and specified in detail in the above mentioned Decree No. 470/2001 Coll.

The public administration bodies and the general public find detailed information on the establishment of the administration of the respective watercourse in the "Register of Watercourses", which is available on the water management portal called WATER INFORMATION SYSTEM in the Czech Republic, i.e. www.voda.gov.cz. Currently, the newly produced register on a scale of 1:10 000 is presented.

The acquisition value of the non-current tangible assets relating to watercourses amounted in the year 2010 to CZK 49.87 billion. Compared to the previous period, this value shows a year-on-year growth of CZK 0.61 billion.

The year-on-year growth is mainly caused by the increase in the non-current tangible assets generated by the renewal and planned development of entrusted property in the form of routine capital investment construction and by consecutive entries of the assets taken over, and the completed hydraulic structures in the accounting records. In the year 2010 no watercourse administrator completed the construction, received an occupancy permit for or put in operation any hydraulic structure that would significantly affect the indicators expressing the acquisition value of the non-current tangible assets. The non-current tangible asset values in purchase prices and the year-on-year development (increase in the non-current tangible assets) for the individual watercourse administrators are shown in table 6.1.3.

Table 6.1.3
Acquisition value of non-current tangible assets relating to watercourses in billions of CZK

Watercourse administrators directly responsible to the Ministry of Agriculture	2009	2010
Elbe River Board, s. e.	8.55	8.59
Vltava River Board, s. e.	7.79	7.86
Ohře River Board, s. e.	8.39	8.56
Oder River Board, s. e.	5.06	5.13
Morava River Board, s. e.	6.91	6.94
River Boards, s. e. in total	**36.70**	**37.08**
Agricultural Water Management Administration	9.71	9.82
Forests of the Czech Republic, s. e.	2.85	2.97
Total	**49.26**	**49.87**

Source: MoA

Auditing activities in the individual River Boards, state enterprises, are carried out by the respective controlling bodies. The following comprehensive and selective audits were carried out in the year 2010.

Ministry of Agriculture

Similarly to the preceding years, the Ministry of Agriculture mainly carried out ongoing public inspections focusing on fulfilment of conditions, on the use of public funds and on economy of the respective enterprise. In total 11 audits were carried out in 2010, at least one for every River Board, s. e. The majority of audits were carried out by the Department of Water Management Policy and Flood Control Measures and by the Department of Water in Landscape and Rehabilitation of Flood Damage. During the audits no major irregularities were identified, and it was established that the state budget funds were used in compliance with all regulations. During one audit only a recommendation was given concerning further steps to be taken in economy of the River Boards, s. e.

Financial Authorities

In the year 2010 these state administration bodies carried out in total 13 financial audits in the Vltava River Board, the Morava River Board, the Elbe River Board and the Ohře River Board state enterprises, focused on inspecting the legitimacy of the use of subsidies and the observance of budget rules and budgetary discipline. One audit in the Vltava River Board, state enterprise and four audits in the Elbe River Board, state enterprise have not been finished yet. During one audit, minor shortcomings were identified, the remaining audits showed no shortcomings.

The Czech Social Security Administration

In the year 2010 the district branches and the municipal branch of this institution carried out in total nine audits in the Ohře River Board, the Oder River Board, the Elbe River Board and the Morava River Board state enterprises, focused on social security contributions, sickness insurance and fulfilment of tasks regarding pensions. One audit identified two incorrectly forwarded notifications of start and termination of employment. The employer through a member of audit team submitted an application for cancellation. As regards the remaining audits, no shortcomings were found.

Health Insurance Company

The obligation of the employer in the field of health insurance payments and adherence to other obligations of insurance payer was audited in the Elbe River Board, the Ohře River Board and the Oder River Board, state enterprises. In total five audits were carried out. During one audit, unpaid balance of insurance payment in amount of CZK 2,075 and a penalty in amount of CZK 842.0 was identified.

Regional Public Health Offices

The Regional Public Health Offices audited the execution of the state health supervision in the field of compliance with the public health protection regulations. In total nine audits were carried out at the Vltava River Board, the Ohře River Board and the Morava River Board state enterprises, with shortcomings having been found in three audits. Audit of risk posing works classified in category 3, i.e. noise load and vibrations affecting hands was not notified of in advance and the following shortcomings were identified: shortcomings in keeping records of risk posing works, failing to respect statutory division of risk posing and non-risk posing professions, missing control measurement of noise load and vibrations affecting hands. The next audit imposed an obligation to prepare and discuss the rules for the use of hazardous chemical substance. The third audit identified the absence of auxiliary equipment for working shoes drying. These three audits required to rectify the identified shortcomings and report in writing on the way of rectification.

The Ostravice River – flood in May 2010 in Ostrava

The Occupational Health and Safety Inspectorate

The Occupational Health and Safety Inspectorate carried out two audits at the Morava River Board, state enterprise. During one of the audits focused on the observance of occupational health and safety regulations, eight negative findings were identified and subsequently rectified. The latter audit was carried out on the basis of notification by telephone and five breaches of duties were identified. Information in writing on the rectification of the found shortcomings is not available.

Fire Rescue Service

The locally responsible Fire Rescue Teams carried out in total two comprehensive fire inspections at the Vltava River Board and the Morava River Board state enterprises, including the audit of observance of duties stipulated by fire protection regulations. During the audits no shortcomings were identified.

Audits carried out by other state administration bodies

The Czech Environmental Inspection carried out one audit at the Elbe River Board, s. e. and one audit at the Ohře River Board, s. e. At the Ohře River Board, s. e., through the inspection of groundwater abstractions and charges for the abstracted groundwater amounts no breaches of the Water Act or the Act on territorial planning and Building Code were identified.

The State Office for Nuclear Safety carried out two audits at the Vltava River Board, s. e., with minor shortcomings having been identified and subsequently rectified. The Vltava River Board, s. e. was also subjected to audit which was carried out by the Agency for Nature Conservation and Landscape Protection of the Czech Republic, Administration of Protected Landscape Area Blaník. No shortcomings were identified.

Supreme Audit Office carried out one audit at the Elbe River Board, s. e. and one audit at the Morava River Board, s. e. Both audits were focused on the use of finacial resources provided for the improvement of the status of nature and landscape. Both audits showed no negative findings.

The National Accrediting Body carried out audit at the Morava River Board, s. e. The subject of audit was the assessment of procedures for selected tests that are carried out by the accredited water management laboratory PM No. 1190. During the audit, irregularities were identified and a remedial measure proposed, with the date of completion not later than 30 June 2011.

The Czech Metrology Institute, Inspectorate for Ionizing Radiation, carried out at the Oder River Board, s. e. the state metrological supervision under the Act No. 505/1990 Coll., on metrology. The Regional Veterinary Administration for Moravia carried out investigations at several special fishing management plants. No shortcomings were identified by both audits.

The Elbe River Board, s. e. was subjected to three audits, of which one was carried out by the Ministry of Transport, one by the Regional Authority of Hradec Králové and one by the Municipal Authority of Jablonec nad Nisou. All audits identified no shortcomings.

Audits at the Agricultural Water Management Administration are carried out by the respective controlling bodies. In 2010, the following comprehensive and selective audits were carried out at this organization.

Ministry of Agriculture

The Department of Water Management Policy and Flood Control Measures carried out ongoing on-site public inspections at the Agricultural Water Management Administration by virtue of the Act No. 320/2001 Coll., on financial audits in public administration and on amendments to some laws (Act on Financial Audits). These audits were aimed at fulfilling the conditions for the use of state budget funds for projects financed under the sub-programme 129 123 "Support for flood control measures along watercourses". These audits identified no irregularities and neither the Binding Criteria for Provision of Funds in the Field of Waters in the year 2010, nor the method of controlling their use were breached. In total four projects were audited.

Czech Environmental Inspection

The Czech Environmental Inspection, Regional Inspectorate in Plzeň, carried out audit of two projects at the Agricultural Water Management Administration. No breach of the Act No. 114/92 Coll., on nature and landscape protection, as amended, was identified.

External audits of the activities in the Economic Department

In 2010, in the Economic Department of the Agricultural Water Management Administration, five audits were carried out by the Czech Social Security Administration and two audits by the Health Insurance Company. During these audits no irregularities were identified.

6.2 River Boards, state enterprises

The overall revenues generated by the River Boards, state enterprises in the year 2010 reached a year–on–year increase amounting to 2.8%, i.e. in absolute figures an increase in revenues by more than CZK 123 million. This increase, similarly to every year, was mainly generated by payments for surface water abstractions, which in terms of the methodology are included in the revenue structure.

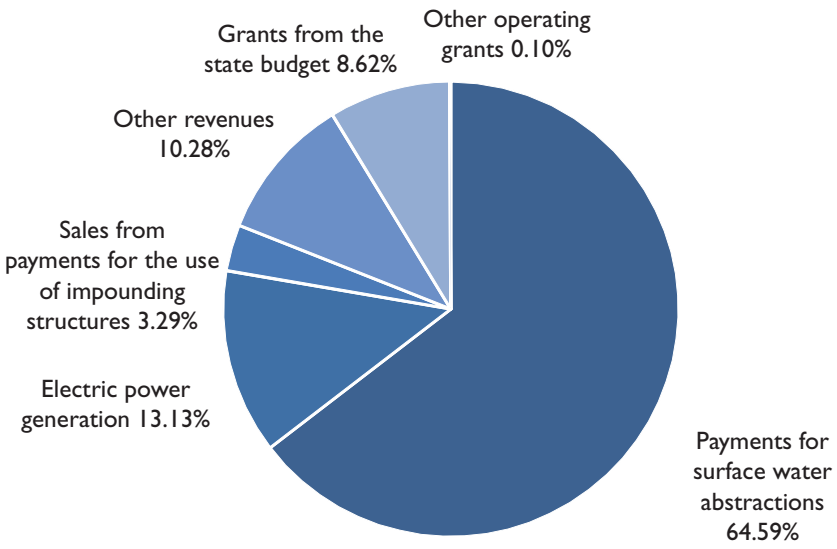
The year-on-year increase in the overall revenues of the River Boards, state enterprises was influenced by increased surface water sales by CZK 168 million which corresponds to a year-on-year increase amounting to 6%. The year-on-year increase in amount of 8.3% (by CZK 58.6 million) was also reached in electric power generation. The revenues from electric power generation in the majority of River Boards, state enterprises come solely from their own small hydroelectric power plants, only at the Ohře River Board, s.e., also photovoltaic power plant takes a share, to a smaller extent, in sales figures. Other revenue items showed a year-on-year decrease. The highest year-on-year decrease in the absolute figure of approx. CZK 33 million was shown by other revenues, namely by state budget subsidies, i.e. a year-on-year decrease by 6.7% and 7.7%, respectively. The highest year-on-year decrease by 87.7% was shown by other operating subsidies, in the absolute figure a decrease by CZK 30 million. The year-on-year decrease by 4.4% was also recorded for revenues from payments for the use of impounding structures, i.e. a decrease in the absolute figure of almost CZK 7 million.

Table 6.2.1
Structure of the revenues of the River Boards, state enterprises in the year 2010 in thousands of CZK

Indicator	Elbe River Board, s. e.	Vltava River Board, s. e.	Ohře River Board, s. e.	Oder River Board, s. e.	Morava River Board, s. e.	Total
Payments for surface water abstractions	832,614	686,185	467,728	482,918	480,512	**2,949,957**
Electric power generation	49,299	238,981	215,052	60,568	35,623	**599,523**
Sales from payments for the use of impounding structures	6,900	136,926	1,282	0	4,956	**150,064**
Other revenues	89,889	113,624	101,250	108,667	56,000	**469,430**
Grants from the state budget	74,165	39,751	18,567	60,765	200,377	**393,625**
other operating grants	53	913	1,747	0	1,666	**4,379**
River Boards, s. e. in total	**1,052,920**	**1,216,380**	**805,626**	**712,918**	**779,134**	**4,566,978**

Source: MoA, River Boards, s. e.

Chart 6.2.1
Structure of the revenues of the River Boards, s. e. in the year 2010



Source: MoA

The structure of the revenues of the River Boards, state enterprises, in the year 2010 is shown in table 6.2.1. chart 6.2.1 illustrates the proportion of the individual revenue types in the overall revenues of the River Boards, state enterprises.

The development of the overall surface water supplies charged for in technical units in a longer time series is shown in table 6.2.2.

Prices for the individual types of surface water abstractions are shown in tables 6.2.3 and 6.2.4.

In the River Boards, state enterprises, the average price of surface water in the context of other abstractions, compared to the preceding year 2009, increased by 6.1%. In 2010, the average price of surface water ranged around CZK 3.32 per m³. These prices are the so-called factually regulated prices, which may include only eligible costs, reasonable profit and the tax pursuant to the relevant tax regulations.

In addition to through-flow cooling, since the year 2003 abstraction levels and prices of surface water have also been identified for the purposes of charged agricultural irrigation and flooding of artificial depressions in the landscape. Except for the Oder River Board, s. e., in the year 2010 the River Boards, s. e. in total abstracted water for the purposes of agricultural irrigation in the amount of 192 thousand m³ which in the aggregate for all River Boards, state enterprises in the year-on-year comparison represents a slight increase by 7 thousand m³ compared to the year 2009. This increase in abstractions for the purposes

Table 6.2.2
Surface water supplies charged for in the years 2003–2010 in thousands of m³

River Board, s. e.		2003	2004	2005	2006	2007	2008	2009	2010
Elbe River Board, s. e.	a)	803,416	815,491	777,041	748,522	765,070	807,073	800,772	817,645
	b)	36,334	39,182	39,818	46,518	39,396	36,031	36,787	38,843
Vltava River Board, s. e.	a)	286,889	274,084	262,532	263,685	260,008	252,659	243,528	238,582
	b)	173,773	163,896	160,483	161,528	155,382	153,131	146,670	144,164
Ohře River Board, s. e.	a)	170,975	162,934	155,315	161,071	152,636	150,115	148,330	141,308
	b)	58,951	57,033	53,644	55,385	52,410	51,514	50,299	49,550
Oder River Board, s. e.	a)	172,795	163,874	165,044	171,301	164,087	153,946	138,961	144,155
	b)	74,183	70,729	72,682	75,001	71,979	69,288	68,171	66,936
Morava River Board, s. e.	a)	165,653	145,185	154,770	162,336	174,803	179,833	174,398	173,661
	b)	38,256	36,969	34,953	34,128	33,554	32,553	31,233	31,063
River Boards, s. e. in total	**a)**	**1,599,728**	**1,561,568**	**1,514,702**	**1,506,915**	**1,516,604**	**1,543,626**	**1,505,989**	**1,515,351**
	b)	**381,497**	**367,809**	**361,580**	**372,560**	**352,721**	**342,517**	**333,160**	**330,556**

Source: River Boards, s. e.
Note: a) charged for in total
b) of that for public water supply systems

Table 6.2.3

Price for abstractions used for through-flow cooling in the years 2001–2010 in CZK/m³

River Board, s. e.	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010
Elbe River Board, s. e.	0.67	0.65	0.39	0.40	0.40	0.40	0.44	0.49	0.53	0.55
Vltava River Board, s. e.	0.81	0.86	0.91	0.92	0.93	0.94	0.96	1.00	1.03	1.10
Morava River Board, s. e.	0.60	0.53	0.41	0.49	0.54	0.56	0.62	0.67	0.67	0.67

Source: River Boards, s. e.
Note: Unit price for m³ is quoted excluding VAT.

Table 6.2.4

Price for other surface water abstractions in the years 2001–2010 in CZK/m³

River Board, s. e.	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010
Elbe River Board, s. e.	1.71	1.88	2.04	2.20	2.35	2.51	2.70	2.93	3.16	3.35
Vltava River Board, s. e.	1.65	1.70	1.79	1.90	2.00	2.11	2.24	2.45	2.68	2.94
Ohře River Board, s. e.	2.11	2.23	2.33	2.41	2.53	2.71	2.85	3.01	3.16	3.31
Oder River Board, s. e.	1.80	2.01	2.08	2.12	2.40	2.53	2.70	2.89	3.10	3.35
Morava River Board, s. e.	2.66	2.89	3.06	3.12	3.26	3.49	3.88	4.19	4.65	4.97
Average price quoted by River Boards, s. e. *)	**1.90**	**2.10**	**2.23**	**2.44**	**2.42**	**2.56**	**2.68**	**2.67**	**3.13**	**3.32**

Source: River Boards, s.e., T. G. Masaryk Water Management Research Institute – public research institution
Note: Unit price for m³ is quoted excluding VAT.
*) Calculated by means of weighted average.

of agricultural irrigation was only recorded by the Elbe River Board, s. e., the remaining River Boards, s. e. showed a stagnation or a slight decrease. The Ohře River Board, s.e., similarly to the preceding years, is the only one reporting surface water abstractions for flooding of artificial depressions in the landscape, in the amount of 22,150 million m³.

In the current approach the current prices do not reflect the value of surface water but the price of the service, i.e. enabling the provision of supplies ensured by River Boards, s. e. to water users.

These prices are subject regulated pursuant to Act No. 526/1990 Coll. on prices, and the rules stipulated by the decisions of the Ministry of Finance on price regulation, i.e. by the respective notifications issuing the list of goods with regulated prices which are published in the Price Journal.

In the year 2010 the River Boards, state enterprises reported in aggregate an increase in revenues from payments for surface water abstractions, which in absolute figures approximately amounts to CZK 169 million, compared to the year 2009, and corresponds to a year-on-year increase in this revenue category by 6.1%. The Elbe River Board, s. e., the Vltava River Board, s. e. and the Oder River Board, s. e. reported a year-on-year increase in sales for surface water abstractions by approx. CZK 50 million, the Morava River Board, s. e., compared to these River Boards, s. e., reported approx. half of a year-on-year increase and the Ohře River Board, s. e. showed a stagnation. Payments for surface water abstractions in a ten-year time series are shown in table 6.2.5.

In the year 2010, the favourable hydrological situation continued, having allowed an increase in the revenues from sales of electric power from small hydroelectric power plants owned by the River Boards, s. e. by almost CZK 58 million and the overall revenues in this revenue category amounted almost to CZK 599 million.

The revenues from sales of electric power generated in small hydroelectric power plants annually increase the proportion in the overall revenues, taking the second place after the main source of revenues which are payments for surface water abstractions. Compared to the previous years, the number of small hydroelectric power plants owned by the River Boards, s.e. remained unchanged. The highest revenues from sales of electric power amounting to CZK 239 million are reported by the Vltava River Board, s. e. which operates 18 own small hydroelectric power plants. High revenues from sales of electric power amounting to CZK 214.3 million are also reported by the Ohře River Board, s. e. which operates the largest number of small hydroelectric power plants.

In more detail, the information on the total number of small hydroelectric power plants owned by the individual River Boards, state enterprises, their installed capacity, electric power generation and sales is shown in table 6.2.6.

Other revenues of the River Boards, state enterprises comprise a sum of less significant items including in particular the lease of land, non-residential premises and water bodies as well as revenues from other business activities, among which the most significant ones are the revenues from sales of machinery services and automobile transport services, laboratory work and from design and engineering activities, with capital yields also contributing to the overall level.

This item is often significantly affected by a number of unplanned items such as insurance payments, increased interest rates received and in many cases also by the amount of transfers of certain specified sales which relate to the past periods but were not materialized until this year. With regard to these unplanned items and variations that may not always be anticipated, other revenues also may show considerable year-on-year variations. In the year 2010, the overall year-on-year decrease in other revenues of the River Boards, state enterprises amounted to almost CZK 33.5 million. The overall year-on-year

Table 6.2.5
Payments for surface water abstractions in the years 2001–2010 in millions of CZK

River Board, s. e.	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010
Elbe River Board, s. e.	536	566	613	669	669	678	705	735	785	833
Vltava River Board, s. e.	408	438	495	508	513	547	572	609	640	686
Ohře River Board, s. e.	397	399	427	420	393*)	434*)	434*)	450*)	469*)	468*)
Oder River Board, s. e.	301	347	359	347	396	433	443	445	431	483
Morava River Board, s. e.	287	300	368	359	362	394	420	440	457	481
River Boards, s. e. in total	**1,929**	**2,050**	**2,262**	**2,303**	**2,333**	**2,486**	**2,574**	**2,679**	**2,782**	**2,951**

Source: River Boards, s. e.
Note: *) Since 2005 excluding sales from transport and abstraction of water.

Table 6.2.6
Small hydroelectric power plants owned by River Boards, s. e. in the years 2005–2010

River Board, s. e.	Indicator	2005	2006	2007	2008	2009	2010
Elbe River Board, s. e.	Number of small hydro power plants	17	19	19	20	20	20
	Installed capacity in kW	4,876	5,217	5,217	5,892	5,892	5,892
	Electric power generation in MWh	19,135	18,619	19,270	18,325	20,356	23,589
	Sales in thousands of CZK	30,786	31,873	34,429	34,773	40,497	49,299
Vltava River Board, s. e.	Number of small hydro power plants	16	17	17	17	18	18
	Installed capacity in kW	15,300	18,400	18,400	18,400	21,200	21,200
	Electric power generation in MWh	74,050	73,485	83,568	82,039	89,239	106,141
	Sales in thousands of CZK	115,982	126,279	151,919	181,435	208,580	238,981
Ohře River Board, s. e.	Number of small hydro power plants	20	20	20	21	21	21
	Installed capacity in kW	16,677	16,677	16,677	16,949	16,930	16,930
	Electric power generation in MWh	96,967	96,188	107,876	94,056	90,027	106,168
	Sales in thousands of CZK	157,570	167,066	209,510	197,824	194,911	214,290
Oder River Board, s. e.	Number of small hydro power plants	14	14	14	16	16	16
	Installed capacity in kW	5,103	5,103	5,103	5,731	5,731	5,731
	Electric power generation in MWh	20,649	20,801	25,827	31,964	28,662	30,937
	Sales in thousands of CZK	35,049	35,033	50,120	68,710	60,937	60,568
Morava River Board, s. e.	Number of small hydro power plants	14	13	16	15	14	14
	Installed capacity in kW	3,612	3,400	3,530	3,522	3,482	3,482
	Electric power generation in MWh	14,415	14,483	8,709	14,281	14,252	14,365
	Sales in thousands of CZK	23,125	24,394	14,982	34,922	36,024	35,623
River Boards, s.e. in total	**Number of small hydro power plants**	**81**	**83**	**86**	**89**	**89**	**89**
	Installed capacity in kW	**45,568**	**48,797**	**48,927**	**50,494**	**53,235**	**53,235**
	Electric power generation in MWh	**225,216**	**223,576**	**245,250**	**240,665**	**242,536**	**281,200**
	Sales in thousands of CZK	**362,512**	**384,645**	**460,960**	**517,664**	**540,949**	**598,761**

Source: MoA, River Boards, s. e.

decrease in sales was reported by all River Boards, state enterprises, except for the Oder River Board, s. e. which as the only one reported an increase by CZK 50.5 million. The highest year-on-year decrease amounting to almost CZK 40 million was reported by the Elbe River Board, s. e.

The summary of other revenues of the River Boards, state enterprises in a longer time series is shown in table 6.2.7.

Financial needs regarding the key activities of the River Boards, state enterprises are every year supported by a number of grants of both operating and investment nature. Without the state subsidies it would have been impossible to remedy the impacts of floods in the previous years and to start systematic activities allowing to implement flood control measures, define inundation areas and produce a number of conceptual studies.

The total amount of grants in the year 2010 is almost identical with the amount in 2009, however with a different proportion of the impacts of operating grants and investment grants. Grants of operating nature showed a year-on-year decrease by 13.5% and investment subsidies showed a year-on-year increase by 5.2%. In total the grants in the year 2010 amounted to CZK 1.710 billion. Grants are especially allocated for programmes focused on both prevention and remedying flood damages from previous years.

In addition to grants allocated through the budget of the Ministry of Agriculture, these subsidies also included means provided by the ERDF and by the Ministry of the Environment through the funds of the State Environmental Fund. Flood control measures were also co-financed with the contribution of certain regional authorities.

The Tichá Orlice River – weir in Choceň

The total operating (non-investment) and investment grants allocated to the individual River Boards, s. e. in the year 2010 are shown in table 6.2.8.

Table 6.2.7
Other revenues of River Boards, s. e. in the years 2002–2010 in thousands of CZK

River Board, s. e.	2002	2003	2004	2005	2006	2007	2008	2009	2010
Elbe River Board, s. e.	173,429	68,368	87,233	92,256	162,403	115,334	105,185	129,663	89,889
Vltava River Board, s. e.	191,391	136,859	85,855	77,430	304,594	73,143	82,165	128,136	113,624
Ohře River Board, s. e.	65,606	67,525	59,410	73,068	80,937	74,837	110,493	117,623	101,250
Oder River Board, s. e.	47,853	41,618	34,712	35,656	41,780	34,911	61,628	58,163	108,667
Morava River Board s. e.	44,975	55,643	48,960	58,411	61,959	46,423	78,966	69,306	56,000
River Boards, s. e. in total	**523,254**	**370,013**	**316,170**	**336,821**	**651,673**	**344,648**	**438,437**	**502,891**	**469,430**

Source: River Boards, s. e.

Table 6.2.8
Grants allocated to River Boards, s. e. in 2010 in thousands of CZK

River Board, s. e.	Operating grant	Investment grant	Grants in total
Elbe River Board, s. e.	74,218	677,337	**751,555**
Vltava River Board, s. e.	40,664	173,410	**214,074**
Ohře River Board, s. e.	25,353[1)]	46,643	**71,996**
Oder River Board, s. e.	60,765	285,949	**346,714**
Morava River Board, s. e.	198,446[2)]	127,371	**325,817**
River Boards, s. e. in total	**399,446**	**1,310,710**	**1,710,156**

Source: MoA, River Boards, s. e.
Note: [1)] The actual use of operating grants amounted to CZK 20,314.
[2)] The difference in this sum compared to the table showing the structure of revenues and sales is caused by the grant invoicing date.

Also in the year 2010 the total costs increased, compared to the year 2009, by CZK 168.5 million, particularly due to an increase in depreciation by almost CZK 66 million, compared to 2009. Other costs increased almost by CZK 47 million and personnel costs showed an increase amounting almost to CZK 36 million.

The other items, compared to the year 2009, mostly showed a stagnation. The highest increase in costs was reported by the Oder River Board, s. e., followed by the Vltava River Board, s. e. In contrast, a significant decrease in costs was reported by the Morava River Board, s. e.

The summary of costs in the year 2010 reported by the River Boards, s.e. and their comparison with the previous year is shown in table 6.2.9.

In the year 2010, River Boards, s. e. expended on investments the amount of CZK 2,291.5 million. Of this sum, approx. the amount of CZK 941.4 million was drawn from their own resources and the additional amount of over CZK 1,350.1 million not covered by the River Boards, s. e. own resources was expended on investments.

Compared to the previous year the investments made by the River Boards, state enterprises, in the year 2010 increased in total by CZK 65.9 million. The summary of investment funds over a longer time series is shown in table 6.2.10 and chart 6.2.2.

The financial results reached by all River Boards, state enterprises showed only a profit. The profit reached the total amount of almost CZK 75 million.

Table 6.2.9
Costs in 2009 and 2010 reported by River Boards, s. e. in millions of CZK

Type of cost	Year	Elbe River Board, s. e.	Vltava River Board, s. e.	Ohře River Board, s. e.	Oder River Board, s. e.	Morava River Board, s. e.	River Boards, s. e. in total
Depreciation	2009	156.5	236.8	178.6	128.7	127.3	**827.9**
	2010	158.5	285.9	184.9	128.7	135.5	**893.5**
Repairs	2009	196.4	294.8	156.4	93.9	381.8	**1,123.3**
	2010	210.2	244.6	206.7	213.4	242.5	**1,117.4**
Material	2009	48.4	26.7	21.8	37.6	43.5	**178.0**
	2010	51.0	27.1	23.7	40.4	45.2	**187.4**
Energy and fuels	2009	37.5	33.4	41.9	5.6	14.8	**133.2**
	2010	40.9	35.3	37.7	6.2	14.0	**134.1**
Personnel costs	2009	421.6	371.7	288.7	199.9	296.6	**1,578.5**
	2010	436.4	386.8	300.9	208.2	282.1	**1,614.4**
Services	2009	79.0	111.5	33.5	45.2	36.4	**305.6**
	2010	81.1	118.3	37.3	53.1	35.1	**324.9**
Financial costs	2009	0.4	6.0	1.3	0.6	1.0	**9.3**
	2010	0.4	4.5	0.6	0.3	0.0	**5.8**
Other costs	2009	64.7	47.8	35.1	28.1	-7.9*)	**167.8**
	2010	46.9	100.4	2.1	48.8	16.5	**214.7**
Total costs	**2009**	**1,004.5**	**1,128.7**	**757.3**	**539.6**	**893.5**	**4,323.6**
	2010	**1,025.4**	**1,202.8**	**793.9**	**699.1**	**770.9**	**4,492.1**

Source: River Boards, s. e.
Note: *) accruals fom the previous year were used

Table 6.2.10
Investments made by the River Boards, s. e. in the years 2001–2010 in millions of CZK

River Board, s. e.	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010
Elbe River Board, s. e.	347.1	529.1	607.6	915.2	485.2	394.9	212.0	455.0	459.0	829.8
Vltava River Board, s. e.	114.1	199.3	321.6	219.0	362.4	236.6	275.2	611.3	761.1	428.3
Ohře River Board, s. e.	173.4	212.8	339.8	329.5	354.4	170.4	215.7	322.5	277.5	287.4
Oder River Board, s. e.	226.8	282.3	316.3	301.3	260.6	254.7	199.7	244.2	473.5	443.4
Morava River Board, s. e.	257.8	200.5	407.4	411.9	462.3	518.2	413.5	257.8	254.5	302.6
River Boards, s. e. in total	**1,119.2**	**1,424.0**	**1,992.7**	**2,176.9**	**1,924.9**	**1,574.8**	**1,316.1**	**1,890.8**	**2,225.6**	**2,291.5**

Source: MoA, River Boards, s. e.

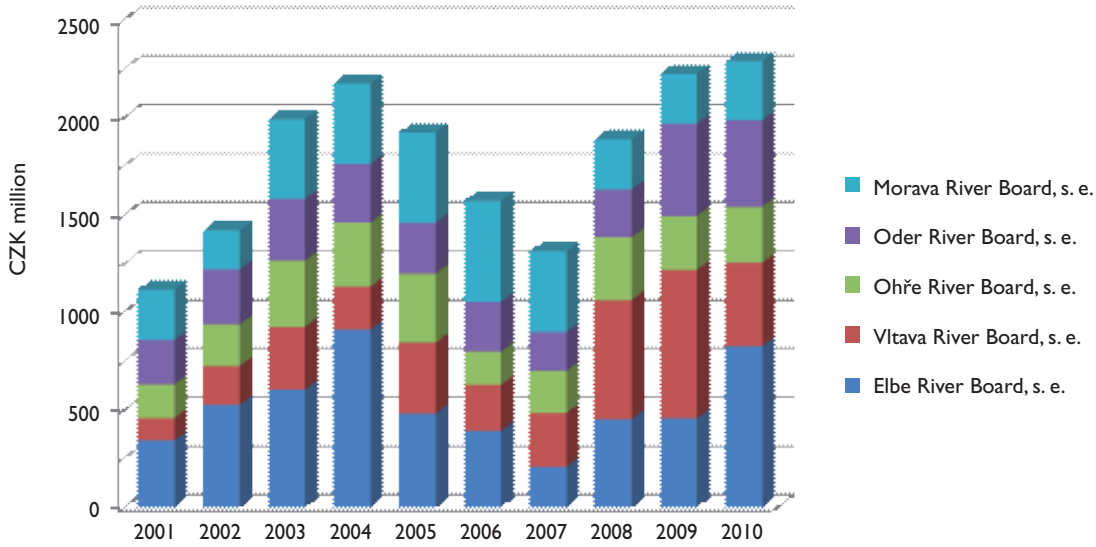
Compared to the previous year, the total profit is significantly lower by approx. CZK 45 million. All River Boards, state enterprises reached worse economic results, compared to the year 2009.

Profit/loss development over the recent eight years and the share of the individual River Boards, s. e. in the total profit/loss is documented in table 6.2.11. In more detail, a breakdown of profit into individual funds along with the proposals for covering losses in the respective River Boards, s. e. are shown in table 6.2.12.

The average recalculated number of employees in River Boards, state enterprises decreased in the year 2010 by 49 employees to a total of 3,455 persons.

A significant decrease in the number of employees was observed only in the Morava River Board, s. e., which shows a decrease of 33 employees. The Ohře River Board, s. e. stagnated with the same number of employees as in the year 2009. The remaining River Boards, s. e. report a slight decrease in staff numbers, com-

Chart 6.2.2
The development of capital construction in River Boards, s. e. in the years 2001–2010



Source: MoA, River Boards, s. e.

Table 6.2.11
Profit/loss of River Boards, s. e. in the years 2003–2010 in thousands of CZK

River Board, s. e.	2003	2004	2005	2006	2007	2008	2009	2010
Elbe River Board, s. e.	26,542	39,445	36,777	6,132	15,798	16,692	30,050	27,509
Vltava River Board, s. e.	45,752	42,008	34,376	177,869	67,625	23,375	30,265	13,530
Ohře River Board, s. e.	28,274	16,817	17,070	47,735	71,817	22,401	30,371	11,776
Oder River Board, s. e.	38,671	11,877	16,680	56,401	24,595	29,296	13,964	13,785
Morava River Board, s. e.	32,170	37,142	13,038	11,054	12,417	13,035	15,295	8,171
River Boards, s. e. in total	**171,409**	**147,289**	**117,941**	**299,191**	**192,252**	**104,799**	**119,945**	**74,771**

Source: River Boards, s. e.

Table 6.2.12
Proposed allocation of profit of River Boards, s.e. for the year 2010 in thousands of CZK

River Board, s. e.	Profit	Allocation of profit or loss					
		Reserve fund	Fund for Social and Cultural Requirements	Investment fund	Social fund	Remuneration fund	Accumulated losses from previous years
Elbe River Board, s. e.	**27,509**	2,751	8,000	12,758	0	4,000	0
Vltava River Board, s. e.	**13,530**	0	6,000	5,000	94	2,436	0
Ohře River Board, s. e.	**11,776**	1,200	4,320	6,256	0	0	0
Oder River Board, s. e.	**13,785**	0	7,285	0	0	6,500	0
Morava River Board, s. e.	**8,171**	820	4,100	0	0	3,000	251

Source: River Boards, s. e.

Table 6.2.13
The number of employees of River Boards, s. e. in the years 2009 and 2010 (average recalculated number)

River Board, s. e.	2009	2010
Elbe River Board, s. e.	943.7	939.7
Vltava River Board, s. e.	786.2	779.2
Ohře River Board, s. e.	605.2	604.9
Oder River Board, s. e.	461.7	457.2
Morava River Board, s. e.	706.9	673.9
River Boards, s. e. in total	**3,503.7**	**3,454.9**

Source: River Boards, s. e.

The Polomina stream in Tasov

Table 6.2.14
Average salaries in the individual River Boards, s. e. in the years 2003–2010 in CZK/month.

River Board, s. e.	2003	2004	2005	2006	2007	2008	2009	2010
Elbe River Board, s. e.	18,750	20,125	21,781	23,036	24,318	25,778	27,283	28,209
Vltava River Board, s. e.	19,073	20,556	21,909	23,414	24,611	27,325	28,300	28,864
Ohře River Board, s. e.	19,420	20,661	22,091	23,464	24,971	26,794	28,620	29,759
Oder River Board, s. e.	18,362	19,656	21,050	22,337	23,817	25,534	26,104	27,190
Morava River Board, s. e.	16,899	17,975	19,233	20,798	22,052	23,823	25,778	25,310
Average monthly salary in River Boards, s. e.	**18,505**	**20,072**	**21,243**	**22,637**	**23,954**	**25,856**	**27,283**	**27,905**

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

pared to the year 2009, namely, the Elbe River Board, s. e. by four employees, the Vltava River Board, s. e. by seven employees and the Oder River Board, s. e. by five employees. An overview of the development in the numbers of employees of the significant watercourse administrators is shown in table 6.2.13.

The average monthly salary in the River Boards, state enterprises in the year 2010 amounted to CZK 27,905.

Compared to the previous year, the average monthly salary increased by almost CZK 600. The annual increase ranges from CZK 564 in the Vltava River Board, s. e. up to CZK 1,139 in the Ohře River Board, s. e. In 2010, in the Morava River Board, s. e. the average monthly salary decreased by CZK 468 and thus the lowest average monthly salary, amounting to CZK 25,310 continues to be reported. The average monhly salaries are specified in table 6.2.14.

6.3 Agricultural Water Management Administration

The activities carried out by the Agricultural Water Management Administration are predominantly public services of a non-profit nature in the context of managing state property and sector interests in the field of non-profit water management in the river sub-basins situated in a landscape which is used for farming, as well as in the context of landscaping, landscape protection and ecological stability.

In accordance with the provisions of the Deed of Foundation, the Act No. 254/2001 Coll. on Water and on amendment to certain laws (the Water Act), as amended, the Act No. 219/2000 Coll. on the property of the Czech Republic and its performance in legal relations, as amended, in the year 2010 the Agricultural Water Management Administration carried out administration of minor watercourses drawn in maps on a scale of 1:50 000 in a total length of 38,836 km (including 16,631 km of regulated streams) and 512 reservoirs. The total acquisition value of the non-current tangible assets administered for minor watercourses by the Agricultural Water Management Administration amounts to CZK 9.820 billion.

Since the year 2005 the Agricultural Water Management Administration has also been carrying out the administration of large property falling into the category of main drainage facilities. In the year 2010, this property comprises in total 8,902 km of open channels and channels regulated in pipelines, 138 pumping plants, 15 reservoirs relating to drainage systems and 529 culverts. The acquisition value of this property amounts to CZK 2.531 billion.

In the year 2010 the activities and management of the Agricultural Water Management Administration focused particularly on tasks relating to the administration, operation and maintenance of the water management property of the Czech Republic, the acquisition and technical renovation of capital assets administered by the Ministry of Agriculture, programme solution and financing, remedying flood damages, the implementation of flood control measures, the development of the public administration information system at the Ministry of Agriculture, the implementation and evaluation of surface water monitoring, monitoring of foreign substances in surface waters and the approximation strategy (Council Directive 91/676/EEC).

The main priorities of the Agricultural Water Management Administration included in 2010 the development and implementation of projects under Flood Prevention Programme II. When preparing these projects, complex negotiations were held in terms of settlement of property rights to land. The implemented measures were especially aimed at construction of reservoirs and flood banks and increasing the flow capacity of watercourse channels in urban areas. These landscape measures regulate runoff conditions in the respective catchment area in

order to prevent or mitigate the impacts of storm rainfall. In 2010, the financial resources expended on flood control measures amounted to CZK 66.631 million.

The activity of the Agricultural Water Management Administration in 2010 was significantly influenced by flood events that occurred in two waves at the turn of June and July and at the beginning of August. From the viewpoint of the Agricultural Water Management Administration, most heavily affected in the first wave were the watercourses belonging to the Oder River basin district, the Morava River and the Dyje River basin districts. In the second flood wave, most heavily affected were minor watercourses within the Elbe River and the Ohře River basin districts and locally also watercourses belonging to the Vltava River basin district. The character of damage to the Agricultural Water Management Administration property was highly varied, having reflected the differences between flood situations in different localities impacted by floods. It can be summarized that upper stretches of watercourse channels were impacted, in particular, by erosive effects of water and drifting objects. Extensive damage to the structures on watercourses, changes in watercourse channel routes, damage to the banks including extensive devastation of bank vegetation were observed. Sedimentation of suspended matter occurred to a larger extent not only in watercourse channels and reservoirs, but also on the surrounding lands.

Immediately after a decline of increased water levels, the Agricultural Water Management Administration staff members within their respective territorial competence assessed and monitored the situation, remedied the states of disrepair, got involved in flood committee actions and evaluated and recorded the flood damage. Flood damage to the entrusted property was figured out in the amount of CZK 196.137 million.

In implementing the measures to remedy damages caused by floods last year, it was necessary to give the priority to ensuring the renewal and reconstruction of hydraulic structures and the stability and flow capacity of watercourse channels in their entire lengths, primarily in municipal and urban areas. These measures were implemented by the Agricultural Water Management Administration in the year 2010 through taking the so-called immediate actions that were funded from financial resources allocated by the Ministry of Agriculture. The subsequent systemic remediation of flood damage from the year 2010 will be implemented under the sub-programme 229 117.

During 2010, the Agricultural Water Management Administration continued, in accordance with the provisions of Section 50 and Section 56 of the Water Act, in negotiating the financial settlement with the owners of land below hydraulic structures administered by the Agricultural Water Management Administration. The settlement process was under way throughout the year, following the internal methodology of the Agricultural Water Management Administration. In 2010, the total amount of CZK 5.858 million from the state budget was expended on surveying and compensations for the land use.

In 2010, the Agricultural Water Management Administration partly succeeded in linking together the nature and landscape protection requirements and its intentions which were dealt with through the landscaping programmes of the Ministry of the Environment. In particular, the funds used through the "Programme of Revitalization of River Systems" enabled the Agricultural Water Management Administration to participate in gradual improvements of the hydrological regime in the landscape and restoration of the nature-friendly status of water ecosystems. In 2010, through the sub-programme 129 192 "Preparation of the Operational Programme Environment" eight projects were completed, the funding of which originally started under the "Programme of Revitalization of River Systems". In 2010, also the elimination of invasive plant species (especially hogweed) in the financial amount of approx. CZK 300,000 was carried out.

The funds allocated to the Agricultural Water Management Administration, with the objective of ensuring the proper function and operability of watercourses and hydraulic structures as well as the maintenance, repairs and remedying of the states of disrepair, amounted to CZK 61.779 million. The maintenance of watercourses included in particular mowing, clearing, repairs of flood control structures, elimination of non-indigenous invasive plant species (hogweed, Japanese knotweed) and maintenance of riparian stand. In accordance with Annex No. 10 to the Act No. 487/2009 Coll., on state budget of the Czech Republic for the year 2010, the funds allocated for current maintenance were partially used to take immediate action due to emergency situations caused mainly by local floods.

In the year 2010, measures of non-investment nature also included remedying flood damage from the years 2007 and 2009, operation of watercourses and hydraulic structures and implementation of projects and schemes under programmes 129 120 and 129 190, settlement of land claims by virtue of Sections 50 and 56 of the Water Act and operation and maintenance of main drainage facilities. In total CZK 22.508 million were used in 2010 for main drainage facilities maintenance, primarily for grass mowing and cleaning the channels ensuring runoff from drainage systems. Part of the funds (CZK 4.0 million) were used to cope with emergency situations.

A summary of the actual use of funds allocated for measures of non-investment nature in the year 2010 is shown in table 6.3.1.

Table 6.3.1

The use of individual non-investment financial resources of the Agricultural Water Management Administration in the year 2010 in millions of CZK

Activity	Resource	Budget	Reality
Maintenance and repairs of watercourses	State budget	61.779	61.291
Operation of watercourses and related hydraulic structures	State budget	21.638	21.174
Landscape conservation programme	State budget	0.000	0.000
Flood prevention	State budget	5.315	5.315
Maintenance of main drainage facilities	State budget	23.011	22.508
Operation of main drainage facilities	State budget	13.986	13.740
Other non-investment expenditures	State budget	22.266	20.006
Total		**147.995**	**144.034**

Source: Agricultural Water Management Administration

Note: Non-investment expenditures on remedying flood damages are shown in separate tables.

A summary of funds from the individual financial resources used in the recent years for maintenance and repairs of watercourses and hydraulic structures is shown in table 6.3.2.

Allocation of non-investment expenses drawn for maintenance and repairs of watercourses and main drainage facilities administered by the Agricultural Water Management Administration in the year 2010 by the individual river basin districts is shown in table 6.3.3.

The revenues of the Agricultural Water Management Administration have the nature of its own business activity income with other revenues comprising supplementary, incidental and other revenues. Revenues received in the year 2010 amounted in total to CZK 15.9 million, including payments for surface water abstractions, amounting to CZK 2.0 million. The surface water price was set for the year 2010 at CZK 1.40 per m^3. This price does not include VAT since the Agricultural Water Management Administration, as one of the organizational units of the state does not invoice this tax. The overall structure of revenues of the Agricultural Water Management Administration is shown in table 6.3.4.

In the year 2010, the Agricultural Water Management Administration, using the sub-programme 229 115 "Remedying the Impacts of Floods in the Year 2007", continued in the remedying of flood damages of both investment and non-investment nature from the year 2007. At the same time, the remedying of flood damage to the water management property from the year 2009 was carried out under the sub-programme 229 116. The remedying of flood damages from the year 2010 was partly financed from the funds allocated for current maintenance. An overview of funds used for remedying of flood damages in the course of the year 2010 is shown in table 6.3.5.

Table 6.3.2
Coverage of the expenditures of the Agricultural Water Management Administration on maintenance and repairs of watercourses and hydraulic structures in the years 2005–2010 in millions of CZK

Source of funds to cover the expenditures	2005	2006	2007	2008	2009	2010
MoA Budget – Watercourses and reservoirs	90.1	81.5	169.7	156.8	89.2	61.8
MoA Budget – Main drainage facilities	17.5	19.4	60.5	37.6	40.0	23.5
Landscape conservation programme	0.2	0.1	0.1	0.1	0.2	0.0
Flood control measures	0.0	0.0	0.0	2.9	7.4	5.3
State Budget total	**107.8**	**101.0**	**230.3**	**197.4**	**136.8**	**90.6**
State Fund for Land Reclamation	1.5	0.0	0.0	0.0	0.0	0.0
Total	**109.3**	**101.0**	**230.3**	**197.4**	**136.8**	**90.6**
Remedying of flood damages from the resources of the Land Fund of the Czech Republic	0.0	0.0	0.0	0.0	0.0	0.0
Maintenance and repairs of the main land reclamation facilities and equipment from the resources of the Land Fund of the Czech Republic	0.0	0.0	0.0	0.0	0.0	0.0
Expenditures in total	**109.3**	**101.0**	**230.3**	**197.4**	**136.8**	**90.6**

Source: Agricultural Water Management Administration

Table 6.3.3
Non-investment expenses on watercourses, maintenance and repairs of main drainage facilities administered by the Agricultural Water Management Administration in the year 2010 by river basin districts in millions of CZK

River Board, s. e.	Maintenance and repairs of watercourses	Operation	Remedying of flood damages	Maintenance of main drainage facilities	Operation of main drainage facilities	Total
Elbe River Board, s. e.	14.165	3.042	0.000	4.326	2.992	**24.525**
Vltava River Board, s. e.	15.504	1.666	14.745	7.664	0.822	**40.401**
Ohře River Board, s. e.	5.938	1.547	1.456	1.604	0.011	**10.556**
Oder River Board, s. e.	4.843	4.282	22.224	2.244	1.574	**35.167**
Morava River Board, s. e.	20.841	10.637	17.094	6.670	8.341	**63.583**
Total	**61.291**	**21.174**	**55.519**	**22.508**	**13.740**	**174.232**

Source: Agricultural Water Management Administration

Table 6.3.4
Structure of revenues of the Agricultural Water Management Administration in millions of CZK in the years 2005–2010

Revenues	2005	2006	2007	2008	2009	2010
Payments for water abstractions	3.9	4.2	2.9	2.9	2.2	2.0
Rentals of hydraulic structures	5.2	5.4	3.4	3.4	3.9	5.1
Other revenues	5.1	2.7	4.7	11.3	7.8	8.8

Source: Agricultural Water Management Administration

6.

In the year 2010, the Agricultural Water Management Administration carried out capital construction amounting to approximately CZK 88.3 million, including the implementation of flood control measures amounting to CZK 61.3 million and remedying flood damages from the years 2007 and 2009 amounting to CZK 5.1 million. The structure of incurred expenditures is shown in table 6.3.6.

The Agricultural Water Management Administration in cooperation with other organizations ensured the operation of the national monitoring system for assessing and evaluating the status of surface water quality. In 2010 a total of 855 hydrometric profiles on watercourses and small water reservoirs were monitored. Water samples were monitored with regard to basic physical and chemical indicators allowing at an early stage to identify minor contamination originating from municipal and agricultural pollution sources as well as extraneous substances indicating the possibility of contamination of the environment by heavy metals and certain specific organic substances. Hydrobiological monitoring was also carried out at selected hydrometric profiles. In the field of the monitoring system operation and conceptual framework, the Agricultural Water Management Administration cooperated with the Ministry of the Environment, the River Boards state enterprises, the Czech Hydrometeorological Institute, the T. G. Masaryk Water Research Institute – public research institution, the Crop Research Institute, the Research Institute for Soil and Water Reclamation, the Faculty of Science of Masaryk University in Brne, the State Phytosanitary Administration and the Academy of Sciences of the Czech Republic.

Table 6.3.5

Remedying flood damages from the previous years on watercourses administered by the Agricultural Water Management Administration in 2010 in millions of CZK

Source – programme	Capital costs	Non-investment costs	Total
229 115 Remedying of Flood Damage from 2007	2.497	10.186	**12.683**
229 116 Remedying of Flood Damage from 2009	2.604	42.018	**44.622**
Total	**5.101**	**52.204**	**57.305**

Source: Agricultural Water Management Administration

Table 6.3.6

Structure of investments and financial resources of the Agricultural Water Management Administration in the years 2007-2010 in millions of CZK

Structure of investments	Funds	2007	2008	2009	2010
Watercourse regulation	State budget – MoA	93.6	73.2	5.4	0.0
	Special-purpose fund (alternative land reclamation)	0.0	0.0	0.0	0.0
	State Fund for Land Reclamation	0.0	0.0	0.0	0.0
Study of runoff conditions	State budget	0.0	0.0	0.0	0.0
Revitalization of watercourses	State budget	14.4	0.0	13.3	21.9
Flood control measures	State budget	20.5	61.1	85.4	61.3
	European Investment Bank	0.0	0.0	0.0	0.0
Remedying of flood damage from the year 1997	State budget	0.0	0.0	0.0	0.0
	European Investment Bank	0.0	0.0	0.0	0.0
Remedying of flood damage from the year 1998	State budget	0.0	0.0	0.0	0.0
Remedying of flood damage from the year 2000	State budget	0.0	0.0	0.0	0.0
Remedying of flood damage from the year 2002	State budget	0.0	0.0	0.0	0.0
	European Investment Bank	0.0	0.0	0.0	0.0
Remedying of flood damage from the year 2006	State budget	0.0	48.6	16.9	0.0
Remedying of flood damage from the year 2007 (sub-programme 229 115)	State budget	0.0	0.0	0.3	2.5
Remedying of flood damage from the year 2009 (sub-programme 229 116)		0.0	0.0	0.0	2.6
Total		**132.1**	**182.9**	**121.3**	**88.3**

Source: Agricultural Water Management Administration

Within the process of implementation of the so-called Water Framework Directive, the Agricultural Water Management Administration in cooperation with the River Boards state enterprises prepared as every year the operational monitoring network. In its capacity as an expert body the Administration participated in fulfilling the requirements of the Council Directive 91/676/EEC (Nitrate Directive) registering pollution from agricultural sources.

Transformation of the Agricultural Water Management Administration

Of the essential influence on the activity of the Agricultural Water Management Administration in 2010 was the issuance of Order No. 18/2010 of the Minister of Agriculture of 17 June 2010, through which a transformation of the Agricultural Water Management Administration was commenced. Based on the subsequently issued Order No. 27/2010 of the Minister of Agriculture of 16 September 2010 a decision was made on the transfer of activities, to be followed by cancelling the Agricultural Water Management Administration, the state organizational unit. Within implementing the provision of the Order, a transfer of administration of all minor watercouses, property, rights and obligations to the River Boards state enterprises and the Forests of the Czech Republic will be made as of 1 January 2011.

The transformation process was commenced with the aim to ensure integrated administration of watercourses and complex management and maintenance of certain water management structures, i.e. state-owned property on these watercourses. Integrated administration in the hydrological catchments will result in reduced requirements concerning the use of state budget funds in the forthcoming years, as in contrast to the River Boards, s. e. and the Forests of the Czech Republic the Agricultural Water Management Administration is entirely dependent on the allocated funds. Not negligible benefit of the transformation includes savings of operating costs of the state organizational unit and, in addition, system improvements in the process of remedying potential flood damage are assumed.

From the decisive moment of executing the transformation the so-called residual Agricultural Water Management Administration will, based on the valid Deed of Foundation, carry out the administration of main drainage facilities and the related hydraulic structure and continue to perform tasks in accordance with the founder´s needs.

6.4 Forests of the Czech Republic, s. e.

Forests of the Czech Republic, state enterprise, performs the administration of the specified minor watercourses and torrents as one of non-production forest functions. At present, the Forests of the Czech Republic administer approximately 19.6 thousand km of watercourses according to maps on a scale of 1:50 000.

Watercourse management carried out by the Forests of the Czech Republic, s.e. includes the administration of non-current assets relating to watercourses, with an acquisiton value exceeding CZK 2.9 million (in particular watercourse regulation, torrent and ravine control, flood control measures and reservoirs). The watercourse administration is managed by the Water Management Department at the Head Office of the Forests of the Czech Republic, s. e. and is carried out by 80 employees in six Watercourse Administrations, with territorial responsibility according to the respective river basin districts.

The watercourse administration and the implemented measures (repairs, rehabilitation and new investments) were financed from the organization's own resources and to a certain extent from grants and subsidies. As regards subsidies, the funds in question include measures carried out in the public interest pursuant to Section 35 of the Forest Act, financial resources from the state budget allocated for the programmes of the Ministry of Agriculture "Support for Flood Prevention II" and "Support for Remedying Flood Damages to State-owned Water Management Property" pursuant to Section 102 of the Water Act. In addition, the Forests of the Czech Republic, s.e. also used the EU funds from the "Operational Programme Environment" and the "Programme of Rural Development". Measures relating to minor watercourses are also to a certain extent funded by the Regional Authorities. The activities carried out in connection with watercourse administration are of a non-commercial nature and with regard to the overall funds expended they generate virtually no profit. The revenues from payments covering the watercourse administration amounted to CZK 11.2 million.

In the year 2010, the activities of the Forests of the Czech Republic in the field of water management were focused in particular on::

- remedying flood damage from 2009 and from May and August 2010,
- implementation of both capital investment projects and non-investment projects aimed at flood control measures, erosion control measures and also the public interest projects pursuant to Section 35 of the Forest Act,
- other activities aimed at riparian stand management, revitalization of watercourses which were improperly regulated in the past, non-productive forest functions, support of endangered species, elimination of non-indigenous invasive plant species, etc.

In the year 2010, the most significant event were floods from May and August. An extraordinary hydrometeorological event in May significantly afflicted, in particular, the Oder River basin district, namely the Nový Jičín and the Frýdek-Místek areas. In the Nový Jičín area, this concerned mainly the Bystrý stream catchment area and the Lomná River, the Jičínka River and the Zrzávka River basins, and in the Frýdek-Místek area mainly the Satina River, the Čeladenka River, the Bystrý stream, the Velký Lipový stream and the Kopytná stream catchment areas. These floods significantly affected also the Morava River basin district in the area of the Beskydy Mountains on the territory of the Zlínský kraj Region. Most heavily afflicted were watercourses such as the Kněhyně stream, the Dolnopasecký stream, the Maretkový stream and Horní and Dolní Rozpitý stream.

The floods in August most heavily afflicted the Elbe River basin district in the Liberec area, the Ohře River basin district in the Ústí nad Labem area and the Děčín area, and partly the Vltava River basin district in the surroundings of Prague and the Morava River basin district in the Znojmo area. In the most heavily afflicted Liberecký kraj Region, securing actions were carried out on the Hájený stream at Bílý Potok pod Smrkem, the Sloupský stream at Hejnice, the Malý Sloupský stream at Hejnice, the Černý balvanitý stream at Bílý Potok pod Smrkem, the Oldřichovský stream at Oldřichov v Hájích, the Kunratický stream at Kunratice u Frýdlantu and on the Lužická Nisa River tributaries at Bílý Kostel nad Nisou. In Ústecký kraj Region, the most extensive damage was reported on the Rychnovský stream at Těchlovice and on the Homolský stream at Velké Březno.

Immediately after the occurrence of flood situation, the individual watercourse administrators organized the most urgent actions to secure watercourse locations most heavily impacted by flood discharges. Almost CZK 35 million were expended on these actions. This was followed by preparing and executing works to remedy the impacts of flood damage that were not coped with in securing actions.

6.

The total damage to watercourses including the relating measures caused by floods in 2010 exceeded the amount of CZK 780 million. Over 220 watercourses administered by the Forests of the Czech Republic and over 120 municipalities on these watercourses were afflicted by floods.

In connection with watercourse administration, the Forests of the Czech Republic, s. e., through its organizational units, the Watercourse Administrations, disbursed in total CZK 548.8 million, including expenditures of capital investment nature amounting to CZK 253.5 million. Its own funds used for these investments amounted to CZK 113.9 million. In total CZK 295.3 million, including CZK 247.7 million of own funds were used to perform the administration, repairs and maintenance of torrent control structures. In total CZK 184.2 million, including CZK 151.4 million of own funds were expended on remedying flood damage. The above mentioned amounts include all costs relating to watercourse administration.

Measures in river basins

The most significant event in the year 2010 for the Watercourse Administration for the Oder River basin district, based in Frýdek-Místek, were undoubtedly floods in May, having repeatedly afflicted the Nový Jičín area and also other locations in the Frýdek-Místek area. Actions aiming to remedy flood damage from the year 2009 in the Jeseník area continued to proceed and also newly started (the most extensive projects include remedying of flood damage to the Lánský stream, the Vojtovický stream, the Červený stream and the Skorošický stream).

In addition to the above mentioned activities concerning the remedying of flood damage, the Watercourse Administration for the Oder River basin district completed the execution of several significant projects. One of them was the implementation of the comprehensive preventive flood control measures on the Střední Opava River and the Skorošický stream. During 2010, new projects showing the nature of flood control measures started on the Olešnice River at Mikulovice, the Říčka River at Janovice, the Čeladenka River at Čeladná and the Lomná River at Frenštát pod Radhoštěm. All these projects are co-financed from the programme "Flood Prevention II". Through the implementation of the above mentioned measures, the protection and safety of the residents and property in the event of flood is markedly improved.

As regards measures taken in the public interest pursuant to Section 35 of the Forest Act, in total nine projects were completed. The most significant projects include measures taken on the Říčka watercourse at Kozlovice and at Lhotka. Another three projects continue to be executed and will be completed in 2011.

In addition, a project was completed on the Hradečná watercourse at Hradec nad Moravicí. It was co-financed by the EU under the "Rural Development Programme in the Czech Republic for the Period 2007–2013".

In cooperation with the Moravskoslezský kraj Region and other partners, the Forests of the Czech Republic completed the execution of the project "Preservation of Floodplain Habitats in the Morávka River Basin", whose funding is supported by the EU under the programme LIFE-Nature. Its main aim is the preservation of floodplain habitats in the Morávka River basin which is endangered by an invasive plant species, namely knotweed.

Also the Watercourse Administration for the Dyje River basin district, based in Brno, was afflicted in 2010 by local floods. Nevertheless, damage of major extent was caused only in the

Table 6.4.1

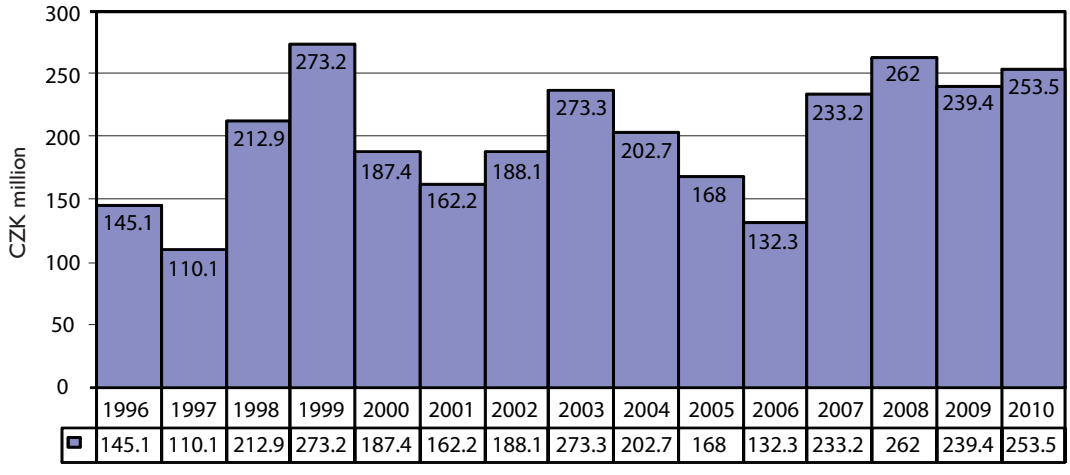
Structure of financing watercourse administration by the Forests of the Czech Republic, s. e. in the year 2010 in millions of CZK (full costs)

Forests of the Czech Republic, s. e.	Own resources in total	Subsidies in total	Of that flood damages	
			Subsidies	Own resources
Investments	113.916	139.608	17.444	41.139
Non-investments	247.683	47.563	15.339	110.230
Total	**361.599**	**187.171**	**32.783**	**151.369**

Source: Forests of the Czech Republic, s. e.

Chart 6.4.1

Capital expenditures of the Forests of the Czech Republic, s. e. in the years 1996–2010 in millions of CZK – watercourses



Source: Forests of the Czech Republic, s. e.

Znojmo area. In 2010, the remedying of flood damage from the year 2009 was completed on the Vrtěžířský stream and the remedying of flood damage from the year 2009 started on the Polomina watercourse in the municipality of Tasov.

Also seven projects co-financed from the programme "Flood Prevention II" were completed, of which the most significant flood control measures are implemented in the Třebíč area on the Mlýnský stream in the municipality of Vladislav and polder on the Klapovský stream in the municipality of Trnava. Another five projects, the execution of which is under way and which are co-financed from the programme "Flood Prevention II", will continue to be executed in the year 2011.

In total five projects, partly supported from the "Rural Development Programme in the Czech Republic for the Period 2007–2013" were successfully completed. Support from the Rural Development Programme was granted for two new projects which started in 2010.

In 2010, also projects of reconstruction of retention reservoirs Kravsko and Nedveka which received support under the "Operational Programme Environment", priority axis "Improving Nature and Landscape" were completed. The measures included the establishment of a littoral zone with a system of pools, which together with the reservoir will perform the function of habitat for aquatic animals and water-bound organisms.

In the territorial scope of the Watercourse Administration for the Dyje River basin district, five projects were completed and two new projects started in the form of measures taken in the public interest pursuant to Section 35 of the Forest Act.

The Watercourse Administration for the Elbe River basin district, based in Hradec Králové, executed in 2010 projects of diverse character. The core task, nevertheless, was the remedying of flood damage from August 2010 in the Liberec area. Among the most heavily afflicted watercourses were the Smědá River, the Jeřice River and the Lužická Nisa River tributaries.

Under the programme "Flood Prevention II", the subsidized projects Suchá nádrž Lukavice at Lukavice u Rychnova nad Kněžnou and the Skuhrovský stream at Rybník u České Třebové were completed. Investment-engineering preparations of new projects under this programme continue to be under way.

Pursuant to Section 35 of the Forest Act, the subsidized project called Polder – the Odolenovický stream at Turnov was completed.

Three projects were completed under the Operational Programme Environment. They included, in particular, the revitalization of in the past improperly regulated watercourses or the restoration of retention areas. These measures were implemented on the Bačetínský stream at Bačetín u Dobrušky, on the left-hand tributary of the Třeslice watercourse at Bělý, Machov and on the Velký Černý stream at Studnice.

In the year 2010, also projects funded from own resources were executed. Larger investment projects include, for example, the Palučinský stream at Chuchelná and the Heřmánkovický stream at Heřmánkovice. The executed non-investment projects include, for example, the retention reservoir Kameničná at Kameničná u Žamberka, the Hradecký stream at Nové Hrady, the Prosečský stream at Proseč.

Under the "Programme 2000", the reintroduction of brook minnow (Phoxinus phoxinus) and rainbow trout in the Protected Landscape Area Jizerské hory Mountains, the elimination of non-indigenous invasive plant species (knotweed, impatiens) and the construction of information and rest facilities for the public (sheds and information boards) continued.

The most significant activities carried out in 2010 by the Watercourse Administration for the Vltava River basin district, based in Benešov, include the completion of several construction projects co-financed from the programmes "Flood Prevention II", "Remedying Flood Damage to State-owned Water Management Property", and projects financed pursuant to Section 35 of the Forest Act.

Two projects were completed in 2010 under the programme "Flood Prevention II", namely flood control measures on the Hrachovka stream and on the Mže River left-hand tributary – the Radčický stream.

To name some of the measures taken in the public interest pursuant to Section 35 of the Forest Act, the capital investment project on the Radčický stream was completed and the project Reconstruction of Water Reservoir near Fialka started. The execution of the project of remedying flood damage to the Vltava River right-hand tributaries from the Rožmberk pond II was under way and will continue in the next period. Also the capital investment project on the Pravětínský stream, executed under the sub-programme 229 116 "Remedying of Flood Damage from 2009" was completed. As regards non-investment projects, under this sub-programme also the project on the Halounský stream in the Beroun area and several projects on the Pravětínský stream and the Kaplický stream in the Prachatice area were completed.

The Watercourse Administration for the Ohře River basin district, based in Teplice, was also afflicted by floods in August 2010, particularly on the territory of the Ústecký kraj Region. Part of the watercourses afflicted by floods in 2009 were also damaged during floods in August 2010.

The remedying of flood damage from the year 2009 started to be executed on the Folgenský stream, the Dobrnský stream, the Folknářský stream and the Lužecký stream in the Děčín area.

The projects on the Mikulovský stream at Mikulov and the Koliba stream were executed under the programme "Flood Prevention II".

Under the programme of support for the protection of forest lands, torrent regulation of the Sádecká ravine in the Žatec area was completed, torrent regulation of the Lužecký stream ravine tributary "Od Petrova mlýna" in the Teplice area was completed, and projects Retention Reservoir Černý rybník and Bílý stream at Nové Hamry in the Karlovarský kraj Region started.

In 2010, the Watercourse Administration for the Morava River basin district mainly carried out the remedying of flood damage from the year 2009 and flood damage from May and June 2010.

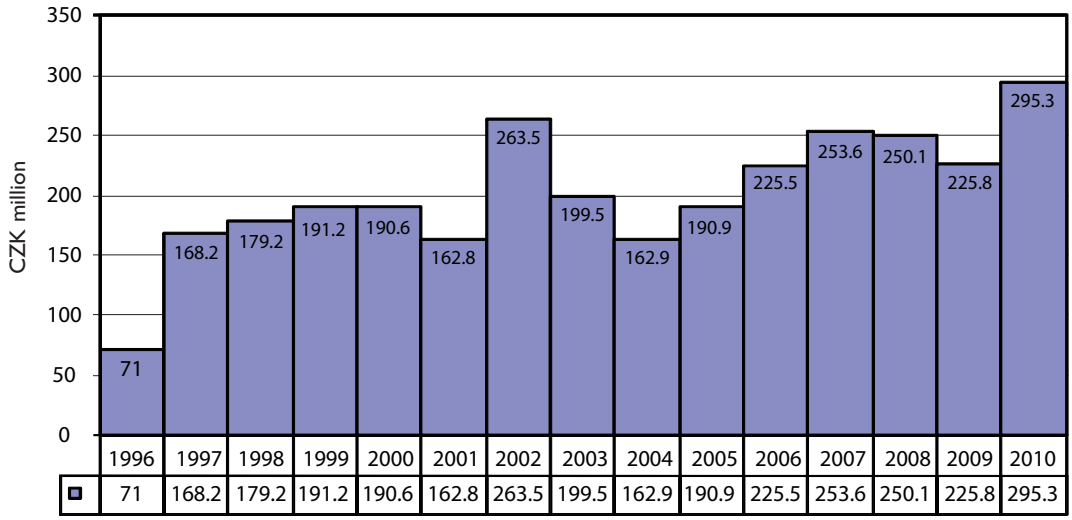
This included in total 18 projects executed under the programme of the Ministry of Agriculture "Remedying of Flood Damage", of which projects such as on the Starozuberský stream, the Zašovský stream and at Štěpková in the Vsetín area can be named.

Own funds of the Forests of the Czech Republic were used to execute several more projects. The remedying of flood damage was carried out on the Ratibořka River, the Komárový stream and the Velký Skalník stream. During the year 2010, also intensive project preparation for the remediation of the remaining flood damage was under way.

From the "Flood Prevention II" programme of the Ministry of Agriculture, four projects on the Buchlovický stream, the Hajnušovský stream, the Hrušovka stream at Nedašov and the Jankovický stream at Jankovice in the Zlín area were completed.

Chart 6.4.2

Expenditure of the Forests of the Czech Republic, s. e. in the years 1996–2010 in millions of CZK – repairs and maintenance of watercourses (gross expenditure)



	1996	1997	1998	1999	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010
■	71	168.2	179.2	191.2	190.6	162.8	263.5	199.5	162.9	190.9	225.5	253.6	250.1	225.8	295.3

Source: Forests of the Czech Republic, s. e.

Table 6.4.2

Revenues of the Forests of the Czech Republic, s. e. from sales of surface water in the years 2004–2010 in thousands of CZK

Year	2004	2005	2006	2007	2008	2009	2010
Sales	10,530	9,483	9,581	10,010	10,380	10,542	11,239
Price per m^3 *)	1.33	1.35	1.39	1.42	1.50	1.55	1.6

Source: Forests of the Czech Republic, s. e.
Note: *) Unit price per m^3 is quoted excluding VAT.

As regards measures taken in the public interest pursuant to Section 35 of the Forest Act, three projects were completed in 2010 in the Olomoucký kraj Region and the Zlínský kraj Region, namely projects on the Oznička stream, the Pačlavický stream at Zdravá Voda and the Kosovský stream).

As regards other projects of both capital investment and non-investment nature, for example, construction works on the Veřečný stream in the municipality of Valašská Polanka, torrent regulation on the Třešňůvka stream, and construction works on the Kateřinický stream and the Senínka stream in the Vsetín area were executed.

The charts 6.4.1 and 6.4.2 provide in a longer time series an overview of the overall capital expenditures and the funds spent on repairs and maintenance.

Table 6.4.2 shows development of revenues of the Forests of the Czech Republic, s. e. from sales of surface water abstractions and unit prices.

6.5 Waterways

Pursuant to Act No. 114/1995 Coll., on Inland Navigation, management of the development and modernization of waterways of importance to shipping is in the competence of the Ministry of Transport. This activity regards in particular the management of the development of the Elbe-Vltava waterway, which is the most important waterway system in the Czech Republic and is the only navigable connection between the Czech Republic and the West European waterway system.

Under the "European Agreement on Main Inland Waterways of International Importance (AGN)" the E 20 main European waterway, on the Elbe and its branch E 20-06 on the Vltava River, is a waterway of international importance. As defined in Decision of the European Parliament and of the Council No. 661/2010/EU on the main trends of the European Union for the development of trans-European transport network, the entire Elbe waterway from the state border between the Czech Republic and Germany to Pardubice and the Vltava waterway from Mělník to Třebenice is included in the system TEN-T. From the Ústí nad Labem at Střekov hydraulic structure to Přelouč on the Elbe and to Třebenice on the Vltava River, navigability is ensured by a system of hydraulic structures constituting a fully operational traffic system, independent of outer natural conditions. Navigation traffic on the regulated stretch from Střekov down the stream to the state border CR/FRG depends on water stages based on the current flows.

The funds spent in the field of the development and modernization of waterways with significance to transport amounted in the year 2010 to CZK 1,485.0 million in total.

Programme development of waterways was funded by CZK 153.0 million allocated from the budget of the State Transport Infrastructure Fund, CZK 1,021.0 million from the EU funds in the Operational Programme Transport, CZK 307.0 million from the loan provided by the EIB and CZK 4.0 million from the EU TEN-T fund.

Compared to the previous year 2009, a significant increase in the drawing of investment funds by the state investor, the Ministry of Transport – Directorate of Waterways of the Czech Republic was allowed mainly by the drawing of funds from the Operational Programme Transport.

To ensure trouble-free navigation on the Elbe water way, the preparation of the Děčín navigation dam proceeds on a long-term basis. The preparation of this key hydraulic structure is in the process of environmental impact assessment, including the assessment of the impacts of this project on bird sites protected by European legislation, sites of community importance and System Natura 2000 species. The EIA process is in the regime of international assessment. The prepared EIA documentation was submitted to the Ministry of the Environment on 24 August 2010, which is the date of starting the next phase of the above mentioned process pursuant to the Act No. 100/2001 Coll., on environmental impact assessment, as amended

Significant amounts of funds were expended on large projects, such as the capital investment project Completion of the Vltava Waterway in the stretch between České Budějovice and Týn nad Vltavou, whose execution started in 2008 and will proceed until 2013. In 2010, the following sub-projects included in the above mentioned capital investment project were completed: Weir Modernization at České Vrbné, Ensuring of Safe Navigation Depths in the Weir Reservoir at Hluboká, Lock Chamber České Vrbné, Protective Port České Vrbné, Ensuring of Safe Navigation Depths in the Weir Reservoir at České Vrbné and Wharf Lannova loděnice.

Large projects completed in 2010 on the Vltava River also include Adaptation of Navigation Channel Chvatěruby. On the Elbe, a significant capital investment project Reconstruction of Railway Bridge in Kolín was completed in 2010. The project completion has resulted in reaching the vertical clearance of at least 5.25 m below the bridges on the entire navigable stretch of the Elbe. In 2010, the capital investment project Ústí nad Labem – Vaňov, reconstruction of port wall was completed, having significantly conributed to improved transload safety and effectiveness in this public port.

One of the important capital investment projects completed in 2010 was also the project Mileage Signs on the Elbe Waterway. The aim of the project was to establish and mark in the field new "European mileage signs", which would meet both the Czech Republic standards and the EU standards and would be unambiguous and clear to the users. This new system of mileage signs now has its zero kilometer at a location of mouth of the Elbe into the North Sea and is directed upstream of the Elbe to its spring. This has resulted in abolition of all historical mileage signs which were routed in different directions and kilometers were duplicated.

The projects that significantly contribute to the waterways traffic safety and passability include the Transmitter of Correction Signals DGPS, which since the end of 2009 transmits the data refining position information for advanced on-board navigation systems, and the Extension of River Information System under the project IRIS II, co-financed by the European Union from the TEN-T fund.

The Vltava River – hydraulic structure Lipno

Kristýna Šteflová – 10 years
Dolákova basic school and nursery school, Prague

7. Public water supply and sewerage systems

7.1 Drinking water supply

In the year 2010 water supply systems supplied water to 9.79 million inhabitants in the Czech Republic, i.e. 93.1% of the total population.

All water supply systems produced in total 642 million m³ of drinking water. 492.5 million m³ of drinking water were supplied and charged for (invoiced), including 319.6 million m³ of drinking water for households. Drinking water losses in pipeline network amounted to 125.3 million m³, i.e. 19.7% of water produced and intended for consumption.

The data provided by the Czech Statistical Office was collected on the basis of information provided by 1,324 reporting units (i.e. 274 water supply and sewerage system operators and a selected set of 1,050 municipalities operating the water management infrastructure on their own; the data was provided by 100% of both operators and municipalities). Primary data collected from the VH 8b-01 statements are not published by the Czech Statistical Office since 2004.

Trends and development of indicators in the field of drinking water supply are shown in table 7.1.1 and chart 7.1.1.

Table 7.1.1

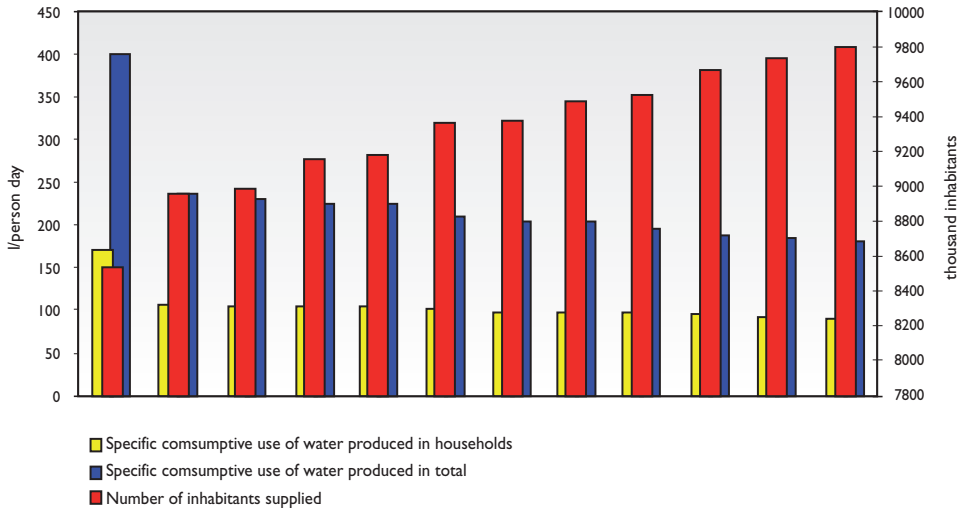
Water supply from water supply systems in the years 1989 and 2004–2010

Indicator	Measurement unit	1989	2004	2005	2006	2007	2008	2009	2010
Inhabitants (mean)	thousand inhabitants	10,364.0	10,207.0	10,234.0	10,267.0	10,323.0	10,430.0	10,491.0	10,517.0
Inhabitants actually supplied with water from water supply systems	thousand inhabitants	8,537.0	9,346.0	9,376.0	9,483.0	9,525.0	9,664.0	9,733.0	9,787.0
	%	82.4	91.6	91.6	92.4	92.3	92.7	92.8	93.1
Water produced by water supply systems	million m³/year	1,251.0	720.0	699.0	699.0	683.0	667.0	653.0	642.0
	% as of 1989	100.0	57.6	55.9	55.9	54.6	53.3	52.2	51.3
Water invoiced in total	million m³/year	929.4	543.5	531.6	528.1	531.7	516.5	504.6	492.5
	% k 1989	100.0	58.5	57.2	56.8	57.2	55.6	54.3	53.0
Specific consumptive use of water produced	l/person day	401.0	211.0	204.0	202.0	196.0	188.0	184.0	180.0
	% as of 1989	100.0	52.6	50.9	50.4	48.9	46.9	45.8	44.8
Specific quantity of water invoiced in total	l/person day	298.0	159.0	155.0	153.0	153.0	146.0	142.0	138.0
	% k 1989	100.0	53.4	52.0	51.3	51.3	49.0	47.7	46.3
Specific quantity of water invoiced for households	l/person day	171.0	102.0	98.9	97.5	98.5	94.2	92.5	89.5
	% as of 1989	100.0	59.6	57.8	57.0	57.6	55.1	54.1	52.3
Water losses per 1 km of water main	l/km day	16,842.0*)	6,113.0	5,770.0	5,673.0	4,893.0	4,889.0	4,705.0	4,673.0
Water losses per 1 inhabitant supplied	l/person day	90.0*)	45.0	43.0	42.0	36.0	37.0	35.0	35.0

Source: Czech Statistical Office
Note: *) Data for water supply systems run by the main operators.

Chart 7.1.1

Development in the number of inhabitants supplied and the specific consumptive use of water produced in the years 1989 and 2000–2010



Source: Czech Statistical Office

7.

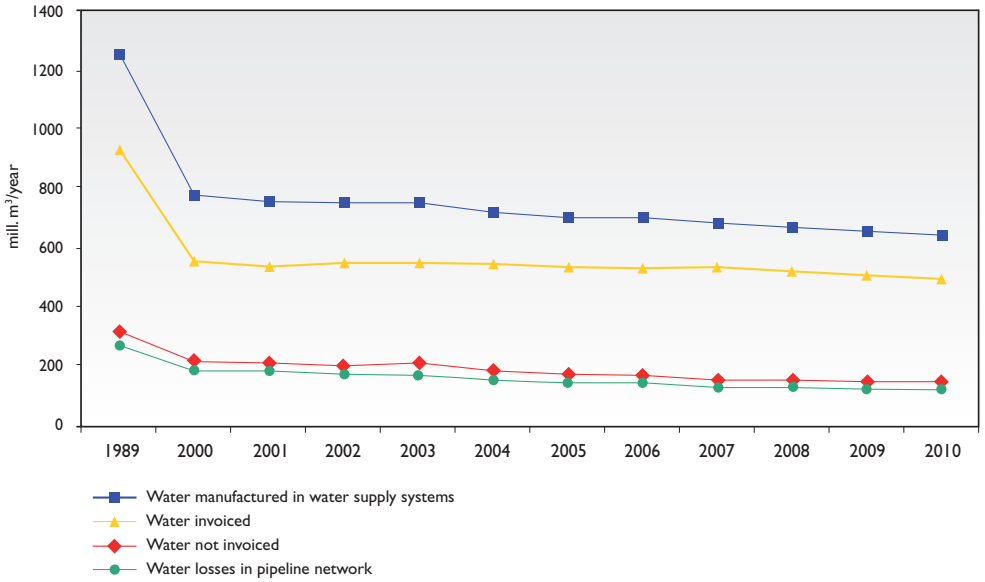
The increase in the percentage of inhabitants supplied with drinking water largely results from the construction of new water supply systems on the outskirts of towns. The 0.9% year-on-year decrease in the quantity of water produced corresponds to the simultaneous 1.3% decrease in the quantity of water invoiced. The specific quantity of water invoiced to households decreased by 3.01 litres per person and day and amounts to 89.5 litres. The specific quantity of water invoiced in total recalculated per one inhabitant supplied with water, decreased by 4.2 litres. This indicates a continued decrease in consumption of households and other consumers.

The highest percentage of inhabitants supplied with drinking water from water supply systems in 2010 was recorded in the City of Prague (100%) and in the Moravskoslezský kraj region (98.4%), the lowest percentage of inhabitants supplied with drinking water was recorded in the Plzeňský kraj region (82.6%) and the Středočeský kraj region (83.8%).

As regards Jihočeský kraj, Jihomoravský kraj and Pardubický kraj regions, the percentage of inhabitants supplied with water slightly decreased in the year-on-year comparison with the total number.

Chart 7.1.2

Development in the quantity values of water produced in water supply systems and water invoiced in total in the years 1989 and 2000–2010



Source: Czech Statistical Office

Table 7.1.2

Inhabitants supplied, production and supply of water from water supply systems in the year 2010

Region	Inhabitants		water produced in water supply systems	Water invoiced	
	actually supplied with water from water supply systems	percentage of inhabitants supplied with water of the total number		total	for households
	(number)	(%)	(thousand m³)	(thousand m³)	(thousand m³)
City of Prague	1,251,726	100,0	121,529	81,532	47,695
Středočeský kraj	1,054,028	83,8	47,862	49,273	34,644
Jihočeský kraj	581,365	91,1	35,067	26,846	18,335
Plzeňský kraj	472,770	82,6	30,933	25,167	15,632
Karlovarský kraj	302,356	98,3	21,643	15,479	9,763
Ústecký kraj	799,150	95,6	56,549	40,010	24,263
Liberecký kraj	389,537	88,6	28,439	20,067	12,375
Královéhradecký kraj	511,773	92,4	32,611	24,374	16,201
Pardubický kraj	494,943	95,8	30,463	23,317	14,776
Kraj Vysočina	484,925	94,2	25,899	21,957	14,170
Jihomoravský kraj	1,094,371	94,9	65,336	52,818	35,979
Olomoucký kraj	583,042	90,9	30,482	25,926	17,936
Zlínský kraj	542,803	91,9	30,640	23,960	15,654
Moravskoslezský kraj	1,224,686	98,4	84,330	61,816	42,159
Czech Republic	**9,787,475**	**93,1**	**641,783**	**492,542**	**319,582**

Source: Czech Statistical Office

This decrease was caused by a higher increase in the mean number of inhabitants which did not correspond to the increase of inhabitants actually supplied with water from public water supply systems. The number of inhabitants actually supplied with water from public water supply systems increased in most of the regions, a decrease was recorded only in the Jihočeský kraj and the Jihomoravský kraj regions.

In 2010, the length of water supply network was extended by the total of 582 km and reached the length of 73,448 km. New construction of new water supply systems and completion of the existing ones thus increased in 2010 the number of inhabitants supplied by 123,296. The length of water supply network per one inhabitant supplied was 7.50 m.

The number of water supply connections increased by 32,158 and amounted to 1,955,956. The number of water meters installed increased by 30,377 and amounted to 1,965,297. The number of connected inhabitants per one water supply connection is 5.00.

7.2 Discharge and treatment of municipal waste waters

In 2010, in total 8.613 million inhabitants in the Czech Republic lived in buildings connected to sewerage systems, which is 81.9% of the total population. In total 490.3 milion m3 of waste waters were discharged into sewerage systems. Of this quantity, 96.2% of waste waters were treated (excluding rain water), which amounts to 471.5 million m³.

Development trends of discharge and treatment of waste waters from sewerage systems shows in a longer time series table 7.2.1 and chart 7.2.1.

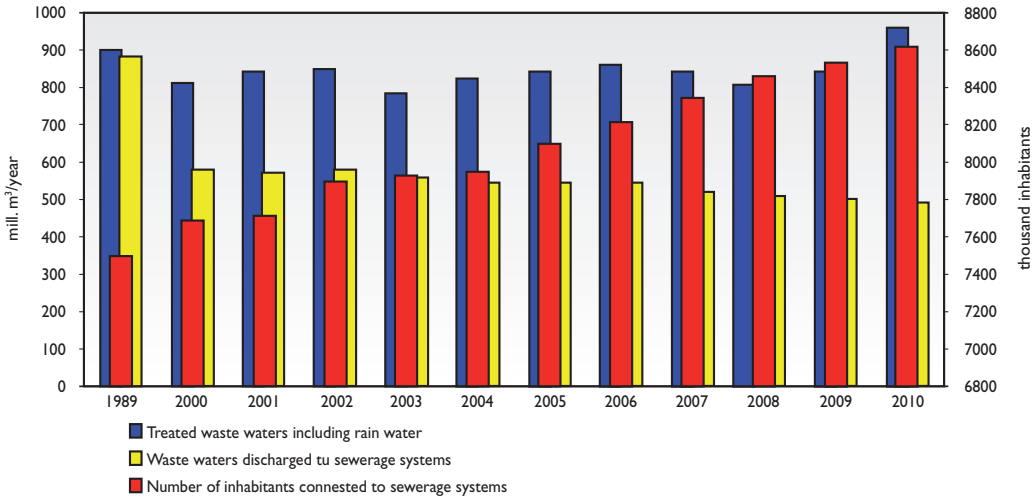
The number of inhabitants connected to sewerage systems increased in the year-on-year comparison by 83,396. The quantity

Table 7.2.1
Discharge and treatment of waste waters from sewerage systems in the years 1989 and 2004–2010

Indicator	Measurement unit	Year							
		1989	2004	2005	2006	2007	2008	2009	2010
Inhabitants (mean)	thousands of inhabitants	10,364.0	10,207.0	10,234.0	10,267.0	10,323.0	10,430.0	10,491.0	10,517.0
Inhabitants living in buildings connected to sewerage system	thousands of inhabitants	7,501.0	7,947.0	8,099.0	8,215.0	8,344.0	8,459.0	8,530.0	8,613.0
	%	72.4	77.9	79.1	80.0	80.8	81.1	81.3	81.9
Waste waters discharged to sewerage systems (excluding rain water) in total	million m³	877.8	539.7	543.4	542.0	519.3	508.8	496.4	490.3
	% as of 1989	100.0	61.5	61.9	61.7	59.2	58.0	56.6	55.9
Treated waste waters including rain water [1)]	million m³	897.4	821.5	841.5	857.4	841.2	807.5	842.9	957.9
Treated waste waters in total excluding rain water	million m³	627.6	509.7	513.9	510.6	497.6	485.0	472.7	471.5
	% as of 1989	100.0	81.3	82.0	81.4	79.4	77.3	75.4	75.2
Percentage of treated waste waters excluding rain water [2)]	%	71.5	94.4	94.6	94.2	95.8	95.3	95.2	96.2

Source: Czech Statistical Office
Note: [1)] In the year 1989 the data relate to sewerage systems run by the main operators.
[2)] This percentage relates to waters discharged to sewerage systems.

Chart 7.2.1
Development in the number of inhabitants living in buildings connected to sewerage systems and the quantity of discharged and treated waste waters in the years 1989 and 2000–2010



Source: Czech Statistical Office

Table 7.2.2

Number of inhabitants living in buildings connected to sewerage systems and the quantity of discharged and treated waste waters in the year 2010 in the individual regions

Region	Inhabitants living in buildings connected to public sewerage systems		Waste waters discharged to public sewerage systems	Treated waste waters excluding rain water	
	Total	Percentage of the total number of inhabitants	Total	Total	Percentage
	(number)	(%)	(thousand m³)	(thousand m³)	(%)
City of Prague	1,242,264	99.2	82,802	82,802	100.0
Středočeský kraj	863,914	68.7	50,257	50,160	99.8
Jihočeský kraj	550,796	86.3	35,770	33,901	94.8
Plzeňský kraj	448,138	78.3	31,090	29,296	94.2
Karlovarský kraj	281,245	91.4	15,448	15,382	99.6
Ústecký kraj	681,118	81.5	30,231	30,139	99.7
Liberecký kraj	299,947	68.2	14,335	14,299	99.7
Královéhradecký kraj	410,666	74.1	23,492	21,796	92.8
Pardubický kraj	371,220	71.8	20,880	20,141	96.5
Kraj Vysočina	436,335	84.8	20,668	17,718	85.7
Jihomoravský kraj	1,018,227	88.3	53,542	51,863	96.9
Olomoucký kraj	498,034	77.6	33,112	32,054	96.8
Zlínský kraj	505,145	85.6	25,077	23,424	93.4
Moravskoslezský kraj	1,006,194	80.8	53,605	48,543	90.6
Czech Republic	**8,613,243**	**81.9**	**490,309**	**471,518**	**96.2**

Source: Czech Statistical Office

of waste waters discharged to sewerage systems, without rain water, decreased in the year-on-year comparison by 6.10 million m³, but the decrease in water supplied amounted to 12.07 million m³. The methodology for determining the value of "Waste waters discharged to the sewerage systems" is not perceived in the same way because in case of 7 regions these values exceed the reported quantity of water supplied, while 7 regions reported, on the contrary, lower values. This fact is neither affected by the percentage of inhabitants supplied nor by the percentage of inhabitants connected to sewerage systems. The indicator of the percentage of the treated waste waters, without rain water, increased in the year 2010 by 1.0%.

The highest percentage of inhabitants connected to sewerage systems in 2010 was recorded in the City of Prague (99.2%) and the Karlovarský kraj region (91.1%), the lowest percentage was recorded in the Liberecký kraj region (68.2%) and the Středočeský kraj region (68.7%).

The decrease in the percentage of inhabitants living in buildings connected to sewerage systems in 2010 was shown in none of the regions. The number of inhabitants living in buildings connected to public sewerage systems increased in most of the regions. A decrease due to adjustment of the methodology of several reporting entities was recorded in the Moravskoslezský kraj region.

In the year 2010, the sewerage network was extended by 1,135 km and reached the total length of 40,902 km. New construction of new sewerage systems amd completion of the existing ones in 2010 increased the number of inhabitants connected to sewerage systems by 83,396. In 2010, the length of sewerage system per one inhabitant connected was 4.75 m. The length of newly constructed sewerage system per one inhabitant newly connected is 13.61 m.

Based on the data provided by the Czech Statistical Office, the total number of waste water treatment plants in the Czech Republic increased in comparison with the previous year 2009 by 30 waste water treatment plants, i.e. to 2,188.

The Vltava River in Nová Pec

7.3 Development of water and sewerage charges

Based on the survey carried out by the Czech Statistical Office, the average price of water rate excluding VAT in the year 2010 amounted to 29.10 CZK/m³ and the average price of sewerage charge to 26.30 CZK/m³. Compared to the year 2009, the price of water rate thus increased by 3.6% and the price of sewerage charge by 4.8%.

Prior to the Act No. 76/2006 Coll. coming into force, i.e. before 2006, the information on the average price of water rates and sewerage charges was based on the information sent upon request of the Ministry of Agriculture by selected operators of water supply and sewerage systems. Through the amendment to this act, the owners or, as the case may be, the operators if authorized by the owner, pursuant to the provision in Section 36, Subsection 5 of the Act on Public Water Supply and Sewerage Systems and on amendments to some laws, were imposed the obligation to send to the Ministry of Agriculture every year by 30 June at the latest full data on the total account of all items in the calculation of prices of water rates and sewerage charges in the previous calendar year. The data on prices collected by the Ministry of Agriculture include VAT and are obtained through a weighted average. With regard to the deadline for submitting the account, these data cannot be evaluated and processed before the closing date of this publication. For this reason, this publication states only the data established by the Czech Statistical Office as the percentage of revenues from sales to the consumers and the quantity of the drinking water supplied and the sewage discharged.

Based on the survey carried out by the Czech Statistical Office, the highest average price of water rate was established in the Ústecký kraj region, where it reached the amount of CZK 33.90/m³. Compared to the national average this price was thus higher by 16.5%. The highest average price of sewerage charges was established in the Liberecký kraj region and in the amount of CZK 34.70/m³ exceeded the national average by 32.0%. On the contrary, the lowest average price of water rate (CZK 26.10/m³) was established in the Jihomoravský kraj region. The lowest average price of sewerage charges (CZK 20.20/m³) was established in the Plzeňský kraj region. Average prices in the respective regions are shown in table 7.3.2.

Table 7.3.1
Strike prices of water and sewerage charges in the years 2009 and 2010

Indicator	Unit	2009	2010	Index 2010/2009
Water rates in total	CZK million	14,192.0	14,328.0	1.01
Water invoiced in total	million m³/year	505.0	493.0	0.98
Average price of water rate	CZK/m³	28.1	29.1	1.04
Sewerage charges in total	CZK million	12,435.0	12,898.0	1.04
Waste waters discharged to sewerage systems	million m³/year	496.0	490.0	0.99
Average price of sewerage charges	CZK/m³	25.1	26.3	1.05

Source: Czech Statistical Office

Table 7.3.2
Water consumption, average prices of water and sewerage charges excluding VAT in the year 2010

Region	Specific quantity of water invoiced in total	Specific quantity of water invoiced to households	Average price of water rate	Average price of sewerage charge
	(l/person/day)	(l/person/day)	(CZK/m³)	(CZK/m³)
City of Prague	178.5	104.4	28.2	28.0
Středočeský	128.1	90.0	32.3	24.8
Jihočeský	126.5	86.4	31.5	23.1
Plzeňský	145.8	90.6	26.8	20.2
Karlovarský	140.3	88.5	32.2	27.2
Ústecký	137.2	83.2	33.9	33.1
Liberecký	141.1	87.0	31.7	34.7
Královéhradecký	130.5	86.7	28.0	28.7
Pardubický	129.1	81.8	26.9	30.2
Vysočina	124.1	80.1	28.8	21.2
Jihomoravský	132.2	90.1	26.1	28.5
Olomoucký	121.8	84.3	27.5	22.5
Zlínský	120.9	79.0	30.6	26.7
Moravskoslezský	138.3	94.3	26.9	23.8
Czech Republic	**137.9**	**89.5**	**29.1**	**26.3**

Source: Czech Statistical Office

Jan Prosa – 10 years
Václava Hejny Komenského basic school, Červený Kostelec, Královehradecký kraj region

8. Fisheries and fishpond management

8.1 Fisheries and fishpond management in the year 2010

Fishery in the Czech Republic is divided in two basic areas. One of them includes production fishery and the other includes management in fishing districts. Fishery as such is part of agriculture and in terms of fish production it still belongs to successful areas of agricultural production. Fishery is also followed up by not negligible service sector, for example, manufacturers of various fishnet systems and other technical equipment and tools that are indispensable to this field of activity.

The next important factor which fishery is associated with, is management on running waters and support for the existence of fish species in surface waters, namely in streams and other water bodies. Superstructure works as a consequence of biological aspects of the function of management in fishing districts. Fishing and angling activities are carried out by approximately 400 thousand of registered recreational fishermen, who are largely organized in two biggest Fishing Associations (Czech Fishing Association, Moravian Fishing Association). In 2010, members of these two associations caught in total 3.99 thousand tonnes of fish.

Recreational fishing is associated wih many other sectors. A number of manufacturing companies, stores selling fishing equipment and entrepreneurs in tourism are dependent on sales of their products to recreational fishermen.

Historically the most significant area of fishery with the irreplaceable landscaping function is fishpond management. In the Czech Republic, fish farming is carried out in approximately 24 thousand fishponds and water reservoirs with the retention capacity of 420 million m^3, covering the total area of around 52

Table 8.1.1
Overview of fish production for direct consumption in the years 2006–2010

Indicator of production and consumption of fish	2006	2007	2008	2009	2010
Production in thousands of tonnes	20.40	20.40	20.40	20.10	20.42
Of that: export in thousands of tonnes	10.00	10.45	10.12	8.95	9.10
Catch in fishing districts in thousands of tonnes	4.60	4.30	4.16	4.10	3.99
Consumption per person in kg.year^{-1}	1.40	1.38	1.32	1.37	1.41

Source: MoA and the Czech Fish Farmers Association

The fishpassing facility in the Bernartický weir on the Oder River, Protected Landscape Area Poodří

8.

thousand hectares. The fishponds show annual average fish population growth amounting to approximately 470 kg fish/hectare. Representation of market fish species is fairly stable and has not changed compared to the previous years. The largest volume of fish produced by fish farming is accounted for by carp, followed by herbivorous fish (silver carp, grass carp), salmonids (in particular rainbow trout and brown trout), tench and predatory fish (pike, zander, catfish, eel). Representation of other fish species in fish farming is only marginal.

In 2010, market fish produced by fish farming reached in total 20,420 tonnes, which represented, compared to the year 2009, an increase by 1.7% (i.e. by 300 tonnes). More than 96% of production come from fishpond farming and the remaining percentage comes from fish breeding in special facilities or reservoirs. The quantity of processed freshwater fish represented 1,806 tonnes of live weight. The consumption of freshwater fish produced by fish breeding in 2010 reached the value of 1.036 kg/person/year. For the calculation of the total consumption of freshwater fish per 1 inhabitant in 2010 (not taking into account the weight of fish caught by recreational fishermen in fishing districts), population number of 10,532,770 as of 31 December 2010 was considered.

Table 8.1.2
Operational Programme Fisheries 2007–2013

Priority axis 2 – Aquaculture	
Number of measure	**Name of measure**
Measure 2.1	Investments into productive aquaculture
Measure 2.2	Protection of the aquatic environment
Measure 2.3	Measures in the field of fish health
Measure 2.4	Investments into processing and marketing
Priority axis 3 – Measures in common interest	
Number of measure	**Name of measure**
Measure 3.1	Common activities
Measure 3.2	Measures for the protection and development of aquatic animals and plants
Measure 3.3	Support and development of new markets and promotion campaigns
Measure 3.4	Pilot projects

Source: MoA

The total market fish production was traditionally dominated by carp, whose production in 2010 showed a year-on-year increase by 2.8%, i.e. by 500 tonnes of live weight fish to reach the amount of 17,746 tonnes of live weight fish. The supply of this fish species is balanced with both the domestic and foreign market requirements, as approximately half of the annual carp production is sold on the domestic market, largely as live fish.

Since 2003, in addition to fish produced by fish farming, also catch by fish-hooking has been included in the figures.

The entry of the Czech Republic into the EU extended the possibilities to obtain support for the fishery sector. At present, particularly the following support measures are used:

1) National sectoral support measures relating to aquaculture and freshwater fishing: Yield Capacity Control, Special Consultancy for Animal Production, School Production Facilities, Support for Non-productive Fishpond Functions and Genetic Resources.

2) Operational Programme Fisheries 2007–2013: where fishermen may use the respective funds within Priority Axis 2 – Aquaculture for investments into aquaculture production, equalization payments aimed at improving the aquatic environment, measures in the field of fish health and investments into fish processing and marketing. The subsidy within Priority Axis 3 – Measures in the Common Interest relates to the development of new markets, promotion campaigns, reintroduction of eel (Anguilla anguilla) and pilot projects.

In 2010, the Ministry of Agriculture issued the decision to grant subsidies within Call 5 and Call 6 of accepting applications for subsidies from the Operational Programme Fisheries 2007–2013.

Under measure 2.1 Measure for Productive Investments into Aquaculture, in 2010 the decisions were issued to grant subsidies for 110 business plan projects a) with the aggregate subsidy amounting to approximately CZK 63.1 million, 22 business plan projects b) with the aggregate subsidy amounting to approximately CZK 11.9 million, 19 business plan projects c) with the aggregate subsidy amounting to approximately CZK 15.4 million, 3 business plan projects d) with the aggregate subsidy amounting to approximately CZK 0.2 million and 2 business plan projects e) with the aggregate subsidy amounting to approximately CZK 0.9 million. In total, under measure 2.1 in 2010 the decisions were issued to grant subsidies for 156 projects with the aggregate subsidy amounting to approximately CZK 91.5 million.

Under measure 2.4 Investments in Processing and Marketing, in 2010 the decisions were issued to grant subsidies for 10 business plan projects a) with the aggregate subsidy amounting to approximately CZK 9.0 million and 2 business plan projects b) with the aggregate subsidy amounting to approximately CZK 3.4 million. In total, under measure 2.4 in 2010 the decisions were issued to grant subsidies for 12 projects with the aggregate subsidy amounting to approximately CZK 12.4 million.

Under measure 3.1 Common Activities, in 2010 the decisions were issued to grant subsidies for 11 business plan projects a) with the aggregate subsidy amounting to approximately CZK 6.8 million.

Under measure 3.2 Measures for the Protection and Development of Aquatic Animals and Plants, in 2010 the decisions were issued to grant subsidies for 43 business plan projects b) (Reintroduction of Eel) with the aggregate subsidy amounting to approximately CZK 8.2 million.

Under measure 3.3 Support for the Development of New Markets and Promotion Campaigns, in 2010 the decisions were issued to grant subsidies for 4 business plan projects b) with the aggregate subsidy amounting to approximately CZK 1.3 million.

In 2010, the Ministry of Agriculture continued in the pre-financing of projects under the Operational Programme Fisheries 2007–2013. In 2010, under measure 2.1, subsidies in amount of CZK 98.0 million were disbursed for 138 projects. Under measure 2.4, subsidies in amount of CZK 13.1 million were disbursed for 8 projects. Under measure 3.1, subsidies in amount of CZ 0.3 million were disbursed for 2 projects. Under measure 3.3, subsidies in amount of CZK 59.5 million were disbursed for 9 projects. Under measure 5.1, subsidies in amount of CZK 1.7 million were disbursed for 6 projects.

8.2 Changes in the status of the fishpond system

The programme of the Ministry of Agriculture 229 210 "Renewal, Dredging and Rehabilitation of Fishponds and Reservoirs" aimed at the overall improvement of the technical status of the fishpond system and the strengthening of water management and non-productive functions of fishponds with regard to their flood control and landscaping importance has already ended.

Sub-programme 229 218 "Remedying of Damages to Fishponds and Reservoirs after Floods in August 2002" was followed in 2007 by sub-programme 129 130 "Support for Renewal, Dredging and Rehabilitation of Fishponds and Construction of Reservoirs" which is implemented in a similar manner. Renewal and rehabilitation of fishponds and water reservoirs is aimed at improving their water management and non-productive functions. The focus is placed in particular on improving retention capacity. At the same time, attention is paid to improving operational safety of fishponds and reservoirs in connection with flood situations. The retention capacity is also supported by the continued dredging of the most silted ponds and it is also possible to support the construction of water reservoirs serving for flood control and protection against drought. Under sub-programme 129 130, in 2010 the funding of 72 projects was under way, with the total expenditures amounting to CZK 530.542 million. In more detail, the information on the sub-programme 129 130 funding is presented in chapter 9.

The Jizera River in Kořenov

Věra Říčanová – 11 years
Rynárec basic school, kraj Vysočina region

9. State financial support for water management

9.1 Ministry of Agriculture

In 2010, the Ministry of Agriculture provided support amounting to the total of approximately CZK 2.1 billion under its programme 229 310 "Construction and Rehabilitation of Water Supply and Sewerage System Infrastructure" and programme 129 180 "Construction and Rehabilitation of Water Supply and Sewerage System Infrastructure II" aimed at implementation of measures to meet the directives of the EU in the field of water supply and sewerage systems and at the development of this sector. The programme 229 310, based on the approved documentation, was scheduled for the years 2006–2010 and extended until the end of 2011. In the years 2010-2011 this programme has been involved in completing the co-financing of multi-year projects. The follow-up subsidy programme 129 180 is scheduled for the years 2009–2013.

The above support was granted to the investors both in the form of subsidies and in the form of "advantaged hans". In 2010, 158 projects received from the state budget support amounting to approximately CZK 692 million under sub-programmes 229 312 and 129 182 of the Ministry of Agriculture (measures aimed at water supply systems) and 158 projects were granted support amounting to approximately CZK 1,345 billion under sub-programmes 229 313 and 129 183 of the Ministry of Agriculture (measures aimed at sewerage systems).

In 2010, within the framework of support in the form of "advantaged hans" the remaining funds were drawn from the loan granted to the Czech Republic by the EIB based on the loan contract called "the Czech Republic – framework loan for water management intended for rehabilitations, improvements, modernizations and extensions of water management systems in the Czech Republic", implemented on the basis of the Czech Government Resolution No. 1179 of 1999, and simultaneously from the loan granted by the CEB. These terminated loans were replaced, based on the agreement with the Ministry of Finance, by compensation of payments for a part of interest rates for commercial loans in case of projects requiring larger investments. In 2010, subjects investing into 68 projects with loan contracts amounting to approximately CZK 1,084 billion were reimbursed a part of interest on these loans in the total amount of CZK 17.8 million (this is a subsidy for a part of interest, therefore, this amount is included in tables 9.1.1 and 9.1.2 on the line "subsidy").

In response to floods that in May and June 2010 afflicted territories of the Jihomoravský kraj, Moravskoslezský kraj, Olomoucký kraj and Zlínský kraj regions and in August 2010 territories of the Liberecký kraj and Ústecký kraj regions, the Ministry of Agriculture prepared a subsidy sub-programme 129 143 "Support for Remedying Damages Caused by Floods 2010". For this sub-programme, a subsidy framework amounting to CZK 217.7 million is scheduled. The drawing of subsidies under this sub-programme started already in 2010, with four projects having been granted support in the total amount of CZK 16.7 million. Under the previous sub-programme 129 142 "Support for Remedying Damages Caused by Floods 2009", in total 19 projects were granted support in the total amount of CZK 37.9 million in 2010.

In 2010, the Ministry of Agriculture implemented programmes aimed at rehabilitation of water management property owned by watercourse administrators, within the process of remedying damages caused by floods in the previous years, as well as at the implementation of flood control measures, the renewal, dredging and rehabilitation of fishponds and water reservoirs, increasing the functionality and utility of hydraulic structures, the renewal and construction of irrigation detail and optimization of irrigation systems, and the management of state-owned property on minor watercourses and main drainage facilities.

The use of state funds for capital and current expenditures is shown in the following tables.

Table 9.1.1

State budget funds provided in the year 2010 under the programmes 229 310, 129 180 and 129 140 of the Ministry of Agriculture in millions of CZK

Form of support	Water supply systems and water treatment plants	Sewerage systems and waste water treatment plants	Renovation of water supply systems and sewerage systems after floods in 2009 and 2010	Ministry of Agriculture in total
Refundable financial assistance	0.000	0.000	0.000	**0.000**
Subsidy	692.351	1,344.584	54.582	**2,091.517**
Total	**692.351**	**1,344.584**	**54.582**	**2,091.517**

Source: MoA

Table 9.1.2

Development of the state support for construction of water supply systems, water treatment plants, sewerage systems and waste water treatment plants in the years 2006-2010, provided by the Ministry of Agriculture in millions of CZK

Financial resource	2006	2007	2008	2009	2010
Refundable financial assistance	0	0	0	0	0
State budget subsidy	925	1,620	1,947	1,819	2,092
Support from the state budget	**925**	**1,620**	**1,947**	**1,819**	**2,092**
Advantaged loan (EIB and CEB)	486	161	31	9	0
Support in total	**1,411**	**1,781**	**1,978**	**1,828**	**2,092**

Source: MoA

Table 9.1.3

State funds provided by the Ministry of Agriculture in the year 2010 for capital and current expenditures under programme financing in programme 229 110 in millions of CZK

Programme identification number	Name of programme	Expenditures on programme financing
229 110	Remedying of the impacts of floods on state-owned water management property	390.026

Source: MoA

Table 9.1.4

State funds provided by the Ministry of Agriculture in the year 2010 for capital and current expenditures under programme financing in programmes 129 120, 129 130, 129 160, 129 170 and 129 190 in millions of CZK

Programme identification number	Name of programme	Expenditures on programme financing
129 120	Flood prevention II	1,384.143
129 130	Renewal, dredging and rehabilitation of fishponds and water reservoirs	530.542
129 160	Support for the renewal and construction of irrigation detail and optimization of irrigation systems	40.205
129 170	Support for increasing the functionality of hydraulic structures	87.859
129 190	Support for agricultural watercourses administered by Agricultural Water Management Administration	25.180

Source: MoA

Table 9.1.5

Non-investment support provided by the Ministry of Agriculture in the year 2010 for other measures in water management in millions of CZK

Name of support	Amount of funds provided	Beneficiary
Administration of minor watercourses *)	82.456	Agricultural Water Management Administration
Administration of main drainage facilities *)	36.248	Agricultural Water Management Administration

Source: MoA
Note: *) Including operation and maintenance.

In 2010, the Ministry of Agriculture continued to administer the programme 129 120 – "Support for Flood Prevention II", which from the year 2010 includes five sub-programmes thematically focusing on support for flood control measures with retention, support for flood control measures along watercourses, support for increasing the safety of hydraulic structures, support for delimitation of flood areas and studies of runoff conditions and support for water retention in dry polders on minor watercourses. Subject-oriented nature of these sub-programmes allows their mutual cohesion, augmenting thus the effects of flood prevention on the watercourse.

The subject matter of sub-programme 129 122 "Support for Flood Control Measures with Retention" is the construction and the renewal of polders, the construction and rehabilitation of water reservoirs, the restoration of the existing reservoirs and polders and also the construction and restoration of structures in areas designated for overflowing.

Sub-programme 129 123 "Support for Flood Control Measures along Watercourses" is aimed at increasing channel capacity of watercourses, flood banks, flood ways and diversion tunnels, increasing the flow capacity of weirs, rehabilitation of dams and stabilization of watercourse channels.

The objective of sub-programme 129 124 "Support for Increasing the Safety of Hydraulic Structures" is the rehabilitation of the existing hydraulic structures to improve their safety during floods and to increase the operating potential of hydraulic structures in operational flood management. Priority measures are those that may increase the effect of other flood control measures downstream the respective hydraulic structure.

Sub-programme 129 125 "Support for Delimitation of Flood Areas and Studies of Runoff Conditions" is in particular aimed at identification of the extent of floods and plotting this extent to maps. This sub-programmes also includes the delimitation of areas exposed to threat of special floods caused by a failure of hydraulic structure or a dam break of reservoirs impounding surface water. The defined flood areas, approved by the water authority become one of the land use limits and are used by the public administration bodies particularly in issuing building permits. The studies of runoff conditions are sources of information on flood areas prior to and after the implementation of the proposed flood control measures, on the quantification of the extent of flood damages and evaluation of the effectiveness of the proposed technical and non-technical measures.

Sub-programme 129 126 "Support for Water Retention in Dry Polders on Minor Watercourses" responds to the repeating occurrences of "flash floods" and focuses on reducing risks of floods from torrential rains on minor watercourses through a construction (reconstruction) of dry polders in combination with the possible regulation of watercourse channels.

The measures under the programme 129 120 are implemented by watercourse administrators (the River Boards, state enterprises, the Forests of the Czech Republic, s.e., the Agricultural Water Management Administration and the minor watercourse administrators appointed by the Ministry of Agriculture pursuant to Section 48, Subsection 2 of the Act No. 254/2001 Coll., on Water and the amendment to certain laws (the Water Act) as amended, and based on the exemption from the Binding Rules granted by the Minister of Agriculture under reference No. 29305/2007-10000 of 1 August 2007, and also the City of Prague which, as the investor, is responsible for implementation of flood control measures built on the territory of the capital. The implementation of flood control measures under the new sub-programme 129 126 is ensured by municipalities only.

Through the institution of the so-called promoter, the programme allows participation of municipalities, association of municipalities, towns and regions in the process of proposing flood control measures which are then implemented by the watercourse administrators.

In 2010, the total number of projects in progress under the programme 129 120 "Support for Flood Prevention II" included 8 projects of flood control measures with retention, 105 projects of flood control measures along watercourses, 8 projects aimed at increasing the safety of hydraulic structures and 6 projects of the delimitation of flood areas and studies of runoff conditions. The following table 9.1.6 shows some of the major projects under the programme 129 120.

Table 9.1.6
Use of funds for selected major projects under the programme 129 120 "Support for Flood Prevention II" in millions of CZK

Watercourse administrators	Name of project	Implementation period	Total costs	Subsidies in 2010
Forests of the Czech Republic, s. e.	The Middle Opava River km 2.040 – 4.900	11/08-06/11	17.389	5.000
Elbe River Board, s. e.	The Tichá Orlice River, Choceň, improving flood control measures for the protection of the town through a reconstruction of watercourse regulations and dikes	01/09-06/11	152.017	85.546
Morava River Board, s. e.	Jihlava, Třebíč – increase in the channel capacity, stage II – construction part	07/10-12/13	131.792	25.019
Oder River Board, s. e.	Hydraulic structure Těrlicko – transfer of extreme floods	9/10-11/13	124.131	8.840
Ohře River Board, s. e.	Hydraulic structure Chřibská – reconstruction of spillway	9/10-5/12	18.020	0.616
Vltava River Board, s. e.	Hydraulic structure Záskalská – hydraulic structure protection against the impacts of high water levels	9/08-3/11	109.255	47.624
Agricultural Water Management Administration	Increase in the channel capacity Maleč	09/09-12/11	23.842	19.659
City of Prague	Construction project 0012 Flood control measures for the protection of the City of Prague, stage 0006 Zbraslav, Radotín, part 14 Zbraslav – south	10/08-06/11	288.424	60.086

Source: MoA

Table 9.1.7
Use of state budget funds in the year 2010 under the programme 129 120 by the individual watercourse administrators in millions of CZK

Owners and administrators	Use of funds in 2010	
	Investments	Non-investments
Elbe River Board, s. e.	658.519	0.000
Vltava River Board, s. e.	169.910	0.000
Ohře River Board, s. e.	35.963	0.000
Oder River Board, s. e.	191.901	0.000
Morava River Board, s. e.	92.690	0.000
Agricultural Water Management Administration	61.317	5.315
Forests of the Czech Republic, s. e.	74.766	0.000
Minor watercourse administrators – municipalities	33.676	0.000
City of Prague	60.086	0.000
Total	**1,378.828**	**5.315**

Source: MoA

Flood control measures on the Čistá River in Hostinné

Table 9.1.8
Summary of costs of the project under the sub-programme 229 114 "Remedying of the Impacts of Floods in the Year 2006" in millions of CZK

EDS/SMVS 229 114	Name of project	Implementation period	Total costs of the project	Investor
9282	Hydraulic structure Nové Mlýny – upper reservoir, km 77.500 – 79.867, Drnholec, dredging of sediments	1/10-10/10	32.995	Morava River Board, s. e.

Source: MoA

Table 9.1.9
Use of state budget funds in the year 2010 under the programme 229 114 "Remedying of the Impacts of Floods in the Year 2006" in millions of CZK

Owners and administrators	Use of funds in 2010	
	Investments	Non-investments
Morava River Board, s. e.	0	26.357
Total	**0**	**26.357**

Source: MoA

Flood control measures on the Střední Opava River

Table 9.1.10
Summary of costs of some of the projects under the sub-programme 229 115 "Remedying of the Impacts of Floods in the Year 2007" in millions of CZK

EDS/SMVS 229 115	Name of project	Implementation period	Total costs of the project	Investor
9605	The Spojená Bečva River, repair of channel, km 41.100-41.350	6/09-10/10	2.030	Morava River Board, s. e.
9608	The Rožnovská Bečva River, repair of channel, km 0.000 – 1.788	6/09-4/11	5.421	Morava River Board, s. e.
5649	The Bělá River regulation, Široký Brod, km 6.800 – 7.200	07/10-12/10	4.724	Oder River Board, s. e.
5650	The Bělá River regulation, Písečná, km 11.450 – 11.881	6/10-12/10	2.980	Oder River Board, s. e.
5651	The Vidnávka River regulation, Vidnava, km 2.830	6/09-12/10	6.146	Oder River Board, s. e.
5652	The Vidnávka River regulation, Tomíkovice km 10.544 (flood damage 2007)	6/10-12/10	3.264	Oder River Board, s. e.
3036	The Palkovický stream	11/10-12/10	0.733	Agricultural Water Management Administration

Source: MoA

Table 9.1.11
Use of state budget funds in the year 2010 under the sub-programme 229 115 "Remedying of the Impacts of Floods in the Year 2007" in millions of CZK

Owners and administrators	Use of funds in 2010	
	Investments	Non-investments
Oder River Board, s. e.	21.800	0.000
Agricultural Water Management Administration	2.497	10.186
Morava River Board, s. e.	0.000	7.357
Total	**24.297**	**17.543**

Source: MoA

The Berounka River – flood control measures in Plzeň – Roudný

Table 9.1.12
Summary of costs of selected major projects under the sub-programme 229 116 "Remedying of the Impacts of Floods in the Year 2009" in millions of CZK

EDS/SMVS 229116	Name of project	Implementation period	Total costs of the project	Investor
1003	Remediation of flood damage on the Bystrá stream – reconstruction of left-bank masonry in Dolní Habartice upstream of house reg. No. 50 (km 1.750 – 1.900)	7/10-12/10	2.486	Ohře River Board, s. e.
1005	Remediation of flood damage on the Bystrá stream – reconstruction of left-bank wall opposite to house reg. No. 216 in Horní Habartice (km 3.750 – 3.850)	5/10-12/10	2.080	Ohře River Board, s. e.
2113	The Javornický stream km 2.865 – 5.250, stage I	7/10-12/11	1.632	Forests of the Czech Republic, s. e.
2114	The Skorošický stream km 0.200 – 3.000, stage I	8/10-12/11	3.236	Forests of the Czech Republic, s. e.
4248	The Keblov pond – removal of sediments	6/10-12/10	2.898	Vltava River Board, s. e.
4249	The Vltava River, České Budějovice, river km 237.49 – 237.53 – remediation of river bed scours	3/10-5/10	4.786	Vltava River Board, s. e.
5151	The Vidnávka River - Kobylá km 7.460 – 9.930	11/9-6/10	2.289	Oder River Board, s. e.
5152	The Vidnávka River - Velká Kraš km 5.970 – 6.200 (Flood damage 2009)	5/10-8/10	1.497	Oder River Board, s. e.
6003	Hydraulic structure Roudnice nad Labem, dredging of sediments, river km 808.25 – 809.85	5/10-6/11	16.067	Elbe River Board, s. e.
9501	The Veličká River, Hranice, repair of channel, km 0.000 – 0.268	3/10-10/10	11.539	Morava River Board, s. e.
9503	The Veličká River, Hranice, repair of channel, km 1.000 – 2.000	7/10-12/10	4.701	Morava River Board, s. e.
3529	Slaná voda – Flood damage 2009 non-inv.	7/10-11/10	1.221	Agricultural Water Management Administration

Source: MoA

Table 9.1.13
Use of funds in the year 2010 under the sub-programme 229 116 "Remedying of the Impacts of Floods in the Year 2009" in millions of CZK

Owners and administrators	Use of funds in 2010	
	Investments	Non-investments
Elbe River Board, s. e.	0,000	23,732
Vltava River Board, s. e.	0,000	5,998
Ohře River Board, s. e.	5,785	8,659
Oder River Board, s. e.	0,856	3,228
Morava River Board, s. e.	0,000	19,741
Agricultural Water Management Administration	2,604	42,018
Forests of the Czech Republic, s. e.	13,379	12,885
Total	**22,624**	**116,261**

Source: MoA

Flood control measures Hrachovka

In 2010, the Ministry of Agriculture continued to implement the programme 229 110 aimed at the rehabilitation of state-owned water management property administered by watercourse administrators, which was damaged by floods in the previous years. This proceeds through the implementation of the sub-programme 229 114 "Remedying of the Impacts of Floods in the Year 2006", the sub-programme 229 115 "Remedying of the Impacts of Floods in the Year 2007", the sub-programme 229 116 "Remedying of the Impacts of Floods in the Year 2009" and the sub-programme 229 117 "Remedying of the Impacts of Floods in the Year 2010".

Table 9.1.14
Summary of costs of selected major projects under the sub-programme 229 117 "Remedying of the Impacts of Floods in the Year 2010" in millions of CZK

EDS/SMVS 229117	Name of project	Implementation period	Total costs of the project	Investor
1001	The Kamenice River in Česká Kamenice, ul. 5. května, remediation of river bed scours – remediation of flood damage 2010, securing works	11/10-3/11	5.448	Ohře River Board, s. e.
1002	The Chřibská Kamenice River in Chřibská, remediation of river bed scours – remediation of flood damage 2010, securing works	10/10-3/11	5.852	Ohře River Board, s. e.
2152	The Čeladenka River km 0.000 – 12.800 – river steps	11/10-12/11	1.817	Forests of the Czech Republic, s. e.
2301	Flood damage 08/10 Černý balvanitý stream - accident	9/10-8/11	2.946	Forests of the Czech Republic, s. e.
5807	The Oder River km 3.987 – 11.830	5/10-12/10	28.789	Oder River Board, s. e.
5804	The Ostravice River km 15.725 – 16.415	6/10-12/10	21.342	Oder River Board, s. e.
6005	The Smědá River, Bílý potok pod Smrkem, river km 37.400 – 40.430	8/10-12/10	4.551	Elbe River Board, s. e.
6033	The Elbe, Třeboutice, repair of channel, river km 797.150 – 797.250	10/10-6/11	3.136	Elbe River Board, s. e.
5812	The Lučina River km 8.000	6/10-11/11	6.060	Morava River Board, s. e.

Source: MoA

Table 9.1.15
Use of state budget funds in the year 2010 under the sub-programme 229 117 "Remedying of the Impacts of Floods in the Year 2010" in millions of CZK

Owners and administrators	Use of funds in 2010	
	Investments	Non-investments
Elbe River Board, s. e.	0.000	50.433
Ohře River Board, s. e.	0.000	7.500
Oder River Board, s. e.	5.554	57.538
Morava River Board, s. e.	6.594	50.791
Forests of the Czech Republic, s. e.	2.081	2.453
Total	**14.229**	**168.715**

Source: MoA

The Oleška River channel restoration in Heřmanice

The sub-programme 229 114 was terminated as of 31 December 2010. The sub-programme implementation was extended for the year 2010 due to the completion of the last project, namely the hydraulic structure Nové Mlýny – upper reservoir, km 77.500 – 79.867, Drnholec, dredging of sediments.

In 2010, under the sub-programme 229 115, financial support was granted to 24 projects. Most of them, 14 projects, were implemented by the Agricultural Water Management Administration. Table 9.1.10 shows some of the major projects under this sub-programme.

In 2010, under the sub-programme 229 116, financial support was granted to 230 projects. Most of them, 152 projects, were implemented by the Agricultural Water Management Administration. Table 9.1.12 shows some of the major projects under this sub-programme.

In 2010, under the sub-programme 229 117, financial support was granted to 76 projects. Most of them, 33 projects, were implemented by the Elbe River Board, s. e. Table 9.1.14 shows some of the major projects under this sub-programme.

In 2010, the Ministry of Agriculture continued to implement the programme 129 130 "Renewal, Dredging and Rehabilitation of Fishponds and Construction of Water Reservoirs".

The administration of the programme 129 130 was in the beginning postponed due to certain changes in the notification deadline and the consequent delays in the process of approving the programme documentation. For this reason, the funding of this programme effectively began as late as in the year 2008.

The objective of this programme is to improve the technical status of fishpond system in the Czech Republic and to renew the water management functions of fishponds and water reservoirs

Table 9.1.16
Use of state budget funds for selected major projects under the programme 129 130 "Renewal, Dredging and Rehabilitation of Fishponds and Construction of Water Reservoirs", in millions of CZK

Applicant	Name of project	Implementation period	Total costs	Subsidies in 2010
Kinský Žďár, a.s.	Reconstruction of the Veselský pond dam and structures	08/10-12/10	31.989	25.591
Rybářství Telč a.s.	Reconstruction of the Velkomeziříčský pond sluice	07/10-11/11	38.434	10.000
Rybářství Třeboň a.s.	Repair of the Ženich pond dams in the cadastral territory of Holičky u Staré Hlíny	12/09-12/10	30.325	23.275
ČRS, MO Hlinsko v Čechách	The desilting and reconstruction of the Januš pond	11/09-10/10	28.444	19.051
Školní rybářství, Protivín	Rehabilitation of the Albrechtický pond	12/09-12/10	25.503	6.085

Source: MoA

with focus on increasing their safety during floods, including the prevention of the threat of special floods, as well as to dredge fishponds and water reservoirs in order to restore their storage capacity and thus fully renew their function. Another objective of this programme is to support construction of new water reservoirs that will be included in flood control system, in dry periods used for controlled increase of discharge and, at the same time, they will also be used for extensive fish farming. Both objectives of the programme are aimed at reducing the impacts of extreme hydrological situations, i.e. floods and drought.

In 2010, in total 72 projects were financed under the following breakdown: non-capital investment funds of the state budget were expended in the amount of CZK 53.701 million and capital investment funds in the amount of CZK 66.299 million, the EIB loan was used to draw non-investment funds in amount of CZK 246.870 million and capital investment funds in amount of CZK 163.672 million.

"Binding Rules" governing the submitting of project applications to be included in the programme 129 130 – "Support for the Renewal, Dredging and Rehabilitation of Fishponds and Construction of Water Reservoirs" stipulate detailed terms, of which the most important are:

The applicant may only be an entity carrying out business in primary agricultural production, carrying out subsidized fish farming and fishing operations in a fishpond or water reservoir, which proves farming on more than 20 hectares of water bodies in the course of the last year and submits documents certifying the ownership, lease or other legal relationship in respect of 20 hectares of water bodies.

For the prepared project, the applicant shall submit the documents of ownership (lease or other legal relationship) of the land affected by the construction, the affirmative standpoints of the river basin administrator (River Board, state enterprise), of the administrator of the watercourse downstream of the respective hydraulic structure, and of the competent water authority and the nature conservation authority having subject-matter and local jurisdiction.

In case of construction of a new water reservoir (or a system of water reservoirs), which must be larger than 2 hectares, the main purpose of such hydraulic structure will be the protection against floods and drought, i.e. only extensive fish farming will be permitted. Table 9.1.16 shows some of the major projects included in the programme 129 130.

In 2010, the Ministry of Agriculture continued to implement the programme 129 160 – sub-programme 129 162 "Support for the Renewal and Construction of Irrigation Detail and Optimization of Irrigation Systems".

Floods cause damage to tangible property and by their devastating effects they may even endanger human lives. A similar problem faced by farmers carrying out business in especially dry areas are insufficient precipitation totals. Irrigation systems serve to eliminate the threat of negative impacts of insufficient precipitation totals. Irrigation allows to achieve optimal yields of agricultural crops even in dry areas. To support the renewal and construction of irrigation detail and optimization of irrigation systems, the Ministry of Agriculture in 2009 launched the programme 129 160 – sub-programme 129 162.

Under the programme 129 160, the applicants may apply for support under the following measures:

a) Support for the renewal and construction of irrigation detail, namely to cover:
   - purchase of machinery and equipment for irrigation water delivery to the crops (irrigation detail), except for drip irrigation in orchards, hop gardens, vineyards and seed-plots,
   - purchase of complex mobile irrigation systems.
b) Support for the renewal, construction and optimization of irrigation systems, namely to cover:
   - construction and renewal of pumping stations,
   - construction and renewal of abstraction facilities,
   - construction and renewal of piping distribution systems and irrigation canals,
   - control and optimization systems for irrigation systems.

In 2010, in total 37 projects were granted financial support under the sub-programme 129 162. In 2010, the beneficiaries were granted financial support in the amount of CZK 40.205 million.

In 2010, the Ministry of Agriculture continued to implement the programme 129 170 "Support for Improving the Functionality of Hydraulic Structures".

The primary objective of the programme is to ensure, in particular, the following: to prevent major failures of the hydraulic structures, in respect of their technical condition and improvements in the quality of water in reservoirs. The main aspects include the reliability and safety of hydraulic structures and the quality of water in reservoirs, the deterioration of which might have significant impacts.

Table 9.1.17

Use of funds under the subsidy programme 1.1. "Support for the Establishment of Drip Irrigation in Orchards, Hop Gardens and Vineyards" in the years 2001–2010 in thousands of CZK

	year	hectares	disbursed amount in thousands of CZK
vineyards	2001	4.0	163.44
	2002	57.0	3,221.90
	2003	166.0	4,416.73
	2004	126.0	6,217.53
	2005	128.0	7,199.71
	2006	40.5	2,428.20
	2007	70.0	4,194.60
	2008	80.0	2,997.24
	2009	18.5	901.27
	2010	1.1	0.68
vineyards in total		**691.1**	**31,741.30**
hop gardens	2001	133.0	6,295.88
	2002	90.0	5,008.35
	2003	50.0	1,312.,60
	2004	113.0	5,513.33
	2005	94.0	5,264.43
	2006	67.5	4,047.60
	2007	90.0	4,854.00
	2008	84.5	3,159.18
	2009	59.0	2,847.07
	2010	44.5	2,671.00
hop gardens in total		**825.5.0**	**40,973.41**
orchards	2001	347.0	16,450.81
	2002	293.0	16,396.74
	2003	634.0	16,824.26
	2004	272.0	13,264.91
	2005	223.0	12,532.10
	2006	262.0	15,701.40
	2007	331.0	19,851.00
	2008	364.0	13,616.22
	2009	332.0	16,139.88
	2010	272.0	16,086.60
orchards in total		**3,330.0**	**156,863.92**
seed-plots	2008	6.0	226.64
	2009	2.3	111.69
	2010	13.3	802.20
seed-plots in total		**21.6**	**1,140.53**
Total		**4,868.2**	**230,719.16**

The subject-matter objectives of the programme are supported by rich experience in coherent and systematic technical and safety surveillance of hydraulic structures and water quality monitoring in the reservoirs. The programme focuses, in particular, on implementation of measures aiming to remedy the condition of the most threat-posing hydraulic structures.

The programme objectives are oriented at improving the functionality of the impounding structure itself and the dam, at accessories and service structures, and also at the reservoir area and the quality of accumulated water.

The programme does not include measures for fishponds and certain measures to improve the safety which are covered by another subsidy tools.

The beneficiaries are, in particular, River Boards, state enterprises, pursuant to the Act No. 305/2000 Coll., on river basins, in the case of the sub-programme 129 174 the applicants may include River Boards, state enterprises and other owners of hydraulic structures.

The programme comprises three sub-programmes:

129 172 "Support for Improving the Functionality and Safety of Hydraulic Structures" is focused on:

- earthfill dams of hydraulic structures,
- concrete and masonry dams of hydraulic structures.

129 173 "Support for Sediment Removal from the Reservoirs" is focused on:

- water supply reservoirs,
- water reservoirs classified in bathing areas.

129 174 "Support for Recovery of Function of Hydraulic Structures in Emergency Situations" is focused on:

- hydraulic structures, at which state of emergency was declared.

Under the individual sub-programmes, only one application for the specific hydraulic structure may be registered during the entire period of the programme duration.

In 2010, two projects falling within the Vltava River Board, s. e. and three projects falling within the Morava River Board, s. e. were granted financial support under the programme 129 170. In total, the amount of CZK 87.859 million was used.

Programme 129 190 "Support for Agricultural Watercourses" – Agricultural Water Management Administration

The programme follows up with the sub-programme 229 013 and includes expenditures on purchase and technical renovation of state-owned property administered by the Ministry of Agriculture, namely by its organizational unit – Agricultural Water Management Administration.

The programme is constituted by three sub-programmes:

129 192 "Preparation of Projects under the Operational Programme Environment",

129 193 "Rehabilitation of Watercourses and New Adaptations of Watercourses",

129 194 "Restoration of Water Reservoirs".

Within the framework of the implementation of projects under the sub-programme 129 192, state budget funds in the amount of CZK 23.072 million were used. Under the sub-programme 129 194 – "Restoration of Water Reservoirs", the project of water reservoir Loštice with the total costs of CZK 3.966 million was started. In 2010, this project was granted financial support in the amount of CZK 3.014 million and at the end of the year the project was also granted the final evaluation. The total sum of funds used for the implementation of the programme 129 190 in 2010 amounts to CZK 25.180 million.

State funds are also provided for other measures in water management pursuant to Section 102, Subsection 1 letters b), i), k) of the Water Act. This support is of non-investment nature and is provided for current expenditures of the specific indicator "Support for water management in total" in the budget chapter of the Ministry of Agriculture for maintenance of minor watercourses, water reservoirs and polders and related structures, as well as for maintenance and operation of main drainage facilities.

Maintenance of minor watercourses, water reservoirs and polders

In 2010, the non-capital investment funds of the state budget expended within the framework of this support, i.e. for maintenance, repairs and management of the state-owned property on minor watercourses, water reservoirs and polders and related structures and for management of unregulated minor watercourses administered by the Agricultural Water Management Administration, amounted to CZK 61.291 million. In total 765 non-capital investment projects (including 340 immediate interventions) were executed and completed and maintenance was carried out on 344 km of minor watercourses.

Operation of minor watercourses, water reservoirs and polders and related structures

In 2010, the non-capital investment funds of the state budget expended within the framework of this support amounted to CZK 21.174 million. The Agricultural Water Management Administration executed and completed 287 operational measures.

Maintenance of main drainage facilities

In 2010, the non-capital investment funds of the state budget expended within the framework of this support, i.e. for maintenance, repairs and management of the state-owned property on main drainage facilities and related structures administered by the Agricultural Water Management Administration amounted to CZK 22.508 million. In total 349 non-capital investment projects (including 52 immediate interventions) were executed and completed and maintenance was carried out for 276 km of main drainage facilities.

Operation of main drainage facilities

In 2010, the non-capital investment funds of the state budget expended within the framework of this support amounted to CZK 13.740 million. The Agricultural Water Management Administration executed and completed 97 operational measures.

State funds are also provided for national subsidy programmes aiming to support restructuring and enhance competitiveness.

Competitive agricultural production cannot go without water supply in optimum quantities in optimum time. This also applies to permanent crops, therefore, a subsidy title 1.1. "Support for the Establishment of Drip Irrigation in Orchards, Hop Gardens and Vineyards" was launched in 2001, and later extended for permanent crops seed-plots and ornamental plant seed-plots.

This subsidy programme is a national subsidy. i.e. paid from the national funds. Prior to the accession of the Czech Republic to the EU, this programme was notified and approved by the European Commission.

The basic terms of access to this programme are annually published in "Principles stipulating the terms for the granting of subsidies pursuant to Sections 2 and 2d of the Act No. 252/1997 Coll., on agriculture". Over the period of its duration, drip irrigation was established in the extent shown in table 9.1.17.

9.2 Ministry of the Environment

9.2.1 Financial support provided under the national programmes of the Ministry of the Environment

One of the main financial support titles provided by the Ministry of the Environment was the Programme of Revitalization of River Systems. The programme presumed gradual steps in meeting the objectives to maintain and support biodiversity, favourable pattern of water regime in the landscape, increase water quality and purity and make use of the land in the areas concerned in a functional manner. The support provided by this programme was in particular aimed at measures in the area of the revitalization of the natural functions of watercourses, the establishment of the components ensuring the territorial stability of ecosystems dependent on water regime, the removal of unnatural transverse obstacles on watercourses, the rehabilitation of retention capacity of the landscape and tackling the problems connected with waste water drainage and treatment.

In 2010, only the funding of multi-year projects was completed, new projects were not launched. Multi-year projects only concerned the Agricultural Water Management Administration.

Table 9.2.1.1
List of the projects executed in 2010

Name of project	Beneficiary	Released in CZK
Revitalization of the Malostranský stream	Agricultural Water Management Administration	11,409,000
Revitalization of the Hrobský stream	Agricultural Water Management Administration - OP Elbe	1,719,000
Revitalization of Hradiště II B	Agricultural Water Management Administration - OP Elbe	2,130,000
Revitalization of the Malá Jeřice stream	Agricultural Water Management Administration	2,117,000
Revitalization of stream T6 – the stream in Jadrná	Agricultural Water Management Administration	3,223,000

Source: MoE

After the termination of the Programme of Revitalization of River Systems, the issues of aquatic ecosystems are supported by the sub-programme 115 164 "Adaptation Measures to Mitigate the Impacts of Climate Change on Aquatic Ecosystems" under the programme 115 160 "Support for Restoration of Natural Functions of the Landscape". The following measures may be funded under the sub-programme 115 164:

- measures contributing to improving the natural functions of watercourses, including the restoration of their migration passability,
- restoration or creation of wetlands and pools, construction, renovation or reconstruction of nature-friendly water reservoirs in order to improve the retention capacity of the landscape and support biodiversity,
- establishment and revitalization of the components ensuring the territorial stability of ecosystems dependent on water regime.

In 2010, under this sub-programme in total 21 projects of external applicants (natural and legal persons except the organizational units of the state and allowance organizations) were granted support in the amount of CZK 3,465.669.61.

9.2.2 Financial support provided under the programmes co-financed from the EU funds

Operational Programme Environment

The Operational Programme Environment is a sectoral operational programme for the programming period 2007–2013, which was approved on 20 December 2007. The funds started to be used in September 2008. The aim of the operational programme is the protection and improvement of the quality of the environment as a basic principle for sustainable development. The Operational Programme Environment is divided into a total of eight priority axes:

1. Water Management Infrastructure Improvements and a Reduction of Flood Risks,
2. Air Quality Improvements and a Reduction of Emissions of Pollutants,
3. Sustainable Use of Energy Sources,
4. Improved Waste Management and Rehabilitation of Contaminated Sites,
5. Reducing of Industrial Pollution and Environmental Risks,
6. Improving the State of Nature and the Landscape,
7. Infrastructure Development for Environmental Education, Consultancy and Awareness,
8. Technical Assistance

The Operational Programme Environment is managed and guaranteed by the Ministry of the Environment, the Intermediate Body is the State Environmental Fund of the Czech Republic. The applications for support are received by regional offices of the State Environmental Fund of the Czech Republic, those submitted under the priority axis 6 are also received by the Agency for Nature Conservation and Landscape Protection of the Czech Republic. Dates for submitting the applications are published in the form of Calls on the portal www.opzp.cz. For the year 2010, the receipt of applications for the granting of support under the Operational Programme Environment was opened within ten Calls. Under the priority axis 1 – Water Management Infrastructure Improvements and a Reduction of Flood Risks, the ERDF/CF funds in the total amount of CZK 3,558.2 million were used in 2010. Under the priority axis 6 – Improving the State of Nature and the Landscape (area of intervention 6.4 – Optimization of the Landscape Water Regime), the ERDF/CF funds in the total amount of CZK 1,010.9 million were used in 2010.

Under the Operational Programme Environment, the priority axis 1 – Water Management Infrastructure Improvements and a Reduction of Flood Risks, the Ministry of the Environment in 2010 approved 351 projects, of which 170 projects fell under the area of intervention 1.1 The Reduction of Water Pollution (the total support excl. loan in 2010 amounted to CZK 14,356.4 million), of that two projects were included in large projects; 49 projects fell under the area of intervention 1.2 Drinking Water Quality Improvement (the total support in 2010 amounted to CZK 3,424.8 million) and 132 projects fell under the area of intervention 1.3 The Reduction of Flood Risks (the total support in 2010 amounted to CZK 997.3 million). Under the OPE, priority axis 6 – Improving the State of Nature and the Landscape, the Ministry of the Environment in 2010 approved 758 projects, of that were 149 water protection projects falling under the area of intervention 6.4 – Optimization of the Landscape Water Regime (the total support amounted to CZK 2,274.3 million).

Since launching the Operational Programme Environment, so far 12 applications for the granting of support were submitted in the category for large projects, of this number only 1 project application was submitted under the priority axis 4, all of the remaining project applications were submitted under priority axis 1 – Water Management Infrastructure Improvements and a Reduction of Flood Risks. Due to a changed limit for the category of large projects in 2010, three projects falling under the category of large projects were reclassified to belong to the category of individual projects. Four large projects have already been approved by the European Commission: three projects under priority axis 1 ("Water Quality Improvements in the Jihlava River and the Svratka River upstream of the water reservoir Nové Mlýny", "Project of Protection of Waters in the Dyje River Basin – Stage II", "The Cheb Area – Environmental Measures"), one project under priority axis 4, and another three projects are waiting for the approval by the European Commission. Other administered project titled "Total Reconstruction and Extension of the Central Waste Water Treatment Plant in Prague in Císařský Ostrov, construction project 1 – New Water Line including Connection" was conditionally approved by the Managing Committee.

Table 9.2.2.1

Grant funds from the Operational Programme Environment for the financing of measures in the area of water management in 2010

	number of approved projects	volume of approved projects (millions of CZK)	reimbursed by the EU (millions of CZK)	reimbursed from public funds (millions of CZK)
1.1	170	14,356.4	3,431.3	4,037.4
1.2	49	3,424.8	0.0	0.0
1.3	132	997.3	136.6	160.7
Priority axis 1 in total	**351**	**18,778.5**	**3,558.2**	**4,198.1**
6.4	149	2,274.3	1,010.9	1,188.7
Total	**500**	**21,052.8**	**4,569.1**	**5,386.8**

Source: MoE

Table 9.2.2.2

The allocation of funds for types of measures (approved CF/ISPA projects) in 2010 in millions of €

Type of measure	Number of projects	Eligible costs	CF/ISPA support
water	36	763.2	536.6
monitoring of hydrosphere	1	16.9	12.7
Technical Assistance	1	2.3	1.7
floods ISPA 2002	1 (13 sub-projects)	17.7	14.6
Total	**39**	**800.1**	**565.6**

Source: MoE

Support under ISPA and Cohesion Fund

Based on the Government Resolution No. 149 of 14 February 2001, the Ministry of the Environment of the Czech Republic was established the Intermediate Body and the State Environmental Fund of the Czech Republic the implementing agency for the implementation of ISPA projects. The pre-accession instrument ISPA was designed for sectors of transport and environment in EU candidate countries. Through the accession to the EU on 1 May 2004 the Czech Republic was entitled to draw subsidies from the Cohesion Fund. Based on the Government Resolution No. 125/2004, the Ministry of the Environment of the Czech Republic was established the Intermediate Body and the State Environmental Fund of the Czech Republic the Implementing Body for the implementation of Cohesion Fund projects in the area of the environment. Due to the fact that as of the day of accession of the Czech Republic to the EU none of ISPA projects was completed, these projects were transferred to the Cohesion Fund projects, pursuant to Art. 16a of the Council Regulation (EC) No. 1164/94. In total 106 projects applying for support under ISPA programme and CF were registered by the State Environmental Fund of the Czech Republic. As of 31 December 2006, of the total number of 106 projects, the European Commission approved 40 projects, of which 39 focused on the implementation of measures in the area of water management.

The eligible costs for 39 approved projects amount to € 800.1 million. The CF/ISPA support allocated for these projects amounts to € 565.6 million. The above mentioned projects also include a project of remediation of flood damage (comprising 13 sub-projects which were supported from ISPA fund), a non-investment project of Technical Assistance and also a project in the field of the hydrosphere monitoring.

In 2010, support was granted for 16 CF/ISPA projects. Since 2006, the granting of funds for the final beneficiaries has been proceeding in the form of a so-called pre-financing, i.e. through effecting payments from the state budget funds for the co-financing and pre-financing of expenditures that are to be covered from the CF funds. In the sector of environment, the payments for CF projects are effected through the chapter 315/ MoE of the state budget. In 2010, support in the total amount of CZK 875.915 million was transferred from the state budget to the final beneficiaries.

Table 9.2.2.3

Summary of financial support provided under the national programmes of the Ministry of the Environment and programmes co-financed from the EU funds

Grant funds for the Ministry of the Environment in total	millions of CZK
National grant titles	20.6
Operational Programme Environment	5,386.8
ISPA / FS	875.9
State Environmental Fund*)	369.9
Total	**6,653.2**

Note: *) Support provided to the applicants from the SEF funds in the form of loans is not included in the table above.

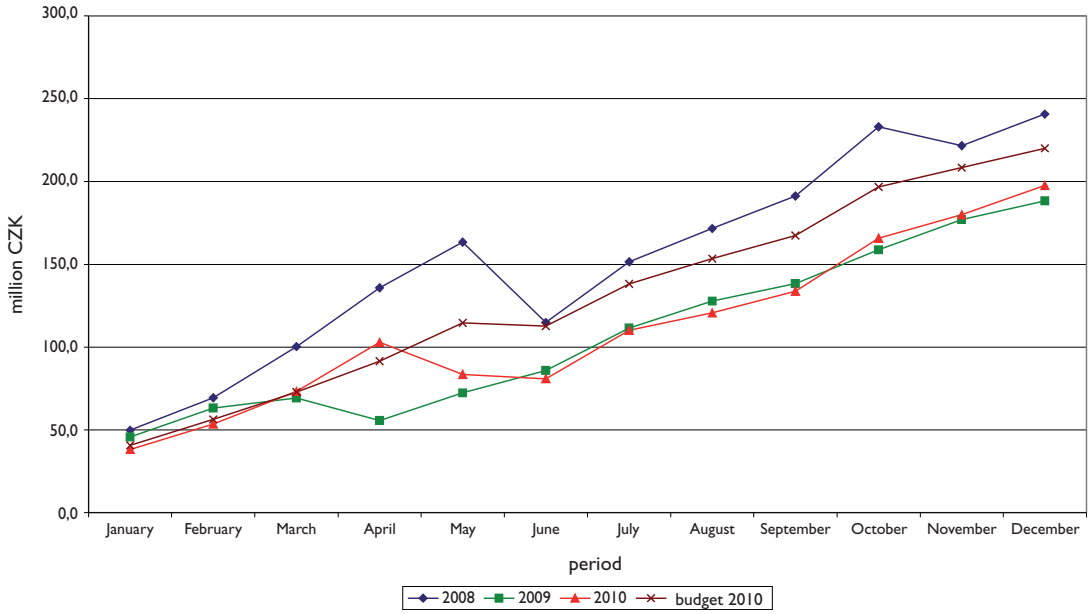
9.3 The State Environmental Fund

The State Environmental Fund of the Czech Republic is a specifically oriented institution which is an important financial resource for support of implementation of measures to protect and improve the status of the environment in its respective compartments.

The revenues of the State Environmental Fund of the Czech Republic include collected charges for environmental pollution. In the area of the protection of waters they comprise a charge for waste water discharges into surface waters and a charge for abstracted groundwater quantities. The collection of charges for waste water discharges into surface waters in the monitored period of the year 2010 reached 89.8% of the planned revenues. This decline was caused by the improved quality of treatment of the discharged waters as a consequence of increased investments into waste water treatment plants, and also by the remaining low production in industrial sectors. A number of polluters also make use of the legal opportunity to defer payment of charges due to investments to waste water treatment plants.

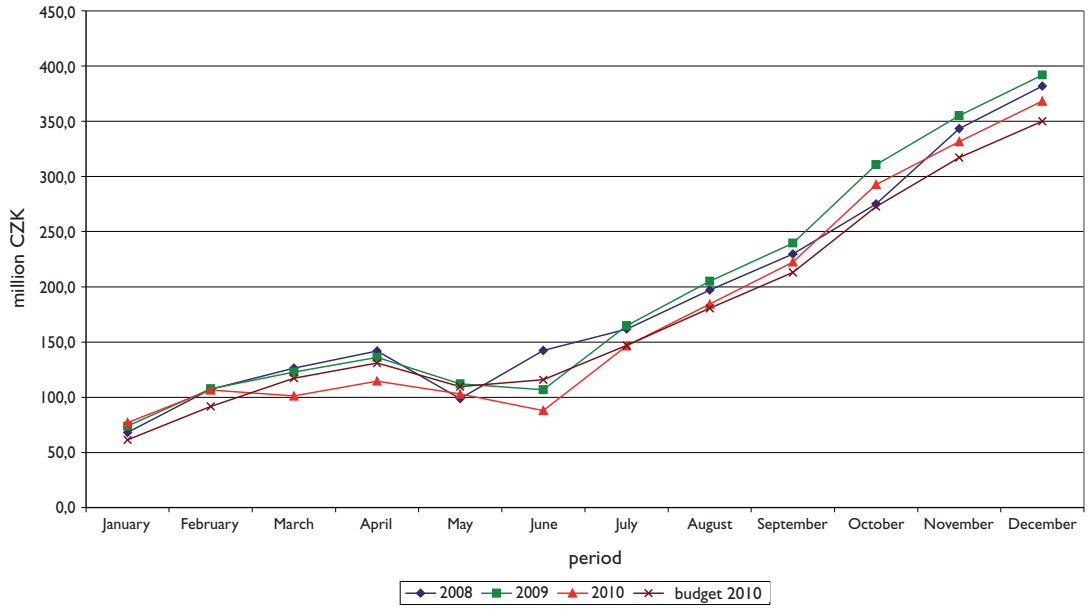
The chart below documenting the collection of charges for abstracted groundwater quantities in 2010 shows a similar trend as in the previous year. The revenues from charges reached the value of 105.2% of the planned annual revenues. It is evident that the positive results were achieved, in particular, due to permanent intensive controls performed by the State Environmen-

Chart 9.3.1
Development of revenues from charges for waste water in the years 2008–2010 in millions of CZK



Source: The State Environmental Fund of the Czech Republic

Chart 9.3.2
Development of revenues from charges for groundwater in the years 2008–2010 in millions of CZK



Source: The State Environmental Fund of the Czech Republic

Table 9.3.1
Financial expenditures incurred by the Fund in the year 2010 in millions of CZK (water)

	Transfer (subsidy)	Loan	Expenditures in total
Water in total	**369.9**	**166.8**	**536.7**
- of which NP	73.7	5.5	79.2
- of which CF co-financing	71.6	50.8	122.4
- of which OPI co-financing	0.7	0.0	0.7
- of which OPE co-financing	223.9	110.5	334.4

Source: The State Environmental Fund of the Czech Republic
NP – national programmes expenditures
CF – SEF expenditures to co-finance projects supported from the CF from the programme period 2004–2006
OPI – SEF expenditures to co-finance projects supported from the Operational Programme Infrastructure
OPE – SEF expenditures to co-finance projects supported from the Operational Programme Environment

tal Fund staff members in close cooperation with the Czech Environmental Inspection. A slight but steady decrease in the total quantities of abstracted water was managed to be eliminated by this measure. The budgeted income value was slightly exceeded by CZK 18.2 million. The development of revenues from charges is shown in charts 9.3.1 and 9.3.2.

The State Environmental Fund provides support from its resources under the so-called national programmes and carries out the activities which were delegated to it for administration of funds granted from the EU for the area of the environment. The State Environmental Fund of the Czech Republic was appointed the Implementing Body for the Cohesion Fund and the Intermediate Body for the Operational Programme Environment. To co-finance projects supported under the Cohesion Fund, the Operational Programme Infrastructure and the Operational Programme Environment, the State Environmental Fund provides financial grants from its resources.

As of 31 December 2010, the decisive percentage (42.8%) of the total financial expenditures on the contracted projects of the State Environmental Fund was achieved by the execution of water protection projects, in the amount of CZK 536.7 million. The structure of expenditures is shown in table 9.3.1.

In 2010, in the area of water protection under the national programmes, the following programmes were announced by the State Environmental Fund of the Czech Republic:

- sub-programme IV.2.D. Waste Water Treatment under the Programme of Support for Municipalities Located in the Regions of National Parks,
- V.1. Support Programme to Ensure Comprehensive Monitoring of Water Status in the Czech Republic,
- V.2. Support Programme to Ensure Monitoring of Waters.

In addition, under the national programmes, the completion of previously approved funding of projects in already closed programmes is under way.

Water body in the Hruškovice stream catchment area

9.4 Financial support from international cooperation and the EU

Also in 2010, water management projects received financial support under a number of programmes. The projects concerned were especially those supported under the Objective 3 of the European Territorial Cooperation, i.e. through the individual operational programmes falling under the Objective 3. Control of these projects was entrusted to the Centre for Regional Development of the Czech Republic, which performs it through a network of offices in NUTS II regions. The offices store the project documentation, including documents on provided and used support from the foreign resources.

In the Objective 3 programmes (Operational Programmes of Cross-border Cooperation: Czech Republic – Polish Republic, Slovak Republic – Czech Republic, Austria – Czech Republic, Free State of Saxony – Czech Republic and Free State of Bavaria – Czech Republic), support is also granted for the projects focusing on environmental protection, environmental status improvement and risk prevention (natural and technological risks including climate change, water management, etc.). Transnational Cooperation Operational Programme for Central Europe focuses in the 2007–2013 programming period also on transfer and exchange of experience in the field of environmental protection.

Under the individual Operational Programmes, the execution of the following projects was under way in 2010:

In the bilateral programme Czech Republic – Austria, the execution of two projects was under way in 2010, namely the "Research of self-purification processes in minor heavily degraded watercourses in the area of Weinviertel and South Moravia: – the development of the methodology for sustainable measures to improve the quality of waters" (the ERDF support in the amount of 83.650 € for the Czech partner), and "Flood forecasting system for the Morava River – the Dyje River" (with a grant in the amount of 217.680 € for the Czech partner). Newly approved in 2010 was the project "Nature-friendly flood control measures in the confluence area of the Morava River and the Dyje River" (with a grant in the amount of 1,801.804 € for the Czech partner).

1. Under the Czech Republic – Free State of Bavaria cross-border cooperation programme, the execution of three projects was under way in 2010, namely "The issues of nutrients and cyanobacteria in the Skalka water reservoir" with a grant in the amount of 135.371 €, "Cross-border water protection in the Drachensee Basin" with a grant in the amount of 925.650 €, and also the project "The effects of the acidification on soils and water resources" with a grant in the amount of 407.150 €).

2. Under the Czech Republic – Free State of Saxony cross-border cooperation programme, the execution of two projects was under way in 2010, namely "The research of possibilities how to minimize the contents of organic harmful substances in drinking water resources in the Krušné hory Mountains" with a grant in the amount of 1,224.850 €, and "The revitalization of peat-bogs between Hora Sv. Šebestiána and Satzung – Stage 1" with a grant in the amount of 375,310.69 € for the whole project. In 2010, the project "VODAMIN" focusing on flood prevention was approved. The project "The Elbe River –our shared heritage" with a grant in the amount of 467,117.50 € focuses on education).

3. Three projects of water management nature were executed within the framework of the Czech Republic – Polish Republic cross-border cooperation programme. Namely, the project "Improving the Elbe River Basin and the Oder River Basin cleanness, based on enhanced waste water treatment quality in the Czech – Polish borderland" (the ERDF support in the amount of 900,903.66 €), the project "Opimization of water use and water quality improvement in the Metuje River basin in the Kladsko borderland through a construction of sewerage systems in the surroundings of the towns Chudoba and Náchod" (with a grant in the amount of 430,513.85 €), and the project of the towns Žacléř and Lubawka: "The protection and rational management of surface waters and groundwaters in the Czech – Polish borderland" (the ERDF support amounting to 4,494,181.23 €).

4. Newly approved projects under the Czech Republic – Slovak Republic cross-border cooperation programme are: "Automatization of exchange of crisis data in the hydrological district of the Morava River and the Dyje River basins" with a grant in the amount of 1,288,212.52 €, and a project following up with the already completed project titled "Flood control measures and early warning system Říka-Vlára-Váh Rivers, Stage II", with the ERDF support in the total amount of 338,493.61 €.

Under the Operational Programme for Supranational Cooperation there continues the execution of the projects LABEL – Adaptation to flood risk in the LABe-ELbe river basin and REURIS – REvitalization of Urban RIver Spaces.

The Rural Development Programme of the Czech Republic for the period 2007–2013 is based on the National Strategic Plan for Rural Development and was prepared in accordance with the Council Regulation (EC) No. 1698/2005. The provision of grants is aimed at developing rural areas, improving the environment, supporting the expansion and diversification of economic activities, creating new jobs and strengthening solidarity of the rural population.

The subsidies from the Rural Development Programme are co-financed from the EAFRD and from the state budget of the Czech Republic. The EAFRD support for the period 2007–2013 amounts to 2.8 billion € and the total support including the funds from the state budget of the Czech Republic amounts to 3.6 billion €. The funding for the Rural Development Programme proceeds in the form of pre-financing from the state budget, i.e. all payments to beneficiaries are first effected from national resources.

The Rural Development Programme through its measures significantly contributes not only to improving of living conditions in rural areas, but also supports investments in the basic water management infrastructure in municipalities with the population of less than 2 000 PE.

Measure III.2.1 Village Renewal and Development, Public Amenities and Services is divided into::

- sub-measure III.2.1.1 Village Renewal and Development,
- sub-measure III.2.1.2 Public Amenities and Services.

The sub-measure III.2.1.1 Village Renewal and Development is aimed at support for small municipalities with the population of less than 2000 PE (agglomerations with the population of less than 2000 PE). The support is intended for the area of water management infrastructure, including improvements in appearance of the municipalities and thus improvements in living conditions and enhancing the attractiveness of the villages for housing, carrying business and relaxation.

Under the project scheme b) public water supply systems, sewerage systems and waste water treatment plants, the applicants for subsidy may be municipalities and associations of municipalities.

Under this project scheme, support is not provided for projects aimed at construction of water supply systems, sewerage systems and waste water treatment plants in the territories requiring special protection – national parks and protected landscape areas including their protection zones, Natura 2000 sites, protected areas of natural accumulation of waters, water resource protection areas and the basin district of the Nové Mlýny hydraulic structure. The listed territories fall into the area of subsidies provided from the Operational Programme Environment. The association of municipalities may also include municipalities with the population of more than 500 or 2000 PE, but the project must be implemented in municipalities with the population of less than 500 or 2000 PE.

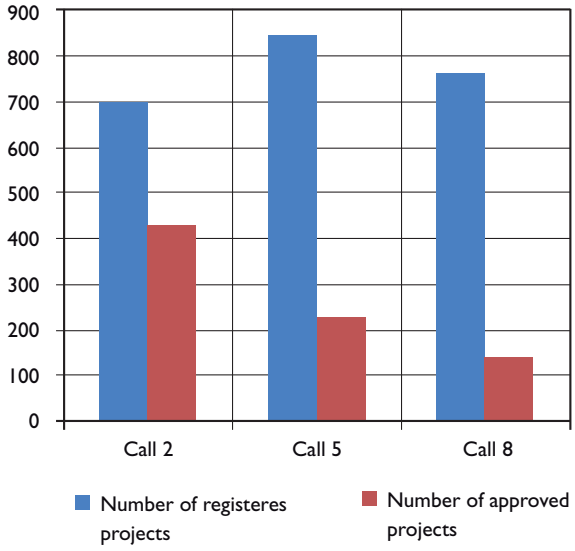
The eligible expenditures under scheme b) public water supply systems, sewerage systems and waste water treatment plants, for which subsidies can be drawn, include:

- public water supply systems,
- public sewerage systems and waste water treatment plants,
- supporting systems for the technical infrastructure,
- hard surfaces and laying of paved surfaces in connection with the project.

For the sub-measure III.2.1.1 Village Renewal and Development, three Calls for submitting the applications for the granting of support have already taken place.

Chart 9.4.1

Registered/approved projects in Call 2, Call 5 and Call 8 for submitting the applications for support – the state of approved applications/project execution as of 31 December 2010



Source: MoA

The chart shows a sustained high applicants´ interest in the measure and the fact that despite commitments higher than the average amount of allocation there remains a large number of projects not approved due to lack of resources for their financing. The development experienced so far indicates that the Ministry of Agriculture is not able, even at a level of the commitments in the amount of a three-year allocation, as it was in 2007, to satisfy the requirements of the applicants – small municipalities. This long-term adverse situation led to the decision of the Monitoring Committee of the Rural Development Programme not to announce a Call for this measure in 2010, in order to allow members of the Monitoring Committee find a solution. Another reason for postponing the Call to autumn 2011 was also taking into account the fact that a number of municipalities have changed councils, which should have a possibility to identify community development priorities and revise the project plans.

In 2010, applications registered in 2009 were subjected to approval procedure. Under the project scheme b), financial claims in the total amount of CZK 484 million were approved to cover 22 projects. Of them, two projects in the amount of CZK 6.8 million were executed and completed in 2010.

In the period between 2007 and 31 December 2010, in total 130 applications for support in the amount of CZK 2 billion were approved. Of this, 102 projects in the amount of CZK 1.2 billion were reimbursed, i.e. put into operation, before the end of 2010. It follows that the execution of 28 projects in the amount of CZK 800 million is still under way.

Table 9.4

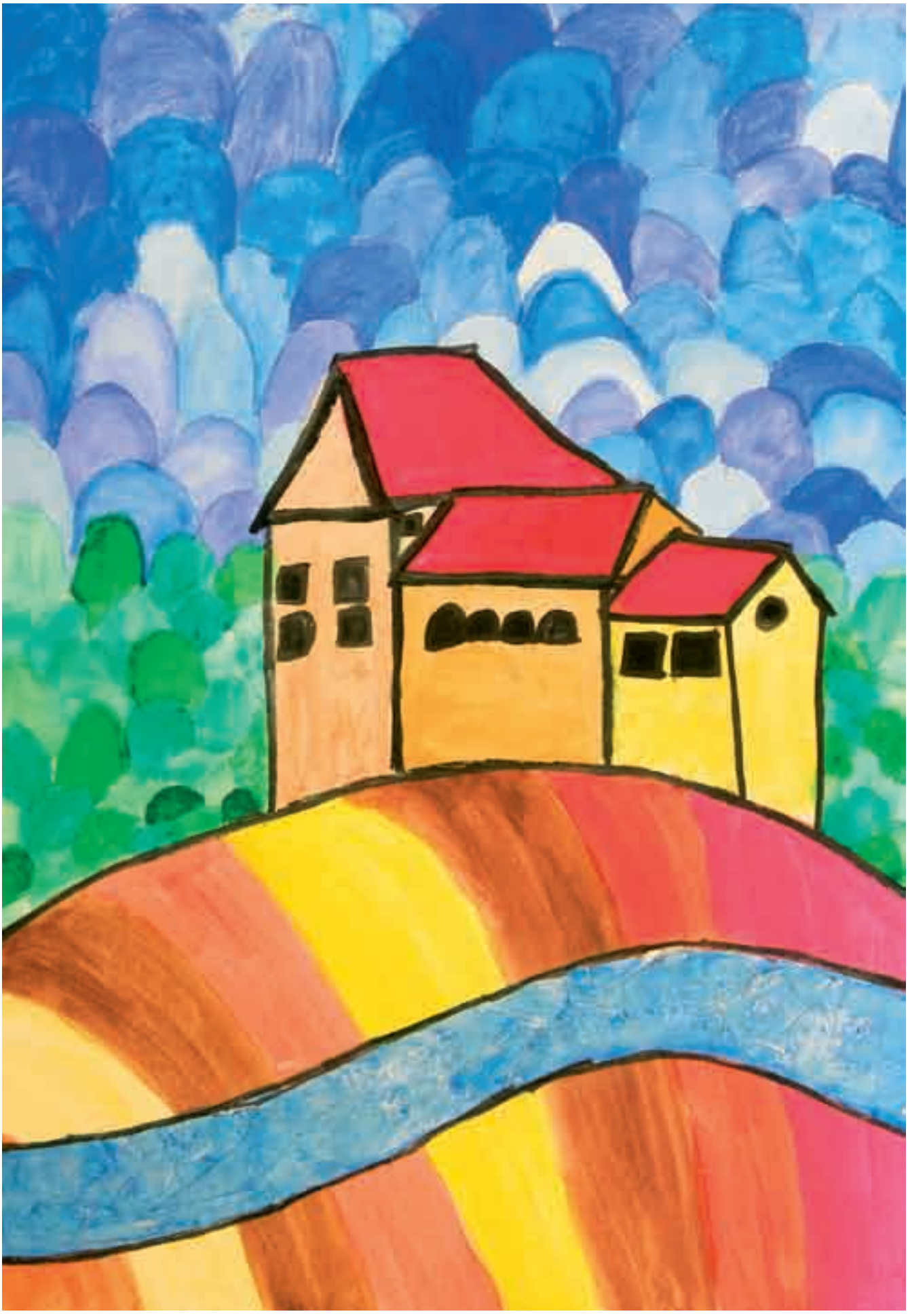
Status of implementation of sub-measure III.2.1.1 Village Renewal and Development, project scheme b) public water supply systems, sewerage systems and waste water treatment plants as of 31 December 2010

	III.2.1.1 b
Number of registered projects	564
Amount claimed by registered projects	8,502,660,742 CZK
Number of approved applications	130
Amount covering approved projects	2,099,913,435 CZK
Number of reimbursed projects	102
Reimbursed amount	1,239,056,638 CZK

Source: MoA

In 2010, there continued support for municipalities which applied for a grant under the Rural Development Plan for the period 2007–2013 under Measure III.2.1. Village Renewal and Development, Public Amenities and Services in Call 2 and Call 5 for applications for support from the Support and Guarantee Agricultural and Forestry Fund, joint-stock company, in the form of funds intended for the completion of project plans of municipalities under the Rural Development Plan 2007–2013. Support is intended to cover value added tax as an accessory to the costs incurred by municipalities (or associations of municipalities) to cover both capital investments and non-capital investments in the Rural Development Plan projects implemented in the public interest.

The Rožnovská Bečva River and the Vsetínská Bečva River confluence in Valašské Meziříčí



Tereza Danihelová – 10 years
Praktická basic school and nursery school, Břeclav, Jihomoravský kraj region

10. Legislative measures

10.1 Water Act and implementing regulations

In 2010, three-year work was completed to produce major amendment to the Water Act which was afterwards approved by the Parliament of the Czech Republic and signed by the president of the Czech Republic. In the Collection of Laws the amendment was promulgated on 21 May and became effective on 1 August 2010. In addition to the above mentioned major amendment to the Water Act, also amendment No. 227/2009 Coll. to the Water Act became effective on 1 July 2010, having been prepared in relation to the adoption of the Act on Central Registers.

Major amendment to the Water Act passed second and third readings in the Chamber of Deputies in March 2010 and at the end of April in the Senate; in May the adopted Act was signed by the president.

The main objectives of the amendment, i.e. transferring Directives of the EU, troubleshooting application of the Act in practice and a response to the development in water management and also efforts at reducing the administrative burden seem to have been achieved; everything will show up after a certain period of its use in practice. Within the unification of the major amendment application, the Ministry of Agriculture and the Ministry of the Environment introduced e-mail address nvz@mze.cz for inquiries, which continues to be frequently used by the specialists community to tackle various problems associated with these issues.

Among the most notable changes brought by the major amendment to the Water Act the following can be named:

- arrangements for rainwater and for waste waters and their relation to rainwater (Section 5 subsection 3 and Section 38),
- implementation of product approach and water management modifications (Section 15a),
- double prevention principle (Section 9 subsection 5 and Section 15 subsection 1) and changes in regulation permits for water use (Section 12),
- support for revitalization of watercourses (Section 15 subsection 1, Section 44 subsection 2 and Section 47),
- modified form of approvals and the introduction of binding opinions (Section 17 and Section 104 subsection 9),
- new approach to planning in the area of waters (CHAPTER IV),
- abolition of the authority of the authorized municipal offices as water authorities (Section 105 subsection 2),
- simplification of proceedings conducted by water authorities (Section 115),
- establishment of a measure of general nature for some acts, including its special form (Section 115a),
- new modification of sanctions in water management (CHAPTER XII).

The Act having direct effect on the Water Act is Act No. 227/2009 Coll. of 17 June 2009, amending selected acts in relation to the adoption of the Act on Central Registers. The purpose of this legal regulation (in Part 120 of the Act) was the necessity to respond to the legislative embedding of Central Registers, whose reference data will be used as data sources for public administra-

Hydraulic structure Fryšták on the Fryštácký stream

tion authorities. In practice, public administration authorities should not search the reference data values for their needs from different sources but only from Central Registers. The information is communicated once only and subsequently will be reflected in the Central Register and through the Central Register in other public administration information systems.

As regards implementing regulations, two Decrees and one Government Order were published in the Collection of Laws of the Czech Republic in 2010

Decree No. 255/2010 Coll., amending Decree No. 471/2001 Coll., on technical and safety supervision of hydraulic structures, was promulgated in the Collection of Laws and became effective on 2 Septemebr 2010. The Decree responds, through signals from practice, to changes in amendment No. 150/2010 Coll. to the Water Act and, among others, it newly defines the hydraulic structures that are directly by the Decree exempted from the obligation of technical and safety supervision.

Decree No. 393/2010 Coll., on river basin districts was promulgated in the Collection of Laws on 27 December 2010 and became effective on 1 January 2011. The Decree responds to new adjustments of planning in the area of waters and replaces Decree No. 292/2002 Coll. of the same name.

Finally, Government Order No. 416/2010 Coll., on indicators and values of permissible pollution of waste waters and on requirements of permits for discharges of waste waters to groundwaters was promulgated in the Collection of Laws on 29 December 2010 and became effective on 1 January 2011. The Government Order provides, in particular, the indicators and values of permissible pollution of waste waters and on requirements of permits for discharges of waste waters to groundwaters, and it further defines the category of products bearing the CE, through which the discharges to groundwaters are permitted.

In 2010, the Interpretation Committee for the Water Act at its two meetings adopted two interpretations that are made available to the public on the website of the Ministry of Agriculture.

10.2 Act on Public Water Supply Systems and Sewerage Systems and implementing regulations

In 2010, neither direct nor indirect amendment to the Act No. 274/2001 Coll., on public water supply systems and sewerage systems was made. Similarly, no amendment was made to Decree No. 428/2001 Coll., implementing the above mentined Act. During 2010, discussions relating to amendments to Annexes of this Decree were under way, nevertheless, they will be effected not sooner than in 2011.

In 2010, Senior Director of Water Management Department approved fifteen interpretations that in relation to the Act on public water supply and sewerage systems were prepared by the Interpretation Committee at its four meetings.

10.3 Audits of the execution of state administration in the field of water management and water protection

Ministry of Agriculture

Auditing of the execution of the delegated authority in water management sector were carried out by the Ministry of Agriculture, through the Department for State Administration in the Water Management Sector and for River Basin Administration as the central water authority, at the regional level in compliance with the Government Resolution No. 1181 of 18 October 2006 and in compliance with the Plan for Audits of Regional Authorities and the City of Prague for the years 2010 and 2011 prepared by the Ministry of the Interior.

Audits carried out by the Ministry of Agriculture, in addition to examining water authority operation (such as the matters of the achieved qualifications and practice of personnel, organization of work, material background for work, etc.) focus on due application of the relevant legal regulations, in particular, the Act No. 254/2001 Coll. on Water and on amendment to certain laws (the Water Act), as amended, the Act No. 274/2001 Coll. on Public Water Supply and Sewerage Systems and on amendment to certain laws (the Water Supply and Sewerage Systems Act) as amended, as well as the related implementing legal regulations. The agenda of water right proceedings is also associated with other fields of administrative law, therefore, the audits were always also examining the compliance with the provisions of the Act No. 500/2004 Coll., Code of the Administrative Procedure, as amended. With regard to the fact that water authorities carry out the agenda of special building offices, the audits examined also the procedure according to the Act No. 183/2006 Coll., on Land-Use Planning and Building Code (the Building Act) as amended and its implementing legal regulations. In the particular proceedings, the audits are effected by examining the randomly selected documents.

The audits examining the execution of the delegated authority monitor the legality of this activity. This is corresponded to by the scope of the audits of the individual components guaranteeing legality in activities of water authorities – for instance, correct application of legal regulations in general, compliance with the relevant competence legal provisions, due conduct of administrative proceedings, compliance with administrative time-limits, provision of source documents for decisions in compliance with the Code of Administrative Procedure, the possibility to review the content of a decision, carrying out the technical and safety surveillance of hydraulic structures, etc.

Table 10.3.1
Audit of the execution of state administration, carried out by the Ministry of Agriculture at Regional Authorities in 2010

Region	Audit date
Ústecký	23 February 2010
Olomoucký	10 March 2010
Královéhradecký	18 May 2010
Plzeňský	9 September 2010
Jihomoravský	20 October 2010
Středočeský	8 December 2010

Source: MoA

Based on the audits that were carried out it can be stated that the execution of the delegated authority by regional authorities in the water management sector maintains its high level. Exemplary, in particular, is the keeping of file documentation and adherence to the procedures in compliance with the Code of Administrative Procedure. Furthermore, the permanently improving approach of

regional authorities in providing the methodological guidance for water authorities in their jurisdiction has to be pointed out. This statement can also be confirmed by the fact that no measures to remedy the situation were imposed in any of the audits. The most frequent shortcomings were identified, similarly to the previous period, in the application of the relevant provisions of the Code of the Administrative Procedure in practice. The identified irregularities, nevertheless, did not make the issued decisions unlawful and after a matter-of-fact discussion the responsible staff members accepted the interpretations and procedures guaranteeing that the identified shortcomings will not recur.

At the level of water authorities of municipalities with extended authority, the audits were carried out randomly in the period between July and September, in accordance with the effort of the Ministry of Agriculture to contribute, mainly through the methodological guidance, to improvements in the level of execution of state administration in the water management sector.

The highly positive feedback from the audits confirms their correct targeting, which helps to deepen mutual communication at all levels of the administrative hierarchy. Beneficial as well is the acquaintance with the regional water right issues and findings in the field of application of legal regulations under the authority of the Ministry of Agriculture. These findings allow to flexibly respond to possible application difficulties or irregularities of legal regulations through launching the legislative process to remedy them, and also ensure their troublefree and uniform application in the practice of water right proceedings.

Table 10.3.2

Audit of the execution of state administration, carried out by the Ministry of Agriculture at water authorities of municipalities with extended authority in 2010

Municipality	Audit date
Municipal Office Opava	20 July 2010
Municipal Office Kravaře	20 July 2010
Municipal Office Hlučín	21 July 2010
Municipal Office Bílovec	21 July 2010
Municipal Office Čáslav	4 August 2010
Municipal Office Chrudim	4 August 2010
Municipal Office Pardubice	5 August 2010
Municipal Office Holice	5 August 2010
Municipal Office Jaroměř	10 August 2010
Municipal Office Dvůr Králové nad Labem	10 August 2010
Municipal Office Dobruška	11 August 2010
Municipal Office Nové Město nad Metují	11 August 2010
Municipal Office Mělník	26 August 2010
Municipal Office Neratovice	26 August 2010
Municipal Office Praha	31 August 2010
Municipal Office Praha	2 September 2010

Source: MoA

The audits of water authorities of municipalities with extended authority confirmed the long-term trend of improving quality of the execution of the state administration in water management sector also at this level. Of course, in comparison with the regional authorities some larger differences in the quality of the management of the agenda occur here. As a limiting factor there is frequently observed the fact that the quality of work of the water authorities of municipalities with extended authority is influenced by personnel and material equipment. The higher quality level of the administrative proceedings is usually observed at larger water authorities, better equipped with personnel and material background, although this may not always be the case. In smaller municipalities, the delegated authority is sometimes executed by only one person responsible for several fields of administration, in some cases even including the separate authority.

In spite of that, nevertheless, most of the identified irregularities were largely of formal and procedural nature and repeatedly occurred to a larger or smaller extent practically in all of the authorities. Similarly to the regional authorities, the shortcomings were mainly identified in the application of the individual provisions of the new Code of the Administrative Procedure. Furthermore, conditions referred to in statements and opinions of the participants in the proceedings and the respective bodies were insufficiently incorporated into the conditions of the decision. It has to be emphasized, nevertheless, that despite these problems the audits revealed no case of insufficient execution of the state administration.

The audit results are used for the potential legislative or methodological activities. The water management sector also organized as every year a work meeting with water authorities and quarterly meetings with the heads of water management departments of the regional authorities. These events are aimed at educating and making water authorities staff members acquainted with the current water management issues. The audit findings also serve as a basis to prepare concepts of the methodological presentations. In this way, the audit findings are almost immediately applied in the methodological guidance for subordinate water authorities.

The audit results show that despite the above mentioned minor shortcomings the execution of the state administration in 2010 in the water management sector at all levels of water authorities can be assessed to be of high quality and again fully meeting the requirement for adherence to the basic principles of public administration which can be called public service.

Ministry of the Environment

The departments executing state administration at the Ministry of the Environment, in compliance with the rules of organization, similarly to the past years, dealt only with individual appeals against first instance decisions of the Czech Environmental Inspectorate, the City Council of Prague and the regional authorities.

In 2010, similarly to the years before, the Department of Water Protection organized work meetings with water authorities and the Czech Environmental Inspectorate. The purpose of this event was to make water authorities staff members acquainted with the current issues of water protection and the activities of the Department of Water Protection. Staff members of the Department of Water Protection of the Ministry of the Environment participated, whenever possible, also in other training workshops and meetings organized by the individual regional authorities.

Daniel Týn – 9 years
Církevní basic school, high school and nursery school, Český Těšín, Moravskoslezský kraj region

11.

Priority tasks, programmes and key documents in water management

11.1 Planning in the field of waters

The first stage of water management planning was completed at the beginning of 2010 by the Ministry of the Environment which based on the adopted river basin district management plans compiled Plans of National Parts of the international Elbe River, the Oder River and the Danube River Basin District Management Plans. Ministry of the Environment submitted, as of 22 March 2010, copies of all management plans and data requested by the European Commission according to Reporting Schemas in compliance with the requirements of the so-called Water Framework Directive 2000/60/EC. There also began a period of implementation of programmes of measures adopted by the river basin district management plans at the end of 2009.

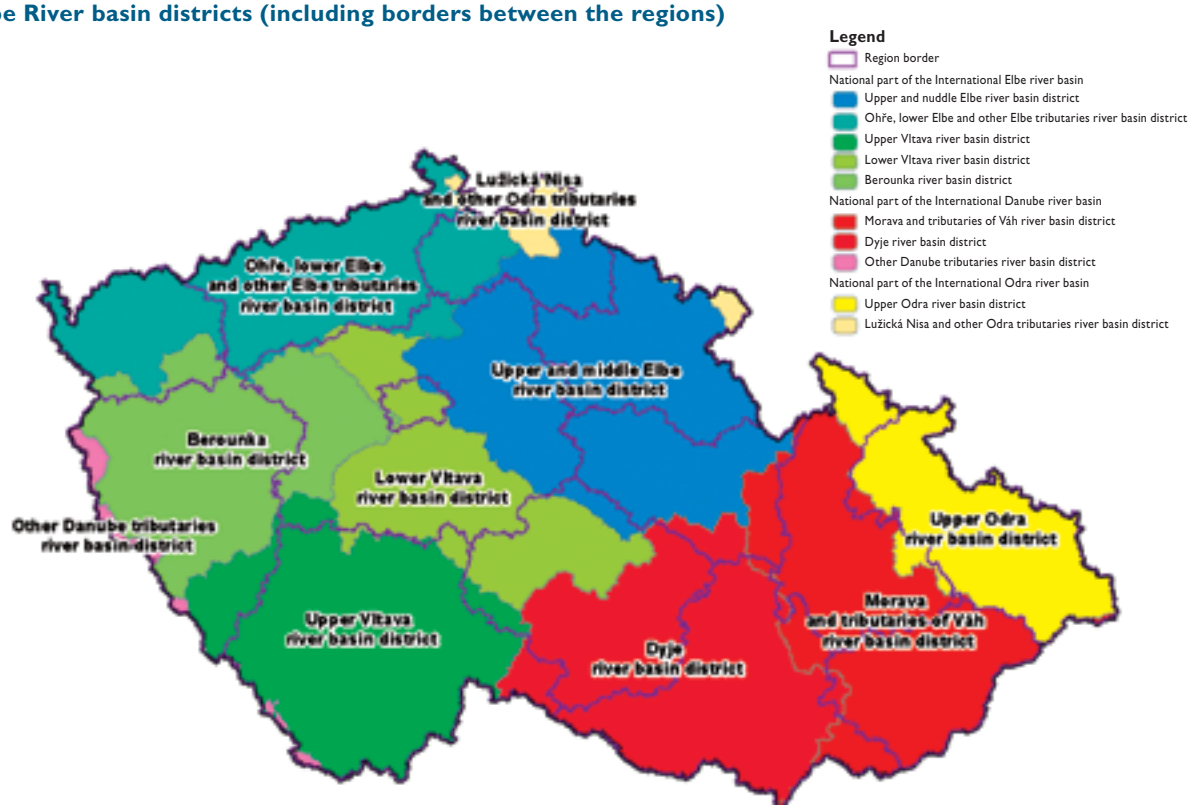
For the second stage of water management planning during which a review of river basin management plan updates until 2015 will take place, under the Act No. 150/2010 Coll., amending the Water Act, a change of structure of these plans was adopted. There will be produced three national river basin management plans, better suited to the hydrological division of Europe into river basins as far as their mouths to the seas, and also better suited to the link to the international Elbe River, the Oder River and the Danube River Basin District Management Plans. This change was made as part of response of the Czech Republic to the EC proceeding regarding breach of Treaty pursuant to Art. 226 of the Treaty establishing the European Community. This namely concerns incomplete or incorrectly effected transfer of the Directive 2000/60/EC (so-called infringement).

The national river basin management plans will review and update the objectives and programmes of measures to achieve them, including the strategy of their funding. The plans will be adopted by the Government of the Czech Republic and subsequently reported to the European Commission. The current "river basin district management plans" will be transformed to "sub-basin management plans" (see figure 11.1.1). In ten sub-basin management plans, at the level of river basin administrators and regional authorities reviews and updates wil be carried out for the individual measures. In the national river basin management plans they will be used for compiling and complementing of measures to the programmes for their implementation. In contrast to the original river basin district management plans there will be produced two more separate sub-basin plans, namely the Lužická Nisa River sub-basin management plan (formerly included in the Elbe River basin district) and sub-basin management plan for other Danube River tributaries (formerly included in the Berounka River and the Upper Vltava basin district). The basis for the above mentioned three national plans of parts of the international river basin districts will be the ten sub-basin management plans which will replace the existing eight river basin district management plans.

Protective port in České Vrbné

Figure 11.1.1

Map of 10 sub-basins and their grouping into national parts of the international Elbe River, the Oder River and the Danube River basin districts (including borders between the regions)



Source: MoA

The next significant part of water management planning since 2010 has been the implementation of the Directive 2007/60/EC of the European Parliament and of the Council, on the assessment and management of flood risks. This so-called "Flood Directive" establishes the processes and forms of assessing flood hazards and flood risks for selected territories and preparing flood risk management plans in a six-year cycle identical to the river basin management planning cycle. Their preparation and updates will proceed in mutual coordination.

In connection with the amendments to water management planning under the Water Act, two implementing regulations were newly issued:

- Decree No. 393/2010 Coll., on river basin districts, which became effective on 1 January 2011 and newly defines parts of the international river basin districts on the territory of the Czech Republic with ten river sub-basins (it replaced Decree No. 292/2002 Coll., on river basin districts, as amended by Decree No. 390/2004 Coll.)
- Decree No. 24/2011 Coll., on river basin management plans and flood risk management plans, which will become effective on 4 March 2011. This Decree establishes the content and method of preparing river basin management plans and newly defines the content and method of preparing flood risk management plans (it replaced Decree No. 142/2005 Coll., on water management planning).

The first steps in meeting the requirements of the Flood Directive include the designation of areas with significant flood risks before the end of 2011. The draft of these areas in the Czech Republic was available already in 2010. In addition, in 2010 the Methodology of preparing flood hazard maps and flood risk maps was issued in the MoE Journal No. 4. This means that in the designated areas with significant flood risks, where flood risk maps have to be completed by the end of 2013, river basin administrators with support from the Operational Programme Environment have already started to prepare these flood risk maps.

International cooperation in the field of meeting the requirements of the Flood Directive takes place through the Working Groups of the International Commissions for the Protection of the Elbe River, the Oder River and the Danube River, and also under two international projects LABEL and CEframe which receive financial support from the structural funds of the EU (ERDF).

The Javořička River in Bouzov

11.2 Development plans for water supply and sewerage systems

The National Development Plan for Water Supply and Sewerage Systems in the Czech Republic, prepared pursuant to Section 29, Subsection 1, Letter c) of the Act No. 274/2001 Coll., on public water supply and sewerage systems and on amendments to certain related laws, as amended, is placed on the website of the Ministry of Agriculture.

For the approved and effective Development Plans for Water Supply and Sewerage Systems in the Regions of the Czech Republic, the Ministry of Agriculture continued to issue statements on the proposed changes in the technical solutions for drinking water supply and waste water drainage and treatment.

In 2010, the Ministry of Agriculture issued 1,163 statements, which compared to the year 2009 represents the increase by 90%. The increase in the number of issued statements is clearly documented by the following figures: 302 statements in 2006, 423 statements in 2007, 597 statements in 2008 and 612 statements in 2009 were issued by the Ministry of Agriculture.

The National Development Plan for Water Supply and Sewerage Systems is a medium-term concept of the sector of water supply and sewerage systems for the period until the year 2015. It follows up with other strategic documents and departmental policy documents and also respects the requirements resulting from the relevant regulations of the European Communities.

The Regional Development Plans for Water Supply and Sewerage Systems are the basis for utilization of the European Community funds and national financial resources for construction and renewal of water supply and sewerage system infrastructure. Therefore, one of the obligations of each applicant requesting the provision of the state financial support is to document the compliance of the submitted technical and economic solution with the valid Regional Development Plan for Water Supply and Sewerage Systems.

The Regional Development Plans for Water Supply and Sewerage Systems are used by the Ministry of Agriculture, the Ministry of the Environment, the regional authorities, municipalities with extended authority (water authorities), municipalities, owners and operators of water supply and sewerage systems as well as by both specialists community and the general public.

The National Development Plan for Water Supply and Sewerage Systems together with the Regional Development Plans for Water Supply and Sewerage Systems express the concept of the Ministry of Agriculture. In relation to this fact a change is being prepared, through which these materials will become continually complemented medium-term plans.

11.3 Programmes and measures to reduce surface water pollution

The programme to reduce surface water pollution by hazardous substances and especially hazardous substances

The Programme to Reduce Surface Water Pollution by Hazardous Harmful Substances and Especially Hazardous Harmful Substances for the period 2010–2013 was adopted by the Czech Republic Government Resolution No. 226 of 22 March 2010. The requirement, based on which this programme was prepared, ensues from the Directive 2006/11/EC and to the Czech legislation there was transferred Section 38 Subsection 5 of the Water Act, giving the Czech Republic a possibility to adopt it. The new programme replaced the earlier Programme to Reduce Surface Water Pollution by Hazardous Harmful Substances and Especially Hazardous Harmful Substances, adopted by the Czech Republic Government Resolution No. 339 of 14 April 2004.

The new adopted programme is valid for the entire territory of the Czech Republic for the period 2010–2013. Similarly to the programme for the previous period, it summarizes current findings concerning the implemented monitoring programmes for surface waters in accordance with the Directive 2000/60/EC requirements and with the current development of the legislative and subordinate instruments in the area concerned. The programme is intended for:

- water authorities to use it in issuing decisions in water right proceedings and in adopting additional measures to reduce surface water contamination by hazardous harmful substances and especially hazardous harmful substances,
- the Czech Environmental Inspection to use it in planning and carrying out audit activities in this area,
- organizations using hazardous harmful substances and especially hazardous harmful substances as the programme summarizes various existing restrictive measures and restrictive measures being prepared in relation to the individual substances, deadlines for their fulfilment and trends in the area of restricting the use of these substances.

The programme is divided into several chapters and annexes. It also includes programmes prepared for the individual priority substances and some pollutants under the Directive 2008/105/EC, having a direct link to reducing pollution of the aquatic environment and assessing the chemical status of waters. With regard to the fact that the transfer of pollution based on the physical properties and method of use of selected hazardous substances is not limited only to direct discharges to the aquatic environment, also measures in other areas (chemical substances, air, wastes, agriculture, building industry, transport) are mentioned. The programme comprises the following parts:

Part A:	Basic characteristics,
Part B:	National list of hazardous substances relevant to the hydrosphere of the Czech Republic,
Part C:	Setting environmental quality standards and emission standards,
Part D:	Characterization of the monitoring programmes in the Czech Republic,
Part E:	Legislative instruments to reduce emissions of hazardous harmful substances under the Water Act,
Part F:	Voluntary instruments to reduce emissions of hazardous harmful substances under the Water Act,
Part G:	Programmes for individual priority substances and certain pollutants.

Construction projects for water quality protection completed in 2010

As regards the most important projects relating to the sources of pollution produced by the municipalities with the population of more than 2,000 PE, the following waste water treatment plants were completed in 2010:

New municipal waste water treatment plants (in total 77,903 PE): Litvínov (36,000 PE, N, DN), Vysoký újezd (4,560 PE, N, DN, chemical removal of phosphorus), Bystřice (4,000 PE, N, DN, chemical removal of phosphorus), Mikulčice (3,500 PE, N, DN), Horní and Dolní Čermná (3,200 PE, N, DN, chemical removal of phosphorus), Ledce (3,000 PE, N, DN, chemical removal of phosphorus), Tupadly (3,000 PE, N, DN, chemical removal of phosphorus), Štěpánkovice (2,950 PE, N, DN, chemical removal of phosphorus), Dolní Lhota (2,870 PE, N, DN, chemical removal of phosphorus), Mladá Vožice (2,750 PE, N, DN, chemical removal of phosphorus), Nový Knín (2,600 PE), Dolní Dobrouč (2,500 PE, N, DN, chemical removal of phosphorus), Lochovice (2,500 PE, N, DN, chemical removal of phosphorus), Vlčnov (2,439 PE, N, DN, chemical removal of phosphorus), Velká Dobrá (2,034 PE, N, DN, chemical removal of phosphorus).

Furthermore, the existing municipal waste water treatment plants were reconstructed or extended in 2010:

The existing municipal waste water treatment plants: Hradec Králové (141,700 PE, N, DN, chemical removal of phosphorus), Nový Bor (13,400 PE, N, DN, chemical removal of phosphorus), Dobříš (10,180 PE, N, DN), Rudná (9,200 PE, N, DN, chemical removal of phosphorus), Průhonice (8,320 PE, N, DN, chemical removal of phosphorus), Valašské Klobouky (8,000 PE, N, DN, chemical removal of phosphorus), Vizovice (8,000 PE, N, DN, chemical removal of phosphorus), Slušovice (7,600 PE, N, DN, chemical removal of phosphorus), Jesenice (7,500 PE, N, DN, chemical removal of phosphorus), Hulín (7,000 PE, N, DN), Postřelmov (6,300 PE, N, DN, chemical removal of phosphorus), Psáry – Stage II (6,000 PE, N, DN, chemical removal of phosphorus), Líně (5,475 PE, N, DN, chemical removal of phosphorus), Lázně Bělohrad (4,000 PE, N, DN, chemical removal of phosphorus), Nová Bystřice (4,000 PE, N, DN, chemical removal of phosphorus), Jevíčko (4,000 PE, N, DN), Jablonné v Podještědí (3,960 PE, N, DN), Břidličná (3,500 PE, N, DN, chemical removal of phosphorus), Újezd u Brna (3,400 PE, N, DN, chemical removal of phosphorus), Lužná (3,000 PE, N, DN), Mladá Vožice (2,750 PE, N, DN, chemical removal of phosphorus), Nové Hrady (2,400 PE, N, DN), Milín (2,300 PE, N, DN, chemical removal of phosphorus), Rokytnice v Orlických horách (2,250 PE, N, DN, chemical removal of phosphorus).

Action Programme under the Directive of the Council 91/676/EEC (so-called Nitrate Directive)

In 1991, Council Directive 91/676/EEC on the protection of waters against pollution caused by nitrates from agricultural sources, the so-called Nitrate Directive, was adopted. The transfer of the Nitrate Directive was implemented into the provisions of Section 33 of the Act No. 254/2001 Coll., on waters, as amended, where it is imposed on the government to set by order vulnerable areas and in these areas to regulate the use and storage of fertilizers and farmyard manure, crop rotation and implementation of erosion control measures.

Vulnerable areas represent the areas, where the contamination of groundwaters and surface waters by nitrates has already exceeded or might exceed the set limit of nitrate concentration in amount of 50 mg/l. Vulnerable areas are subject to review within four years from their promulgation. So far the latest review of vulnerable areas was promulgated through the amendment to the Government Order No. 219/2007 Coll., with effect from 1 September 2007.

The Action Programme which is prepared each time for the period of four years, represents mandatory methods of management in the defined vulnerable areas which are aimed at reducing the risk of nitrogen leaching into surface waters and groundwaters. Through the amendment to the Government Order No. 103/2003 Coll., the so-called Action Programme II (Government Order No. 108/2008 Coll.) with effect from 4 April 2008 was promulgated. User relation-based Land Use Register brings information for farmers on measures which the farmer should comply with within the specific land block. The Action Programme is the most effective system of measures in the implementation of the Nitrate Directive.

The general measures of the Action Programme in the Czech Republic which is produced in compliance with Annex III to the Nitrate Directive, include:

The Morava River – Osypané břehy in Strážnické Pomoraví

1. Period when the use of certain types of fertilizers and farmyard manure is prohibited.
2. Specification of the minimum capacity of farmyard manure storage facilities allowing to store farmyard manure during the period when manuring is prohibited (in the Czech Republic, this is based on general legal regulations; from the year 2014 on, the required capacity of farmyard manure storage facilities will have to be large enough for six-month production).
3. Reduction of the application of fertilizers and farmyard manure, corresponding to the principles of proper farming with regard to the soil and climate conditions (soil class and type, land slope, temperatures, precipitation). The establishment of maximum fertilization limits for the individual crops.
4. Methods of land use and management on sloping, waterlogged, flooded and frozen land and in the vicinity of waters.

The measures included in the Action Programme must guarantee that the quantity of farmyard manure together with organic and organic-mineral fertilizers applied in any farming establishment in a vulnerable area wil not exceed on average the limit of 170 kg nitrogen per hectare per year.

The legislative changes included in the amendment to the Government Order No. 108/2008 Coll. raise a requirement to increase the capacity of the existing farmyard manure storage facilities to be large enough for six-month production during the transitional period, i.e. until the end of 2013.

In 2010, based on the Government Resolution, update of the Nitrate Directive Implementation Funding Strategy with estimated total investment costs (Financing Strategy for the Nitrate Directive) was submitted and adopted. Compared to the estimate of 2008, the costs were reduced by approx. 40%. Due to realized investment costs of construction of storage facilities under the Development Plan for Water Supply Systems for the period 2007–2013, this cost reduction has no impact on the quality of investments and their effect on the environment.

11.4 WATER INFORMATION SYSTEM of the Czech Republic

In 2010, the Ministry of Agriculture and the Ministry of the Environment continued to implement the interdepartmental project called Public Administration Information System – WATER, which was officially launched in 2005. The main objective of this interdepartmental project remains the effort to provide to the specialists community and the general public sufficient volume of credible and relevant information on waters for decision-making, education and general awareness, if possible in a unified and effective way and in one place, irrespective of the division of competences in water management between different departments. Only this chosen approach allows the state administration and local governments, including the general public, to use and share the state-guaranteed data on water management and eliminate duplicate costs of acquiring the same data by different departments.

The project implementation under the authority of the Ministry of Agriculture was originally scheduled for the years 2005–2010. In 2008, the timely provision of inputs for technical implementation beyond the scope of the scheduled assignments allowed to shorten the total implementation period of the project and the project tasks under the authority of the Ministry of Agriculture thus were completed in mid 2009, without any change of the total project price. In 2010, the project evaluation was completed and under way was the preparation for the project phase II, under the authority of the Ministry of Agriculture, which is scheduled for the years 2011–2015. The obligation for the Ministry of Agriculture to run and keep the public administration information system for selected registers in the area of water management ensues from Section 22, Subsection 3 of the Water Act (Act No. 254/2001 Coll., on waters and on amendments to some laws).

During the phase I of the project of Public Administration Information System–WATER (2005–2009) under the authority of the Ministry of Agriculture, a success was achieved in implementing the requirements of legal norms prescribing data contents to all levels, i.e. from the data production to their presentation or provision to other departments. There was created a functional public administration information system, through which data from the individual competent bodies are standardly published and updated, clearly and in one place (www.voda.gov.cz). It is a distributed (decentralized) information system, where all data are presented by means of operational information systems of competent bodies which are authors of the data and bear full responsibility for them. This means that it is not a centralized system, where data is replicated to a central location from where a uniform presentation takes place. Basically it is a system of sub-applications that use central services of the access portal which acts as a signpost to the individual data bases. The role of the individual departments is strictly coordinating, and the executive part is delegated to the competent bodies (in the case of the Ministry of Agriculture these are especially watercourse administrators, namely River Boards, s. e., the Forests of the Czech Republic and the Agricultural Water Management Administration). Given the

The Vltava River in Prague

very limited amount of financial resources, in the stage I under the authority of the Ministry of Agriculture, emphasis was placed on the legal and factual nature of the processes and the technical solution was limited to the first functional implementation. The resulting technical solution can rather be characterized as a prototype of the future portal. The extent and nature of the provided data and information is now limited just by the technical properties of the communication interface of the system.

In 2010, the project plan for phase II of the project of Public Administration Information System–WATER (2011–2015) under the authority of the Ministry of Agriculture was approved. For the period of phase II of the project it is proposed to complement especially its communication, presentation and and integration features so that it is possible to make the most of the information and data content. With regard to the distributed architecture the Public Administration Information System–WATER is ensured mainly through operational information systems of competent bodies which are the authors of the River Basin Information System (ISyPo). Thanks to the coordinating efforts of the Ministry of Agriculture, a high degree of compatibility and unification between these systems of the individual river basin administrators has been ensured. Now, it is desirable that these systems, which constitute the supporting part of the entire water management information architecture, are from the formal and technical viewpoints gradually united and certified as fully fledged parts of the state administration information system.

Similarly to the previous year 2009, the extended Water Management Information Portal website included four basic folders as follows:

- Current Information,
- Public Administration Information System Records,
- Planning in the Field of Waters,
- The Project of Public Administration Information System – WATER.

Following a detailed evaluation of phase I of the project of Public Administration Information System–WATER under the authority of the Ministry of Agriculture, which was conducted in 2010, it can be stated that all objectives set in relation to the implementation of phase I of the project were met and all project tasks have been fulfilled. The most important benefit for users of the Water Management Information Portal – WATER is the so-called "current informatik", clearly presenting on-line water levels and flows on watercourses, precipitation totals in the last 24 hours, the manipulation on water management structures administered by River Boards, s. e., etc. In 2010, the functionalities of the application "Water levels and flows" were extended, which contributed to a better presentation and information, not only during flood situations. As part of this application. FAD III was extended for the status of extreme danger which points out a possible formation of larger damage and immediate threat to lives and property in flood plain areas. This status is automatically displayed when Q50 in the given profile is reached. This is only an informative communication of a certain status which has no further links to the legislation. In addition, a table of data from the limnigraphic stations (identification data on the limnigraphic station) was extended for data on the three largest floods recorded in the given profile and for flow values of the specific floods (Q1, Q2, Q5, Q10, Q20, Q50, Q100), which in the event of their reaching are simultaneously displayed with the individual values presented in the table with an overview of the current flows. Furthermore, links to the individual Registration Sheets for measured profiles were complemented in this application.

As regards the "Public Administration Information System Records" folder, the key part of Stage I work under the authority of the Ministry of Agriculture concerned primarily building up the Central Watercourse Register (CEVT). The watercourse layer of the Central Watercourse Register is the basic structural and linking register of the Public Administration Information System – WATER and is used for other territorial links of the effects in other registers and for the subsequent update of watercourse layers in the related public administration information systems. A significant step was the start of work on the Central Watercourse Register layer, where the individual watercourse administrators (i.e. River Boards, s. e., the Forests of the Czech Republic and the Agricultural Water Management Administration) present watercourse axes on a scale of 1:10 000, including administration. As regards the "Planning in the Field of Waters" folder, available are River Basin District Management Plans, which were prepared by the relevant River Boards, s. e. in cooperation with the respective regional authorities and in cooperation with the central water authorities for eight river basin districts. The main outputs produced by river basin district management plans (status assessment for surface water and groundwater bodies and measures designed to achieve the objectives specified in the plans) can be found in the folder "Interactive Map", where the tasks for surface waters and groundwaters are prepared. Furthermore, the specific information on individual water bodies and measures are available.

Within the framework of the interdepartmental project of the Public Administration Information System – WATER, the Ministry of the Environment is authorized to keep 11 registers informing about the status of surface waters and groundwaters in the Czech Republic (the work is carried out by the T. G. Masaryk Water Management Research Institute, public research institution) and to keep 4 registers relating to the quantity and quality of surface waters and groundwaters (the work is carried out by the Czech Hydrometeorological Institute in cooperation with the River Boards, s. e. and the Agricultural Water Management Administration).

In 2010, the authorized organizations ensured the keeping and routine storage of data in the respective registers informing on the status, quantity and quality of surface waters and groundwaters. In the first quarter of 2010, data in the "Register of Status of Water Bodies", the "Register of the Ecological Potential of Heavily Modified and Artificial Water Bodies" and the "Register of Water Bodies Including Heavily Modified and Artificial Water Bodies" were updated. Partly updated were the data in the "Register of Watercourse Protection Zones", based on request of the individual organizations concerned (not general update).

A new version of the "Register of Groundwater Zones", prepared in 2006, established through the notification by the Department of Water Protection in the Journal of the Ministry of the Environment (Volume XIX, Chapter 12. Ministry of the Environment, Prague, December 2009), with the legal effect from 1 January 2010, was made available to the public on the Public Administration Information System – WATER portal.

As regards the "Register of Flood Plain Areas", periodical update of the database based on the available source data was under way also in 2010.

Other registers, within the framework of the Public Administration Information System – WATER kept by the Ministry of the Environment, are up-to-date for the year 2010.

The respective applications continue to be made available to the public on the Water Management Information Portal – WATER on the website www.voda.gov.cz, which has a logo (symbol of drops upside down) in the national colours.

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

11.5 Czech Republic´s reporting to the EU

The reporting pursuant to the Council Directive 91/271/EEC, concerning urban waste water treatment

The main objective of the EU policy is to achieve good ecological status on the territories of Member States by 2015. The achievement of this objective requires fulfilment of the tasks set by a number of Directives in the area of water quality. One of the main Directives in this respect is the Council Directive 91/271/EEC of 21 May 1991, on urban waste water treatment. The Directive regulates collection, treatment and discharges of urban waste waters and waste waters from certain industrial sectors, and its aim is the protection of the environment against unfavourable effects of such discharges.

Member States are obliged every two years to publish a report on urban waste water treatment and sludge disposal and submit it to the European Commission which supervises the application of the Directive requirements. In the case of failing to meet the conditions of the Directive the European Commission may commence a so-called "proceeding on failing to fulfil the obligations", and the Member State in breach of legal regulations may be imposed a fine.

The above mentioned data for the years 2007 and 2008 were submitted to the WISE through the ReportNet infrastructure as at the date of 1 June 2009.

The reporting pursuant to the Council Directive 76/160/EEC, concerning the quality of bathing water

The report on the implementation of the Council Directive 76/160/EEC of 8 December 1975, concerning the quality of bathing water (under the authority of the Ministry of Health), was prepared still in accordance with the above mentioned Directive which, however, was substituted in 2006 by the new Directive 2006/7/EC, concerning the management of bathing water quality). The report on the quality of water used for bathing of persons and its most important characteristics for the recreational season 2010 was submitted to the European Commission in December 2010. On a yearly basis, the report after the processing of the results is placed on the portal of the European Commission http://ec.europa.eu/water/water-bathing/index_en.html.

In the Czech Republic, recreational waters used for open air bathing of persons are divided into open air bathing pools and surface waters used for bathing of persons (so-called bathing areas).

The most frequent problems of water quality are associated with the mass presence of cyanobacteria, which at certain bathing sites led to the prohibition of bathing. In the bathing season 2010, due to excessive presence of cyanobacteria, bathing was prohibited at 16 bathing sites in the Czech Republic (of that 3 open air bathing pools and 13 bathing areas). As the limit values for the "cyanobacteria" indicator, the Czech Republic accepted the recommendation of the World Health Organization (WHO), i.e. three-level assessment of water quality, with ban on bathing issued in case that the presence of water bloom is visually detected.

During the 2010 bathing season, no ban was put on bathing for the reason of unsatisfactory microbiological quality of water.

The Stonávka River in Komorní Lhotka

Aneta Heidrová – 10 years
Kravaře – Kouty basic school, Moravskoslezský kraj region

12. International cooperation in the field of water protection

12.1 Cooperation within UN ECE

The Czech Republic develops the principles of water protection and water management on the basis of hydrological catchment areas and groundwater zones crossing the state borders in accordance with the UN ECE Convention on Protection and Use of Transboundary Watercourses and International Lakes, and in accordance with the Water Framework Directive and other Directives of the European Community.

The cooperation within the framework of UN ECE covers most of the aspects of protection of the quality and quantity of waters. The Convention on Protection and Use of Transboundary Watercourses and International Lakes in its Article 9 assumes that the riparian states sharing the same waters shall enter into bilateral or multilateral agreements or other arrangements, which is met by the cooperation of the Czech Republic within transboundary waters and integrated river basins. Thanks to the Protocol on Water and Health having become effective, this cooperation also includes the aspect of the population health protection against diseases transmitted by water.

Convention on Protection and Use of Transboundary Watercourses and International Lakes

The Czech Republic has been a party to the UN ECE Convention on Protection and Use of Transboundary Watercourses and International Lakes („Convention on Water") since May 2000 and the Czech experts participate in activities relating to the fields of integrated management of water resources and water ecosystems, monitoring and assessment of water status, flood control, adaptation to climate change, protection of waters against accidental pollution from industrial sources, support for international cooperation on transboundary watercourses and in integrated international river basins as well as to the field of water and human health.

In 2010, the activities within the UN ECE Convention focused especially on a preparation of the 7th ministerial conference The Environment for Europe, which will take place on 21 – 23 September 2011 in Astana in Kazakhstan. Bureau of the UN ECE Convention on Water together with the UN ECE Committee for Environmental Policy dealt with the conference topics, which are sustainable management of waters and the related ecosystems, sustainable management of waters and greening of the economy – the inclusion of environmental considerations into economic development. Regarding these topics, the Bureau in cooperation with the Working Group on integrated water resources management prepared proposals of questions to be discussed by Ministers and worked on a draft basic document for the conference and on a list of future commitments for the states constituting Parties to the Conference. At this forum, there were also discussions on further steps to be taken in the joint group for water and accidents, whose focus needs to be more oriented at water related problems. Based on a mandate of the 5th Meeting of the Parties to the UN ECE Convention on Water the group for legal issues started to prepare a document concerning the support mechanism for the implementation of the Convention on Water and monitoring of the implementation. Working Group for monitoring and assessment dealt with a preparation of "The Second Assessment of Status of Transboundary Watercourses, International Lakes and Groundwaters", which will be presented at the ministerial conference in Astana.

Hydraulic structure Vranov

Protocol on Water and Health

Within the UN ECE Convention, a new convention document was produced with focus on the connection between water and human health – the Protocol on Water and Health. The Czech Republic has been a party to the Protocol since 2001. The Protocol entered into force in 2005. In 2010, the documents related to the setting of the Protocol objectives and control mechanisms were completed, exchange of experience in monitoring the occurrence of diseases transmitted by water continued, parties to the Convention dealt with problems of quality of bathing waters and waters from small sources, which are also associated with the communication with the public. In 2010, a preparation of the document Water Supply and Drainage in Extreme Weather Events was completed and the document was presented at the 5th Ministerial Conference "Health and the Environment" in Parma in 2010.

A significant event in 2010 was the 2nd Meeting of the Parties to the Protocol on Water and Health which took place on 23 – 25 November in Bucharest. At the meeting, the implementation of the Protocol in the individual Parties to the Protocol and the related national reports and the overall report were discussed, and further steps in terms of reporting and assessing compliance with the objectives were agreed. The participants were made acquainted with the progress achieved and outputs produced in the working groups, and they approved drafts of the documents and the work programme for the period 2011–2013.

In more detail, the information on the UN ECE Convention and the Protocol is available on the website www.unece.org/env/water.

12.2 International cooperation in the field of water protection in the integrated Elbe River, Danube River and Oder River Basins

Modern water protection principles, based on the hydrological basins of large transboundary rivers, started to be applied in the Czech Republic in 1990 through launching cooperation in protection of the Elbe according to the Agreement on the International Commission for Protection of the Elbe. At that time, also the Agreement on the International Commission for Protection of the Oder River against Pollution started to be prepared, later followed by a preparation of the Convention on Cooperation for Protection and Sustainable Use of the Danube River.

International cooperation in protection of the main river basins in the Czech Republic primarily focuses, through international commissions for protection of the Elbe, the Danube River and the Oder River, on:

- reducing the pollutant load on the Elbe, the Danube River and the Oder River,
- striving to achieve an ecosystem that is as close as possible to natural condition with a healthy diversity of species,
- allowing the use of water, especially the provision of drinking water from bank infiltration and the agricultural use of water and sediments,
- reducing pollution in the North Sea from the Elbe River Basin, in the Black Sea from the Danube River Basin and in the Baltic Sea from the Oder River Basin,
- flood control,
- coordinated implementation of Directive 2000/60/EC of the European Parliament and of the Council, establishing a framework for Community action in the field of water policy in integrated river basins.

Agreement on the International Commission for Protection of the Elbe

The International Commission for Protection of the Elbe is the most important board of the Czech-German cooperation in the field of water protection in the Elbe River Basin. Its activity is focused on reducing the pollution of the Elbe and its tributaries, improving the status of water-related ecosystems, the programmes of water quality measuring and monitoring, the prevention of acciental pollutin and in the recent years especially on the coordinated approach to fulfilling the requirements of the so-called Water Framework Directive and improving flood control measures through the coordinated approach to fulfilling the requirements of the EC Directive on the assessment and management of flood risks (the Flood Directive).

Since 1988, the International Commission for Protection of the Elbe participates in preparing and implementing the Magdeburg Workshop on protection of waters which is the most significant international expert and scientific event in the field of water protection in the Elbe River Basin. On 4 – 6 October 2010, the 14th meeting of the Magdeburg Workshop took place in Teplice, attended by nearly 300 experts from the Czech Republic, Germany, Poland, Austria and Slovakia. The Workshop programme focused, in particular, on:

- the impacts of climate change on water regime, including adaptation measures,
- problems of lakes created after finished coal mining and their impacts on the landscape water regime,
- administration of river basins with a focus on hydromorphological aspects.

The International Commission for Protection of the Elbe in its 23rd session which took place in Dresden from 7 October to 8 October 2010, discussed an overview of tasks according to the so-called Water Framework Directive and the daughter Directive on environmental quality standards for the years 2010–2015. In addition, the International Programme of the Elbe Monitoring 2011 was approved. The Internatinal Commission

The Haná River – beavers spree

for Protection of the Elbe was informed on the progress of work in implementing the Flood Directive and asked the Working Group "Flood Control" to prepare the hydrological assessment of floods which occurred in August and September 2010 in the Elbe River Basin. Working Group "Accidental Water Pollution" informed about the status of preparation of a stable accident profile of the Elbe and about the progress in ensuring its funding. The issues of tracing experiments needed to extend the Elbe Alert Model for the Vltava River and the Saale River were dicussed.

Following the 23rd meeting of the International Commission for Protection of the Elbe (ICPE), an event to celebrate the 20th anniversary of the establishment of ICPE took place. At a press conference, final report on the Action Programme for the Elbe 1996–2010 was presented. Within the ICPE, preparations for passing the Presidency to the Czech party proceeded in 2010.

In more detail, the information on the activities of the International Commission for Protection of the Elbe is available on the website www.ikse-mkol.org.

Convention on Cooperation for Protection and Sustainable Use of the Danube River

On 16 February 2010, a Ministerial Conference organized by the International Commission for Protection of the Danube River took place in Vienna, with the aim to approve the International Danube River Basin Management Plans which together with the national plans was subsequently forwarded to the European Commission, and Flood Control Plans for 17 sub-basins within the Danube River Basin. The Danube River Basin Management Plan is available at www.icpdr.org/participate. In April 2010, the International Commission for Protection of the Danube River organized a workshop on the theme of its further focus in the future (after the completion of the International Danube River Basin District Management Plan).

The 13th session of the International Commission for Protection of the Danube River took place from 9 December to 10 December 2010 in Vienna under the presidency of Slovenia. The session was attended by the delegations of parties to the Convention on Cooperation and Sustainable Use of the Danube River (the EU, eight Member States of the EU and six Non-Member States of the EU), chairmen of the individual expert groups, representatives of observer organizations and the Commission Secretariat staff members. The International Commission for Protection of the Danube River approved the auditors´ report for the previous period, the budget and the membership fees for the next period. The Commission discussed the work of the individual expert groups aimed especially at the fulfilment of the so-called Water Framework Directive requirements. The activities relating to flood control and coordination of preparing the implementation of the Directive on the assessment and management of flood risks (2007/60/EC) were presented. The issues of financing audits of the laboratories and intercalibration exercises within the entire Danube River Basin were discussed. The International Commission for Protection of the Danube River also discussed the issues of its involvement in the Danube Strategy, where it is interested in the involvement in the points concerning water quality, accident prevention and biodiversity. The delegation of Hungary presented the information on the chemical accident in the aluminium processing facility Ajka Aluminium Company in October 2010, the impacts of this accident and the adopted measures.

In 2010, the general public in all Danube countries already for the seventh time celebrated the Danube Day on 29 June – the day of signing the Convention on Cooperation for Protection and Sustainable Use of the Danube River. These festivities include the international competition in arts called "Young Artists for the Danube River". Celebrations in the Czech part of the Morava River Basin are organized by the Union for the Morava River in cooperation with the Ministry of the Environment, the Ministry of Agriculture and the Morava River Board, s. e.

The revitalization of the Černý stream in Vesec u Jičína

In more detail, the information on the activities of the International Commission for Protection of the Danube River is available on the website www.icpdr.org.

Agreement on the International Commission for Protection of the Oder River against Pollution

The Agreement on the International Commission for Protection of the Oder River against Pollution is implemented through the International Commission for Protection of the Oder River against Pollution. Its activity in the year 2010 was discussed at the 13th plenary session of the International Commission for Protection of the Oder River against Pollution, held from 7 December to 8 December 2010 in Wroclaw. The reports presented at this session included reports on the activities of the individual working groups aimed primarily at compiling the work plan for the Commission for Protection of the Oder River aginst Pollution and the task schedule for the period 2010–2015, compiling the information on the purpose and the way of use of modelling nutrients in the watercourses for the work of the Commission (model Moneris), steps for putting into operation the Geoportal of the Commission for Protection of the Oder River aginst Pollution, preparing the concept of implementation of the Flood Directive in the International Oder River Basin District, update of Emergency Plan including the International Warning and Alert Plan for the Oder River, work to produce a map of potential sources of accidental pollution and performance of international accident exercises in the field.

In 2010, the latest party to the Convention (The Federal Republic of Germany) ratified the Agreement on Amendment to the Agreement on the International Commission for Protection of the Oder River against Pollution, which was effected with regard to the resignation of the European Community from the Agreement on the International Commission for Protection of the Oder River against Pollution.

Detailed information on the activities of the International Commission for Protection of the Oder River against Pollution is available on the website www.mkoo.pl.

12.3 International cooperation on transboundary waters

The total length of the state border of the Czech Republic with the neighbouring states is 2.290 km, of which 738 km are known as the wet line, i.e. that more than 30% of the state border are constituted by watercourses and water bodies. Border reaching waters are not only segments of watercourses or of their main branches that constitute or cross the state border, but also surface waters and groundwaters in the vicinity of the state border, where the water management measures implemented on the territory of one party would substantially affect water management conditions on the territory of the other party. Cooperation of the Czech Republic on transboundary waters with the Polish Republic, the Austrian Republic, the Slovak Republic and the Federal Republic of Germany is regulated by bilateral international or intergovernmental agreements. The fulfilment of these agreements is being ensured by bilateral committees for water management issues on transboundary waters, or by the authorized government representatives appointed for water management issues with the neighbouring states. Cooperation on transboundary waters especially focuses on:

- ensuring the stability of the state border in segments which are constituted by border reaching watercourses,
- regulation and maintenance of border reaching watercourses including construction and operation of structures on these watercourses, water supply and amelioration of border reaching territories,
- ensuring the access to water from both sides of the border,
- the protection of transboundary waters against pollution (including the respective monitoring, joint monitoring of the quality of transboundary waters, exchange of data and organization of warning and alert service in case of emergency),
- hydrology and flood warning service (including monitoring, joint measurements, exchange of data and organization of warning and alert service in case of emergency),
- water management planning and balancing on transboundary waters – proposals for coordinated use of transboundary waters,
- protection of water resources for water supply,
- water right proceedings regarding transboundary waters,
- cooperation in matters of the state border administration on transboundary watercourses,
- protection of aquatic and littoral habitats.

Agreement between the Czech Republic and the Federal Republic of Germany on Cooperation on Transboundary Waters in the Field of Water Management

Cooperation in the field of water management is regulated by the "Agreement between the Czech Republic and the Federal Republic of Germany on Cooperation on Transboundary Waters in the Field of Water Management", which was signed on 12 December 1995 and became effective on 25 October 1997. The fulfilment of the Agreement with the Federal Republic of Germany takes places through the Czech-German Commission for Transboundary Waters.

The 13th session of the Czech-German Commission for Transboundary Waters was held in Plzeň in the Czech Republic from 21 October to 22 October 2010. The purpose of this session was to discuss and approve the results of the 12th session of the Standing Committee Bavaria (on 21 – 23 April 2010 in Deggendorf in the Federal Republic of Germany) and the 12th session of the Standing Committee Saxony (on 8 – 10 June 2010 in Karlštejn in the Czech Republic).

The Czech-German Commission for Transboundary Waters further discussed other relevant issues of cooperation on transboundary waters, concerning especially the principles for direct cooperation of the relevant authorities and expert workplaces, Lists of Transboundary Waters, points of cooperation with the Standing Czech-German Border Commission and implementation of the so-called Water Framework Directive on transboundary waters.

The next, 14th session of the Czech-German Commission for Transboundary Waters is scheduled for 21 – 22 October 2011 to take place in Dresden in the Federal Republic of Germany.

The results of the meeting are included in the Protocol on the 12th meeting of the Czech-German Commission for Transboundary Waters, which in the end of the meeting was signed by both representatives of the Parties, submitted to heads of the departments concerned for their standpoint and approved by the Minister of the Environment.

Agreement between the Czechoslovak Socialist Republic and the Republic of Austria on Regulation of Water Management Issues on Transboundary Waters

The 18th session of the Czech-Austrian Commission for Transboundary Waters took place in Nové Hrady in the Czech Republic from 7 June to 11 June 2010. The purpose of this session of the Czech-Austrian Commission for Transboundary Waters

was to discuss the individual areas of mutual cooperation in water management on transboundary waters in accordance with the "Agreement between the Czechoslovak Socialist Republic and the Republic of Austria on Regulation of Water Management Issues on Transboundary Waters" of 7 December 1967 and effective as of 18 March 1970. During its 18th session the Czech-Austrian Commission for Transboundary Waters discussed the matters relating to regulation and maintaining of transboundary watercourses, international approvals of construction work and final accounts of works on transboundary waters, maintaining the purity of transboundary waters, hydrology, navigation issues, border issues, water management studies and planning. The next, 19th Session of the Czech-Austrian Commission for Transboundary Waters will be held from 14 June to 17 June 2011 in St. Lorenz/Mondsee in Austria.

The result of the meeting is included in the Protocol on the 18th meeting of the Czech-Austrian Commission for Transboundary Waters, which was subjected to interdepartmental discussion and approved by the Minister of the Environment.

Agreement between the Government of the Czech Republic and the Government of the Slovak Republic on Cooperation on Transboundary Waters

The 10th session of the Czech-Slovak Commission for Transboundary Waters, established on the basis of the "Agreement between the Government of the Czech Republic and the Government of the Slovak Republic on Cooperation on Transboundary Waters" that was signed and became effective on 16 December 1999, was held in Prague in the Czech Republic from 25 May to 27 May 2010. During its 10th session, the Czech-Slovak Commission for Transboundary Waters discussed the matters relating to regulation and maintaining of transboundary watercourses, international approvals of construction work and final accounts of works on transboundary waters, maintaining the purity of transboundary waters, hydrology, navigation issues, border issues, water management studies and planning. In its 10th session the Czech-Slovak Commission for Transboundary Waters approved the reports on working groups´ activities for the year 2009 and the plans of work for the year 2010. The next, 11th session of the Czech-Slovak Commission for Transboundary Waters is scheduled for 18 May to 20 May 2011 in Oščadnica in the Slovak Republic.

The result of the meeting is included in the Protocol on the 10th meeting of the Czech-Slovak Commission for Transboundary Waters, which was subjected to interdepartmental discussion and approved by the Minister of the Environment.

Convention between the Government of the Czechoslovak Republic and the Government of the People´s Republic of Poland on Water Management on Transboundary Waters

The 12th meeting of the representatives of the Governments of the Czech Republic and the Republic of Poland for cooperation in the field of water management on transboundary waters took place at Brunów in the Polish Republic from 8 November to 10 November 2010. During this meeting, the results of activities of the individual joint working groups for the period from the 11th meeting of the government representatives were discussed and approved. The work was focused on planning of water management on transboundary waters, cooperation in the field of hydrology, hydrogeology and flood control, regulations of boundary and transboundary watercourses, water supply and land improvements in border areas, protection of transboundary watercourses against pollution, issues of the implementation of the so-called Water Framework Directive on the Czech-Polish transboundary waters and measures implemented on transboundary watercourses to stabilize the state border. The individual working groups were assigned tasks in the respective fields of cooperation and work plans for the next period were approved. The matters discussed included, among others, the issues of implementation of the Danube River-the Oder River-the Elbe River corridor, the progress of work for flood control measures for the town of Bohumín and reducing flood risks to the Upper Opava River by means of the Nové Heřminovy water reservoir, mutual exchange of hydrometeorological data and cooperation of warning systems, the works and projects executed to regulate transboundary watercourses and other water management measures carried out on these watercourses and the assessment of water quality monitoring. Furthermore, the matters discussed included the issues of the scheduled Ratiboř water reservoir and the Kopytov stage, joint monitoring in the area of Police nad Metují-Kudowa zdroj, Adršpach-Krzesów and the Stěnava River Basin and the issues of the impact of Turów mine operations on surface waters and groundwaters. The next, 13th meeting of the representatives of the governments of the Czech Republic and the Polish Republic is scheduled for 8 – 10 November 2011 in the Czech Republic.

Conclusions from the meeting of the government representatives are included in the Protocol on the 12th meeting, which was signed by both government representatives, subjected to interdepartmental discussion and approved by the Minister of the Environment.

Hydraulic structure on the Olešná River in Frýdek-Místek

Kateřina Bazgietová – 10 years
Jablunkov basic school, Moravskoslezský kraj region

13. Research and development in water management

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

In 2010, the Ministry of Agriculture provided special-purpose funding for research and development projects in the field of water management in the amount exceeding CZK 56 million.

In 2010, the funds to support water management R&D amounted in total to CZK 56,157 thousand. The R&D projects launched in 2007 were funded by the amount of CZK 5,424 thousand, the R&D projects launched in 2008 were granted support amounting to CZK 30,332 thousand and the R&D projects launched in 2009 were granted support amounting to CZK 18,566 thousand. In 2010, one new R&D project tackling the issues of water management was launched and was granted support amounting to CZK 1,835 thousand. R&D projects are primarily aimed at soil and water protection in sustainable development of the agricultural sector, landscaping, revitalization and protection of cultural landscape, forests and water bodies, rationalization of water management and tackling the impacts of climate change.

An overview of the individual R&D projects in progress is shown in a summarized form in table 13.1.1. Publicly accessible data on these projects are available on the website of the Council for Research, Development and Innovations at www.vyzkum.cz in the section Information System R&D&I (the Central Register of R&D Projects). The information on the results of the R&D projects is also available on the same website in the Information Register of R&D Results. Other information on the research and development in the field of water management can also be found on the website of the National Agency for Agricultural Research with the Ministry of Agriculture at www.nazv.cz in the Infobanka section.

Water management R&D projects resulted from public tenders called under the research programmes of the Ministry of Agriculture, namely the Programme of Research in Agricultural Sector 2007–2012 and the Research in Agricultural Complex 2009–2014. They also include sub-programmes, research trends or objectives relating to water management issues.

The Programme of Research in Agricultural Sector 2007–2012 includes the sub-programme Effective Approaches in Agricultural Sector, where one of the research trends is the Sustainability and Enhancement of Water Resources and Reducing the Impacts of Climate Change. One of the research trends under the sub-programme Effective and Friendly Management Practices is the research trend Interactions between Water, Soil and Environment.

The programme of Research in Agricultural Complex 2009–2014 includes the sub-programme Rural Development through Sustainable Management of Natural Resources, where one of the objectives of this sub-programme is to develop water management practices with regard to assumed climate change risks and to innovate waste water treatment techniques.

In 2010, the Research Institute for Soil and Water Reclamation, public research institution continued to conduct the work under research scheme No. MZE0002704902, Integrated Systems of Soil, Water and Landscape Protection and Use in Agriculture and Rural Development. Under this scheme, the chapters relating to water management received support in the amount of CZK 17,528 thousand.

Table 13.1.1

Research and development projects in the field of water management financed from the budget chapter of the Ministry of Agriculture in 2010

project No.	name of the project	from - to	coordinator	funds (thousands of CZK)
QH71015	Minimization of risks of the occurrence of cyanobacteria metabolites in technological processes in fishing sector	1 May 2007 31 December 2011	Mendel University in Brno	1,865
QH71201	Reliability and safety of water management structures in changing climate conditions	1 May 2007 31 December 2011	Czech Technical University in Prague	1,354
QH72085	Differentiation of erosion control measures according to soil erodibility and rain erosivity	1 May 2007 31 December 2011	Czech Agricultural University in Prague	1,170
QH72203	Proposal of support for appropriate agricultural technologies and definition of indicators for the assessment of ecological and retention functions of soils and landscape	1 May 2007 10 December 2010	Institute for Agricultural Economics and Information	1,035
QH81012	The use of aeration technologies for the reduction of cyanobacteria resting phases and nutrient bioavailability in reservoir sediments	1 January 2008 31 December 2011	Institute of Botany of the Academy of Sciences of the Czech Republic, public research institution	1,692
QH81046	Optimization of the bio-manipulation effect of predatory fish in ecosystems of water reservoirs	1 January 2008 31December 2012	Biology Centre of the Academy of Sciences of the Czech Republic, public research institution	1,458
QH81170	Multidisciplinary evaluation of impacts of special territorial protection of hydrologically important areas in the Czech Republic	1 January 2008 31December 2012	Czech Agricultural University in Prague	1,596

13.

QH81200	Optimization of water regime in the landscape and increasing its retention capacity through application of compost from biologically degradable waste on arable land and permanent grassland	1 January 2008 31 December 2012	Research Institute of Agricultural Engineering, public research institution	2,045
QH81223	Proposals to increase reliability and safety of flood control dikes in changed climate conditions	1 January 2008 31 December 2010	Czech Technical University in Brno	883
QH81326	New cultivation technologies in potato production aimed at higher efficiency of fertilization and water protection	1 January 2008 31 December 2012	Potato Research Institute Havlíčkův Brod	1,299
QH81331	Research of adaptation measures to eliminate the impacts of climate change in the regions of the Czech Republic	1 January 2008 31 December 2012	T. G. Masaryk Water Management Research Institute, public research institution	1,520
QH82078	Water retention in floodplains and possibilities of its enhancing	1 January 2008 31 December 2011	Daphne CR – Institute of Applied Ecology	2,300
QH82083	Potential and limits of the use of river and fishpond sediments in agriculture	1 January 2008 31 December 2011	Research Institute for Soil and Water Reclamation, public research institution	1,552
QH82089	Non-production function of soils in the Czech Republic in relation to their production function, their assessment and their influence on soil, water and landscape protection	1 January 2008 31 December 2012	Research Institute for Soil and Water Reclamation, public research institution	760
QH82090	Changes in soil properties due to grassing, afforestation or in the long-term abandoned arable land, with impacts on soil, water and landscape protection	11 January 2008 31 December 2012	Research Institute for Soil and Water Reclamation, public research institution	760
QH82095	The impact of land use type location on runoff and wash loss of selected substances	1 January 2008 31 December 2012	Research Institute for Soil and Water Reclamation, public research institution	2,138
QH82096	Development of conceptual model for generation of groundwater vulnerability synthetic maps and its comparison with model DRASTIC	1 January 2008 31 December 2012	Research Institute for Soil and Water Reclamation, public research institution	2,453
QH82098	Analysis of changes in land use in source areas of agricultural area pollution using remote sensing data	1 January 2008 31 December 2011	Research Institute for Soil and Water Reclamation, public research institution	564
QH82106	Recultivation as a tool for landscape water regime function regeneration after opencast brown coal mining	1 January 2008 31 December 2012	University of South Bohemia in České Budějovice	1,738
QH82117	Environment friendly and effective fishpond management with maximum utilization of current trophic potential and maintaining good quality of water and fish production	1 January 2008 31 December 2012	University of South Bohemia in České Budějovice	2,492
QH82126	Harmonization of landscaping, hydrological and production function of hedgerows and terraces for diversification of activities in countryside	1 January 2008 31 December 2011	Jan Evangelista Purkyně University in Ústí nad Labem	1,672
QH82191	Optimization of batching and placement of organic matter into soil with the aim to reduce surface water runoff during intensive rainfall	1 January 2008 31 December 2012	Research Institute of Agricultural Engineering, public research institution	1,201
QH82283	Research of interaction of water, soil and environment from the viewpoint of barnyard manure management in sustainable agriculture	1 January 2008 31 December 2012	Research Institute for Crop Production, public research institution	2,209
QH91247	Possibilities of mitigation of current impacts of climate change through enhanced accumulation capacity in the Rakovnický stream catchment area (pilot project)	1 January 2009 31 December 2011	T. G. Masaryk Water Management Research Institute, public research institution	2,032
QH91257	Socio-economic analysis of impacts of climate change in relation to water management in the Czech Republic – the effectiveness of costs of water management services and tools for their regulation	1 January 2009 31 December 2011	T. G. Masaryk Water Management Research Institute, public research institution	1,694

QH92034	Identification of infiltration areas in selected river basins by means of water vegetation stress	1 January 2009 31 December 2011	Research Institute for Soil and Water Reclamation, public research institution	2,052
QH92073	Mountain forests – basic ecosystems influencing water balance, floods and drought periods in the landscape	1 January 2009 31 December 2011	Research Institute for Forestry and Game Management, public research institution	850
QH92086	Methodology of drafting and implementing infiltration and capture measures within rehabilitation of hydrological conditions and land use in the landscape	1 January 2009 31 December 2011	Czech Agricultural University in Prague	1,440
QH92091	Optimization of recultivation and remediation methods for landscape units devastated by mining, with emphasis on protection of waters and ecological stability	1 January 2009 31 December 2011	Czech Agricultural University in Prague	1,503
QH92298	System of nature friendly erosion control and flood control measures and its optimization in the process of land consolidation	1 January 2009 31 December 2011	University of South Bohemia in České Budějovice	1,294
QI91C008	Optimization of drafting of technical erosion control measures	1 June 2009 31 December 2013	Research Institute for Soil and Water Reclamation, public research institution	1,660
QI91C054	Soil Climate Atlas of the Czech Republic – definition of thermal and hydric regimes and their impact on productive capacity of soils	1 June 2009 31 December 2013	Mendel University in Brno	1,150
QI92A012	The assessment of implementation of erosion control and water management facilities in comprehensive land adaptations in terms of farming landscape protection and creation	1 June 2009 31 December 2013	Research Institute for Soil and Water Reclamation, public research institution	954
QI92A139	Research of methods improving the efficiency of water management of small reservoirs with respect to risks posed by expected climate change	1 June 2009 31 May 2012	Czech Technical University in Brno	856
QI92A207	Recovery and long-term nature friendly management of watercourse bank vegetation	1 June 2009 31 December 2013	Silva Taroucy Research Institute for Landscape and Ornamental Gardening, public research institution	3,081
QI102A265	Determination of the proportion of phosphorus in eutrophication of standing surface water bodies at risk	1 January 2010 31 December 2013	Czech Technical University in Prague	1,835
Total				**56,157**

Source: MoA

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

In 2010, the main research institution in the competence of the Ministry of the Environment, dealing with the issues of water protection was the T. G. Masaryk Water Management Research Institute, public research institution. Another institution dealing with important research projects or participating, to a large extent, in these projects was the Czech Hydrometeorological Institute.

The year 2010 was the sixth year of the implementation period of research scheme No. MŽP0002071101 "Research and Protection of Hydrosphere – research of relations and processes in the aquatic compartment of the environment, with particular focus on the impact of anthropogenic pressures, and on the sustainable use and protection, including legislative tools". The subsidy is granted by the Czech Republic through the Ministry of the Environment, the beneficiary was the T. G. Masaryk Water Management Research Institute, public research institution. In 2010, the Ministry of the Environment was responsible for the execution of scientific and research projects in the field of water management (including related areas) under the programme of the Government Council for Research and Development. These projects are shown in table 13.2.1.

In 2010, the Ministry of the Environment continued to fund research project No. SP/1c2/121/07 "Maps of Flood Risks in the Czech Republic", which is based on elaboration of partial issues to complete the so far used or proposed methods of risk assessment of flood plain areas and the proposal for effective fulfilment of the obligations of the Czech Republic resulting from the Directive 2007/60/EC on the assessment and management of flood risks. The project focuses on the verification of applicability of current data sources for effective description of threat, vulnerability, assessment of potential damage and expressing flood risks. This was conducted along with update and verification of partial methodologies for potential damage assessing and flood risk expressing. The vectorization of the individual drawings of land-use planning documentation of municipalities in the pilot basins of the Lužnice River and the Nežárka River continued. The source documents were used to be incorporated into a map of flood risks on the basis of matrix for individual municipalities in the pilot basin.

13.

Table 13.2.1

Research and development projects in the field of water management financed from the budget chapter of the Ministry of the Environment in the year 2010

Project No.	Name of the project	From – to	Coordinator	Funds (thousands of CZK)
SP/1c2/121/07	Maps of flood risks in the Czech Republic	2007–2011	T. G. Masaryk Water Management Research Institute, public research institution	3,655
SP/1c4/16/07	Research and implementation of new flood and runoff prediction tools in the framework of ensuring flood prediction and warning system in the Czech Republic	2007–2011	Czech Hydrometeorological Institute	2,926
SP/2e7/229/07	Anthropogenic pressures on the status of soils, water resources and water ecosystems in the Czech part of the international Elbe River Basin	2007–2011	T. G. Masaryk Water Management Research Institute, public research institution	19,051
VZ-MZP0002071101	Research and Protection of the Hydrosphere – research of relations and processes in the aquatic compartment of the environment, with particular focus on the impact of anthropogenic pressures and on the sustainable use and protection, including legislative tools	2005–2011	T. G. Masaryk Water Management Research Institute, public research institution	47,226
SP/2e7/67/08	Identification of anthropogenic pressures in the Czech part of the international Oder River Basin	2008–2010	T. G. Masaryk Water Management Research Institute, public research institution	8,284
SP/2e7/73/08	Identification of anthropogenic pressures on the qualitative status of waters and water ecosystems in the Morava River and the Dyje River Basin Districts	2008–2010	T. G. Masaryk Water Management Research Institute, public research institution	14,693
SP/1b7/124/08	Negative anthropogenic pressures on the Bílina River Basin (Czech Republic)	2008–2010	T. G. Masaryk Water Management Research Institute, public research institution	3,549
SP/1a6/125/08	Temporal and spatial variability of hydrological drought in climate change conditions on the territory of the Czech Republic	2008–2010	T. G. Masaryk Water Management Research Institute, public research institution	4,822
SP/2e7/58/08	Identification of parameters influencing bathing water profiles with respect to the environment	2008–2010	T. G. Masaryk Water Management Research Institute, public research institution	3,374
SP/1a6/108/07	Refining of the existing estimates of the impacts of climate change in the sectors of water management, agriculture and forestry and proposals of adaptation measures	2007–2011	Czech Hydrometeorological Institute	6,980
SP/1a6/151/07	Assessment of the impacts of climate change on the hydrological balance and design of practical measures to mitigate such impacts	2007–2011	Czech Geological Survey	4,985
Total				**119,545**

Source: MoE

Field investigation in the remaining part of the pilot basin of the Lužnice River from the town of Tábor as far as confluence with the Vltava River was carried out.

The project No. SP/1c4/16/07 "Research and implementation of new flood and runoff prediction tools in the framework of ensuring flood prediction and warning system in the Czech Republic" focused in 2010 on research of the influence of inputs of assembly systems for probabilistic weather forecast on hydrological modelling. The project further focused on the development of a methodology for long-term probabilistic hydrological predictions, the assessment of probabilistic prediction outputs applicability in water management practice, the development of a robust method of estimating runoff from torrential rains, the development of methods to determine and measure snow cover parameters with regard to the needs of flood prediction and warning system, and the compilation of flood risk guide for the needs of flood control bodies and the public.

The project No. SP/2e7/229/07 "Anthropogenic pressures on the status of soils, water resources and water ecosystems in the Czech part of the international Elbe River Basin" focuses on the identification of pressures caused primarily by human activity on the quality of water resources, soils and water ecosystems, including the description of the changes in habitats and their subsequent impact on communities of aquatic organisms. With regard to the scope of the issues dealt with, this project is divided into a series of nine separate special blocks. Other research institutions participating in this project include the Research Institute of Fish Culture and Hydrobiology of the University of South Bohemia, the Czech Geological Survey and the Czech Technical University in Prague, the Faculty of Civil Engineering. The project execution is scheduled until the year 2011.

The project No. SP/1a6/108/07 "Refining of the existing estimates of the impacts of climate change in the sectors of water management, agriculture and forestry and proposals of adaptation measures". The project focuses on reducing risks posed by the impacts of climate change. Above all, the project seeks to address comprehensively the issue of adaptation measures and direct it in the next few years primarily to the sectors of water management, agriculture and forestry. Current knowledge of the sectoral impacts of climate change shows that in the conditions of the Czech Republic the most vulnerable is the sector of water management and that ongoing changes in the hydrological regime are then reflected in the sectors of agriculture and forestry. The project execution started in 2007 and will be completed in 2011.

The project No. SP/1a6/151/07 "Assessment of the impacts of climate change on the hydrological balance and design of practical measures to mitigate such impacts". The project monitors the impacts of climate change on the hydrological balance, extreme hydrological events and water resources in forest river basins of the network GEOMON. Forest in the conditions of the Czech Republic is the best approximation to a natural ecosystem and appropriate environment for monitoring the impacts of extreme hydrological situations. Given the fact that in spruce monocultures the ecosystem naturalness is disturbed and the forest is susceptible to acidification, critical loads of selected chemical elements are also monitored. The project execution started in 2007 and will be completed in 2011.

In 2010, the execution of the following projects was completed:

Project No. SP2e7/67/08 "Identification of anthropogenic pressures in the Czech part of the international Oder River Basin". The objective of this project scheduled for the years 2008–2010 was to identify anthropogenic pressures on the status of soils, the quality of waters and on the change in the habitat of water ecosystems on the basis of the evaluation of the results of both the basic and applied research. The major role in the execution of this project was played by the T. G. Masaryk Water Management Research Institute, public research institution, branch in Ostrava. With regard to the multidisciplinary nature of this research project, four more scientific and research institutions from the area of environmental sciences participated in the project execution. The identification of main anthropogenic pressures was the point of departure for defining priorities in the proposed measures to reduce the main adverse impacts on the quality of soils, waters and natural habitats in the Czech part of the international Oder River Basin.

Project No. SP/2e7/73/08 "Identification of anthropogenic pressures on the qualitative status of waters and water ecosystems in the Morava River and the Dyje River Basin Districts" was launched in 2008 and scheduled until 2010. The general objective of this project was to identify the anthropogenic pressures on the status of soils, the quality of water resources and on the change in the habitat of water ecosystems with the possibility to predict or prove specific impacts on biological components of the water ecosystem in question. The execution of this research project was carried out by the T. G. Masaryk Water Management Research Institute, public research institution, branch in Brno, and the subsidy was provided by the Ministry of the Environment. With regard to a wide scope of the scientific tasks dealt with, the project was further divided into eight partial tasks.

Project No. SP/1b7/124/08 "Negative anthropogenic impacts on the Bílina River Basin (Czech Republic)" was launched in 2008. The general objective of this project was to contribute to the knowledge, protection and improvement of the environment in the Bílina River Basin. The project was aimed at the assessment of the contamination of ecosystem components in the Bílina River Basin by foreign substances and their interaction. The project benefit primarily consisted in particular specification of the main risk sources in the area of interest, the definition of their influence on the environment and the assessment of the current tools for protection of the ecosystem of the Bílina River along with proposals for their modification.

Project No. SP/1a6/125/08 "Temporal and spatial variability of hydrological drought in climate change conditions on the territory of the Czech Republic" was a project launched in 2008 and scheduled until 2010. The objective of the project was to assess the current and potential future extremity of hydrological drought on the territory of the Czech Republic, through the spatial analysis of hydrological series observed and series simulated for climate change conditions.

Project No. SP/2e7/58/08 "Identification of parameters influencing bathing water profiles with respect to the environment" was aimed at establishing the flow of data and information on bathing waters and their evaluation, as the basic element for provision of the information to the public and the EU and as a basis for preparing the drafts of measures to improve the status of these waters.

The Studená Vltava River

List of acronyms in text

BOD_5	biochemical five-day oxygen demand
CEB	Council of Europe Development Bank
CEVT	Central Register of Watercourses
CF	Cohesion Fund
COD_{cr}	chemical oxygen demand
CSN	Czech State Standard
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
DN	denitrification
EAFRD	European Agricultural Fund for Rural Development
EC	European Commission
EEC	European Economic Community
EIA	environmental impact assessment
EIB	European Investment Bank
EQS	Environmental Quality Standards
ERDF	European Regional Development Fund
EU	European Union
FAD	flood activity degree
HCB	hexachlorbenzen
HCH	hexachlorocyklohexan
ISPA	Instrument for Structural Policies for Pre-Accession
MoA	Ministry of Agriculture
MoE	Ministry of the Environment
N	nitrification
$N_{-inorganic}$	inorganic nitrogen
NACE	Nomenclature statistique des activités économiques dans la Communauté européenne (sectoral classification of economic activities according to Eurostat)
OECD	Organization for Economic Co-operation and Development
PAH	polycyclic aromatic hydrocarbons
PBDE	polybrominated diphenylethers
PCB	polychlorinated biphenyls
PE	population equivalent
Q_a	long-term annual average flow
Q_m	long-term monthly average flow
R&D	research and development
SCEA	sectoral classification of economic activities of the Czech Statistical Office
s. e.	state enterprise
VAT	value added tax
VTG	villogenin
WHO	World Health Organization
WISE	The Water Information System for Europe

Important contacts in water management

Ministry of Agriculture
Těšnov 65/17, Praha 1, 117 05, www.eagri.cz
Ministry of the Environment
Vršovická 1442/65, Praha 10, 100 10, www.mzp.cz
Elbe River Board, state enterprise
Víta Nejedlého 951/8, Hradec Králové, 500 03, www.pla.cz
Vltava River Board, state enterprise
Holečkova 106/8, Praha 5, 150 24, www.pvl.cz
Ohře River Board, state enterprise
Bezručova 4219, Chomutov, 430 03, www.poh.cz
Oder River Board, state enterprise
Varenská 3101/49, Ostrava, 701 26, www.pod.cz
Morava River Board, state enterprise
Dřevařská 932/11, Brno, 602 00, www.pmo.cz
Forests of the Czech Republic, state enterprise
Přemyslova 1106/19, Hradec Králové, 501 68, www.lesycr.cz
Agricultural Water Management Administration
Hlinky 60, Brno, 603 00, www.zvhs.cz
Czech Hydrometeorological Institute
Na Šabatce 2050/17, Praha 412-Komořany, 143 06, www.chmi.cz
T. G. Masaryk Water Management Research Institute, public research institution
Podbabská 2582/30, Praha 6, 160 00, www.vuv.cz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