REPORT ON WATER MANAGEMENT IN THE CZECH REPUBLIC IN 2013

MINISTRY OF AGRICULTURE
OF THE CZECH REPUBLIC

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Report on Water Management in the Czech Republic in 2013
As of 31 December 2013

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

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Ministry of the Environment of the Czech Republic

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In this publication there were used pictures from the children´s competition on the topic „Water and energy“ organized by the Ministry of Agriculture of the Czech Republic as part of the World Water Day 2014 celebration for pupils at primary and lower secondary school level.
Each chapter is introduced with a picture.

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

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Zaječice hydraulic structure

Dear Readers,

This year again the Ministry of Agriculture together with the Ministry of the Environment present to the public a summary report commonly known as "Blue Report", officially "Report on Water Management in the Czech Republic in 2013". This is the seventeenth annual, in which you can find basic information on water and waters in the Czech Republic and on the system of water management, water use, cooperation with neighbouring countries and development trends in this field.

In 2013, Bohemia and partly Moravia were affected by several waves of heavy rainfall which caused widespread floods. Overflowing watercourses were observed in the entire Vltava River basin, a large part of the Elbe and the Ohře River basins and partly also in the Dyje River basin. In many places there were also local torrential rains that caused local flooding on minor streams. The first wave of floods in June 2013 was in terms of the causes, course and affected area even comparable with much larger flood in August 2002, although it did not reach its extreme dimension. And not only the Czech Republic, but also neighbouring countries on the Elbe and the Danube River were affected. I would like to once again thank all those who fought with flood events and then helped remedy their impacts.

Last year´s floods also tested the effectiveness of flood control measures implemented yet. 83% of flood control measures fulfilled the purpose which they were designed for, three structures did their job to the level of their design parameters, but the flood that affected them was greater. Nine affected flood control structures were not completed, only four showed defects. Therefore we cannot stop building additional flood control measures, because human lives and properties are the most precious and other flood can come at any time.

The Blue Report also summarizes data less dramatic than information about the floods. A total of 93.8%, i. e. 9,854,000 inhabitants of the Czech Republic were in 2013 connected to the public water supply systems, which ranks us among the most advanced states in access to drinking water within the required health criteria. A total of 8,700,000 inhabitans, which is 82.8% of the total population of the Czech Republic, lived in buildings connected to sewerage systems. Water treatment was performed for 97.4% of water discharged to sewerage systems (excl. rainwater). Also these figures are favourable.

I believe and hope that the "Blue Report" will become for you a source of other interesting facts, while helping you to gain insight into the diversity and volume of activities that were carried out in 2013 in the field of water management and contribute to the growth of our standard of living.

Marian Jurečka
Minister of Agriculture

Dear Readers,

The issues of water as a basic environmental compartment and basic need of human society are jointly dealt with by the Ministry of the Environment and Ministry of Agriculture. Close and constructive cooperation of the both ministries is important to jointly achieve success in this area. Thanks to the good cooperation between the two ministries it is possible to ensure, for example, water planning, effective protection against floods, national agricultural policy with minimum negative impact on the individual environmental compartments and also implement joint geo-environmental measures.

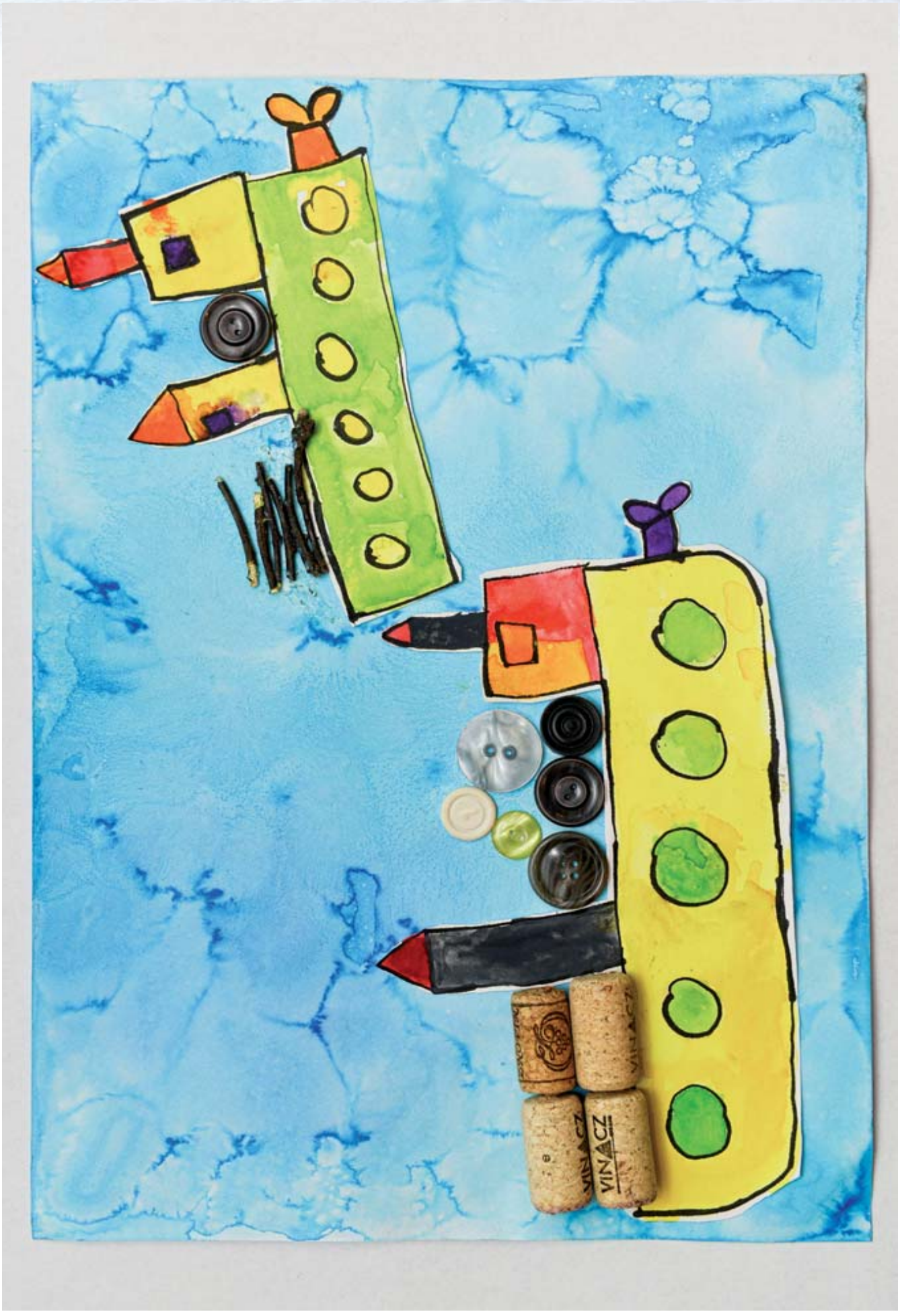
To protect and improve the environment, specifically to improve water management infrastructure and reduce the risk of floods, funds are provided, especially from the Operational Programme Environment. In the current programming period 2007–2013, in the last year there were implemented projects to improve the status of surface waters and groundwaters, projects to improve the quality and supply of drinking water and, last but not least, projects to reduce the risk of floods. This year we started the preparation of the Operational Programme Environment for the period 2014–2020, during which over € 2.6 billion are allocated for the Czech Republic. Moreover, the good news is that the new Operational Programme Environment received the additional allocation in the amount of € 71 million, of which the water sector gained € 51 million.

At the end of May and during June 2013 Bohemia and partly Moravia were affected by several waves of heavy rainfall which caused widespread regional floods. Overflowing watercourses were observed in the entire Vltava River basin, a large part of the Elbe basin and marginally also in the Dyje River basin. In many places there were also local torrential rains that caused local flooding on minor streams. The first wave of floods in June 2013 was in terms of the causes, course and affected area comparable with much larger flood in August 2002. Floods and overflowing watercourses in May and June 2013 on the territory of the Czech Republic caused damage that is of concern to the Ministry of Environment in the amount of CZK 568.62 million. 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 flood damages. The Blue Report provides detailed information about projects and financial resources in this field. Flood control measures are supported under the Operational Programme Environment. A significant group of flood control measures includes the so-called nature-friendly flood control measures, for which it is possible to use financial support under Priority Axis 1 and also Priority Axis 6 "Improving the State of Nature and Landscape and Optimization of Landscape Water Regime" of the Operational Programme Environment.

In the future, I consider it important to address long-term problems that affect not only the Czech Republic and are associated with extreme weather events due to climate change. In addition to the floods, which we are already better prepared to tackle, we are facing the threat of a prolonged drought – as demonstrated in last winter and at the beginning of spring. A clear priority for the Ministry of the Environment is, therefore, after completing the maps of flood hazards and maps of flood risks in the past year to work this year and in future years to implement the concept on tackling drought. For this reason, after taking office I have established, under the auspices of the Water Management Research Institute, a panel of experts who in collaboration with the specialists from the Ministry of Agriculture and Ministry of the Interior are engaged in preparing measures to combat the drought.

I am convinced that in the "Blue Report" for 2013 you will not only find information on water management in the Czech Republic, but also a range of inspiring food for thought. Perhaps the fact that water is indeed a normal part of our everyday lives, but the more we have to take it as our valuable natural assets to protect.

Richard Brabec
Minister of the Environment



"Cargo ship" – Veronika Hořejší – 2nd class Dolní Dvořiště primary school and nursery school, Jihočeský region

1. Hydrological balance

1.1 Temperature and precipitation

In terms of temperature, the year 2013 with the mean air temperature of 7.9 °C showed the average. The temperature variation of 0.4 °C from the average ($N_{1961–90}$) again represented the continuing positive annual value. Positive temperature variations in the previous 25 years have clearly dominated. In this period there were only three years (2010, 1996 and 1991), which showed the mean temperature below the average. The year 2013, compared to the previous year 2012, was colder by 0.4 °C.

The mean temperature of all months in the winter season (December 2012 – February 2013) ranged around the average $N_{1961-90}$ (hereinafter referred to as average), winter with the mean temperature of –1.5 °C thus showed the average. The mean air temperature for the spring season reached the value of 6.5 °C (0.8 °C below the average). Spring as a whole can therefore be described as having reached values around the average. For March, however, we can state that it was the month with very significantly low mean temperature (calculated value of –0.7 °C was by 3.2 °C lower than the long-term average for March), compared to all monitored months in 2013. April and May then reached temperatures ranging around the average. The mean air temperature calculated for summer was 17.7 °C and, similarly to previous years, reached the value markedly above the average (by 1.6 °C). The warmest month of the year was July, it can be described as having reached temperatures highly above the average, the mean air temperature of 19.4 °C was by 2.5 °C higher than the long-term average for this month. August with the mean temperature of 17.7 °C (by 1.3 °C more than the average) also showed above-average values. During the summer, also several heat waves were recorded, with maximum daily temperatures having risen high above 30 °C (mainly between 17 and 20 June, between 22 and 29 July and between 1 and 8 August). Assessing the individual months of the entire growing season (April to September) it can be stated that they were mostly warmer, compared to the relevant long-term monthly average (except May and September), the mean calculated temperature of 14,2 °C for this period was higher by 0.8 °C than the average, but lower by 0.4 °C than in the previous two years. The mean autumn temperature of 8.3 °C was higher by 0.5 °C, compared to the corresponding average. While September showed below-average temperatures, the following two months can be described as having reached above-average values. The mean monthly temperature in September was 11.8 °C (by 1 °C lower than the average); October and November with the values of 9 °C and 4.1 °C were higher by 1.0 °C and 1.4 °C, respectively, compared to the average. Above-average values were also reached in December, whose mean temperature of 1.2 °C exceeded by 2.2 °C the long-term average for this month.

In terms of the total precipitation amount, the year 2013 in the Czech Republic showed the average. The total precipitation amount in the entire territory of the Czech Republic reached 727 mm, which corresponds to 108% of the long-term precipitation average ($N_{1961–90}$). Higher precipitation amounts were recorded in Bohemia, compared to Moravia and Silesia. In comparison with the previous year 2012 it can be stated that in 2013 the mean value for the whole of the Czech Republic was higher by 38 mm. Annual precipitation amount in 2013 in the territory of Bohemia was higher by 47 mm, compared to the territory of Moravia and Silesia.

In the individual seasons precipitation amounts showed the average, however, it can be stated that the resulting calculated mean value of precipitation amounts measured in winter 2012/2013 for the whole of the country significantly exceeded the long-term average (135% of the average). Distribution of precipitation amounts during the year was very uneven, as there were months showing above-average values as well as months showing below-average values. Markedly above-average values were shown in January with the mean precipitation amount of 61 mm (the value corresponding to 145% of the long-term average for this month). Precipitation amount higher than usual was also recorded in February (134% of the average). While in January the precipitation in Bohemia was in average by 11 mm higher than in Moravia, in February the situation was converse – the precipitation amounts in Moravia reached 160% of the average. March in the Czech Republic as a whole showed values ranging around the average, the mean precipitation amount accounted for 90% of the applicable monthly average; markedly higher precipitation amounts than in Bohemia were recorded in Moravia (by approx. 27 mm – in Moravia the mean calculated precipitation amount of 54 mm corresponding to this territory was on the contrary considerably above the average - 150% of the average). April showed below-average precipitation amounts (both in Bohemia and Moravia); the whole of the country received in average only 26 mm (55% of the average). Rich in precipitation were May and especially June; in May, average precipitation amount reached the value of 113 mm (153% of the average), in June even 146 mm (174% of

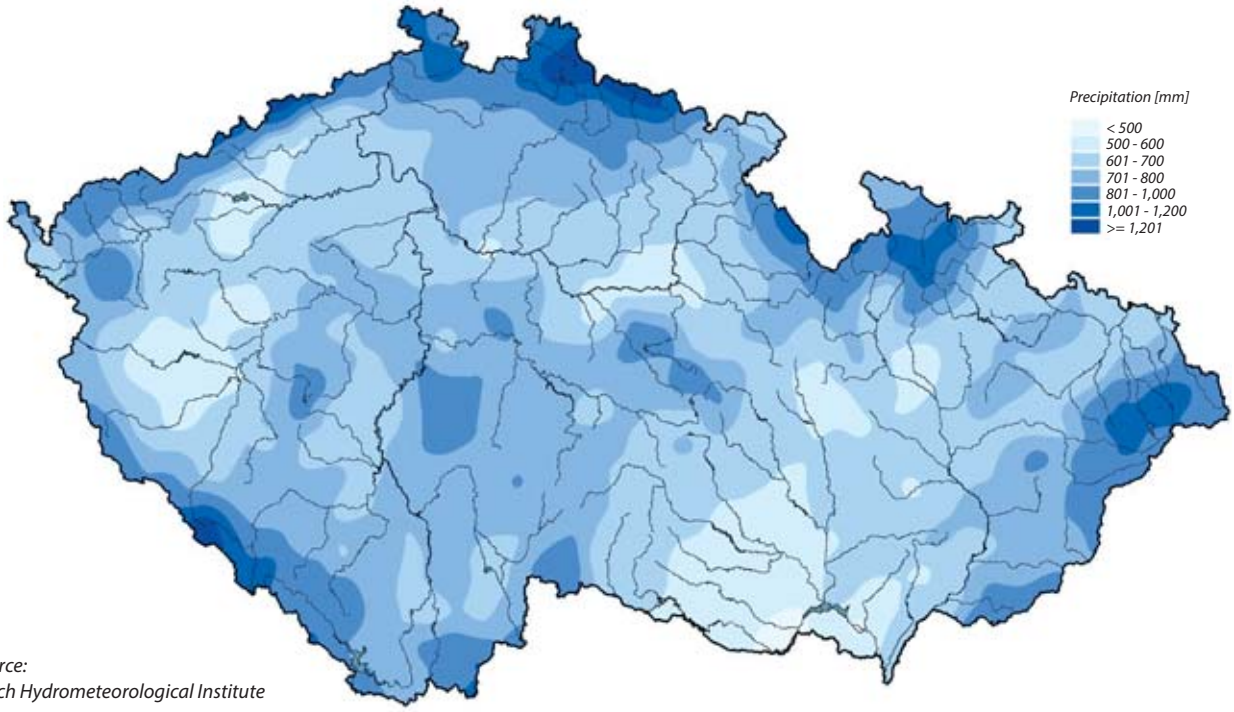
Table 1.1.1
Renewable water sources in the years 2004–2013 in millions of m³

Item	Annual values									
	2004	2005	2006	2007	2008	2009	2010	2011	2012	2013
Precipitation	53,629	57,730	55,837	59,544	48,818	58,676	68,692	49,449	54,812	57,336
Evapotranspiration	41,473	42,872	37,617	46,194	37,394	44,090	46,824	35 511	42,239	38,296
Annual inflow [1)]	640	781	1,070	637	462	714	781	482	492	845
Annual runoff [2)]	12,796	15,639	19,290	13,987	11,886	15,300	22,649	14,420	13,065	19,885
Surface water sources [3)]	4,270	5,489	5,317	4,673	4,503	5,112	8,788	5,770	5,195	6,626
Usable groundwater sources [4)]	1,224	1,305	1,345	1,244	1,209	1,266	1,594	1,340	1,311	1,657

Source: Czech Hydrometeorological Institute
Note: [1)] Annual inflow to the territory of the Czech Republic from the 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 the Czech Hydrometeorological Institute not sooner than the second half of 2014.

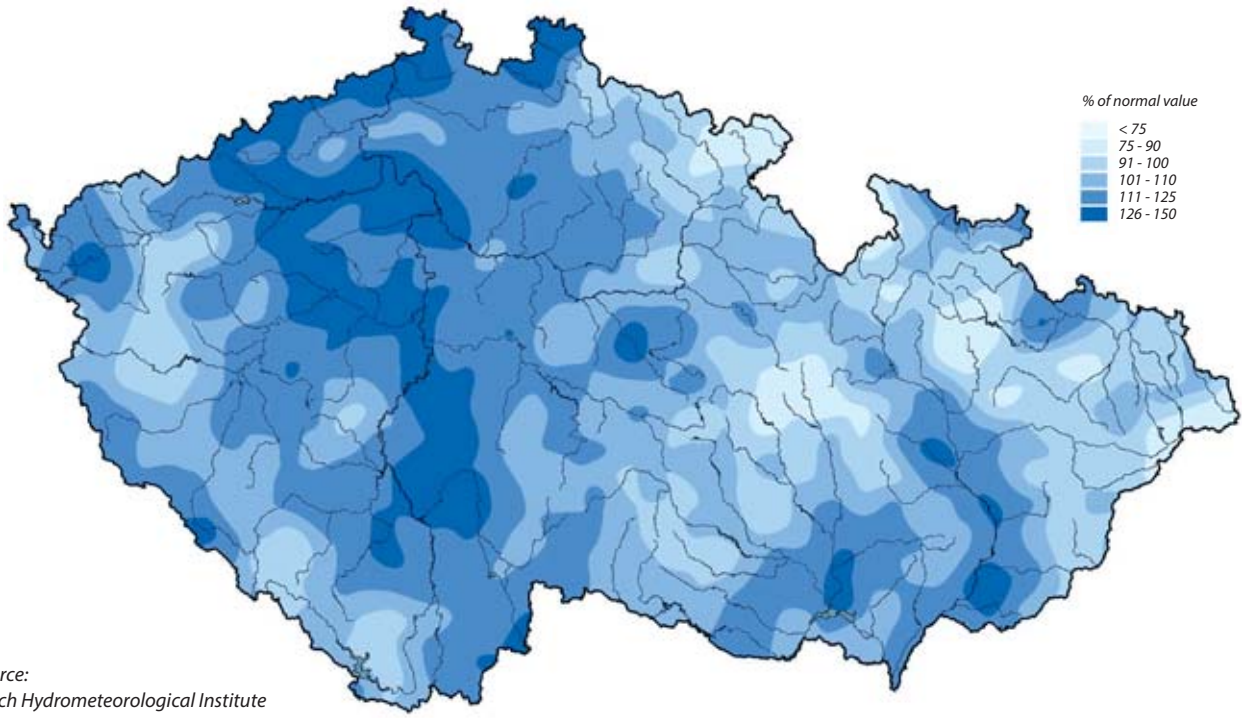
the average). In both of these months, higher precipitation amounts were reached in Bohemia, compared to Moravia (by approx. 14 and 25 mm, respectively). These two rainy months were followed by July with the precipitation amount having reached only 34 mm (43% of the average). Low precipitation amounts were recorded especially in Moravia (by approx. 24 mm less than in Bohemia), with only 18 mm in average (i. e. only 22% of the average). August with precipitation amounts ranging around the average was followed by wet September showing above-average values (the mean monthly precipitation amount of 74 mm corresponded to 142% of the average). Compared to Bohemia, precipitation amounts in Moravia were higher by 26 mm in average. While Bohemia received in average 65 mm of rainfall (125% of the average), Moravia received 91 mm (179% of the average). October and November showed precipitation values ranging around the average, with less rainfall in Moravia, compared to Bohemia. The driest month of the year was December, with monthly precipitation amount of only 19 mm having accounted for only 40% of the applicable monthly average – it can therefore be described as having reached strongly below-average precipitation values.

Figure 1.1.1
Total precipitation amount in the Czech Republic in 2013 in mm



Source:
Czech Hydrometeorological Institute

Figure 1.1.2
Total precipitation amount in the Czech Republic in 2013 by % of the average over the period 1961–1990



Source:
Czech Hydrometeorological Institute

1.2 Runoff

In terms of runoff, the year 2013 reached values between the average and slightly above the average. Mean annual flows in the catchment area of the Elbe ranged mostly between 105 and 140% of long-term annual averages, in catchment areas of the Oder River, the Olše River and the Morava River the flows reached lower values, most often between 95 and 105% of long-term annual averages. The highest annual averages (150 to 185% of long-term annual averages) were reached by the Lužnice River, the Sázava River, the Berounka River and the lower Vltava River. On the contrary, relatively lower flows were recorded for the majority of watercourses in the catchment area of the upper Elbe (for example, the Orlice River showed 88% of long-term annual averages).

The beginning of the first quarter was characterized by rising water levels – markedly increased flow rates occurred as early as the beginning of January. The main impetus to increased flow rates was rainfall combined with snow thaw following the gradual warming. Peak flows mostly reached the level of flood activity degree I (FAD I) between $Q_{½}$ and < Q_2. FAD III was reached only on the Svatava River in Kraslice (Q_{10}–Q_{20}). Later during January water levels steadily declined. The next major runoff events took place at the turn of January and February, when FAD I was reached in many cases and peak flows mostly reached again the level of between $Q_{½}$ and < Q_2. At places, FAD II levels were reached in the Úslava River, the Lužnice River, the Malše River, the Moravská Dyje River, the Austrian Dyje River, the Doubrava River and the Mandava River basins. Exceptionally, also FAD III was reached, on the Doubrava River and the upper Dyje River. Until mid-February, levels on the majority of watercourses gradually declined, until the end of February having been sustained or only very slightly fluctuating. Next significant thaw causing increased flow rates in all river basins occurred in late February. FAD I levels were only reached on the Cidlina River, the Mrlina River, the Libuňka River and the Olšava River. In the first half of March, water levels were fluctuating, in the second half of the month a slightly downward trend prevailed, only sporadically showing insignificant fluctuation. In comparison with the long-term monthly averages, in terms of runoff, January in most of the territory of the Czech Republic showed above-average values. Also February can be characterized as mostly showing above-average values, mainly due to flooding at the beginning of the month. Average flow rates most often ranged between 105 and 250% Q_{II}. March showed average to slightly below-average runoff values. Average flow rates in March most often ranged between 55 and 85% $Q_{III.}$

At the beginning of the second quarter water levels mostly slightly declined, during April they fluctuated due to snow cover thaw and rainfall. The highest flow rates (FAD II) were recorded on 13 and 14 April in the Haná River, the Brdečka River and the Hloučela River basins. In early May, levels of watercourses in the upper Elbe, the Oder River and the Morava River basins were slightly fluctuating due to heavier rainfall on 2 and 3 May. The next wave of rainfall on 10 May more affected the river basins in Bohemia; during 11 and 12 May then rainfall led to generally rising water levels in Moravian river basins. From mid-May there prevailed declining or slightly fluctuating water levels. From 26 May most of Bohemian and partially Moravian river basins received daily abundant rainfall, which gradually led to high saturation of the soil and rising levels of the majority of watercourses in the Vltava River basin and the Elbe basin, and partly also the Oder River and the upper Morava River basins. In June, two flood situations occurred. The first, at the beginning of the period, was extreme, and the latter, much less significant, occurred in the third decade of the month. The June flood is described in detail in chapter 2.1. In April, flow rates in the main river basins in Bohemia reached 70 to 80% $Q_{IV.}$ higher flow rates were recorded in Moravian river basins with 95 to 145% Q_{IV}. May in most river basins was a period with average or slightly above-average flow rates. Flow rates in the main river basins reached 85 to 135% of long-term averages Q_V. The month of June showed overall above-average flow rates in the Elbe, the Morava River and the Oder River basins. Average flow rates in June reached in the Elbe and the Dyje River basins mostly 200 to 400% Q_{VI}. In the Morava River basin, flow rates reached 100 to 200% Q_{VI}.

At the beginning of the third quarter, flood situation from the end of June was still fading away. Water levels in the Elbe and the Vltava River basins were declining. Throughout July, downward trend

The Albrechtický stream in Mníšek

The Donínský stream – damming

prevailed in all river basins. Rising water levels were evident only at the end of the month. Torrential rainfall caused a very violent response, especially on watercourses in the Bohemian part of the Oder River basin. FAD III level was temporarily exceeded on the Lužická Nisa River in Proseč and Liberec and on the Smědá River in Předlánky and Frýdlant. In August, watercourses mostly showed sustained levels. In the period of minimal values in August, in some places even during a greater part of August, flow rates ranged at a level of Q_{355d}, which was especially true for the Oder River, the Olše River and the Morava River basin districts. In the first half of September, watercourses mostly showed sustained or slightly fluctuating levels. Very abundant local rainfall on 2 and 3 September led to short-term rising levels on minor watercourses, peak flows reached the level of between Q_{10d} and $< Q_2$. The highest precipitation amounts fell in the period between 12 and 14 September, which led to generally rising water levels in all river basins. FAD I level was shortly exceeded (on 14 September) on the Zdobnice River and the upper Morava River in Vlaské at a level of between Q_{30d} and Q_2. Until the end of September then declining or slightly fluctuating water levels prevailed. In the Vltava River and the Elbe basins, in July the average monthly flow rates mostly ranged between 70 and 110% Q_{VII}. In August, the average flow rates were recorded close to the values of long-term averages for August (75 to 130% Q_{VIII}) – more often in the west of the country and also in the part of the Dyje River basin draining the area of Českomoravská upland. In September, flow rates in the Elbe and the Morava River basins mostly ranged between 60 and 145% Q_{IX}. In the Oder River basin there prevailed flow rates of between 40 and 85% Q_{IX} – except the Bohemian part of the Oder River basin, where the values reached 150 to 300% Q_{IX}.

In the fourth quarter of the year, watercourses mostly showed sustained or slightly fluctuating levels. In the first half of October, after rainfall that affected the western half of Bohemia, epecially the area of Šluknovský tip and Lužické hory Mountains, water levels were generally rising. They were also observed on the Ploučnice River, the Bílina River and the Lužická Nisa River, but here without exceeding the FAD. Until the end of October there prevailed declining or slightly fluctuating water levels. During November no significant runoff situation occurred, watercourses showed sustained or only very slightly fluctuating levels. In December, watercourses showed sustained or slightly rising levels. Rising water levels at the beginning of the second decade in December were caused by quite significant rainfall in the northern border mountains in combination with snow thaw. This was responded to by rapidly rising levels of the affected watercourses. On the Libuňka River in Pelešany, FAD II level was reached. In October, the average monthly flow rates in the Vltava River, the Elbe and the Morava River basins ranged mostly between 65 and 120% Q_X. In November, the average monthly flow rates in all of the main river basins were largely between 40 and 110% Q_{XI}, except for the watercourses in the Moravian-Silesian part of the Oder River and the Morava River basins (between 30 and 60% Q_{XI}). In December, flow rates compared to their long-term averages reached mostly values of between 50 and 80% Q_{XII}. Average or slightly above-average flow rates were rather exceptional.

Water levels in most of the monitored reservoirs during the year showed a quite sustained trend. More significant fluctuations in terms of filling the storage space were evident mainly in water reservoirs in the Vltava River and the Elbe basins at the end of May and during June, i. e. at the time of floods. The overwhelming majority of reservoirs in the Vltava River and the Elbe basins showed annual maxima of storage levels at the beginning of June, which was followed by a period of gradual decline. Different situation was in the reservoirs in the Oder River basin and mainly the Morava River basin, which were not affected by floods in June. In these reservoirs, annual maxima of storage levels were recorded in late March or in the first half of April. Sporadically rising water levels in the reservoirs were also recorded at the end of the year due to "Christmas thaw", especially in the Ohře River basin, other areas showed insignificantly rising or only fluctuating water levels.

Border stone – The Prášilský stream

Filling of storage space in the reservoirs during the year largely showed values exceeding 65%. The highest storage space filling levels were shown during the spring floods in March by hydraulic structures Skalka (160%) and Jesenice (132%), then in June mainly Orlík (113%).

1.3 Groundwater regime

In the overall view, the year 2013 can be considered to have shown average to above-average levels, for both shallower and deeper groundwater horizons. Significant groundwater recharge occurred mainly in deeper aquifers represented by spring outflows. The highest shallow groundwater levels and yields were shown throughout the year in southern and western Bohemia, on the contrary, areas with the lowest levels were regions in the northeast of the country in the Oder River basin.

Already at the beginning of the year, in terms of groundwater, the individual parts of the country showed differences. The highest groundwater levels and yields were in the south of Bohemia in the upper Vltava River basin in the amount of 8% of the long-term monthly cumulative frequency curve for wells and 23% of the long-term monthly cumulative frequency curve for springs. On the contrary, the lowest levels and yields were recorded in the south of Moravia in the Dyje River basin in the amount of 62% of the long-term monthly cumulative frequency curve for wells and 63% of the long-term monthly cumulative frequency curve for springs. From January, groundwater levels and yields rose in almost all of the country until having reached the spring maxima in March, with 80% of shallow groundwater levels and 70% of yields having reached average to above-average values. They were higher even in year-on-year comparison. The values of groundwater levels and yields on the long-term monthly cumulative frequency curves for March for the individual areas in the whole of the country were high, for wells having ranged between 12% of the long-term monthly cumulative frequency curve (the upper Vltava River) and 42% of the long-term monthly cumulative frequency curve (the Dyje River), for springs between 26% of the long-term monthly cumulative frequency curve (the upper Vltava River) and 51% of the long-term monthly cumulative frequency curve (the Dyje River).

With the progressing spring, most of shallow groundwater levels and yields in Bohemia started to decline, while in Moravia the monitored indicators continued to show slightly rising or sustained trend. Groundwater levels in May in the individual areas mostly remained above the average (between 13% of the long-term monthly cumulative frequency curve on the upper Vltava River and 33% of the long-term monthly cumulative frequency curve on the Dyje River), yields were comparable with averages (between 29% of the long-term monthly cumulative frequency curve on the upper Vltava River and 58% of the long-term monthly cumulative frequency curve on the lower Elbe). Both the shallower and deeper groundwater horizons were significantly recharged during the floods in June. In Bohemia, shallow groundwater levels reached or exceeded the previous spring maxima (between 4% and 9% of the long-term monthly cumulative frequency curve), in Moravia (between 11% and 20% of the long-term monthly cumulative frequency curve) the spring maxima were not exceeded. The yields reached high above-average values in most of the territory of the country (between 6% and 37% of the long-term monthly cumulative frequency curve) and became thus the annual maxima. Only in the northeast of the country (the Oder River, the upper Morava River) the yields only approximated the maxima. A total of 97% of wells and 90% of springs had the measured values comparable and higher than the long-term monthly averages. Also in year-on-year comparison the vast majority of groundwater levels and yields showed higher values than those measured last year in June. The values of groundwater levels and yields near streams were at places influenced by surface water.

The following summer months showed slightly but steadily declining measured values, having reached the annual minima in August (groundwater levels) and September (yields). The driest, although comparable with the long-term averages, was the Oder River basin in the northeast of the country with 63% of the long-term monthly cumulative frequency curve for wells and 58% of the long-term monthly cumulative frequency curve for springs. The highest water levels remained in the Berounka River basin with 18% of the long-term monthly cumulative frequency curve for wells and 27% of the long-term monthly cumulative frequency curve for springs.

During the autumn, shallow groundwater levels largely showed sustained trend, in the Berounka River, the Oder River and the Morava River they showed slightly upward trend. The yields slightly declined throughout the country in line with the average to above-average values of the long-term monthly cumulative frequency curve. Therefore, at the end of the year, both shallow and deeper groundwater horizons in the whole country remained to show average to above-average values for wells ranging between 28% (the Berounka River, the lower Elbe) and 63% of the long-term monthly cumulative frequency curve (the Oder River) and for springs between 24% (the Berounka River) and 55% of the long-term monthly cumulative frequency curve (the Oder River). Over 60% of wells and springs had water levels and yields comparable with the long-term monthly averages. More than 70% of the monitored indicators showed higher values also in year-on-year comparison. The highest groundwater recharge occurred in the southeast of the country in the Dyje River and the lower Morava River basins (more by 25% of the long-term monthly cumulative frequency curve in year-on- year comparison), while in the northeast of the country (the Oder River) groundwaters remained at the same level. The number of groundwater levels and yields below the limit characterizing drought (85% of the long-term monthly cumulative frequency curve) was minimal – 5% of groundwater levels and 6% of yields. These were mostly groundwater levels and yields showing long-term declining values in the east of Moravia and in the foothills of the Krušné hory Mountains.

The Metuje River – Peklo

"Watermill" – Laura Pikartová – 5th class, Tasovice primary school and nursery school, Jihomoravský region

2. Flood situations

2.1 Floods in June 2013

At the end of May and during June 2013 Bohemia and partly Moravia were affected by several waves of heavy rainfall which caused widespread regional floods. Overflowing watercourses were observed in the entire Vltava River basin, a large part of the Elbe basin and marginally also in the Dyje River basin. In many places there were also local torrential rains that caused local flooding on minor streams. Significant floods in this period also occurred in the neighbouring countries on the Elbe and the Danube River.

The magnitude of runoff response to fallen precipitation was greatly influenced by the previous strong saturation of the region due to above-average rainfall in May. In May, Czech Republic received 152% of the long-term precipitation average, in western Bohemia it was even more (in the Karlovy Vary region over 200% of the average).

In June, floods occurred in three waves, which were a response to three significant rainfall episodes. The first wave of rainfall afflicted almost solely Bohemia between 29 May and 3 June. The highest precipitation amounts were measured on 1 and 2 June in the strip stretching from the Šumava Mountains through central Bohemia to the Krkonoše Mountains. Heavy rainfall was in some areas even enhanced by local torrential rainfall and daily precipitation amounts at several measuring stations reached values corresponding to the 100-year return period.

First wave floods were recorded almost in the entire Elbe basin. The greatest extremities were reached by peak flows on smaller and minor watercourses where there was a combination of torrential and regional rainfall. In some areas this led to erosion and landslides. Extreme floods with a return period of more than 100 years occurred in the foothills of the Krkonoše Mountains on the Čistá River, in the Cidlina River catchment area on the Bystřice River, in the Mrlina River catchment area, in Plaňany on the Výrovka stream, in Radíč on the Mastník stream, on Smutná stream and in all hydrometric profiles in the Blanice River catchment area near Vlašim. Flows showing such extremity with a high degree of probability also occurred in many not monitored streams in the most affected areas.

The Vltava River – the confluence with the Berounka River, flood in June 2013, Lahovice - Radotín - Velká Chuchle

Of the major tributaries of the Vltava River, most flooding was observed on the lower stretch of the Lužnice River, with a return period of 100 years having been reached in Bechyně, on the Otava River in Písek and on the Sázava River in Nespeky a return period of 20–50 years was reached, on the Berounka River in Beroun a flow with a return period of 20 years was reached. On the Vltava River from České Budějovice as far as the confluence with the Elbe the extremity of peak flow in hydrometric stations corresponded to a return period of 20–50 years. On the Elbe in Mělník downstream of the confluence with the Vltava River, flow with a return period of 50 years was reached, in Ústí nad Labem, Děčín and Hřensko a flow with a return period of 20–50 years was reached. Peak flows measured in the main hydrometric profiles on major watercourses are presented in table 2.1.1.

Table 2.1.1.
Peak flows measured in the main profiles on major watercourses

Water-course	Profile	Flood in June 2013		Flood in August 2002		Flood in spring 2006		Peak flow ratio 2013/2002
		Flow (m^3/s)	Return period	Flow (m^3/s)	Return period	Flow (m^3/s)	Return period	
Vltava	České Budějovice	628	20–50	1,310	>1,000	343	5	0,5
Lužnice	Bechyně	561	100	666	500–1,000	460	50	0,8
Otava	Písek	548	20–50	1,180	500–1,000	241	2–5	0,5
Vltava	HS Orlík - inflow	2,160	100	3,900	1,000	1,100	5–10	0,6
Sázava	Nespeky	509	20–50	378	5–10	547	20–50	1,4
Berounka	Beroun	960	20	2,170	500–1,000	337	<2	0,4
Vltava	Zbraslav	2,100	20–50	3,340	200–500	1,200	2–5	0,6
Vltava	Praha	3,040	20–50	5,160	500	1,430	2–5	0,6
Elbe	Brandýs/ Kostelec	744	5	530	<2	1,030	20	1,4
Elbe	Mělník	3,640	50	5,050	200–500	2,410	5–10	0,7
Ohře	Louny	314	<2	175	<2	255	<2	1,7
Elbe	Ústí nad Labem	3,630	20–50	4,700	100–200	2,540	5–10	0,8

Source: The report on the project "Evaluation of the spring flood in 2006 in the Czech Republic", Progress report on the project "Evaluation of the floods in June 2013"

The first wave of floods in June 2013 was in terms of the causes, course and affected area comparable with much larger flood in August 2002. In terms of extremity, flood situation in June 2013 was less significant, but the onset of its first wave was in many profiles faster due to the distribution of rainfall and its higher intensity. In addition, more affected was the Elbe basin upstream of Mělník, so in this confluence node the ratio of peak flows of the Elbe and the Vltava River was entirely different. In both cases, however, the further course of the flood along the Elbe was influenced by widespread overflows in Mělník and Litoměřice inundation areas. On the contrary, flood in spring 2006 was by its cause and course completely different. In spite of the fact that the Sázava River and the Lužnice River basins were similarly affected by the flood, the difference was that in June 2013 the flood arose in the lower part of both river basins, while in 2006 the entire area of both river basins was affected.

In the second episode there occurred precipitation of largely local torrential nature, which caused in many places (for example, in the areas of Plzeň, Domažlice, Kladno, Louny, in Šluknov tip, in the area of the Jeseníky Mountains) major flash floods. Hydrologically monitored major watercourses, however, only exceptionally showed exceedances of a flow with a return period of 5 years.

The third episode on 24 and 25 June was characterized by widespread and abundant regional rainfall, which was shifted more to the east and affected also the part of Moravia. This rainfall was preceded by several days with high to tropical temperatures,

The Chomutovka River – flood in June 2013

and during this period the saturation of the area decreased. Runoff response was most intense in the Doubrava River and the Chrudimka Rive basins, where return periods of peak flows ranged between 10 and 50 years, elsewhere in the eastern part of Bohemia (the Sázava River, the Lužnice River) and in Moravia (the Dyje River and some of its tributaries) the floods mostly showed peak flows with a return period of 2 years.

Figure 2.1.1
Watercourses affected by floods in June 2013 showing the hydrometric stations with at least 5-year return period of peak flows

Source: Progress report on the project "Evaluation of the floods in June 2013"

2.2 Remedying flood damages

Ministry of Agriculture

In 2013, the programme of remedying flood damage to state-owned water management property in 2010 was finished and the programme of remedying flood damage to state-owned water management property II as well as the programme of remedying flood damage to infrastructure of water supply systems and sewerage systems were launched.

The programme 229 110 "Remedying flood damage to state-owned water management property" included in 2013 only one sub-programme:

229 117 "Remedying the impacts of floods in the year 2010" – the sub-programme implementation was completed as of 31 December 2013. The applicants for support were the River Boards, s. e. and the Forests of the Czech Republic, s. e.

The programme 129 270 "Remedying flood damage to state-owned water management property II" started in 2013 its activity through the sub-programme:

129 272 "Remedying the impacts of floods in the year 2013", which was prepared in response to flood situations that occurred in 2013. Its implementation was launched on 12 September 2013. The applicants for support are the River Boards, s. e. and the Forests of the Czech Republic, s. e.

The objective of both of the above-mentioned programmes is to remedy flood damage to state-owned water management property in order to ensure the 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 2013 only one sub-programme:

129 144 "Support for remedying flood damage caused by floods in 2013" – this sub-programme was prepared in response to flood situations that occurred in 2013. It was launched on 17 September 2013, the expected date of completing this sub-programme is 31 December 2015. 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 majority shareholdings of towns and municipalities.

The financial performance of the above-mentioned sub-programmes is included in chapter 9.1 of this report.

Ministry of the Environment

Floods and overflowing watercourses in May and June 2013 on the territory of the Czech Republic caused damage that is of concern to the Ministry of Environment in the amount of CZK 568.62 million.

On the basis of the Resolution of the Government of the Czech Republic No. 580 of 31 July 2013 to finance remedying damage and restoration of part of the territory of the Czech Republic affected by floods in May and June 2013 and Government Resolution No. 845 of 6 November 2013 amending Government Resolution No. 580, chapter 315 of the Ministry of the Environment (hereinafter MoE) was increased by a total of CZK 568.62 million to eliminate damage caused by this natural disaster, namely through the MoE sub-programme 115 272 Floods 2013. In October 2013 there was a call for notification and specification of the type and the amount of damage incurred during floods 2013.

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

1. Reconstructions and repairs of waste water treatment plants,
2. Decontamination of land,
3. Decontamination of surface water and groundwater sources,
4. Recovery of migration passability and ecological stability of the landscape,
5. Recovery of natural function of watercourses,
6. Remedying damage to state-owned property administered by the MoE department organizations.

2.3 Project Evaluation of floods in June 2013

In connection with the floods in June 2013 a total of 15 human lives were lost and considerable material damage amounting to CZK 15.4 billion incurred. Heavy rains also caused many landslides and other damage. These floods by their consequences are comparable with the disastrous floods at the turn of the the 20th and the 21st centuries, ranking in the third place just after the floods in 1997 and 2002.

Therefore, similarly to other major floods, the floods in June 2013 were subjected to the evaluation in the form of a complex project, whose preparation was ordered by the Resolution of the Government of the Czech Republic No 533 of 3 July 2013. The evaluation focused on all aspects of flood situation, its causes, course, measures taken and their effectiveness, social, health, economic and environmental impacts. The coordination of the project was entrusted to the Ministry of the Environment, the documentation and evaluation itself was ensured by the Czech Hydrometeorological Institute. The project was divided into 13 sub-tasks, in the performance of which also River Boards, s. e. and other professional bodies participated. Flood reports prepared by regions and municipalities were also used for the evaluation.

Project sub-tasks performed by:

Meteorological causes of floods Hydrological evaluation of floods Analysis of anthropogenic effects on the flood regime	Czech Hydrometeorological Institute
Activities of Flood Committees, Integrated Rescue System and other bodies involved in flood protection	T. G. Masaryk Water Management Research Institute, public research institution
Flood forecasting service	Czech Hydrometeorological Institute
Analysis of media informing the public	Bison&Rose s. r. o.
Evaluation of the function and safety of hydraulic structures during floods	Vltava River Board, s. e., Elbe River Board, s. e., Ohře River Board, s. e., Morava River Board, s. e., Vodní díla TBD a. s.
Evaluation of the function of flood control measures	Water development and construction, a. s.
Assessment of the extent and documentation of flooded areas	Vltava River Board, s. e., Elbe River Board, s. e., Ohře River Board, s. e.
Social and health impacts of floods Economic impacts of floods	T. G. Masaryk Water Management Research Institute, public research institution
Documentation of slope instabilities	Czech Geological Survey
The impact of the floods on the environment and water protection	Czech Environmental Inspection

"Shipping" – Dagmar Sedláčková – 4th class, Tasovice primary school and nursery school, Jihomoravský region

3. Quality of surface waters and groundwaters

3.1 Surface water quality

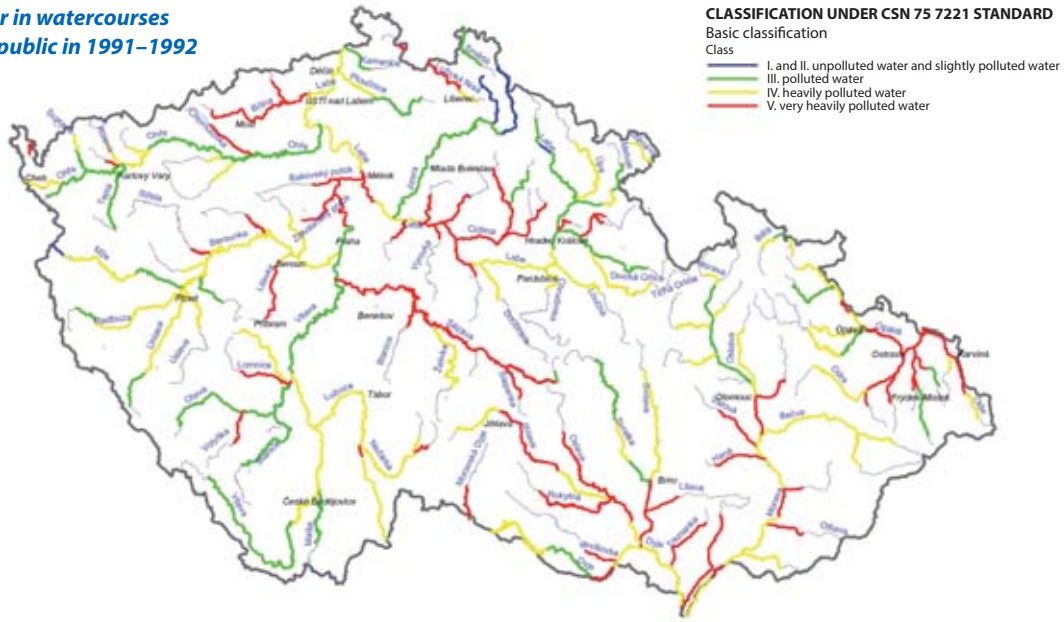
Current surface water quality in comparison with the 1991–1992 two-year period

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 2012–2013 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 3.1.2 shows that despite significant improvement of water quality, some river stretches (though very short ones) in the Czech Republic are still classified in water quality Class V.

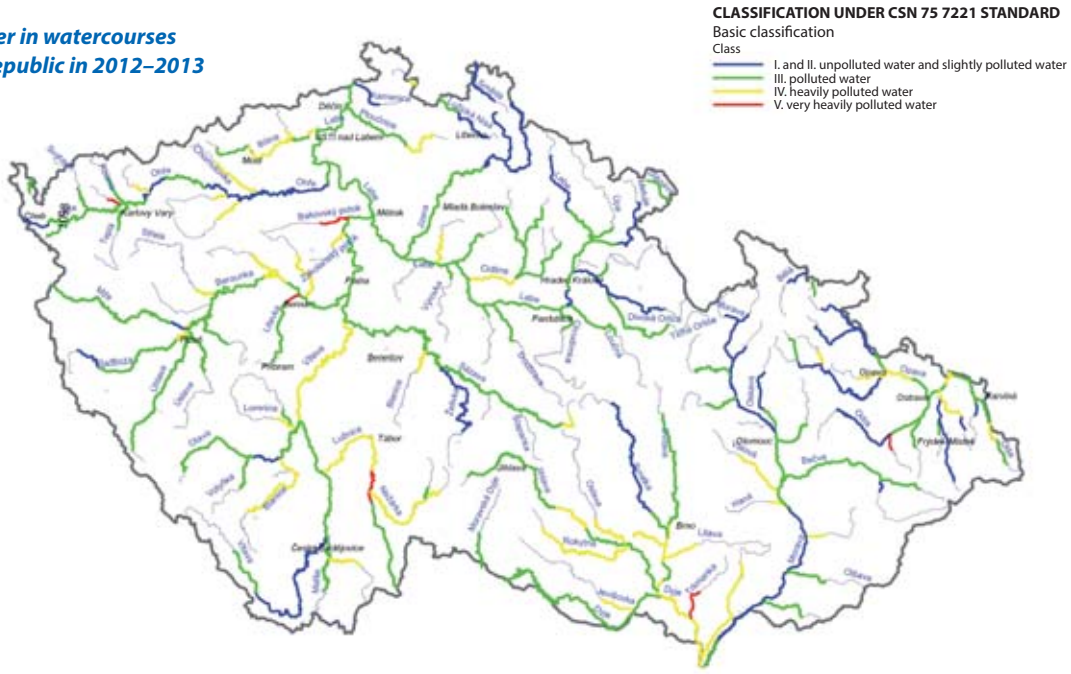
To produce the presented map of quality of water in watercourses of the Czech Republic for the period 2012–2013, the resulting evaluation of a total of 288 profiles of the water quality monitoring network provided by river basin administrators was used. The respective monitored hydrometric profiles are classified in the following water contamination clases under the CSN 75 7221 standard:

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



Source: T. G. Masaryk Water Management Research Institute, public research institution, based on the data from the Czech Hydrometeorological Institute

Figure 3.1.2
Quality of water in watercourses in the Czech Republic in 2012–2013



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

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 facilities 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 2013, the annual average volume activity of tritium in surface waters of the Vltava River in the hydrometric profile Vltava Solenice (downstream of the outlet of waste waters from the Temelín nuclear power plant) reached the value of 21.1 Bq/l, in the hydrometric profile Vltava Praha the value of 8.6 Bq/l and downstream of the confluence with the Elbe in the hydrometric profile Vltava Zelčín the value of 7.3 Bq/l. The detected values are in compliance with environmental quality standards for tritium in surface waters according to the Government Decree No. 61/2003 Coll., as amended. Total volume activity alpha and beta was also detected in values fully meeting environmental quality standards. Other activation and fission products produced during nuclear power plant operations were not detected. Low volume activities of strontium 90 and cesium 137 corresponding to the residual contamination after atmospheric tests of nuclear weapons and the Chernobyl Nuclear Power Plant accident in last century were detected.

In the vicinity of uranium ore deposits in the Příbram area, in surface waters of the Kocába River at the Višňová hydrometric profile and in the Drásovský stream at the Drásov profile, increased values of radiological indicators are every year repeatedly detected (under the CSN 75 7221 standard, surface water quality values corresponded to Quality Class V).

The average volume activity of tritium for the period 2012–2013 downstream of the outlet of waste waters from the Dukovany nuclear power plant in the hydrometric profile Jihlava downstream of the Mohelno reservoir reached the value of 109.1 Bq/l and in the hydrometric profile Jihlava Ivančice the value below 52.6 Bq/l. The detected values are in compliance with environmental quality standards (EQS), namely EQS-annual average and EQS-limit values for tritium in surface waters according to the Government Decree No. 61/2003 Coll. Total volume activity beta was also detected in values fully meeting environmental quality standards. In the evaluation according to CSN 75 7221 standard, the resulting characteristic values of the total volume activity beta (and also beta activity after correction) in both profiles were classified to belong to Class I, while tritium values classified the watercourse to belong to water quality Class II.

With regard to the evaluation of monitoring radioactivity in surface waters in the area downstream of the uranium ore deposit in Stráž pod Ralskem in the Ploučnice River basin it can be stated that for the total volume activity alpha and the total volume activity beta the values of environmental quality standards set by the Government Decree No. 61/2003 Coll. were not exceeded.

Sedlice hydraulic structure on the Želivka River

Water quality in water supply reservoirs and other reservoirs

On the territory of the Czech Republic, the year 2013 with the mean annual air temperature of 7.9 °C ranged around the average. The average precipitation amount on the entire territory of the Czech Republic reached 727 mm, which represents 108% of the long-term precipitation average. A number of water reservoirs, nevertheless, showed the eutrophication of water (i. e. the process caused by increased contents of mineral nutrients, especially phosphorus compounds, and to a smaller extent also nitrogen compounds in waters).

As regards water reservoirs administered by the Elbe River Board, s. e., it can be stated that in terms of water quality development the most important role was played by a rainfall-rich period in June and July. In spite of the fact that high summer was rather colder, increased supply of nutrients caused an excessive development of cyanobacteria water bloom at some of the reservoirs (e. g. Rozkoš and Harcov water reservoirs). In terms of the development of water temperatures, the vegetation period can be assessed as slightly above the average, which contributed to the development of phytoplankton. This development was also contributed to by the supply of nutrients after less abundant precipitation in the spring. Above-average temperatures in autumn 2013 caused that until the end of the year all water reservoirs (including mountain reservoirs) remained without a continuous ice cover. At the beginning of the growing season the quality of water in water supply reservoirs administered by the Elbe River Board, s. e. was influenced by the long winter season, which was changed in mid-April by a temperature jump that in most of the reservoirs caused a very rapid rise of water level temperatures above 12 °C. High flow rates at the end of June increased concentration of organic compounds according to COD_{Mn} at Hamry water reservoir to the level of 12–13 mg/l. Increased as well was a concentration of total phosphorus (40–60 µg/l). To improve the quality of raw water, regulatory catch of accompanying fish species associated with the long-term ichthyological survey was carried out. At Křižanovice water supply reservoir, average quality of water was reached (30 µg/l chlorophyll-*a*, transparency 100–250 cm). Two flood waves in June supplied to Vrchlice reservoir approx. 6.2 million m^3 of water, which accounted for about 90% of the storage volume of the reservoir. Water of very poor quality with a large amount of dissolved materials and suspended solids filled about two thirds of the reservoir volume. A large part of the volume of flood water, however, was purposefully diverted beyond the area of abstraction for water supply purposes. At Josefův Důl water supply reservoir, again in the spring and in the summer unusually high numbers of picocyanobacteria of the Merismopedia family were found. In the autumn, however, compared to the previous three years, there was a significant reduction of these undesirable organisms for water supply purposes. At the initiative and mainly at the cost of the North Bohemian Water Supply and Sewerage Systems Teplice, joint-stock company, field-proven aerial application of very fine-ground limestone at Souš water supply reservoir was carried out on 6 and 7 May. As regards the reservoirs of significance to water supply purposes in the Elbe basin, it can be stated that at Labská reservoir the quality of water deteriorated in the spring (transparency in early June was only 100 cm), the maximum concentrations of chlorophyll-*a* in July exceeded the value of 30 µg/l. In the remaining period, the transparency ranged above 200 cm (maximum 410 cm). At Seč reservoir, the quality of water was better, compared to the previous period, and the bathing season was without major problems (good bathing water quality). To better assess the circumstances forming the water quality in the reservoir, in 2013 a detailed monitoring at Seč water reservoir was carried out in cooperation with the Regional Authority of the Pardubický Region, Institute of Experimental Botany of the Academy of Sciences of the Czech Republic and the Elbe River Board, s. e. Regarding the quality of water in other reservoirs, it can be stated that water quality trends in this type of reservoirs were similar to those observed in the previous years. Water at Bedřichov reservoir was traditionally of excellent quality. Water level temperature reached an exceptional value of 25 °C and there were optimum conditions for bathing. Water quality at Fojtka reservoir was impaired (transparency repeatedly below 100 cm, the maximum concentrations of chlorophyll-*a* reached 55 µg/l). The poorest water quality was traditionally at reservoirs with frequent replacement of water, namely Les Království and Pařížov water reservoirs.

Na Markovce water reservoir in Kožichovice, Třebíč region

In 2013, water quality in reservoirs administered by the Vltava River Board, s. e. largely ranged within a usual year-to-year variability. The year 2013 was characterized by a cold spring and flood flows in June. While spring did not show significant impairment of water quality, markedly increased flow rates in June always represented strong input of phosphorus with the potential to stimulate eutrophication. Most water reservoirs responded by the increased presence of algae and cyanobacteria, especially in August and/or September. Although some water reservoirs showed a significant change of seasonal development of phytoplankton biomass (Klíčava and Slapy water reservoirs), the annual variability boundaries were not exceeded. The presence of humic substances annually deteriorates the quality of water abstracted by water treatment plant at Římov water supply reservoir and at other reservoirs situated in catchment areas, where acidification withdrew: Lučina near Tachov, Pilská, Láz and Obecnice near Příbram, Karhov in Jindřichův Hradec area. In terms of threats to water quality by pesticidal substances, unfavourable situation was at Švihov water supply reservoir and especially in its tributaries (triazine herbicides) – particularly due to intensive cultivation of mainly corn and rapeseed for technical purposes in systematically drained areas. Eutrophication threats applied to all water reservoirs, the cause was mainly input concentration of phosphorus. Treatability of water is regularly worsened by eutrophication at Lučina and Žlutice water supply reservoirs, less at Římov and Karhov reservoirs, significantly threatened is Švihov water supply reservoir. Recreational use is worsened by eutrophication at other reservoirs, namely Orlík, Lipno, Hracholusky and České údolí. In general, water quality trends in reservoirs in 2013 corresponded to usual annual variability. Earlier water quality problems persist and new ones have not appeared. The exception was Švihov water supply reservoir with high input amounts of phosphorus in connection with the reconstruction of Pelhřimov waste water treatment plant (similarly to Sedlice water reservoir).

The quality of water in reservoirs administered by the Ohře River Board, s. e. was continuously monitored and according to the results of zonal measurement it was not necessary to carry out desludging, except for Mariánské Lázně water supply reservoir. At the turn of August and September, desludging consisting in the discharge of anoxic layer was carried out there. In the area administered by the Ohře River Board, s. e. thus there were no threats to drinking water supplies due to quality or quantity.

In the area administered by the Morava River Board, s. e., the growing season in 2013 was affected by dry and warm summer, during which mass development of planktonic cyanobacteria, especially of the Microcystis family was expected in reservoirs that usually suffer from water bloom. The reality turned out to be more favourable, in most reservoirs phytoplankton was dominated in the summer by green coccal algae, desmidiales and diatoms, but it is necesary to mention a few reservoirs where the development of algal blooms occurred. Microcystis family became significantly dominating cyanobacteria at the turn of July and August only at Fryšták water reservoir. The recreational water reservoir in Jevišovice showed mass development of cyanobacteria Aphanizomenon flos aquae surprisingly in October. In Vír water supply reservoir mass water bloom formed by cyanobacteria Aphanizomenon yezonense was recorded in July and rather cold-water cyanobacteria Woronichinia naegeliana showed mass development in Brno reservoir in Zouvalka profile and in Bystřička reservoir. Quite worrying was mass development of more species of cyanobacteria in September in otherwise mesotrophic Opatovice reservoir. Significant turbidity caused by filamentous cyanobacteria Pseudanabaena limnetica was recorded in July and August in Nové Mlýny water reservoir and in Podhradský pond (this species of cyanobacteria, however, does not form real water bloom). There should also be noted some cases where there was a mass development of other groups of algae. Above all, it was the unexpectedly strong development of chlorophytes (green algae) of the Vacuolaria family in September in Landštejn reservoir or development of dinoflagellates Ceratium furcoides in Výrovice reservoir. Responsible for high values of chlorophyll-*a* concentration in Nové Mlýny and Oleksovice reservoirs and in Podhradský pond in the second half of the growing season are diverse communities of diatoms or green algae. Also of importance is the regular mass development of desmidiales of the Staurastrum family in Mostiště water supply reservoir.

The quality of raw water in the area administered by the Oder River Board, s. e., at the Šance, Kružberk and Morávka water supply reservoirs in 2013 was very good and did not require more complex treatment to achieve drinking water. In none of these water reservoirs massive development of phytoplankton was observed. Total biomass was low and the measured numbers of individual phytoplankton representatives reached tens, sporadically hundreds of organisms per millilitre. Minor problem occurred at Šance water reservoir, where extreme lowering of the water level due to reconstruction of the dam resulted in the exposure of fine sediment and its subsequent washing back to the water column. This led to short-term reduced transparency of water, but raw water treatment to drinking water was not affected.

The Tichá říčka stream – reclamation

Quality of water used for bathing during the bathing season 2013

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 Act No. 258/2000 Coll., on the protection of public health, as amended, regulates the rights and obligations of natural and legal persons, which must be met in the area of protection and promotion of public health; the Act further establishes a system of public health protection bodies, their scope of activity and authority. One of the areas that is protected by this Act, is outdoor bathing, operation of outdoor bathing pools, artificial bathing pools, swimming pools and saunas. Decree No. 238/2011 Coll. regulates the equipment of outdoor bathing pools and the requirements for the sampling method and frequency of inspection and also bathing water quality requirements.

Under current legislation, the list of outdoor bathing sites to be subjected to the monitoring of the quality of water used for bathing is annually, before the start of summer recreational season, published, updated and complemented mainly on the basis of comments made by the public. Important role in this area is played by an amendment to the Water Act, because one of the major changes compared to the former Directive 76/160/EEC is that Member States should not only monitor the quality of water and inform the residents, but where the quality of water used for bathing is not satisfactory, the country must take active measures to remedy the situation. For each bathing site that is included in the list of the monitored outdoor bathing sites there must be prepared the so-called "bathing water profile", in which, among other characteristics sources of pollution, proposals for remedial measures in the river basin, etc. are described. A related legislative regulation to the Water Act is Decree No. 155/2011 Coll., on profiles of surface waters used for bathing.

In 2013, of the total number of 157 reported bathing waters only three localities were classified as failing to comply with the requirements set by Directive 2006/7/EC.

Salmon and carp waters in 2013

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 indigenous species of fish 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.).

Detecting and assessing the status of quality of surface waters which are suitable for the life and reproduction of indigenous species of fish species is carried out in accordance with the procedures established by current legislation.

The quality is met if the results of analyses of samples of these waters collected at a set frequency in the period of 12 months at the same location (measuring profile) meet the set limit and target values.

The assessment does not include the results of analyses of samples affected by floods or other natural disasters. A deviation from the requirements for the target and limit values is only permitted:

a) for indicators of temperature, pH and suspended solids, due to extraordinary climatic or geographic conditions,
b) due to natural enrichment of surface waters with leachate from the subsoil,
c) in 5% of the samples for indicators of pH, free ammonia, ammonia ions, total chlorine, total zinc, BOD_5, nitrites and dissolved copper; if the frequency of sampling and measuring is less than one sample per month.

The assessment will be carried out based on the assessment of the status of surface waters in 2014.

Quality of suspended matter and sediments

An integral part of a complex assessment of the quality of surface water and chemical status of surface water bodies is information on the quality of solid components of the aquatic ecosystem, such as suspended matter, sediments and biotic components. The constant matrix is preferably bound to by a number of pollutants, whose detection in water samples is problematic and analysis of an aqueous sample so does not provide reliable information on the presence or absence of the pollutant in watercourses. Sediments, suspended matter and biota are important matrices for the monitoring of mainly substances with significant accumulation potential.

The programme of monitoring the quality of suspended matter and sediments in 2013 was based on the programme of surveillance monitoring of the chemical status of waters of the Czech Hydrometeorological Institute from 2007 and followed up with the monitoring of solid matrix conducted in the years 2007–2012. The draft of the programme in accordance with the EU legislation and legislation of the Czech Republic in the area of water protection took into consideration directives and draft directives of the European Parliament and of the Council, with emphasis on the list of priority substances and priority hazardous substances and the relevance to the solid matrix (Directives 2000/60/EC, 2001/2455/EC, 2008/105/EC, 2009/90/EC, the draft Directive 2013/39/EC amending Directives 2000/60/EC and 2008/105/EC as regards priority substances in the field of water policy), taking into account the recommendations formulated in the Guidance Document No. 25 of the European Commission (Guidance on chemical monitoring of sediment and biota under the Water Framework Directive).

In the year 2013, the monitoring of the chemical status of suspended matter and stream sediments was carried out at 47 hydrometric profiles on main watercourses and their significant tributaries under the programme of the complex monitoring, which followed up with the surveillance monitoring programme conducted in the years 2007–2010 and with the monitoring of constant matrix in 2011–2012. Following up with the above mentioned programmes, it was planned to monitor contents of heavy metals, metalloids and specific organic substances, including the majority of priority pollutants with relevance to constant matrix (Annex II of the Directive 2008/105/EC). It was also planned to monitor other potentially hazardous substances with possible endocrine and toxic effects, whose presence in the aquatic environment was already previously demonstrated in research projects: bisphenol A, musk compounds, triclosan, etc. The selected 10 profiles were considered to be analyzed for the presence of the new priority hazardous substances (hexabromocyclododecane, dioxins and compounds with dioxin effect). A selected set of ten sediment samples was planned to be subjected to the gamma-spectrometric analysis of radionuclides. For this purpose, a total of 98 sediment samples, 58 samples of sedimentable suspended matter and 149 suspended matter samples were collected. All samples were conserved and prepared for long-term storage for subsequent chemical analyses.

The Beskydy Mountains – Baška

The Czech Hydrometeorological Institute is obliged to select (according to the clearly defined relevant provisions of the Act No. 137/2006 Coll. on public procurement) the contractor for the required chemical analyses of collected samples in the regime of open procedure. The desired range of all special determinations in these difficult matrices in the Czech Republic can be ensured by only a very small number of analytical laboratories which, with respect to covering the full range of analyses, may submit only one joint bid. The result is usually a cancellation of the open tendering procedure due to the lack of bids, its repetition and, as the case may be, final award of the contract to one bidder (a consortium of laboratories). Application of the Act on public procurement in the area of these highly specialized analyses leads, also with respect to deadlines established by the Act on public procurement, to the problematic implementation of the monitoring programme to meet deadlines required for processing the results of this monitoring. For the above-mentioned reason, the results of chemical analyses are not yet available and could not be evaluated, as repeated tendering procedure for the supplier of chemical analyses of samples collected in 2013 is still under way.

Bio-accumulation monitoring of surface waters in 2013

The programme of bio-accumulation monitoring allows to comprehensively determine the status of the sites in question and significantly contributes to an increase in knowledge of the state of contamination of biota in the Czech Republic, since these sites have not yet been investigated within the framework of bio-accumulation monitoring. Directive 2008/105/EC allows to use for monitoring not only the fish and the fry, but also other suitable matrices involved in the programme, i. e. macrozoobenthos, biofilm and mussel Dreissena polymorpha. These matrices differently accumulate pollutants in the context of the method of feeding and the type of habitat. The use of alternative matrices allows comprehensive monitoring of the ecosystem, all components of the food chain and various forms of hazardous substances occurring in the ecosystem.

In 2013, the monitoring network was updated to allow in all of the 43 most important profiles in the Czech Republic to start monitoring the contamination of biota. Profiles monitored in the previous years were not monitored in 2013 (21 profiles), while new profiles, not monitored yet, were included in the programme for the year 2013 (22 profiles). In this way, monitoring the contamination of biota also in the coming years is planned, i. e. rotation of these two groups of profiles in individual years. Under the programe in 2013 at each site one sample of the relevant matrix was collected in the following numbers: macrozoobenthos 22 samples, biofilm 22 samples, Dreissena polymorpha 7 samples, fish 18 samples, fry 22 samples. All samples were conserved and prepared for long-term storage for subsequent expected chemical analyses.

Similarly to sediments and suspended matter, the results of chemical analyses are not yet available and could not be evaluated, as repeated tendering procedure for the supplier of chemical analyses of samples collected in 2013 is still under way.

3.2 Groundwater quality

In the year 2013 the national groundwater quality monitoring network monitored 660 sites comprising 173 springs (the monitoring of springs documents natural drainage of groundwaters particularly in the Crystalline complex and local drainage of Cretaceous structures), 222 shallow wells (the wells are largely located in alluvial plains of the Elbe, Orlice, Jizera, Ohře, Dyje, Morava, Bečva, Oder and Opava Rivers – these groundwaters are highly vulnerable, with a high coefficient of filtration and rapid pace of pollution) and 265 deep wells (the wells are concentrated mainly in the Bohemian Cretaceous Basin, the České Budějovice Basin and the Třeboň Basin and monitor the quality of deep aquifers – direct vulnerability of these waters is not very high, because the contamination there is manifested only after a longer period of time). In total, 277 water quality indicators were measured. Due to austerity measures, sites of the national monitoring network were sampled at a frequency of only once a year, in late autumn. In 2013, Part one of an extensive surveillance monitoring which is always carried out in two sampling cycles after a three-year period of operational monitoring was completed in 2013. Therefore, monitoring of all parameters at all sites monitored by the Czech Hydrometeorological Institute was carried out.

The evaluation of groundwater quality results in the year 2013 was carried out by comparing the measured values of the groundwater quality indicators with the reference values for groundwater under the Decree No. 5/2011 Coll., defining groundwater zones and groundwater bodies, the method of groundwater status assessment and the requirements of the programmes of groundwater status assessment. This decree establishes reference values of indicators as limits for the groundwater quality assessment.

Based on the assessment we can conclude that in terms of inorganic ions most frequently found in concentrations exceeding the limit values was manganese (40.5% of samples above the limit values), followed by ammonia ions (13.0% of samples above the limit values), nitrates (11.2% of samples above the limit values), sulphates (3.0% of samples above the limit values), chlorides (2.9% of samples above the limit values), sodium (2.7% of samples above the limit values) and fluorides (2.6% of samples above the limit values). Increased concentrations of above-mentioned inorganic substances are mostly shown by shallow wells (except for sodium and fluorides that are more frequently shown by deep wells). For manganese, where the largest number of samples exceeding the limit values were found, it is necessary to point out the relatively strict reference value of 0.05 mg/l for groundwater (within the limit for drinking water /see Decree No. 252/2004 Coll./ this value is corrected to 0.2 mg/l in the case that it can be assumed that the increased concentration of manganese in the water is caused by its natural presence in the geological environment).

The Prunéřovský stream

Indicators showing generally the presence of organic substances above the limit values included mainly chemical oxygen demand by permanganate (12.4% of samples above the limit values), followed by dissolved organic carbon (7.0% of samples above the limit values). In the determination of hydrocarbons C10–40 generally monitoring the presence of oil substances and determination of anion tenzides only one site failing to meet the limit values was found. It can be generally stated that the presence of organic substances above the limit values is mainly shown by samples collected from shallow wells, i. e. sites more significantly influenced by anthropogenic pollution.

From the group of metals, in terms of exceedances of limit values, we can mention particularly barium (46.5% of samples above the limit values), followed by arsenic (4.5% of samples above the limit values), cobalt (4.4% of samples above the limit values), nickel (2.6% of samples above the limit values), aluminium (2.1% of samples above the limit values) and cadmium (1.5% of samples above the limit values). For metals, there is a known fact that their toxicity to humans is often lower than to other organisms, and this is for some metals expressed by stricter limits for groundwater than for drinking water. However, the reference value for groundwater for barium (50 µg/l – see Decree No. 5/2011 Coll.), which is practically at the level of background concentrations of groundwaters, seems to be inadequately low.

Regarding organic substances, in particular the numerous group of pesticide substances should be mentioned. The relevant limits set for the quality of groundwater are usually not exceeded directly by active substances, but their metabolites. Extensive surveillance monitoring included in 2013 also new, so far not monitored pesticide substances – there was also recorded a new metabolite of the herbicide chloridazon, whose concentrations most frequently in this group of organic substances exceeded the limit values, namely chloridazon desphenyl (27.1% of samples above the limit values). This percentage can be interpreted as very important also because the reference value of 0.1 µg/l was exceeded in almost half of the samples collected at sites of important water supply sources (which are also part of the groundwater quality monitoring network). As regards the frequency of exceeding the limits for groundwater, the above mentioned substance was followed by a large group of metabolites of the herbicides alachlor, metholachlor, acetochlor and newly also metazachlor (chloroacetanilides). These were namely alachlor ESA (16.2% of samples above the limit values), metazachlor ESA (13.2% of samples above the limit values), metholachlor ESA (10.3% of samples above the limit values), acetochlor ESA (6.4% of samples above the limit values), metazachlor OA (4.1% of samples above the limit values), metholachlor OA (3.3% of samples above the limit values) and acetochlor OA (2.6% of samples above the limit values). They were followed by less frequently occurring triazine pesticides – especially the herbicide atrazine (0.9% of samples above the limit values) and its metabolites, such as hydroxyatrazine (3.0% of samples above the limit values), desethylatrazine (1.5% of samples above the limit values) and desethyldesisopropylatrazine (1.5% of samples above the limit values). Also bentazone (1.1% of samples above the limit values) and hexazinone (0.9% of samples above the limit values) were found. Other pesticides showing concentrations above the limit values occurred only sporadically. Groundwater samples with pesticide concentrations exceeding the limit values were most frequently collected from shallow wells. As regards polycyclic aromatic hydrocarbons, in terms of limits for groundwater, more significant occurrences were shown by phenantrene (11.5% of samples above the limit values), chrysene (2.9% of samples above the limit values), fluoranthene (1.8% of samples above the limit values) and pyrene (1.8% of samples above the limit values). As regards the group of volatile organic compounds, concentrations exceeding the limit values occurred most markedly for 1,2-cis-dichloroethene (2.9% of samples above the limit values) and toluene (1.8% of samples above the limit values).

A typical representative of the group of synthetic complexing agents is ethylenediaminetetraacetic acid EDTA – 3.0% of samples above the limit values were found in the year 2013. Di(2-ethylhexyl) phthalate DEHP is a substance used as a softening agent in plastic products. The indicator was found to exceed the reference value of 1.3 µg/l only for five groundwater sites. Chloroalkanes C10-30 is a group of substances used in industry, for example, as fire retarders, additives in the manufacture of rubber and paints. The indicator exceeded the reference value of 0.4 µg/l only for five groundwater sites.

Radiochemical properties of groundwater were monitored using a single general indicator, the total volume activity alpha (7.6% of samples above the limit values). Sice the limit for indicator of the total volume activity alpha is according to Decree No. 307/2002 Coll. an indicative and not a limit value, such exceedance of the limit (with regard to Decree No. 5/2011 Coll.) should be understood only as a recommendation to carry out the supplementary analysis of the volume activities of individual radionuclides.

Overall, it can be summarized that most significant indicators of groundwater pollution there appear inorganic substances (nitrates and ammonia ions), metals (manganese, barium, arsenic, cobalt and nickel), volatile organic compounds (isomers of xylene, isomers of 1,2-dichloroethene and toluene), PAHs (phenantrene and chrysene), pesticides (chloridazon desphenyl, metabolite of chloroacetanilides and triazines) and EDTA. Significanly lower percentage of above-limit concentrations of some specific organic substances in 2013 compared to the previous year is not due to reduced groundwater pollution, but to the fact that in 2012 these substances were measured only at selected sampling sites, where there was a higher probability of their occurrence (operational monitoring), while in 2013 all monitored indicators were analyzed in groundwater samples collected from all monitored sites (surveillance monitoring). Overall, indicators exceeding the limit values were mostly found in the groundwaters of shallow wells situated in alluvial plains of the rivers (more affected by anthropogenic activity). The summary of the number of sites where exceedances of the limit values for groundwater were analytically found for at least one indicator is presented in table 3.2.1.

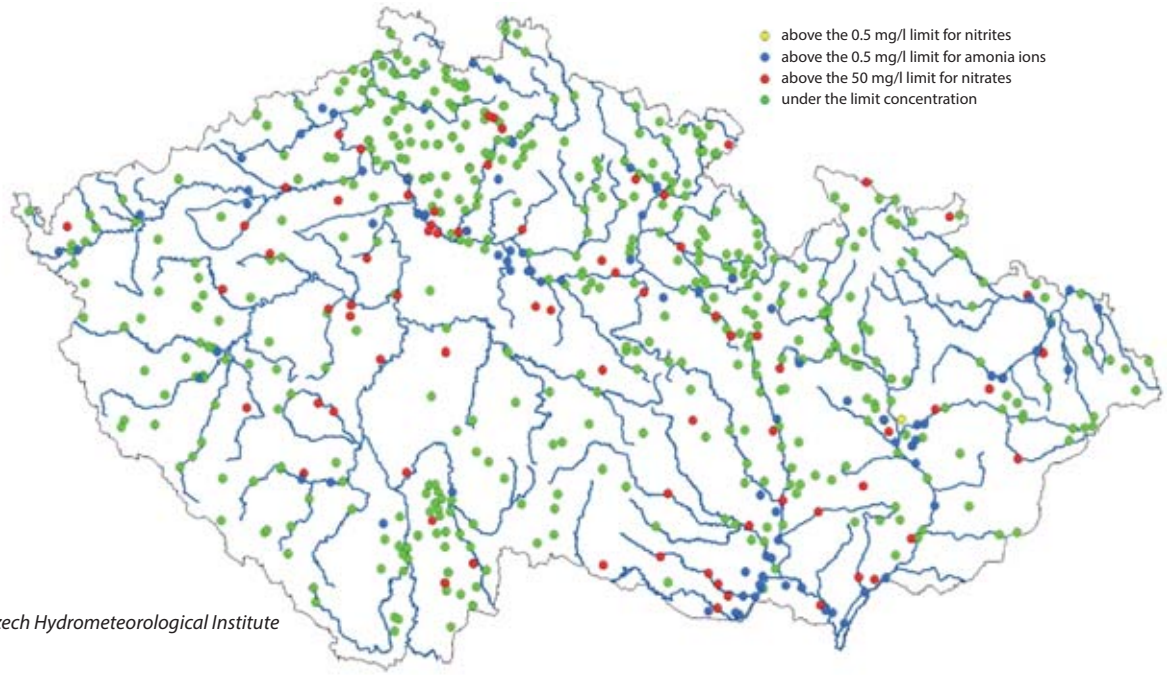
The table shows that there was a slight improvement in the number of monitoring sites with exceedances of the limit values for groundwater, compared to 2012, but lower values from 2011 were not reached. The comparison with the values reached in the years 2011 and 2012, however, is influenced by the fact that in 2013 for the reasons already mentioned the sampling was carried out only once a year (in autumn) and, in addition, compared to the previous years, more extensive monitoring was carried out, both in terms of the number of monitored groundwater sites, and especially the number of analyzed indicators.

Table 3.2.1
Numbers of sites with exceedances of the limit values for groundwater in at least one indicator for the year 2013 (compared to 2012 and 2011)

Sites	Number of sites	Number of sites with exceedances of limit values for groundwater	% of sites with exceedances of limit values for groundwater		
			2011	2012	2013
Shallow wells	222	209	93.9	94.8	94.1
Deep wells and springs	438	332	70.4	78.1	75.8
All sites	660	541	78.1	83.6	82.0

Source: Czech Hydrometeorological Institute

Figure 3.2.1
Concentrations of nitrogenous substances in groundwaters in the year 2013 (exceedances of reference values under Decree No. 5/2011 Coll.)



Source: Czech Hydrometeorological Institute

"Steamboat on the Brno dam" – Michaela Volejníková – Křídlovická primary school, Brno, Jihomoravský region

4. Water use

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 Decree No. 431/2001 Coll. the scope of reported data changed after 2001, so that now the registered abstractions (as well as waste water and mine water discharges) only include abstractions exceeding 6,000 m^3 per year or 500 m^3 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 the following year. The data for the year 2012 were classified based on the NACE according to Eurostat (incomplete acronym of the French expression "Nomenclature statistique des activités économiques dans la Communauté européenne"). Before 2008, older classification according to the so-called SCEA (sector classification of economic activities by the Czech Statistical Office, Prague 1998) was used. 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 comparison of data for the years 2012 and 2013 was based on specified and official data of the Czech Statistical Office (www.czso.cz).

Table 4.1. shows detailed information on the NACE classification of surface water abstractions and groundwater abstractions and discharges of waste water and mine water into surface waters based on user groups. The classification applies to the tables below 4.1.1, 4.2.1 and 4.3.1.

Table 4.1

Classification of users in the individual user groups according to the NACE classification

Public water supply networks	NACE 36
Public sewerage systems (excl. transfers)	NACE 37
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 38 – 96
Total (excl. fishponds and transfers)	NACE 01 – 96

Source: Czech Statistical Office

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 abstractios rather ceased. The exception was the year 2009, in which, compared to 2008, a temporary decline of surface water abstractions occurred. The year 2013 again shows a decrease of the total abstractions in the amount of 1,278.6 million m^3, compared to the amount of 1,461.3 million m^3 in 2012, i. e. a decrease by 12.5%.

For almost all of the assessed categories, i. e. public water supply systems, energy sector, industry (including extraction of mineral resources) and other consumers of surface water (including construction industry), compared to 2012, there was a decrease of abstracted amounts of surface water throughout the country, only in agriculture (including irrigation) stagnation can be stated. It should be noted, however, that the category of agriculture is difficult to assess exactly. The problem is mainly the fact that the reported amounts do not fully correspond to the real situation in the individual sub-basins, such as Blšanka in the Ohře River Basin). This fact is indirectly associated with the provision of Section 101 of the Act No. 254/2001 Coll. (balancing water deficit of agricultural crops – only part of abstracted water is charged, nevertheless, for the purposes of Decree No. 431/2001 Coll., all abstracted water must be reported and must meet the relevant quantity limits).

As regards surface water abstractions for public water supply networks, it can be stated that in 2013, compared to 2012, there was a marked decrese by 3.8% (a decrease from 327.3 million m^3 to 314.8 million m^3). In industry (including extraction of mineral resources) in 2013, compared to 2012, there was also a decrease from 236.0 million m^3 to 214.2 million m^3, i. e. by 9.2%. Also energy sector showed a decrease of surface water abstraction amounts from 857.0 million m^3 to a significantly lower value of 710.5 million m^3 (a decrease by 17.1%). In addition, rather an insignificant difference can also be recorded in the group of other consumers (including construction industry), a decrease from 9.9 million m^3 to 8.0 million m^3.

As regards surface water abstractions registered by the individual River Boards, s. e., all of them reported a decrease in 2013, compared to 2012. The most significant decrease was reported by the Elbe River Board, s. e. (by 17.1%), followed by the Morava River Board, s. e. (by 11.6%), the Vltava River Board, s. e. (by 8.4%) and the Ohře River Board, s. e. (by 7.6%). The least significant change, compared to 2012, was reported by the Oder River Board, s. e. (a decrease only by 2.1%).

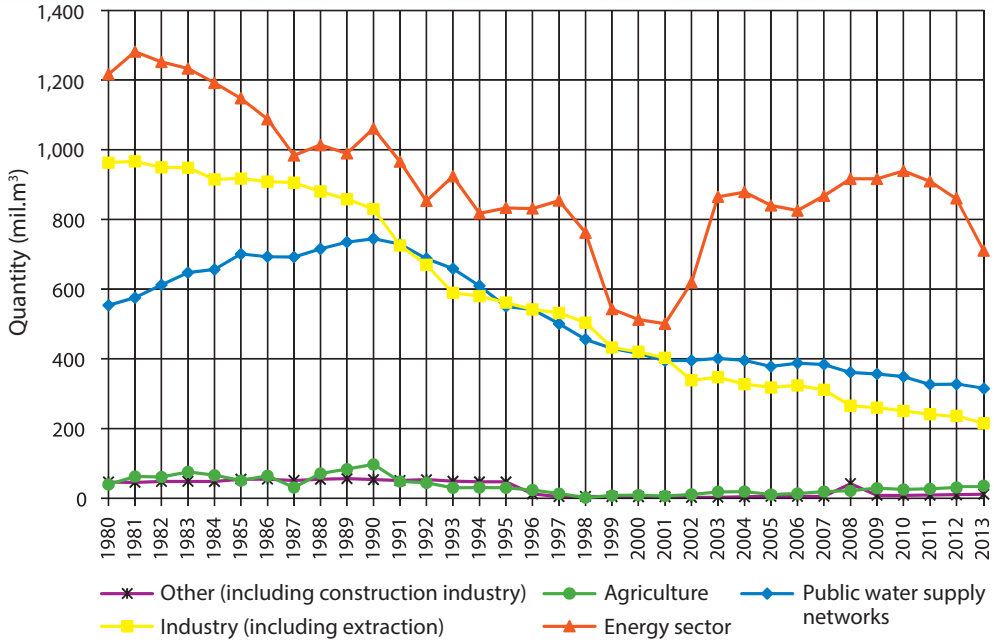
Table 4.1.1

Surface water abstraction in the year 2013 exceeding 6,000 m^3/year or 500 m^3/month in millions of m^3

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.	35.8	28	6.3	43	481.7	12	83.3	70	1.7	63	**608.8**	**216**
Vltava River Board, s. e.	136.0	42	0.5	14	52.8	17	26.4	69	5.1	46	**220.8**	**188**
Ohře River Board, s. e.	42.4	20	6.4	20	44.3	10	36.7	48	0.2	15	**130.0**	**113**
Oder River Board, s. e.	68.5	25	0.0	0	15.3	2	57.8	52	0.4	29	**142.0**	**108**
Morava River Board, s. e.	32.1	33	17.9	39	116.4	2	10.0	74	0.6	34	**177.0**	**182**
Total	**314.8**	**148**	**31.1**	**116**	**710.5**	**43**	**214.2**	**313**	**8.0**	**187**	**1,278.6**	**807**

Source: MoA, River Boards, s. e.

Chart 4.1.1
Surface water abstractions in the Czech Republic in the years 1980–2013



Source: MoA, River Boards, s. e.

As regards surface water abstractions for public water supply network, only the Elbe River Board, s. e. reported an increase (by 2.9%), compared to 2012, all other River Boards, s. e. reported a decrease, compared to 2012, as follows: the Vltava River Board, s. e. (by 3.9 %), the Ohře River Board, s. e. (by 6.2%), the Oder River Board, s. e. (by 3.9%) and the Morava River Board, s. e. (by 7.0%). As regards surface water abstractions for agriculture, an increase (insignificant in absolute figures, however, a marked increase in percentage), compared to 2012, was reported by the Vltava River Board, s. e. (from 0.1 million m³ to 0.5 million m³); an increase was also reported by the Morava River Board, s. e. (from 16.2 million m³ to 17.9 million m³, i. e. an increase by 10.5%). Abstractions for the energy sector decreased most significantly in the Elbe River Board, s. e. (by 19.3%) – this was mainly due to CEZ – Mělník power plant (with flow-through, not circulation cooling). As regards surface water abstractions for industry (including extraction of mineral resources), a significant decrease (by 2.0–10.5%) was reported by all River Boards, s. e.

The total charged abstractions significantly decreased from 1,409.8 million m³ in the year 2012 to 1,228.0 million m³ in 2013. The proportion of charged abstractions in 2013 amounted to 96.0% of the registered abstractions in total. The structure of the registered surface water abstractions in the respective river basins in 2013 is shown in table 4.1.1. The overall development of surface water abstractions since the year 1980 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 of 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 314.8 million m³. Thus, the abstractions in the year 2013 amounted only to 42.3% 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 214.2 million m³ in the year 2013, i. e. to no more than 25.8% of the volume abstracted in 1990. Less significant decrease can be observed for energy sector, surface water abstractions decreased from 1,060.9 million m³ to 710.5 million m³, i. e. to 67.0%; in agriculture, surface water abstractions decreased from 97.2 million m³ to 31.1 million m³, i. e. to no more than 32.0% of the volume abstracted in 1990. This fact does not mean, however, that water resources would always and clearly be less exposed to anthropogenic impacts. On the contrary, in the energy sector, for example, there was an increase (with respect to continuously increasing electric energy generation in the Czech Republic) in consumptive water use (the difference between abstraction and discharge, caused primarily by evaporation in the cooling towers of thermal and nuclear power plants).

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. They involve all water management activities.

4.2 Groundwater abstractions

In reports on water management in the Czech Republic assessing the years 2011 and 2012 it was stated that the increase in the rate of decline in this abstraction category

Soběšice water reservoir

already reached its peak – at present the abstractions tend to stagnate. Data for 2013 partially raise doubts about these conclusions. The total groundwater abstractions in 2013, compared to 2012, decreased (although not dramatically) from 379.4 million m³ to 371.2 million m³, i. e. by 2.2%.

The pattern of registered water abstractions in the respective river basins in the year 2013 is shown in table 4.2.1. In the year 2013, in total 4,346 groundwater abstractions, amounting to 371.2 million m³ were registered (this figure includes only abstractions exceeding 6,000 m³ per year or 500 m³ per month). As regards groundwater abstractions for public water supply networks, it can be stated that in 2013, compared to the year 2012, there was a slight decrease from 309.8 million m³ to 303.5 million m³, i. e. by 2.0% (somewhat different situation was in both 2011 and 2012). As regards industry (including extraction of mineral resources) in the year 2013 the abstractions slightly decreased, compared to the year 2012, from 35.4 million m³ to 34.3 million m³, i. e. by 3.1%. In agriculture, compared to the year 2012, the abstractions increased from 12.1 million m³ to 12.9 million m³, i. e. by 6.6%. The energy sector showed rather a stagnation (2.4 million m³ in 2012 and 2.5 million m³ in 2013). The overall trend of groundwater abstractions from 1980 is presented in chart 4.2.1.

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. (5.6%).

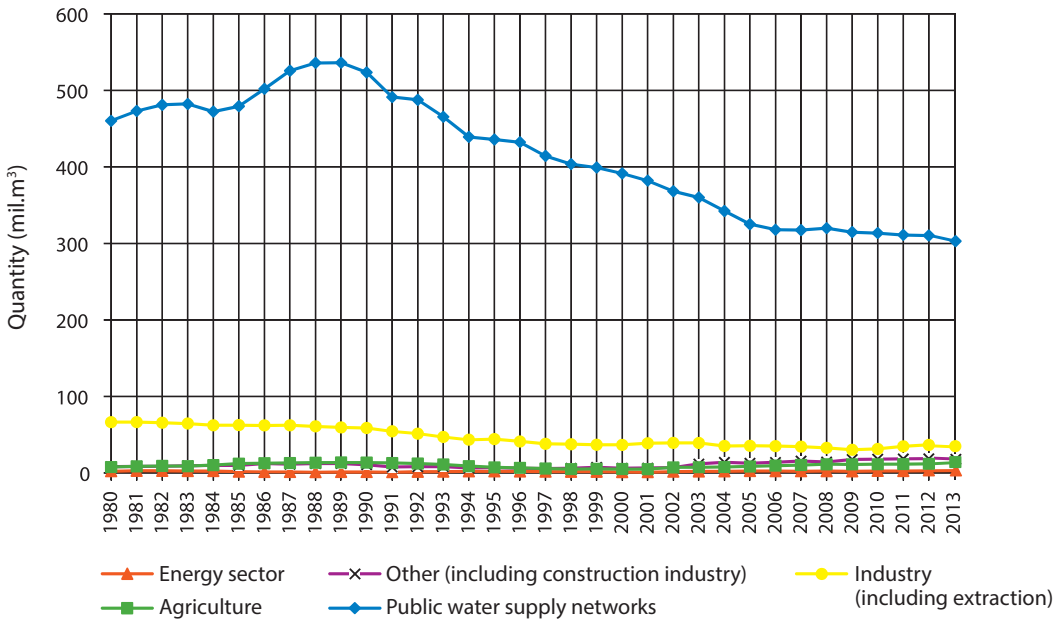
Looking at the territorial pattern, the registered groundwater abstractions in total decreased in the following river basins administered by: the Elbe River Board, s. e. (by 4.9%), the Morava River Board, s. e. (by 2.6%) and the Vltava River Board, s. e. (by 2.0%). A slight increase was recorded by the Ohře River Board, s. e. (by 2.3%) and the Oder River Board, s. e. (by 2.0%).

Table 4.2.1
Groundwater abstractions in the year 2013 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.	95.0	649	2.5	180	0.9	8	7.5	118	3.4	73	**109.3**	**1,028**
Vltava River Board, s. e.	32.4	568	4.6	322	0.6	12	8.4	127	8.1	363	**54.1**	**1,392**
Ohře River Board, s. e.	49.4	317	0.7	24	0.9	6	9.8	115	1.9	19	**62.7**	**481**
Oder River Board, s. e.	19.2	142	0.4	22	0.0	0	1.0	29	0.3	20	**20.9**	**213**
Morava River Board, s. e.	107.5	684	4.7	289	0.1	1	7.6	167	4.3	91	**124.2**	**1,232**
Total	**303.5**	**2,360**	**12.9**	**837**	**2.5**	**27**	**34.3**	**556**	**18.0**	**566**	**371.2**	**4,346**

Source: MoA, River Boards, s. e.

Chart 4.2.1
Groundwater abstractions in the Czech Republic in the years 1980–2013



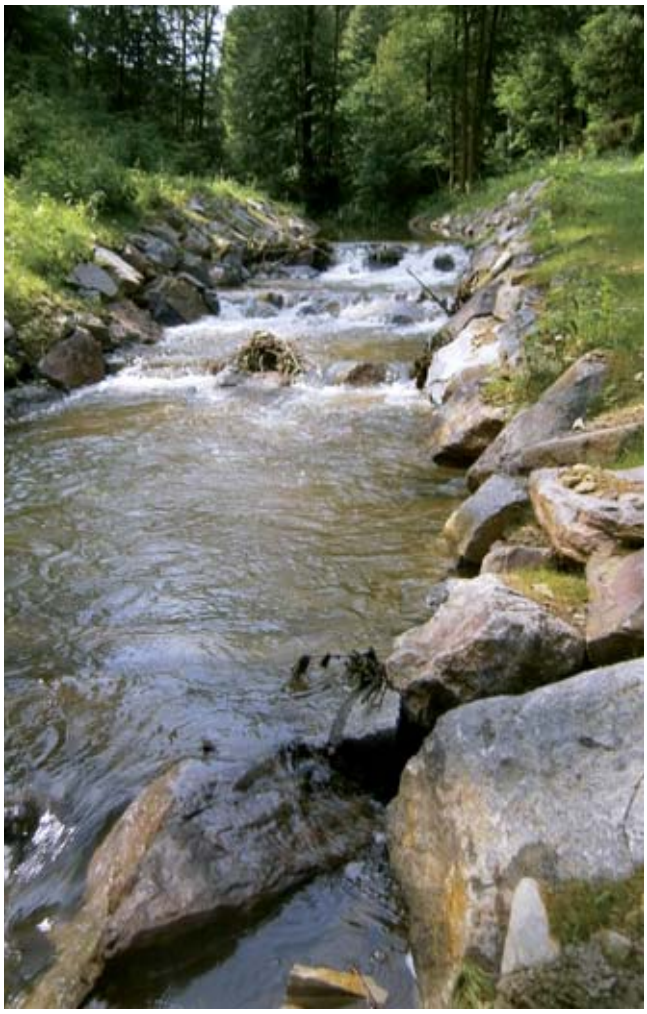
Source: MoA, River Boards, s. e.

4.3 Waste water discharges

In the year 2013, in total 1,846.3 million m³ of waste waters and mine waters were discharged into surface waters. Compared to the year 2012, this represented a decrease of only 2.1%. 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 of Official Journal 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. Since the year 2003, the data on the quantity of waste waters discharged into surface waters has been taken only from the statistics of the Czech Statistical Office. The structure and the total amounts identifed from waste water discharges registered by River Boards, s. e. are presented in table 4.3.1. The overall trend of waste water discharges from 1980 is shown in chart 4.3.1.

The largest percentual increase in the quantity of discharged waste waters, compared to the year 2012, was observed in the category of public sewerage systems (by 10.8%). This variation of the annual discharged amount is related to the fact that the year 2013 can be described (with respect to the entire territory of the Czech Republic) as to have received more precipitation amounts, compared to the previous year (see table 1.1.1 – annual runoff from the territory of the Czech Republic in 2012 amounted only to 13,065 million m³, in 2013 to 19,885 million m³), therefore, also the proportion of rainwater and ballast water increased. In energy sector, in contrast, a significant decrease compared to the year 2012 (by 17.8%) was recorded. This fact is directly related to a similarly significant decrease in surface water abstraction amounts (by 17.1% – see chapter 4.1 above). A stagnation was shown by industry (including extraction of mineral resources), namely a decrease of the discharged amounts only by 1.2%. A slight increase, compared to the year 2012, was recorded in the category "other" (including construction industry), by 4.3%.



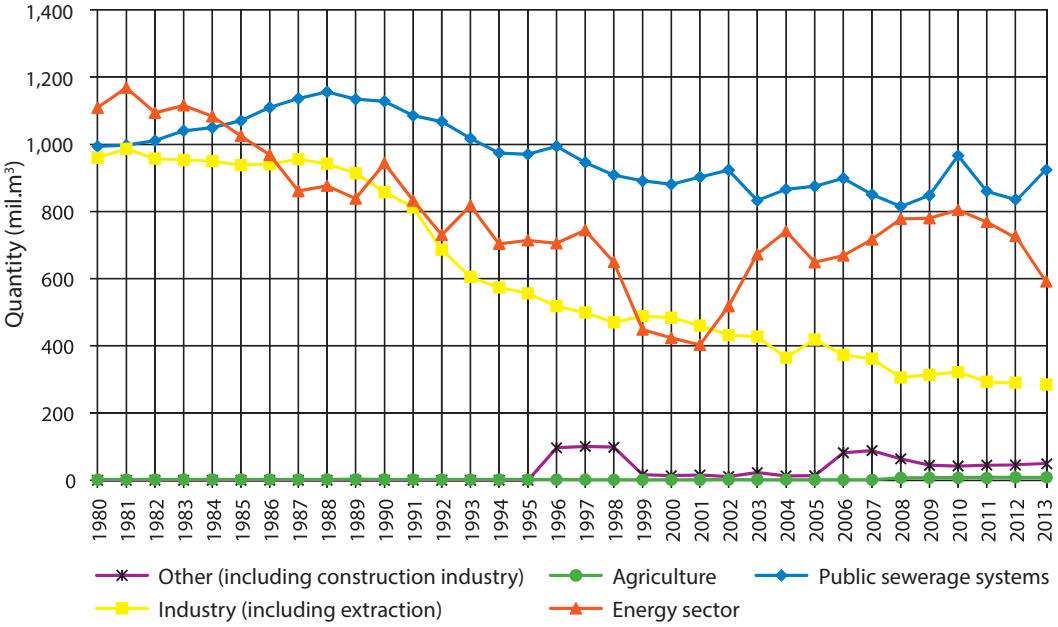
The Lubenský stream

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 2013 in millions of m³

River Board, s. e.	Public sewerage 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.	196.3	636	0.0	3	452.7	21	78.2	160	3.6	59	**730.8**	**879**
Vltava River Board, s. e.	295.8	661	0.0	1	20.6	25	36.1	168	31.4	658	**383.9**	**1,513**
Ohře River Board, s. e.	91.9	281	6.1	3	26.4	24	90.3	165	2.5	24	**217.2**	**497**
Oder River Board, s. e.	109.8	318	0.0	–	8.2	1	59.7	56	5.6	110	**183.3**	**485**
Morava River Board, s. e.	227.8	1, 061	0.3	6	81.5	3	18.1	151	3.4	85	**331.1**	**1,306**
Total	**921.6**	**2,957**	**6.4**	**13**	**589.4**	**74**	**282.4**	**700**	**46.5**	**936**	**1,846.3**	**4,680**

Source: MoA, River Boards, s. e.

Chart 4.3.1
Discharges of waste waters in the Czech Republic in the years 1980–2013



Source: MoA, River Boards, s. e.

Březová hydraulic structure

"Via the Elbe to Hamburg" – Zuzana Fantíková – 5th class, Vrchlického primary school, Liberec, Liberecký region

5. 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 pollution in the year 2013, compared to the year 2012, did not change significantly. In organic pollution, BOD_5 indicator (biochemical oxygen demand in 5 days) in 2013, compared to 2012, increased by 6,149 tonnes (i. e. by 2.5%), the COD_{Cr} indicator (chemical oxygen demand by dichromate) also increased by 3,304 tonnes (i. e. by 0.6%), the SS indicator (suspended solids dried at 105 °C) increased by 5,630 tonnes (i. e. by 2.2%). The highest increase was shown by the DIS indicator (dissolved inorganic salts / solute annealed at 550 °C/), by 92,492 tonnes (i. e. by 12.2%). The DIS indicator is significantly different, compared to 2012, rather due to a higher percentage of values for the year 2013 reported by individual entities obliged to do so (Section 11 of Decree No. 431/2001 Coll.). The highest increase in this indicator was shown by the Morava River Board, s. e. (by 38,711 tonnes), followed by the Vltava River Board, s. e. (by 23,468 tonnes) and the Ohře River Board, s. e. (by 22,599 tonnes). Production of pollution indicated by $N_{inorganic}$ (total inorganic nitrogen) in the whole of the country increased, compared to the year 2012, by 573 tonnes (i. e. by 2.0%), an increase was also shown by the P_{total} indicator (total phosphorus), by 114 tonnes (i. e. by 1.9%). Both of these values can rather be interpreted only as an improved level of reporting (see below an increase in discharged pollution).

Discharged pollution is the contamination contained in waste waters discharged to surface waters. Compared to the year 2012, the discharged pollution decreased in the year 2013 only by

92 tonnes (i. e. by 1.5%) in the BOD_5 indicator), by 722 tonnes (i. e. by 1.8%) in the COD_{Cr} indicator). Regarding the SS indicator, there can be observed a statistically negligible increase by 210 tonnes (i. e. by 1.9%). Somewhat different situation was for the reported DIS indicator, with a fairly significant increase by 93,156 tonnes (i. e. by 11.8%). This fact is directly related to a year-on-year increase in produced pollution in this indicator (by 12.2% – see above). The $N_{inorganic}$ indicator showed an increase by 626 tonnes (i. e. by 5.6%). This value can rather be interpreted only as an improved level of reporting (see also an increase in produced pollution) for this still not fully monitored indicator for all registered sources of discharged pollution in the Czech Republic. A similar increase was shown by the P_{total} indicator (an increase by 54 tonnes, i. e. by 4.5%). The development since the year 1990 in the discharged pollution and pollution on which charges are imposed is shown in chart 5.1.1.

Between the years 1990 and 2013 the discharged pollution decreased in the BOD_5 indicator by 95.9%, in the COD_{Cr} indicator by 90.1%, in the SS indicator by 94.0% and in the DIS indicator by 11.1%.

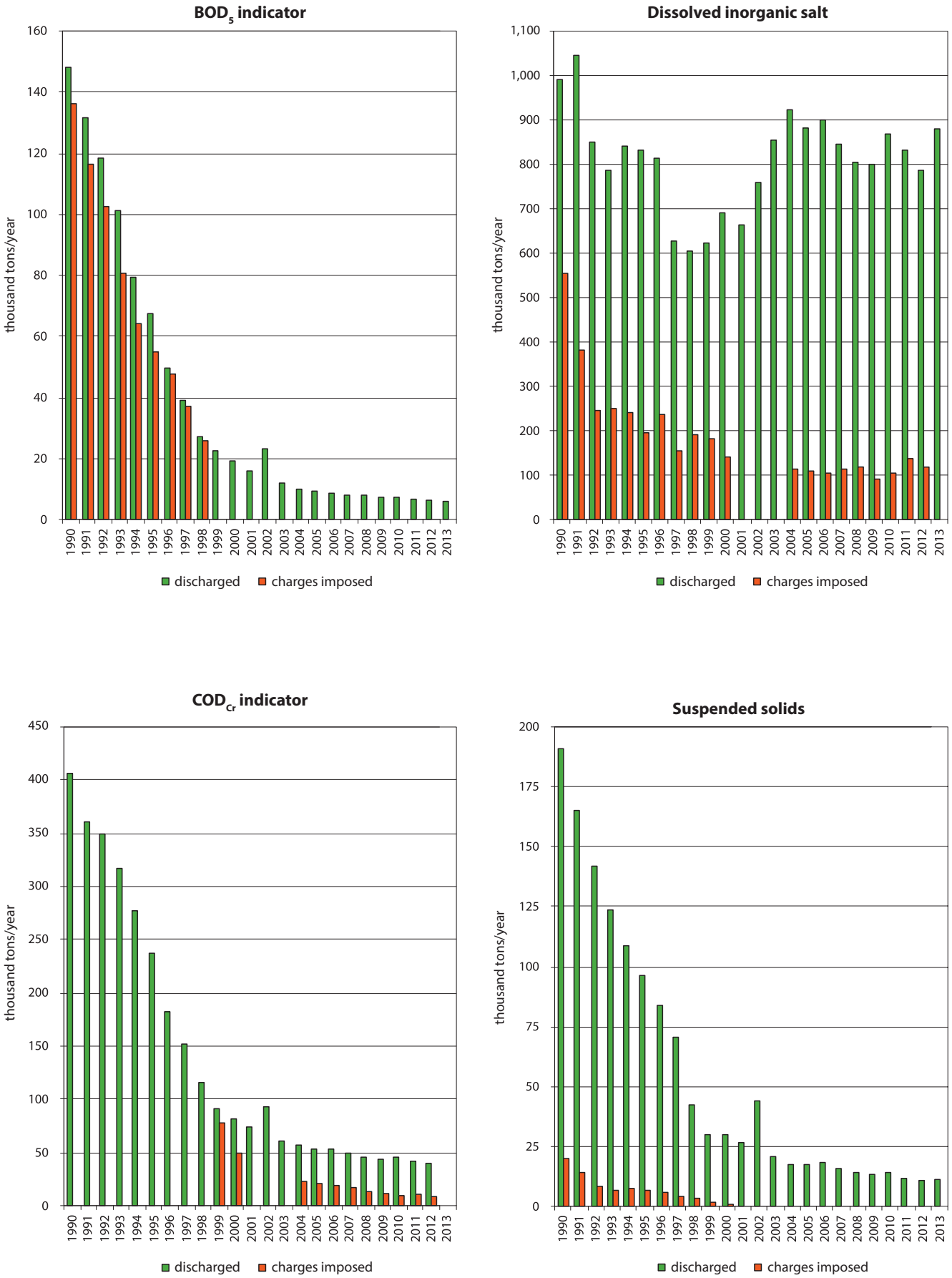
In the 1990–2013 period, the water management sector succeeded also in reducing the quantity of the discharged hazardous and especially hazardous harmful substances. A significant decrease was also observed for macronutrients (nitrogen, phosphorus) as a result of the fact that waste water treatment technologies in the new and the intensified waste water treatment plants apply the focused use of biological removal of nitrogen and biological or chemical removal of phosphorus.

Table 5.1.1
Produced and discharged pollution in the year 2013

River Board, s. e.	Produced pollution in tonnes/year						Discharged pollution in tonnes/year					
	BOD_5	COD_{Cr}	SS	DIS*)	N_{inorg}	P_{total}	BOD_5	COD_{Cr}	SS	DIS	N_{inorg}	P_{total}
Elbe River Board, s. e.	46,137	125,565	48,708	209,030	6,979	1,108	1,348	10,179	2,715	202,593	2,659	249
Vltava River Board, s. e.	87,437	185,628	87,511	159,054	9,617	2,111	1,898	11,396	2,719	163,533	4,327	331
Ohře River Board, s. e.	17,996	53,977	20,500	139,050	2,250	735	493	4,379	1,856	139,234	1,250	245
Oder River Board, s. e.	43,072	80,307	33,857	229,176	3,397	724	728	5,988	2,015	229,176	1,260	183
Morava River Board, s. e.	61,258	139,810	72,110	116,519	6,895	1,508	1,582	8,158	2,064	145,066	2,280	249

Source: T. G. Masaryk Water Management Research Institute, public research institution, based on the data from 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.*

Chart 5.1.1
Discharged pollution and pollution on which charges were imposed in the years 1990–2013



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

5.2 Area sources of pollution

Surface water and groundwater quality is also significantly affected by area sources of 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.

The main measures aimed at reducing area pollution of waters from agricultural sources include the Government Order No. 262/2012 Coll., on delimitation of vulnerable areas and action programme, as amended. This government order defines (revises) the "vulnerable areas" and declares an action programme. Details of this programme are presented in chapter 11.3.

The impact of agricultural soil erosion

The conditions for the occurrence of water erosion in the Czech Republic are specific – we have the largest size of land lots within the EU states and wide-row crops are grown on lands with no or inadequate erosion control. Moreover, the intensification of agricultural production in the past led to extensive elimination of hydrographic and landscape elements (ploughing hedgerows, grass-covered floodplains, country roads, elimination of scattered vegetation, etc.) that would effectively prevent accelerated erosion.

The main sign of water erosion is the loss of land. Water erosion causes the loss of topsoil, the most fertile part of agricultural land. Soil particles released by water erosion are displaced on the land due to the driving force of surface runoff and deposited in the lower parts of the land block or farther in the catchment area, where they cause more damage in urban areas, line structures and also in water bodies by silting river beds and reservoirs. Silting of watercourses and reservoirs by products of water erosion results mainly in a reduced flow capacity of river beds and storage space of reservoirs and reduced volume of reservoirs. In addition, their hydraulic function is affected, including reduced retention time, increased flow rates in reservoirs, increased problems in water abstraction, etc. In general, this leads to reducing the accumulation of water in the area. On the contrary, in the event of a decline of water level in the reservoirs (e. g. in the long period of drought), large areas of the deposited material are exposed and direct contact of these sediments with air is the cause of their accelerated mineralization, and the quality of water after re-flooding deteriorates rapidly. In addition, sediments contain significant amounts of nutrients and risk-posing substances. Soil comes into contact with a large number of chemical substances of various kinds and various degrees of toxicity (chemical fertilizers, pesticides, various agricultural wastes and industrial wastes, deposited on the land or into soil). Watercourses and reservoirs receive along with the soil particles also a large amount of nutrients and other chemical substances that adversely affect the quality of water, cause eutrophication and through infiltration into surface waters and groundwaters threaten their possible use. Eroded soil usually contains a higher concentration of nutrients than the original soil because the nutrients are found in larger quantities in the upper layers of soil and fine fractions of soils are easily washed out.

Comprehensive land consolidation – erosion control measures and water retention in the landscape

As a result of repeated episodes of hydrological extremes (torrential rain and periods of drought) the issues of protection of settlements and property, sustainable management of farmland and the associated water retention in the landscape are increasingly gaining interest of both the specialists community and the general public.

One of the main factors for rural development and sustainable management of farmland is the shaping or the settlement of the ownership of land, which is a key to the application of appropriate erosion control and flood control measures improving water retention in the landscape. A very important tool in addressing these issues is comprehensive land consolidation.

Land consolidation contributes significantly to the achievement of local rural restoration programmes, especially in the implementation of landscape programmes in the area of comprehensive protection against floods and drought through improving the retention capacity of the landscape by adjusting water management conditions and establishing the protection of the landscape, which aims to achieve the improvement of the quality of soil and its productive and non-productive functions.

Comprehensive land consolidation includes a plan of joint facilities, which forms the backbone of landscape planning. The draft plan of joint facilities represents a set of measures to ensure the fulfilment of one of the main objectives of land consolidation, namely access to land, the proposal of erosion control and flood control measures that will significantly contribute to improving the retention capacity of the landscape.

5.3 Accidental pollution

Surface water and groundwater quality is also affected by the adverse impacts of accidental pollution. In the year 2013 the Czech Environmental Inspection registered in total 111 events of accidental releases into surface waters and 2 releases into groundwaters.

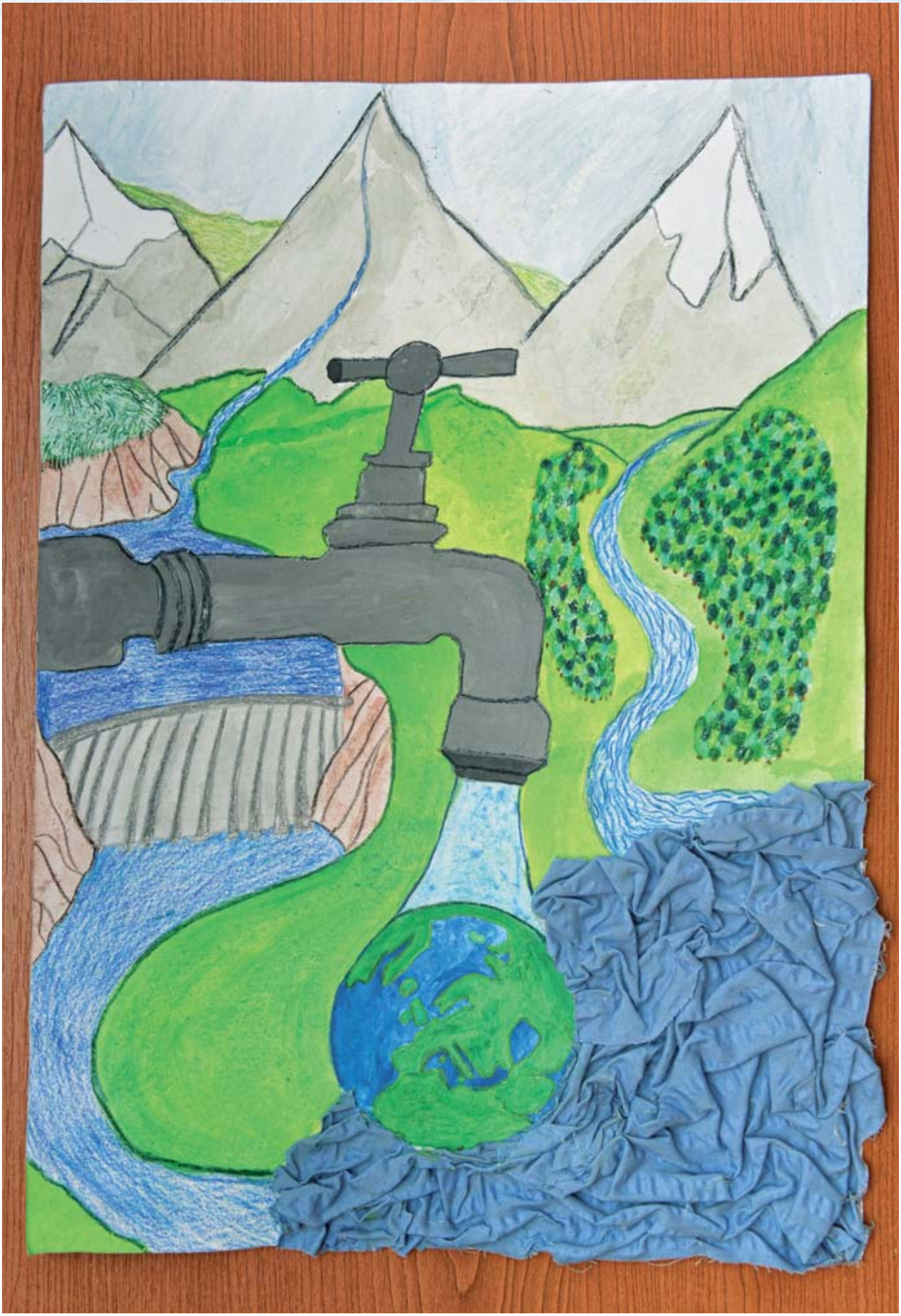
Pursuant to Act No. 254/2001 Coll., the Czech Environmental Inspection keeps central records of accidents since 2002. In 2003, the Czech Environmental Inspection started to cooperate with the Fire Rescue Department, particularly in reporting information on accidents. In the year 2013, the Czech Environmental Inspection registered in total 183 accidents which in facts of the case met the definition of accident under Section 40 of the Act No. 254/2001 Coll. Additional accidents were reported to the Czech Environmental Inspection during 2013, but due to their inconsiderable extent with no effect on the water quality they were not registered in the central records of accidents.

50 accidents were caused by transport, which represents 27% of the total number of registered accidents. This indicator shows an increase by 1%, compared to the year 2012. In total 25 accidents were accompanied by fish kill, which is a decrease by 2%, compared to the year 2012. The cause (inflictor) of the accident was known in 112 events. In 73 cases, the Czech Environmental Inspection investigated the accident or directly participated in the investigation. Fire Rescue Department units intervened in 113 cases of registered accidents. Groundwaters were affected only in two cases. In 78 cases, the human factor was found to be the main cause of the accident, which represents 43% of recorded cases. Technical factors were the main cause in 32 accidents (included in the central register of accidents).

The most numerous group of pollutants were oil and oil products: 57.4% of the total number of registered events, followed by chemical substances excl. heavy metals (7.6%) and waste waters (6.0%). The character of the pollutants was not identified for 22 accidents (12.0%).

Classified by the cause (inflictor) of the accident (NACE), the most numerous group were accidents caused by land transport and pipeline transport (7.7%), followed by accidents in the area of agriculture, game management and related activities (6.0%) and accidents associated with waste water and solid waste disposal (3.3%). The inflictor was not identified in 63.4% of all events.

In terms of breach of legal regulations in the field of water management, in 2013 the Czech Environmental Inspection imposed in total 554 penalties, of which 438 penalties became fully effective and amounted in total sum to CZK 23,603 million.



"Water and energy for our Earth" – Klára Benišková – 5th class, Litultovice primary school, Moravskoslezský region

6. Management of watercourses

6.1 Professional management of watercourses

The inland position of the Czech Republic in the heart of Central Europe predetermines its relation to the European river network. From the hydrological viewpoint it may be called "the roof of Europe". The basic hydrographic system according to the Central Register of Watercourses is constituted by approx. 102,900 km of watercourses (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. Professional management of watercourses in 2013 was carried out in accordance with the provisions of Section 47 of Act No. 254/2001 Coll., on water and on amendments to some acts (the Water Act).

The main watercourse administrators are the River Boards, state enterprises and Forests of the Czech Republic, state enterprise, who report directly to the Ministry of Agriculture. From 1 January 2011, they are also responsible for the administration of minor watercourses transferred from the Agricultural Water Management Administration. Administration of minor watercourses was transferred to the respective River Boards, state enterprises according to the territorial scope and to the Forests of the Czech Republic according to the forest coverage criteria. State-owned River Boards, s. e. and Forests of the Czech Republic are responsible for the administration of about 93.4% 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 6.6% of watercourse administration.

Table 6.1.1
Professional management of watercourses

Category	Administrator	Length of watercourses in km	
		2012	2013 [1)]
Significant water-courses	Elbe River Board, s. e.	3,586.2	3,667
	Vltava River Board, s. e.	5,469.8	5,418
	Ohře River Board, s. e.	2,333.5	2,377
	Oder River Board, s. e.	1,111.4	1,111
	Morava River Board, s. e.	3,768.1	3,753
	Total	**16,269.0**	**16,326**
Minor water-courses	Forests of the Czech Republic, s. e.	39,292.8	38,260
	River Boards, s. e. in total	43,442.8	41,888
	Other administrators [2)]	6,337.5	5,961
	Other [3)]	46.0	444,000
	Total	**89,119.1**	**86,553**
Watercourses in total		**105,388.1**	**102,879**

Source: MoA

Note: [1)] In 2013, digital lengths of watercourses from the Central Register of Watercourses are presented.

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

[3)] From 2013 including sections of minor watercourses, for which the administrator has not yet been designated and which appear to be the solitary streams.

Professional management of watercourses broken down to the individual watercourse administrators is shown in table 6.1.1.

The specific account of significant watercourses is published in the Decree No. 178/2012 Coll., stipulating the list of significant watercourses and the method of carrying out the activities relating to watercourse administration. It provides an overview of 819 watercourses included in the "List of significant watercourses", which forms Annex 1 to the above mentioned Decree. This list also includes the identifier of watercourses (Central Register of Watercourses). The significant watercourses, with a total length of 16,326 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 (368.703 km) and the Vltava River (376.652 km) in Bohemia, the Morava River (284.582 km) and the Dyje River (207.608 km) in the south of Moravia and the Oder River (101.35 km) with the Opava River (109.345 km) in the north of Moravia and in 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 according to the Central Register of Watercourses is 86,553 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 organizational 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. 178/2012 Coll. During 2013, the mapping of defined minor watercourses continued to be refined.

The public administration bodies and the general public find detailed information on the establishment of the administration of the relevant watercourse in the "Central Register of Watercourse", which is available on the portal of the Ministry of Agriculture (www.eagri.cz) or on the Water Management Information Portal (www.voda.gov.cz).

The acquisition value of the non-current tangible assets relating to watercourses amounted in the year 2013 to CZK 50.73 billion. Compared to the previous period, this value shows a year-on-year growth of CZK 0.32 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 2013, any of the administrators of watercourses did not complete, approve and take over to the use a hydraulic structure that would significantly influence 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 6.1.2.

Table 6.1.2
Acquisition value of non-current tangible assets relating to watercourses in billions of CZK

Watercourse administrators directly responsible to the Ministry of Agriculture	2012	2013
Elbe River Board, s. e.	10.13	10.16
Vltava River Board, s. e.	10.61	10.71
Ohře River Board, s. e.	9.70	9.77
Oder River Board, s. e.	5.97	6.01
Morava River Board, s. e.	8.51	8.54
River Boards, s. e. in total	**44.92**	**45.19**
Agricultural Water Management Administration	0.11	-
Forests of the Czech Republic, s. e.	5.38	5.54
Total	**50.41**	**50.73**

Source: MoA

Auditing activities

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 2013:

Ministry of Agriculture

Similarly to the previous years, the Ministry of Agriculture mainly carried out ongoing public inspections focusing on compliance with the conditions, on the use of public funds and on economy of the relevant enterprise. In total 14 audits were carried out in 2013, at least two for every River Board, s. e. The majority of audits were carried out by the Department of Water Management Policy and Flood Control Measures, the Department of Water in Landscape and Rehabilitation of Flood Damage and by the Establishment Policy Department. All audits showed no defects, only in one case several shortcomings were found and measures were taken to remedy the situation. One audit in the Vltava River Board, state enterprise, was not finished until the closing date of this report.

Financial Authorities

In 2013, financial authorities or Specialized Tax Office carried out in total 6 financial audits, at least one for each River Board, s. e. Financial audits focused on inspecting the legitimacy of the use of subsidies and compliance with budgetary rules and discipline and compliance with the conditions of pricing and application of prices for surface water abstractions. One audit in the Ohře River Board, s. e. was not finished until the closing date of this report, the remaining audits showed no shortcomings.

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 ten audits were carried out at the Vltava River Board, the Elbe River Board, the Oder River Board and the Morava River Board, state enterprises, with no major shortcomings found. During one inspection, remedial measures were taken. In the Morava River Board, s. e., a new source of drinking water was identified, the imposed measure was met, but the Operating Rules for a source of drinking water have not yet been approved.

Czech Social Security Administration

In 2013, the district branches and the municipal branches of the Czech Social Security Administration carried out in total thirteen audits in the Elbe River Board, the Morava River Board, the Oder River Board and the Ohře River Board, state enterprises. They focused on the fulfilment of the obligations in sickness and pension insurance and social security contributions and contributions to the state employment policy. The audits showed no shortcomings.

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 all River Boards, state enterprises. In total seven audits were carried out. One audit resulted in imposing a minor penalty, which was subsequently waived. All the remaining audits were carried out with no shortcomings found.

Czech Environmental Inspection

In 2013, the Czech Environmental Inspection carried out in total twelve audits in the Morava River Board, the Oder River Board and the Vltava River Board, state enterprises, with focus on compliance with the law in connection with the management and performance of activities on watercourses. The audits showed no shortcomings, only in one case there was a negative finding regarding the use of Roundup Bioaktiv agent. This resulted from a different interpretation of the Water Act, and therefore the Ministry of Agriculture was requested to establish a uniform interpretation of the Act. The Protocol on audit finding was issued. One audit carried out by the Czech Environmental Inspection in the Vltava River Board, state enterprise, is still under way.

Supreme Audit Office

The Supreme Audit Office carried out one audit for each of the Elbe River Board, The Morava River Board, the Oder River Board and the Vltava River Board, state enterprises. Audits focused on the legitimacy of the use of allocated funds. Shortcomings were found in two cases. In one case, the state enterprise filed objections to the inspection authority and subsequently to the Board of the Supreme Audit Office, which upheld the appeal. In the latter case, minor shortcomings were found, based on which measures were taken to reinforce internal control system. The remaining audits found no shortcomings.

Trade Union of Workers in Wood Processing Plants in Forestry and Water Management in the Czech Republic

In 2013, this body carried out in total ten audits of compliance with the occupational health and safety regulations in two state enterprises, namely the Morava River Board, s. e. and the Oder River Board, s. e. Audits found no shortcomings, remedial measures were not imposed.

Occupational Health and Safety Inspectorate

In 2013, in total 3 audits were carried out, with no negative findings in two cases. In one case, a failure to comply with the occupational health and safety regulations was found. The remedial measures imposed were met.

Other government authorities

In 2013, two audits were carried out in the Ohře River Board, state enterprise, the first by the State Energy Inspectorate and the latter by the Czech Republic – Energy Regulatory Office. In the first case, audit showed no negative findings, in the latter case, licensed operation of the Nechranice hydroelectric power plant was found to have begun contrary to the law. The filed objections were not accepted, no measures were imposed. Regional Veterinary Administration carried out one audit in the Oder River Board, state enterprise, having found no breach of regulations. Two audits were carried out in the Morava

River Board, state enterprise, one by the Czech Accreditation Institute, public benefit company and the latter by the Regional Authority of the Zlínský Region. Both audits showed no negative findings. In addition, audit "Water Quality in the Danube River Basin" was carried out in the Morava River Board, state enterprise, in order to check the transposition of EU legislation into national legislation. Audit was carried out by the European Court of Auditors. The state enterprise was not the audited person, it only provided relevant information requested.

Each of the following institutions carried out one audit in the Vltava River Board, state enterprise: the State Office for Nuclear Safety, Fire Rescue Department of the Plzeňský Region and Department of Occupational Medicine of University Hospital in Plzeň. All audits were carried out with no negative findings. Deloitte Advisory s. r. o. also carried out audit with focus on public procurement and grant provision compliance with the terms of the relevant subsidies.

6.2 River Boards, state enterprises

In 2013, the overall revenues generated by the River Boards, state enterprises, reached a year-on-year decrease amounting to 6.6%, i. e. in absolute figures a decrease in revenues by CZK 319 million. This decrease was generated by two items of the revenue structure, namely grants from the state budget and payments for surface water abstractions.

The year-on-year decrease in the overall revenues of the River Boards, state enterprises was mainly influenced by reduced grants from the state budget by CZK 287.9 million, which corresponds to a year-on-year decrease amounting to 67.4%. Revenues from surface water sales decreased by CZK 123.2 million, which corresponds to a year-on-year decrease by 3.7%. On the contrary, the year-on-year increase was recorded for all other indicators. The highest year-on-year increase of 23%, although in the absolute figure only of CZK 1.7 million, was shown by other operating grants. Quite a significant year-on-year increase by 12.2% (in the absolute figure the year-on-year increase by CZK 16.6 million) was shown by revenues from payments for the use of impounding structures. The revenues from electric power generation showed a year-on-year increase amounting to CZK 54.3 million (the increase in revenues by 9.8%). In the Ohře River Board, s. e., also solar energy sources are to a smaller extent involved in generating revenues, other River Boards, s. e. generate electric energy in their own power plants. Other revenues showed a year-on-year increase by 4.7%, which in the absolute figure amounts to CZK 19.5 million.

The structure of the revenues of the River Boards, state enterprises, in the year 2013 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.

Table 6.2.1
Structure of the revenues of the River Boards, state enterprises in the year 2013 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	831,816	724,661	501,631	545,091	589,128	**3,192,327**
Electric power generation	52,257	219,464	231,226	72,506	31,592	**607,045**
Sales from payments for the use of impounding structures	6,900	138,147	3,073	0,000	4,956	**153,076**
Other revenues	83,184	144,774	90,474	39,639	74,491	**432,562**
Operating grants from the state budget	1,890	61,410	16,076	0,000	59,630	**139,006**
Other operating grants	146	2,111	339	0,000	6,390	**8,986**
River Boards, s. e. in total	**976,193**	**1,290,567**	**842,819**	**657,236**	**766,187**	**4,533,002**

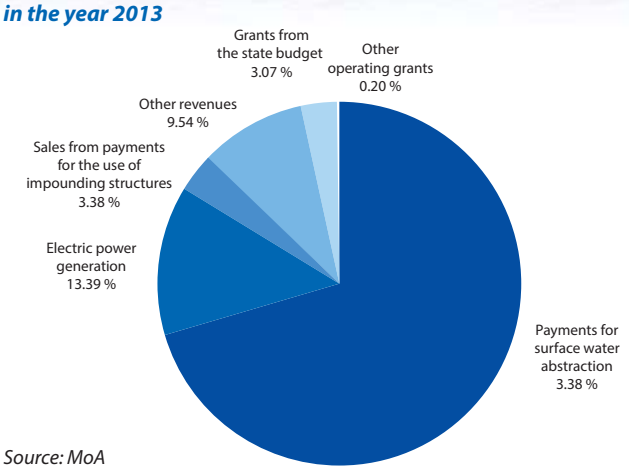
Source: River Boards, s. e.

Table 6.2.2
Surface water supplies charged for in the years 2007–2013 in thousands of m³

River Board, s. e.		2007	2008	2009	2010	2011	2012	2013
Elbe River Board, s. e.	a)	765,070	807,073	800,772	817,645	775,223	723,608	**600,131**
	b)	39,396	36,031	36,787	38,843	37,892	34,838	**35,782**
Vltava River Board, s. e.	a)	260,008	252,659	243,528	238,582	230,817	234,579	**214,195**
	b)	155,382	153,131	146,670	144,164	140,087	140,596	**134,750**
Ohře River Board, s. e.	a)	152,636	150,115	148,330	141,308	135,730	131,659	**121,167**
	b)	52,410	51,514	50,299	49,550	46,162	44,954	**42,212**
Oder River Board, s. e.	a)	164,087	153,946	138,961	144,155	138,942	139,124	**136,614**
	b)	71,979	69,288	68,171	66,936	64,179	67,102	**65,105**
Morava River Board, s. e.	a)	174,803	179,833	174,398	173,661	182,361	180,835	**155,848**
	b)	33,554	32,553	31,233	31,063	31,861	33,427	**30,951**
River Boards s. e. in total	**a)**	**1,516,604**	**1,543,626**	**1,505,989**	**1,515,351**	**1,463,073**	**1,409,805**	**1,227,955**
		352,721	**342,517**	**333,160**	**330,556**	**320,181**	**320,917**	**308,800**

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

Chart 6.2.1
Structure of the revenues of the River Boards, state enterprises in the year 2013



Source: MoA

In the River Boards, state enterprises, the average price of surface water in the context of other abstractions in the year 2013 ranged around CZK 4.08 per m³, this means an increase by 3.6%, compared to the previous year 2012. 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. In 2013, the Elbe River Board, s. e. and the Vltava River Board, s. e. in total abstracted water for the purposes of agricultural irrigation in the amount of 233 thousand m³, which in the aggregate for all River Boards, state enterprises represents an increase by 30 thousand m³, compared to the year 2012. The Ohře River Board, s. e., similarly to the previous years, is the only one reporting surface water abstractions for flooding of artificial depressions in the landscape, in the amount of 330 thousand m³, i. e. significantly lower, compared to 2012.

Table 6.2.3
Price for abstractions used for through-flow cooling in the years 2007–2013 in CZK/m³

River Board, s. e.	2007	2008	2009	2010	2011	2012	2013
Elbe River Board, s. e.	0.44	0.49	0.53	0.55	0.60	0.64	0.65
Vltava River Board, s. e.	0.96	1.00	1.03	1.10	1.13	1.22	1.22
Morava River Board, s. e.	0.62	0.67	0.67	0.67	0.67	0.72	0.89

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 2007–2013 in CZK/m³

River Board, s. e.	2007	2008	2009	2010	2011	2012	2013
Elbe River Board, s. e.	2.70	2.93	3.16	3.35	3.63	3.97	4.09
Vltava River Board, s. e.	2.24	2.45	2.68	2.94	3.15	3.40	3.45
Ohře River Board, s. e.	2.85	3.01	3.16	3.31	3.53	3.88	4.14
Oder River Board, s. e.	2.70	2.89	3.10	3.35	3.58	3.80	3.99
Morava River Board, s. e.	3.88	4.19	4.65	4.97	5.47	5.88	6.16
Average price quoted by River Boards, s. e. *)	**2.68**	**2.67**	**3.13**	**3.32**	**3.61**	**3.94**	**4.08**

Source: River Boards, s. e.
Note: Unit price for m³ is quoted excluding VAT.
**) Calculated by means of weighted average.*

Valíšek water reservoir

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 to regulation 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 relevant notifications issuing the list of goods with regulated prices which are published in the Price Journal.

In the year 2013, the River Boards, state enterprises reported in aggregate a decrease in revenues from payments for surface water abstractions, in absolute figures amounting to CZK 123 million, which corresponds to a year-on-year decrease in this revenue category by 3.7%, compared to the year 2012. The only year-on-year increase in the amount of CZK 16 million was reported by the Oder River Board, s. e. All other River Boards, s. e. reported a decrease in sales, the Elbe River Board, s. e. a decrease by CZK 58 million,

Table 6.2.5
Payments for surface water abstractions in the years 2007–2013 in millions of CZK

River Board, s. e.	2007	2008	2009	2010	2011	2012	2013
Elbe River Board, s. e.	705	735	785	833	846	890	832
Vltava River Board, s. e.	572	609	640	686	707	778	725
Ohře River Board, s. e. *)	434	450	469	468	479	511	502
Oder River Board, s. e.	443	445	431	483	497	529	545
Morava River Board, s. e.	420	440	457	481	543	608	589
River Boards, s. e. in total	**2,574**	**2,679**	**2,782**	**2,951**	**3,072**	**3,316**	**3,193**

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

the Vltava River Board, s. e. a decrease by CZK 53 million, the Morava River Board, s. e. a decrease by CZK 19 million and the Ohře River Board, s. e. a decrease by CZK 9 million. Payments for surface water abstractions in a longer time series are shown in table 6.2.5.

In 2013, revenues from sales of electric power from small hydroelectric power plants owned by the River Boards, s. e. showed an increase by almost CZK 55 million. The total revenues in this revenue category amounted to CZK 605.4 million.

Revenues from sales of electric power take the second place after the main source of revenues which are payments for surface water abstractions. Similarly to the previous year, the total number of small hydroelectric power plants in operation is 91. The highest revenues from sales of electric power amounting to CZK 229.5 million are reported by the Ohře River Board, s. e. which now operates 21 own small hydroelectric power plants, i. e. the largest number of small hydroelectric power plants of all River Boards, s. e. High revenues from sales of electric power amounting to CZK 219.5 million are also reported by the Vltava River Board, s. e.

In 2013, revenues from sales of electric power reached their peak, having shown an increase of CZK 6.6 million, compared to the current maximum in 2010. Compared to the year 2012, there was an increase of approx. 10%. Compared to 2012, significantly increased sales were reported by the Ohře River Board, s. e., the year-on-year

Table 6.2.6
Small hydroelectric power plants owned by River Boards, s. e. in the years 2007–2013

River Board, s. e.	Indicator	2007	2008	2009	2010	2011	2012	2013
Elbe River Board, s. e.	Number of small hydropower plants	19	20	20	20	20	20	20
	Installed capacity in kW	5,217	5,892	5,892	5,892	5,892	6,108	6,438
	Electric power generation in MWh	19,270	18,325	20,356	23,589	20,871	19,293	23,509
	Sales in thousands of CZK	34,429	34,773	40,497	49,299	44,387	41,222	52,257
Vltava River Board, s. e.	Number of small hydropower plants	17	17	18	18	18	19	19
	Installed capacity in kW	18,400	18,400	21,200	21,200	21,341	21,607	21,816
	Electric power generation in MWh	83,568	82,039	89,239	106,141	93,459	96,937	86,749
	Sales in thousands of CZK	151,919	181,435	208,580	238,981	217,348	242,709	219,464
Ohře River Board, s. e.	Number of small hydropower plants	20	21	21	21	21	21	21
	Installed capacity in kW	16,677	16,949	16,930	16,930	16,930	16,930	16,930
	Electric power generation in MWh	107,876	94,056	90,027	106,168	81,134	77,422	102,642
	Sales in thousands of CZK	209,510	197,824	194,911	214,290	167,297	171,112	229,545
Oder River Board, s. e.	Number of small hydropower plants	14	16	16	16	16	16	16
	Installed capacity in kW	5,103	5,731	5,731	5,731	5,731	5,809	5,809
	Electric power generation in MWh	25,827	31,964	28,662	30,937	28,113	26,068	27,201
	Sales in thousands of CZK	50,120	68,710	60,937	60,568	65,682	66,000	72,506
Morava River Board, s. e.	Number of small hydropower plants	16	15	14	14	15	15	15
	Installed capacity in kW	3,530	3,522	3,482	3,482	3,495	3,497	3,497
	Electric power generation in MWh	8,709	14,281	14,252	14,365	12,607	11,323	12,228
	Sales in thousands of CZK	14,982	34,922	36,024	35,623	30,831	29,331	31,592
River Boards, s. e. in total	**Number of small hydropower plants**	**86**	**89**	**89**	**89**	**90**	**91**	**91**
	Installed capacity in kW	**48,927**	**50,494**	**53,235**	**53,235**	**53,389**	**53,951**	**54,490**
	Electric power generation in MWh	**245,250**	**240,665**	**242,536**	**281,200**	**236,184**	**231,043**	**252,329**
	Sales in thousands of CZK	**460,960**	**517,664**	**540,949**	**598,761**	**525,545**	**550,374**	**605,364**

Source: River Boards, s. e.

increase amounted to CZK 58.4 million. Except for the Vltava River Board, s. e., a year-on-year increase was reported by all other River Boards, state enterprises. The Elbe River Board, s. e., reported a year-on-year increase in revenues of CZK 11 million, the Oder River Board, s. e. an increase of CZK 6.5 million and the Morava River Board, s. e. an increase of CZK 2.3 million. The Vltava River Board, state enterprise, as the only one reported a significant decrease in revenues from sales of electric power, namely a decrease of CZK 23.2 million. 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. Capital yields also contribute 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 the amount of transfers of certain specified sales which relate to the past periods but were not materialized until the monitored 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 2013, the year-on-year increase in other revenues of the River Boards, state enterprises amounted to CZK 19.5 million, having been contributed to only by the Vltava River Board, s. e. and the Morava River Board, s. e. The remaining River Boards, s. e. reported a decrease, compared to the year 2012. The most significant year-on-year decrease amounting to CZK 15 million was shown 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.

Table 6.2.7
Other revenues of River Boards, s. e. in the years 2007–2013 in thousands of CZK

River Board, s. e.	2007	2008	2009	2010	2011	2012	2013
Elbe River Board, s. e.	115,334	105,185	129,663	89,889	80,646	98,258	83,184
Vltava River Board, s. e.	73,143	82,165	128,136	113,624	103,820	109,261	144,774
Ohře River Board, s. e.	74,837	110,493	117,623	101,250	109,694	94,847	90,474
Oder River Board, s. e.	34,911	61,628	58,163	108,667	93,210	48,316	39,639
Morava River Board, s. e.	46,423	78,966	69,306	56,000	50,719	62,345	74,491
River Boards, s. e. in total	**344,648**	**438,437**	**502,891**	**469,430**	**438,089**	**413,027**	**432,562**

Source: River Boards, s. e.

Table 6.2.8
Grants used by River Boards, s. e. in 2013 in thousands of CZK

River Board, s. e.	Operating grants	Investment grants	Grants in total
Elbe River Board, s. e.	2,036	1,222,570	**1,224,606**
Vltava River Board, s. e.	63,521	629,324	**692,845**
Ohře River Board, s. e.	16,415	107,944*)	**124,359**
Oder River Board, s. e.	0	291,651	**291,651**
Morava River Board, s. e.	66,020	706,026	**772,046**
River Boards, s. e. in total	**147, 992**	**2,957,515**	**3,105,507**

Source: MoA, River Boards, s. e.
*Note: *) Actual use of investment grants CZK 110,753 thousand – the difference of CZK 2,809 thousand is included in investment expenditure for the year 2012 (financial performance of grants was settled in 2013).*

In the year 2013, the total amount of grants increased by 10.1%, compared to the year 2012, however with a different proportion of the impacts of operating grants and investment grants. Grants of operating nature showed a significant year-on-year decrease by CZK 285.2 million, while investment subsidies showed a year-on-year increase by CZK 570.3 million. In total the grants in the year 2013 amounted to CZK 3.106 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 European Agricultural Fund for Rural Development (EAFRD) and by the Ministry of the Environment through the funds of the Operational Programme Environment (OPE). Flood control

Table 6.2.9
Costs in 2012 and 2013 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	2012	169.6	323.9	195.7	142.9	154.1	**986.2**
	2013	163.2	316.6	192.1	142.3	154.7	**968.9**
Repairs	2012	177.4	230.9	209.7	186.6	380.3	**1,184.9**
	2013	152.9	334.3	149.6	136.0	127.5	**900.3**
Material	2012	51.0	28.1	21.3	44.7	48.6	**193.7**
	2013	47.4	31.1	19.9	38.0	49.5	**185.9**
Energy and fuels	2012	48.3	41.8	31.2	5.8	14.0	**141.1**
	2013	44.5	45.8	45.4	6.4	15.5	**157.6**
Personnel costs	2012	459.9	410.8	320.2	225.4	296.1	**1,712.4**
	2013	469.9	419.9	327.2	229.9	296.8	**1,743.7**
Services	2012	83.9	95.8	37.9	39.1	34.0	**290.7**
	2013	87.9	90.1	30.6	34.0	33.5	**276.1**
Financial costs	2012	0.3	3.1	0.4	0.2	0.9	**4.9**
	2013	0.3	1.7	0.1	0.2	2.8	**5.1**
Other costs	2012	46.8	97.8	34.7	43.5	37.0	**259.8**
	2013	9.3	36.6	65.3	53.8	79.7	**244.7**
Total costs	**2012**	**1,037.2**	**1,232.2**	**851.1**	**688.2**	**965.0**	**4,773.7**
	2013	**975.4**	**1,276.1**	**830.2**	**640.6**	**760.0**	**4,482.3**

Source: River Boards, s. e.

measures were also co-financed with the contribution of certain regional authorities and municipalities. The total operating (non-investment) and investment grants allocated to the individual River Boards, s. e. in the year 2013 are shown in table 6.2.8.

Compared to the year 2012, the total costs in 2013 decreased by CZK 291.4 million, i. e. the year-on-year decrease amounted to 6.1%. The most significant year-on-year decrease by 24%, in absolute figures by CZK 284.6 million was shown by the item

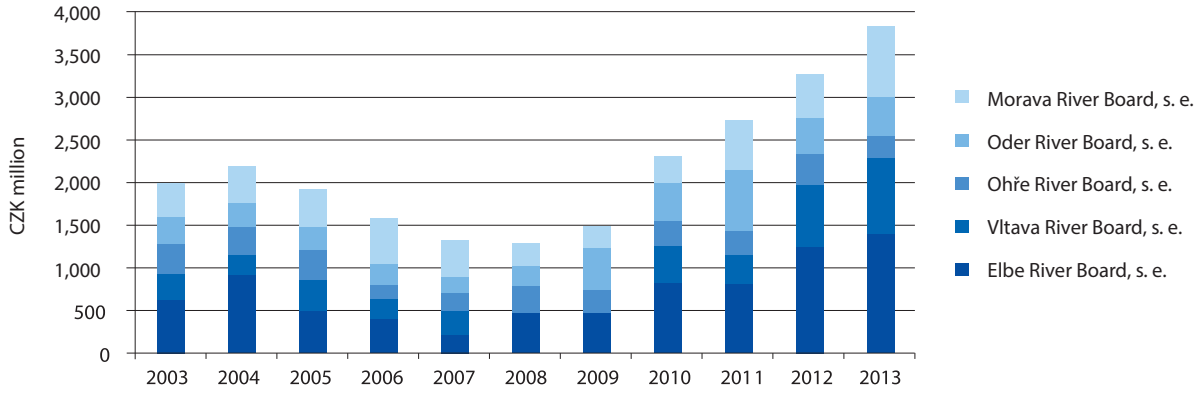
Table 6.2.10
Investments made by the River Boards, s. e. in the years 2007–2013 in millions of CZK

River Board, s. e.	2007	2008	2009	2010	2011	2012	2013
Elbe River Board, s. e.	212.0	455.0	459.0	829.8	806.7	1,240.8	1,378.3
Vltava River Board, s. e.	275.2	611.3*)	761.1*)	428.3	346.7	729.5	905.2
Ohře River Board, s. e.	215.7	322.5	277.5	287.4	265.8	357.1	262.5
Oder River Board, s. e.	199.7	244.2	473.5	443.4	741.2	419.7	435.4
Morava River Board, s. e.	413.5	257.8	254.5	302.6	571.9	512.0	856.0
River Boards, s. e. in total	**1,316.1**	**1,890.8**	**2,225.6**	**2,291.5**	**2,732.3**	**3,259.0**	**3,837.4**

Source: River Boards, s. e.

*Note: *) Overall, the investments were made in 2008, but financially settled in January 2009 (the transfer of part of the grant programme 129 120 to the year 2009, the amount of CZK 19.5 million is included in 2008).*

Chart 6.2.2
The development of capital construction in River Boards, s. e. in the years 2003–2013



Source: MoA, River Boards, s. e.

repairs. A significant decrease in costs was also shown by depreciation, other costs and services. Personnel costs and costs of energy and fuels, on the contrary, showed a significant year-on-year increase.

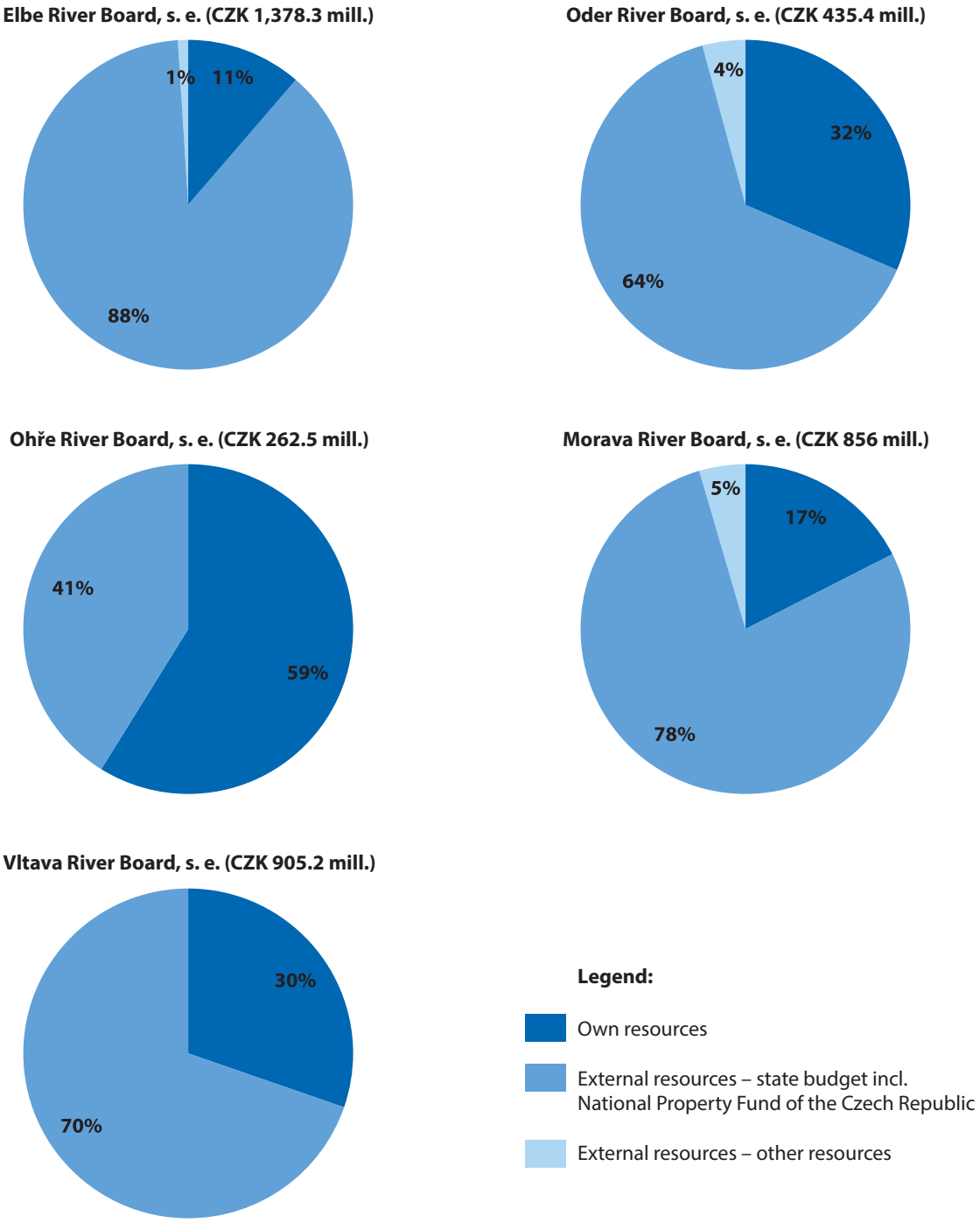
The year-on-year decrease in the total costs was reported by all River Boards, s. e., with the exception of the Vltava River Board, s. e. The most significant decrease in costs was reported by the Morava River Board, s. e., by CZK 205 million (21.2 %). The summary of costs in the year 2013 reported by the River Boards, s. e. and their comparison with the previous year is shown in table 6.2.9.

In the year 2013, River Boards, s. e. expended on investments the amount of CZK 3,837.4 million. Of this sum, almost 23% (CZK 873.3 million) were used from their own resources and over 77% (in absolute figures CZK 2,964.1 million) of investment funds were covered by external financial resources.

Compared to the previous year the investments made by the River Boards, state enterprises, in the year 2013 increased in total by CZK 578.4 million. The summary of investment funds is shown in table 6.2.10 and chart 6.2.2.

Investment expenditures of River Boards, s. e. in 2013 covered by external financial resources amounted to a total of CZK 2.96 billion, of which 97.6% were financial resources from the state budget and 2.4% were other resources. Other resources included the OPE funds, the ERDF funds, funds of the towns and municipalities and free transfers (the Oder River Board, s. e.). The largest amount of funding

Chart 6.2.3
The structure of the use of investment funds by resource types in River Boards, s. e. in 2013



Source: River Boards, s. e.

was used for flood control measures, remedying flood damage (The Elbe River Board, s. e.), purchase of land to allow the implementation of measures on the upper Opava River, modernization of the monitoring system of water management control centre or studies of flood risks (the Oder River Board, s. e.). The largest volume of investment expenditures was shown by the Elbe River Board, s. e. (CZK 1.22 billion), followed by the Morava River Board, s. e. and the Vltava River Board, s. e. (CZK 0.71 billion and CZK 0.63 billion,

Table 6.2.11
Profit/loss of River Boards, s. e. in the years 2007–2013 in thousands of CZK

River Board, s. e.	2007	2008	2009	2010	2011	2012	2013
Elbe River Board, s. e.	15,798	16,692	30,050	27,509	29,908	21,488	770
Vltava River Board, s. e.	67,625	23,375	30,265	13,530	12,702	25,088	14,495
Ohře River Board, s. e.	71,817	22,401	30,371	11,776	4,758	11,284	12,624
Oder River Board, s. e.	24,595	29,296	13,964	13,785	12,721	15,247	16,603
Morava River Board, s. e.	12,417	13,035	15,295	8,171	5,355	5,114	6,200
River Boards, s. e. in total	**192,252**	**104,799**	**119,945**	**74,771**	**65,444**	**78,221**	**50,692**

Source: River Boards, s. e.

Table 6.2.12
Allocation of profit of River Boards, s. e. for the year 2013 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.	**770**	-5,923	6,693	0	0	0	0
Vltava River Board, s. e.	**14,495**	0	7,735	0	260	6,500	0
Ohře River Board, s. e.	**12,624**	0	4,698	4,926	0	3,000	0
Oder River Board, s. e.	**16,603**	0	8,773	0	30	7,800	0
Morava River Board, s. e.	**6,200**	620	4,342	0	0	0	1,238

Source: River Boards, s. e.

The Klabava River, Dýšina – Nová Huť dike, gate valve

respectively), the Oder River Board, s. e. (CZK 0.3 billion) and the Ohře River Board, s. e. with the lowest investment expenditures (CZK 0.11 billion). Chart 6.2.3 shows the structure of the use of investment funds by resource types in River Boards, s. e.

The financial results reached by all River Boards, state enterprises showed only a profit. The profit reached the total amount of almost CZK 50.7 million.

Compared to the previous year, the total profit decreased by more than CZK 27.5 million. With the exception of the Elbe River Board, s. e. and the Vltava River Board, s. e. which showed a significant decrease in profit, all the remaining River Boards, s. e. show a slight improvement, compared to 2012.

Profit/loss development over the recent seven 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

Table 6.2.13
The number of employees of River Boards, s. e. in the years 2007-2013 (average recalculated number)

River Board, s. e.	2007	2008	2009	2010	2011	2012	2013
Elbe River Board, s. e.	943.4	942.8	943.7	939.7	947.1	927.5	920.7
Vltava River Board, s. e.	808.7	782.0	786.2	779.2	846.3	841.4	842.3
Ohře River Board, s. e.	605.2	605.5	605.2	604.9	620.7	616.1	617.5
Oder River Board, s. e.	459.8	458.9	461.7	457.2	464.3	463.5	467.1
Morava River Board, s. e.	750.8	736.4	706.9	673.9	698.0	694.0	683.3
River Boards, s. e. in total	**3,567.9**	**3,525.6**	**3,503.7**	**3,454.9**	**3,576.4**	**3,542.5**	**3,530.9**

Source: River Boards, s. e.

Table 6.2.14
Average salaries in the individual River Boards, s. e. in the years 2007–2013 in CZK/month

River Board, s. e.	2007	2008	2009	2010	2011	2012	2013
Elbe River Board, s. e.	24,318	25,778	27,283	28,209	28,350	29,540	30,293
Vltava River Board, s. e.	24,611	27,325	28,300	28,864	28,311	29,285	29,808
Ohře River Board, s. e.	24,971	26,794	28,620	29,759	30,148	31,335	31,698
Oder River Board, s. e.	23,817	25,534	26,104	27,190	28,105	28,714	29,458
Morava River Board, s. e.	22,052	23,823	25,778	25,310	25,812	25,756	26,479
Average monthly salary in River Boards, s. e. *)	**23,954**	**25,856**	**27,283**	**27,905**	**28,126**	**28,942**	**29,574**

Source: River Boards, s. e.
*Note: *) Calculated by means of weighted average.*

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 2013 by 12 employees to a total of 3,531 persons.

Compared to the previous year, only two River Boards, s. e. showed a decrease in the total number of employees. The Morava River Board, s. e. reported a decrease by 11 employees and the Elbe River Board, s. e. a decrease by 7 employees on average. The remaining River Boards, s. e. reported a slight increase in the number of employees. An overview of the development in the numbers of employees in the River Boards, s. e. is shown in table 6.2.13.

The average monthly salary in the River Boards, state enterprises in the year 2013 amounted to CZK 29,574.

Compared to the previous year, the average monthly salary in River Boards, s. e. increased by CZK 632, all River Boards, s. e. reported an increase in the average monthly salary. Relatively stable year-on-year increase in the salary over CZK 700 is reported by the Elbe River Board, s. e., the Oder River Board, s. e. and the Morava River Board, s. e. Despite the increase in the average monthly salary, the Morava River Board, s. e. continues to report the lowest salaries. In contrast, despite the smallest increase, the Ohře River Board, s. e. shows the highest average monthly salary. The average monthly salaries are specified in table 6.2.14.

6.3 Forests of the Czech Republic, s. e.

Forests of the Czech Republic, s. e., carries out the management of the specified minor watercourses and torrents as one of non-production forest functions. At present, the Forests of the Czech Republic carries out the management of more than 38 thousand km of watercourses.

Watercourse management carried out by the Forests of the Czech Republic, s. e. includes the management of non-current assets relating to watercourses, with an acquisition value of CZK 5.54 billion (in particular watercourse regulation, torrent and ravine control, flood control measures and water reservoirs). The watercourse management is carried out by six Watercourse Administrations, with territorial responsibility according to the respective river basin districts, which are methodically controlled by the Water Management Department at the Head Office of the Forests of the Czech Republic, s. e.

In the year 2013, the activities of the Forests of the Czech Republic in the field of water management were focused in particular on:

- completion of remedying flood damage from 2010,
- remedying flood damage from 2013,
- 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, re-vitalization 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.,
- keeping the Central Register of Watercourses and Water Reservoirs.

The management of watercourses and the implemented measures (repairs, rehabilitation and new investments) were mainly 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 "Rural Development Programme". Measures relating to minor watercourses are also to a certain extent funded by the Regional Authorities. The activities carried out in connection with the management of watercourses are of a non-commercial nature and with regard to the overall funds expended they generate virtually no profit.

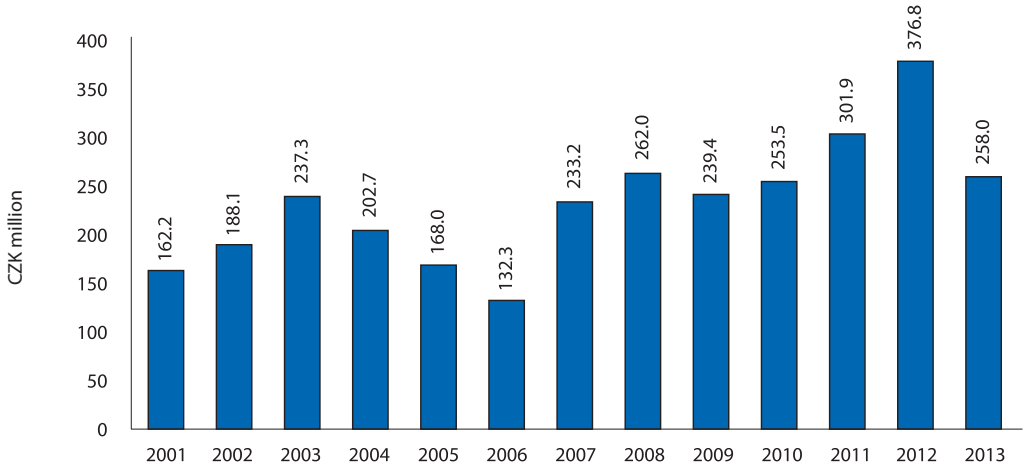
In connection with the management of watercourses, the Forests of the Czech Republic, s. e., through its organizational units, the Watercourse Administrations, disbursed in total CZK 653 million, including expenditures of capital investment nature amounting to CZK 258 million. Its own funds used for these investments amounted to CZK 127.5 million. In total CZK 395 million, including CZK 365.3 million of own funds were used to perform the management, repairs and maintenance of fixed assets. In total CZK 210 million, including CZK 143.3 million of own funds were expended on remedying flood damage. The above mentioned amounts include all costs relating to the management of watercourses. The revenues from payments for surface water abstractions to cover the management of watercourses amounted to CZK 12.2 million. Unit price for 1 m^3 in 2013 reached the amount of CZK 2 excl. VAT.

The Charts 6.3.1 and 6.3.2 provide in a longer time series an overview of the overall annual capital expenditures and the funds spent on repairs and maintenance.

Measures in river basins

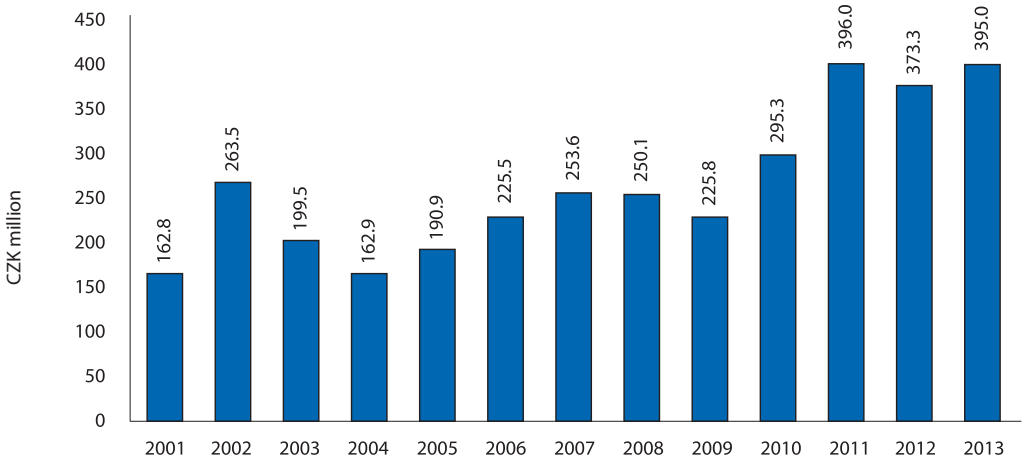
In the year 2013, the main activity for the Watercourse Administration for the Oder River basin district was to complete actions aiming to remedy flood damage from May 2010 in the area of the Beskydy Mountains. The most extensive completed projects co-financed

Chart 6.3.1
Capital expenditures of the Forests of the Czech Republic, s. e. in the years 2001–2013 in millions of CZK – watercourses



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

Chart 6.3.2
Expenditures of the Forests of the Czech Republic, s. e. in the years 2001–2013 in millions of CZK – repair and maintenance of watercourses (gross expenditure)



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

by the MoA grants include, in particular, remedying flood damage to the Čeladenka River – Stage II in Čeladná and Frýdlant n. O. following up with the Stage I of remedying flood damage from the previous period, the Lomná stream in Frenštát pod Radhoštěm, Satina in Nová Ves u Frýdlantu n. O. and in Malenovice, Kyčerov – Klaus Klinská in Staré Hamry, Stříbrník in Ostravice and damming on the Vysutý stream in Morávka.

Flood control measures were completed, of which the most significant projects include the Javornický stream in Javorník in the Rychlebské hory Mountains, the Červený stream in Stará Červená Voda, Studená Voda in Vlčice u Javorníka. In the Beskydy Mountains, the completed projects included Jasení in Návsí and polder on the Antošovický stream in km 2.548 near Bohumín. Exensive project Mušlov II in Třemešná near Město Albrechtice was successfully completed. This project was taken over by the Forest of the Czech Republic, s. e. from the previous watercourse administrator.

As regards measures taken in the public interest pursuant to Section 35 of the Forest Act, they include projects completed on the Vysutý stream in Morávka and Jestřábí in Krásná pod Lysou horou.

The Watercourse Administration for the Dyje River basin district within the framework of remedying flood damage from 2010 used their own funds to complete the implementation of the project Hvězdlička in Milonice, Vyškov district.

In 2013, local floods occurred in the Jihomoravský region. Increased flows caused major damage in Běleč and Křeptov, where action was taken to secure safety.

Six projects co-financed from the Programme of Flood Prevention II were completed, of which the most important include increasing the Lubě stream channel capacity in Skalička in the Tišnov area and construction of dry polder Pod Borovicí in Hvězdlice in the Vyškov area. In addition, preparatory work for the execution of projects of flood control measures taken over within the transformation of the Agricultural Water Management Administration was under way. The most important of these projects was the construction of dry polders in the municipality of Čeložnice in the Kyjov area and increase in the Hodonínka stream channel capacity in the municipality of Olešnice.

The following projects of measures taken in the public interest pursuant to Section 35 of the Forest Act were completed: water

reservoir Valíšek in the Znojmo area and retention reservoir Templář near Moravský Krumlov.

In the Watercourse Administration for the Elbe River basin district, measures aiming to remedy flood damage from 2010 in the Liberec area were completed. They included projects on the Hájený stream in Bílý Potok pod Smrkem and on the Jeřice River tributaries in Oldřichov in Háje.

In 2013, especially part of the Královéhradecký region was affected by the floods (tributaries of the Čistá River, the Elbe and the Cidlina River), minor damage was reported in the Liberecký region (tributaries of the Smědá River and the Lužická Nisa River) and the Středočeský region (a tributary of the Šembera River). In June 2013, local floods affected also part of the Pardubický region (tributaries of the Chrudimka River, the Doubrava River, the Novohradka River and the Loučná River).

Within the framework of flood control measures, the projects of Ležák in Holetín and Polder in Svijanský Újezd were completed.

The Watercourse Administration for the Elbe River basin district completed the following projects of measures taken in the public interest pursuant to Section 35 of the Forest Act: retention reservoir on the Knapovecký stream in Knapovec and damming on the Lubenský stream in Horní Újezd in the area of Ústí nad Orlicí.

The projects of the revitalization of the Koutský stream in Osečnice in the Orlické hory Mountains and the Tichá říčka stream in Janov nad Nisou were completed with financial support from the Operational Programme Environment.

The measures with the objective of the reintroduction of brook minnow (Phoxinus phoxinus) and rainbow trout and the monitoring of fish passes were implemented in the Protected Landscape Area Jizerské hory Mountains. The reintroduction of crayfish (Astacus astacus) was carried out in the Broumovsko Protected Landscape Area.

The most important activity carried out by the Watercourse Administration for the Vltava River basin district in 2013 was remedying flood damage from June 2013. Rising water levels were reported on minor watercourses in the Vltava River, the Berounka River, the Sázava River, the Lužnice River, the Blanice River and the Otava River basins. Action to secure safety was taken immediately, along with the preparation for remedying flood damage in the coming years.

The Lubě stream in Skalička

Major completed projects under the Programme of Flood Prevention II include the Stroupinský stream III in Žebrák, the Olešná stream in the Rokycany district and the Farský stream in Záblatí u Prachatic. Watercourse regulations included stream channel capacity increasing in the municipalities of Rpety, Potočná, Velká Hleďsebe, Radnice and Alberovice.

Projects completed under Section 35 of the Forest Act and projects supported from the EU funds include the reconstruction of retention reservoirs Paadorfská Huť, Výtůň and Raška II in Plzeň area. The EU grant funds under the Rural Development Programme were used to complete the project of repair of the Městecký stream channel in Městečko, the district of Rakovník.

The Watercourse Administration for the Ohře River basin district in 2013 completed the remediation of flood damage from 2010. Repairs were carried out on the Rychnovský stream in Těchlovice, the Homolský stream in Velké Březno, the Luční stream in the Litoměřice area and the Zdislavský stream in the Liberec area.

Funds under the Programme of Flood Prevention II were used to build retention damming on the Lideňský stream to protect the municipality of Zelená near Chomutov, to complete retention damming on the Donínský stream near Kadaň, retention damming and channel capacity increasing on the Hradišťský stream near Klášterec nad Ohří, retention damming and channel capacity increasing on the Velenický stream in the Česká Lípa area and the channel capacity increasing on the Druzcovský stream in the Liberec area.

In addition, the EU funds were used to carry out the revitalization of the Chodovský stream in the Karlovy Vary area and the revitalization of the Býnovecký stream in the Děčín area.

The Watercourse Administration for the Morava River basin district in 2013 completed the remediation of flood damage from 2010. The most important projects included the Holomňa watercourse regulation in Drslavice in the district of Uherské Hradiště and the Kněhyně watercourse regulation between river km 0.250 and 3.900 in the district of Vsetín.

In 2013, the Watercourse Administration for the Morava River basin district completed projects co-financed under the MoA Programme of Flood Prevention II on the Dražůvka stream in the Šumperk area, the Romže stream in the Olomouc area and the Kání stream in Rožnov pod Radhoštěm and projects taken over from the Agricultural Water Management Administration, i. e. reconstruction of the dam of Líšnice water reservoir in the Šumperk district and the Teplička stream channel capacity increasing in Újezd near Uničov.

The following projects were completed pursuant to Section 35 of the Forest Act: the construction of damming on the Dražůvka stream near Konice and the remediation of reservoirs on the Pilávka stream near Uničov and popular tourist area of mineral water springs near the municipality of Ochoz.

The EU funds were used to complete the repair of damming on the Ptenka stream in the Prostějov district and the Sladský stream in the Vsetín district.

In addition, a number of measures to remove silt from river beds, maintenance and repairs of hydraulic structures were carried out, including the remediation of defects on watercourses resulting from the activities of the European beaver. An important project was the repair of the dam of Všemina water reservoir, where dam seepages were sealed.

The Forests of the Czech Republic regularly keep the public informed of the completed measures through press releases.

6.4 Waterways

Pursuant to Act No. 114/1995 Coll., on Inland Navigation, as amended, the 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 Regulation of the European Parliament and of the Council No. 1315/2013 of 11 December 2013 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, however, on water levels based on the current flows and on the overall water management situation in the entire Elbe and the Vltava River basins.

The funds spent in the field of the development and modernization of waterways with significance to transport amounted in the year 2013 to CZK 186.1 million in total. Programme development of waterways was funded by CZK 185.0 million allocated from the budget of the State Transport Infrastructure Fund and CZK 1.1 million from the EU funds through the Operational Programme Transport.

To ensure trouble-free navigation on the Elbe water way, the key point is the improvement of navigation conditions in the section between Ústí nad Labem and the state border. In terms of transport and ecology it can be stated that water transport is at the Europe-wide level a significantly supported mode of transport, thanks to its efficiency and environmental friendliness, very low accident rate and the use of surface waters, which are also aquatic ecosystems.

Significant progress achieved in the preparation of the strategic project Přelouč II Navigation Dam, which is the key project leading to the extension of the Elbe waterway to Pardubice, is the re-issuance of the zoning and planning decision, but in 2013 on the basis of the appeal it was assigned to the apellate body, the Regional Authority of the Pardubický region. The Regional Authority cancelled, for formal deficiencies, the issued zoning and planning decision and referred the matter back for reconsideration at the level of first instance.

Lateral canal Vraňany – Hořín

In 2013, significant amounts of funds were expended on the project "Sports Harbour Hluboká nad Vltavou", which aims to build a harbour for 73 small vessels and two passenger boats. The project execution will continue until 2014.

In 2013, there also started the execution of the investment project "Landing-places for Passenger Water Transport on the Lower Elbe", which aims to build a basic public network of small landing-places on the Elbe waterway and thus contribute to the development of tourist sites concerned. In 2013, work started in the locations of Dolní Zálezly, Libochovany, Lovosice, Nučnice and Libotenice, with Lovosice landing-place having been completed. In the remaining locations the construction will be completed in 2014.

Significant funds were also expended on intensive preparation of other capital investment projects for comprehensive development of the waterway network.

River Boards, state enterprises in 2013 expended funds on repairs, maintenance, construction, reconstruction and modernization of wateways, having used MoA subsidies under the programme "Remedying the impacts of floods on state-owned water management property", sub-programme 129 272, or their own funds. In the Vltava River Boards, s. e., these projects included, for example: Lateral Canal Vraňany – Hořín navigation km 2.650 to 3.390 – repair of right bank pavement (CZK 5.021 million), Lateral Canal Trója – Podbaba, between river km 1.9 and km 3.2 – repair of damaged canal embankment (CZK 13.48 million) and the Vltava fairway between river km 228.8 and 229.45 – Hluboká nad Vltavou (CZK 1.989 million). The Elbe River Board, state enterprise used funds from the MoA subsidy programme for the project "Hydraulic structure Obříství, repair of hydraulic control of the lock" (CZK 289.6 thousand).

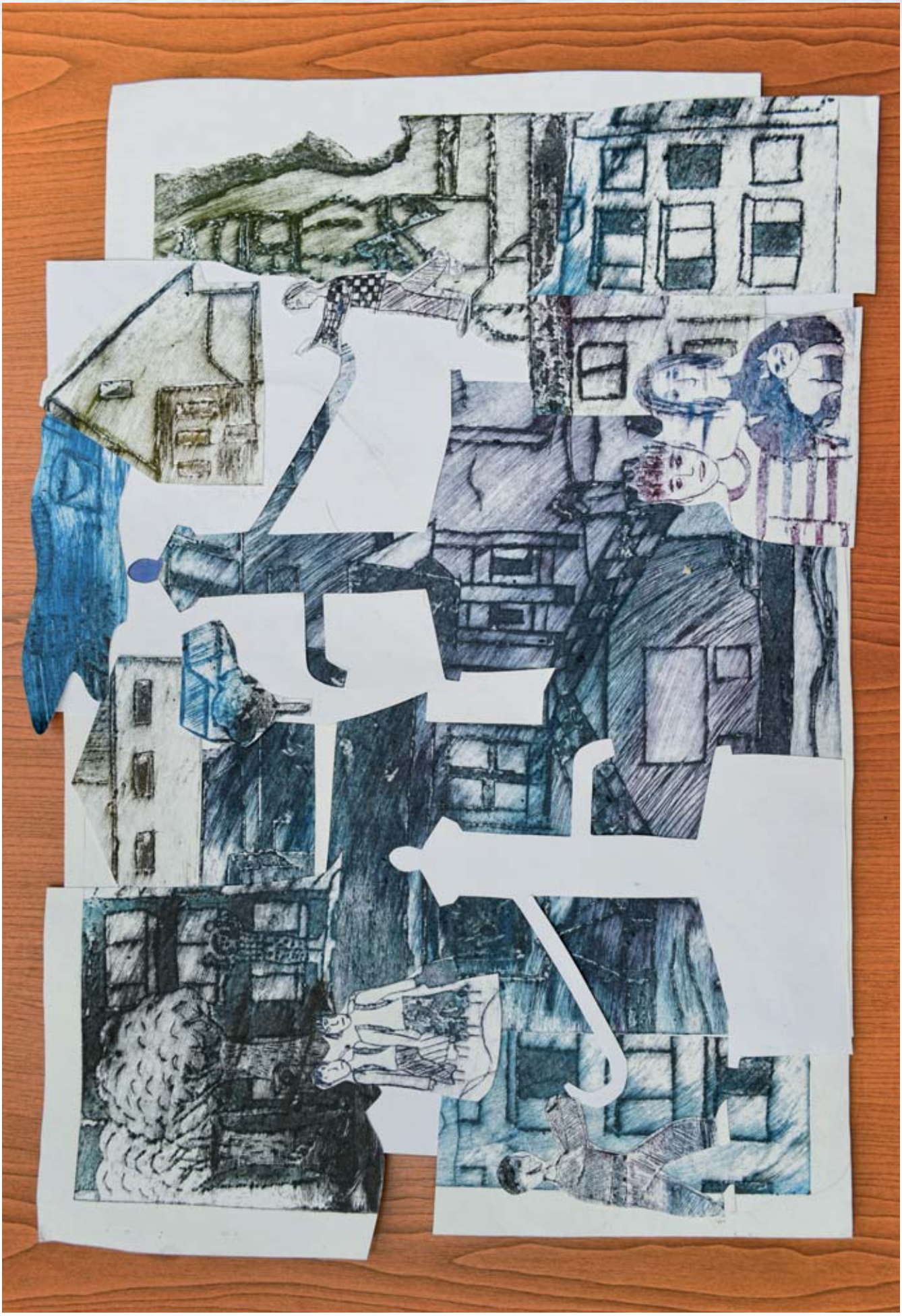
Other projects of repairs, maintenance or reconstruction of waterways funded from own resources include, for example, repair of small lock flap and gate at hydraulic structure Roudnice (CZK 5,019 thousand) or repair of upper and lower dividing wall at hydraulic structure Lysá nad Labem (CZK 2,721 thousand) in the Elbe River Board, s. e. The Morava River Board, s. e. carried out, for example, repair of lock gate seal in Veselí nad Moravou (CZK 237 thousand), cleaning of the lower lock cut in Staré Město (CZK 125 thousand) and repair of drive of the lift bridge over the lock chamber in Uherský Ostroh (CZK 94 thousand).

Total funds expended in 2013 by River Boards, s. e. on water transport by type of funds are shown in table 6.4.1.

Table 6.4.1
Funds used in 2013 for repairs, maintenance, construction, reconstruction and modernization of waterways in thousands of CZK

River Board, s. e.	Own funds	Operating grants	Investment grants	Grants in total	Own funds and grants in total
Elbe River Board, s. e.	28,117	290	0	290	28,407
Vltava River Board, s. e.	48,641	42,251	0	42,251	90,892
Morava River Board, s. e	813	0	0	0	813
River Boards, s. e. in total	**77,571**	**42,541**	**0**	**42,541**	**120,112**

Source: River Boards, s. e.



"Water pumping" – Jana Hopjanová – 4th class, Šrámkova primary school, Opava, Moravskoslezský region

7. Public water supply and sewerage systems

7.1 Drinking water supply

In the year 2013 water supply systems supplied water to 9.854 million inhabitants in the Czech Republic, i. e. 93.8% of the total population.

All water supply systems produced in total 600.2 million m^3 of drinking water. 471.8 million m^3 of drinking water were supplied and charged for (invoiced), including 313.6 million m^3 of drinking water for households. Drinking water losses amounted to 106.3 million m^3, i. e. 17.9% of water intended for consumption.

The data provided by the Czech Statistical Office was collected on the basis of information provided by 1,379 reporting units, i. e. 262 professional water supply and sewerage system operators and a selected set of 1,117 municipalities operating the water management infrastructure on their own; the data was provided by 100% of operators and 99.5% of 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.

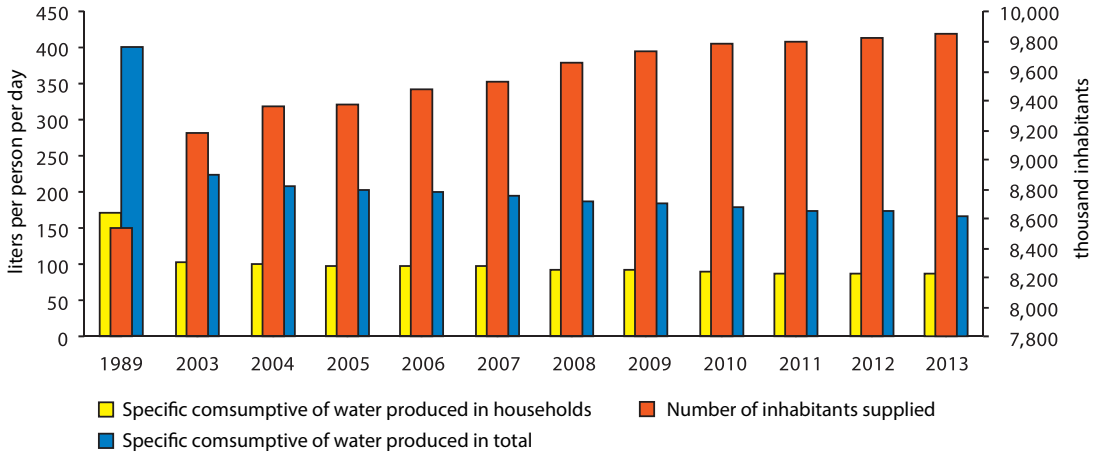
Water consumption continued to show a downward trend in 2013. Similarly, specific quantities of water invoiced in total and water invoiced for households decreased. The nationwide decline represents 3 l/person/day for water invoiced and 1 l/person/day for water invoiced for households.

Table 7.1.1
Water supply from water supply systems in the years 1989 and 2007–2013

Indicator	Measurement unit	1989	2007	2008	2009	2010	2011	2012	2013
Inhabitants (mean)	thousand inhabitants	10,364	10,323	10,430	10,491	10,517	10,495	10,509	10,511
Inhabitants actually supplied with water from water supply systems	thousand inhabitants	8,537.0	9,525.0	9,664.2	9,733.0	9,787.5	9,805.4	9,823.1	9,854.4
	%	82.4	92.3	92.7	92.8	93.1	93.4	93.5	93.8
Water produced by water supply systems	million m^3/year	1,251.0	683.0	667.1	653.3	641.8	623.1	623.5	600.2
	% as of 1989	100.0	54.6	53.3	52.2	51.3	49.8	49.8	48.0
Water invoiced in total	million m^3/year	929.4	531.7	516.5	504.6	492.5	486.0	480.7	471.8
	% as of 1989	100.0	57.2	55.6	54.3	53.0	52.3	51.7	50.8
Specific consumptive use of water produced	l/person/day	401.0	196.0	188.0	184.0	180.0	174.0	173.8	166.8
	% as of 1989	100.0	48.9	46.9	45.8	44.8	43.4	43.3	41.6
Specific quantity of water invoiced in total	l/person/day	298.0	153.0	146.0	142.0	137.9	135.8	134.1	131.1
	% as of 1989	100.0	51.3	49.0	47.7	46.3	45.6	45.0	44.0
Specific quantity of water invoiced for households	l/person/day	171.0	98.5	94.2	92.5	89.5	88.6	88.1	87.1
	% as of 1989	100.0	57.6	55.1	54.1	52.3	51.8	51.5	50.9
Water losses per 1 km of water mains	l/km/day	16,842.0*)	4,893.0	4,889.0	4,705.0	4,673.0	4,220.0	4,351.0	3,856.9
Water losses per 1 inhabitant supplied	l/person/day	90.0*)	36.0	37.0	35.0	35.0	32.0	33.0	29.5

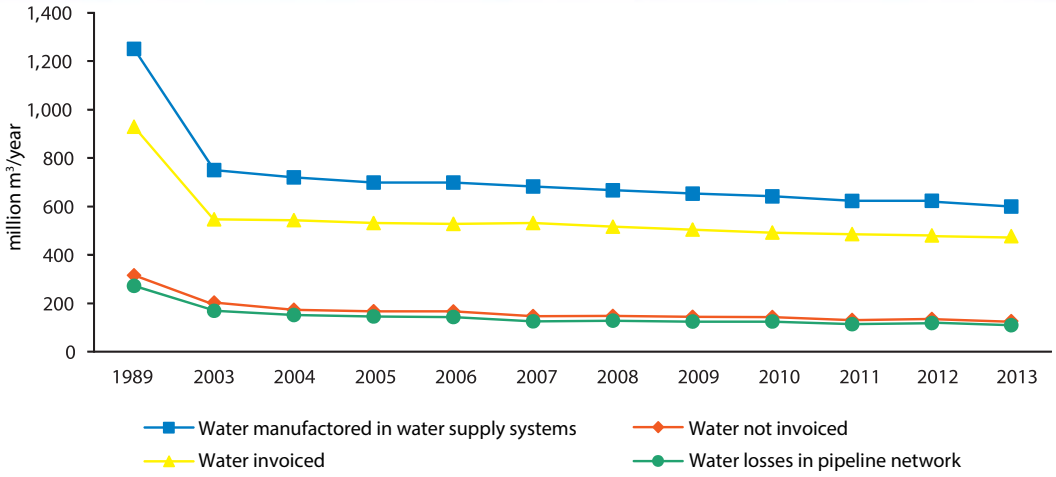
Source: Czech Statistical Office
*Note: *) Data for water supply systems run by the main operators.*

Chart 7.1.1
Development in the number of inhabitants supplied and the specific consumptive use of water invoiced in the years 1989 and 2003–2013



Source: Czech Statistical Office

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 2003–2013



Source: Czech Statistical Office

The highest percentage of inhabitants supplied with drinking water from water supply systems in 2013 was recorded in the Karlovarský region (100%), in the City of Prague (100%) and in the Moravskoslezský region (99.8%), the lowest percentage of inhabitants supplied with drinking water was recorded in the Plzeňský region (83.3%) and the Středočeský region (83.7%).

As regards Jihočeský, Karlovarský, Olomoucký and Moravskoslezský regions, the percentage of inhabitants supplied with water slightly decreased in the year-on-year comparison with the total number. This decrease is only due to a higher precision of the methodology of calculating the number of inhabitants connected.

In 2013, the length of water supply network was extended by the total of 566 km and reached the length of 75,481 km. New construction of new water supply systems and completion of the existing ones thus increased in 2013 the number of inhabitants supplied by 31,295. The length of water supply network per one inhabitant supplied was 7.66 m.

The number of water supply connections increased by 23,039 and amounted to 2,025,966. The number of water meters installed increased by 17,062 and amounted to 2,022,178. The number of connected inhabitants per one water supply connection is 5. Markedly shown in these figures are the results of the relatively intensive construction of family houses.

Table 7.1.2
Inhabitants supplied, production and supply of water from water supply systems in 2013

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	1,244,227	100.0	113,617	77,571	50,572
Středočeský	1,085,882	83.7	45,620	48,365	33,882
Jihočeský	569,453	89.5	32,952	25,109	17,921
Plzeňský	477,110	83.3	28,456	24,058	14,025
Karlovarský	300,999	100.0	19,137	14,123	8,983
Ústecký	798,296	96.7	50,223	36,923	23,028
Liberecký	402,603	91.8	26,891	19,035	12,043
Královéhradecký	520,327	94.3	30,530	22,917	14,831
Pardubický	503,455	97.6	27,776	22,301	14,176
Vysočina	487,181	95.4	24,643	21,100	14,040
Jihomoravský	1,115,052	95.4	61,191	53,266	37,108
Olomoucký	578,091	90.8	28,671	24,956	17,238
Zlínský	550,263	93.8	29,082	22,857	15,310
Moravskoslezský	1,221,475	99.8	81,386	59,243	40,423
Czech Republic	**9,854,414**	**93.8**	**600,174**	**471,824**	**313,580**

Source: Czech Statistical Office

7.2 Discharge and treatment of municipal waste waters

In 2013, in total 8.705 million inhabitants in the Czech Republic lived in buildings connected to sewerage systems, which is 82.8% of the total population. In total 455.3 million m³ of waste waters (excluding rain water charged for) were discharged into sewerage systems. Of this quantity, 97.4% of waste waters were treated (excluding rain water), which amounts to 443.4 million m³.

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

The number of inhabitants connected to sewerage systems increased by 30,423 in comparison with the previous year 2012. The quantity of waste waters discharged to sewerage systems, without rain

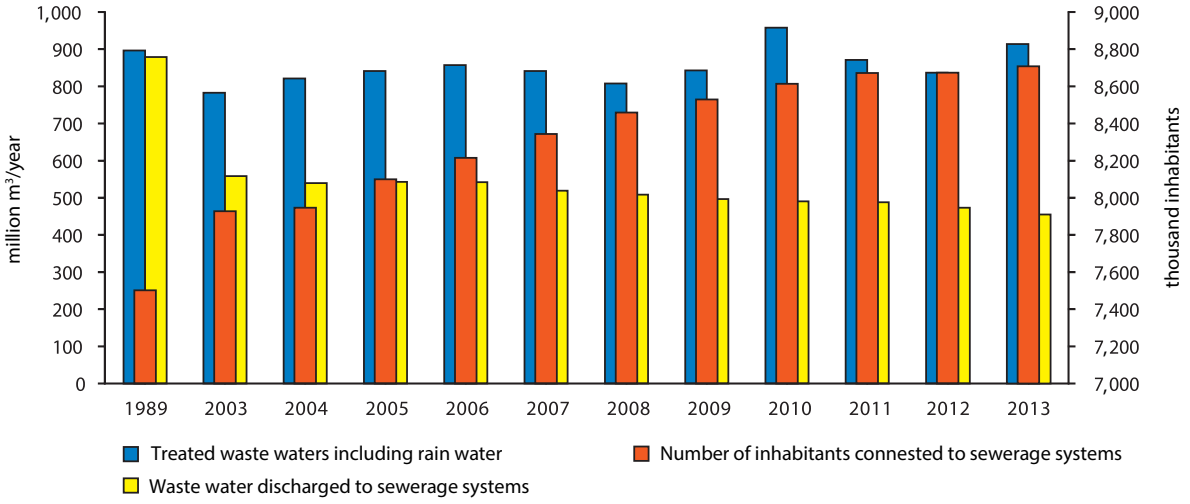
Waste water treatment plant Vladislav

Table 7.2.1
Discharge and treatment of waste waters from sewerage systems in the years 1989 and 2007–2013

Indicator	Measurement unit	Year							
		1989	2007	2008	2009	2010	2011	2012	2013
Inhabitants (mean)	thousands of inhabitants	10,364	10,323	10,430	10,491	10,517	10,495	10,509	10,511
Inhabitants living in buildings connected to sewerage systems	thousands of inhabitants	7,501	8,344	8,459	8,530	8,613	8,672	8,674	8,705
	%	72.4	80.8	81.1	81.3	81.9	82.6	82.5	82.8
Waste waters discharged to sewerage systems (excluding rain water charged for) in total	million m³	877.8	519.3	508.8	496.4	490.3	487.6	473.2	455.3
	% as of 1989	100.0	59.2	58	56.6	55.9	55.5	53.9	51.9
Treated waste waters including rain water [1)]	million m³	897.4	841.2	807.5	842.9	957.9	871	836.7	912.3
Treated waste waters in total excluding rain water	million m³	627.6	497.6	485	472.7	471.5	472.2	459.4	443.4
	% as of 1989	100.0	79.4	77.3	75.4	75.2	75.3	73.2	70.6
Percentage of treated waste waters excluding rain water [2)]	%	71.5	95.8	95.3	95.2	96.2	96.8	97.1	97.4

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 (excluding rain water charged for).

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 2003–2013



Source: Czech Statistical Office

water, decreased in the year-on-year comparison by 17.9 million m³. The indicator of the percentage of the treated waste waters, without rain water, increased in the year 2013 by 0.3%.

The highest percentage of inhabitants connected to sewerage systems in 2013 was recorded in the City of Prague (98.8%) and the Karlovarský region (95.0%), the lowest percentage was recorded in the Středočeský region (67.3%) and the Liberecký region (68.2%).

The number of inhabitants living in buildings connected to public sewerage systems increased in most of the regions, the decrease was recorded only in the City of Prague, the Jihočeský region and the Středočeský region. This decrease is significant and was probably caused by a change in reporting methodology of major operators.

In the year 2013, the sewerage network was extended by 866 km and reached the total length of 43,618 km. 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 2012 by 64 waste water treatment plants, i. e. to 2,382.

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 2013 in the individual regions

Region	Inhabitants living in buildings connected to public sewerage systems		Waste waters discharged to public sewerage systems (excluding rain water charged for)	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	1,229,326	98.8	77,935	77,935	100.0
Středočeský	873,208	67.3	50,113	50,068	99.9
Jihočeský	546,351	85.8	27,661	26,255	94.9
Plzeňský	463,461	80.9	29,684	28,635	96.5
Karlovarský	285,920	95.0	14,450	14,424	99.8
Ústecký	677,016	82.0	29,590	28,844	97.5
Liberecký	299,005	68.2	14,066	13,927	99.0
Královéhradecký	422,334	76.5	20,172	18,867	93.5
Pardubický	377,412	73.2	17,412	17,126	98.4
Vysočina	443,541	86.9	19,483	16,862	86.5
Jihomoravský	1,033,396	88.4	53,654	52,514	97.9
Olomoucký	502,861	79.0	27,304	26,437	96.8
Zlínský	540,013	92.1	26,317	25,206	95.8
Moravskoslezský	1,010,701	82.6	47,473	46,326	97.6
Czech Republic	**8,704,544**	**82.8**	**455,313**	**443,426**	**97.4**

Source: Czech Statistical Office

Waste water treatment plant Agris

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 2013 amounted to 33.70 CZK/m³ and the average price of sewerage charge after refining the method of calculation amounted to 29.20 CZK/m³.

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 April at the latest complete information on the comparison of all items for calculating the price according to price regulations for water and sewerage charges and the real data achieved 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 comparison, 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 waste water discharged (from 2013 newly including rain water charged for). Aggregate data of the Czech Statistical Office for the Czech Republic are not obtained through a weighted average and cannot therefore be compared with the data collected by the Ministry of Agriculture.

Based on the survey carried out by the Czech Statistical Office, the highest average price of water rate was established in the Ústecký region, where it reached the amount of CZK 39.30/m³. Compared to the national average this price was thus higher by 16.6%. The highest average price of sewerage charges was established in the Liberecký region and in the amount of CZK 37.50/m³ exceeded the national average by 28.4%. On the contrary, the lowest average price of water rate (CZK 29.40/m³) was established in the Jihomoravský region. The lowest average price of sewerage charges (CZK 23.70/m³) was established in the Vysočina 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 (excl. VAT) in the years 2012 and 2013

Indicator	Measurement unit	2012	2013	Index 2013/2012
Water rates in total	CZK million	15,730	15,894	1.01
Water invoiced in total	million m³/year	481	472	0.98
Average price of water rate	CZK/m³	32.7	33.7	1.03
Sewerage charges in total	CZK million	14,026	15,118	1.08
Waste waters discharged to sewerage systems*)	million m³/year	473	517	-
Average price of sewerage charges	CZK/m³	29.6	29.2	0.99

Source: Czech Statistical Office
*Note: *) From 2013 including rain water charged for.*

Table 7.3.2
Water consumption, average prices of water and sewerage charges excluding VAT in the year 2013

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	170.8	111.4	36.3	29.0
Středočeský	122.0	85.5	36.7	26.8
Jihočeský	120.8	86.2	34.8	27.3
Plzeňský	138.1	80.5	31.8	25.3
Karlovarský	128.5	81.8	36.2	30.6
Ústecký	126.7	79.0	39.3	37.1
Liberecký	129.5	82.0	36.9	37.5
Královéhradecký	120.7	78.1	31.3	31.2
Pardubický	121.4	77.1	30.0	32.9
Vysočina	118.7	79.0	33.2	23.7
Jihomoravský	130.9	91.2	29.4	30.2
Olomoucký	118.3	81.7	31.3	27.7
Zlínský	113.8	76.2	33.5	28.4
Moravskoslezský	132.9	90.7	30.4	28.0
Czech Republic	**131.2**	**87.2**	**33.7**	**29.2**

Source: Czech Statistical Office

"The well" – Tereza Šanová – 4th class, Šrámkova primary school, Opava, Moravskoslezský region

8. Fisheries and fishpond management

8.1 Fisheries and fishpond management

Fishery in the Czech Republic includes production fishery covered by fishpond management, and management in fishing districts.

Fishpond management is in the Czech Republic historically the most significant area of fishery. It is a traditional part of agriculture and in terms of fish production it belongs to successful areas of agricultural production. Fishponds have many other functions, such as landscaping, retention, flood control, and they contribute to the preservation of biodiversity, etc. Fishpond management is further followed up with by service sector.

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 41 thousand hectares. The fishponds show annual average fish population growth amounting to approximately 490 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 and sheat fish).

In 2013, market fish produced by fish farming reached in total 19,358 tonnes, which represented, compared to the year 2011, which in terms of fish production was the most successful year in the history, a decrease by 7.9% (i. e. by 1.65 thousand tonnes). This decrease was due to a longer winter season and mainly due to floods in June 2013. More than 94% of fish production come from fishpond farming and the remaining percentage comes from fish breeding in special facilities or from storage reservoirs. The quantity of processed freshwater fish represented 2,398 tonnes of live weight. The consumption of freshwater fish produced by fish breeding in 2013 reached the value of 1.043 kg/person/year. To calculate the total consumption of freshwater fish per 1 inhabitant in 2013, population number of 10,512,419 as of 31 December 2013 was considered. This national average does not include the numbers and the weight of fish caught on hook by recreational fishermen in fishing districts.

The production of carp in 2013 showed a year-on-year decrease by 6.5%, nevertheless, it accounts for 86.8% of the total fish production in the Czech Republic. Overall, production fishery produced a total of 16,809 tonnes of carp. 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.

The management in fishing districts is an important part of fishery. The management in fishing districts is closely related to stocking and support for fish species that also due to increased pressure

River trout from the Morávka River

by piscivorous predators in recent years in fishing districts are significantly eliminated.

Recreational fishing and angling activities are carried out in the Czech Republic by approximately 400 thousand of registered recreational fishermen, who are largely organized in two biggest Fishing Associations (Czech Fishing Association and Moravian Fishing Association). In 2013, members of these two associations caught in total about 3.84 thousand tonnes of fish.

Recreational fishing is associated wih many other sectors, such as stores selling fishing equipment or tourist business.

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: under this programme 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.

Table 8.1.1
Overview of fish production in the Czech Republic in the years 2008–2013

Indicator of production and consumption of fish	2008	2009	2010	2011	2012	2013
Fish production in thousands of tonnes	20.40	20.10	20.42	21.01	20.80	19.40
Export in thousands of tonnes	10.12	8.95	9.10	8.80	8.60	8.40
Catch in fishing districts in thousands of tonnes	4.16	4.10	3.99	4.00	4.00	3.80
Consumption per person in $kg.year^{-1}$ (fishpond production incl. catch in fishing districts)	1.32	1.37	1.41	1.47	1.41	1.48

Source: MoA and the Czech Fish Farmers Association

Na Únanovce fishpond

In 2013, the Ministry of Agriculture issued the decision to grant subsidies within Call 15, Call 16 and Call 17 of accepting applications for subsidies from the Operational Programme Fisheries 2007–2013. Within Call 18, a total of 29 projects were registered, of which 24 projects under Measure 3.1. a), three projects under Measure 3.1. b) and two projects under Measure 3.3. e).

Under measure 2.1 Measures for Productive Investments into Aquaculture, in 2013 the decisions were issued to grant subsidies for 72 business plan projects a) with the aggregate subsidy amounting to approximately CZK 44.7 million, for 19 business plan projects b) with the aggregate subsidy amounting to approximately CZK 12.9 million, for 40 business plan projects c) with the aggregate subsidy amounting to approximately CZK 49 million, for two business plan projects d) with the aggregate subsidy amounting to approximately CZK 0.1 million and seven business plan projects e) with the aggregate subsidy amounting to approximately CZK 2.3 million. In 2013, under measure 2.1, the decisions were issued to grant subsidies in the total amount of approximately CZK 109 million for 140 projects.

Under measure 2.4 Investments into Fish Processing and Marketing, in 2013 the decisions were issued to grant subsidies for 7 business plan projects a) with the aggregate subsidy amounting to approximately CZK 3 million.

Under measure 3.1 Common Activities, in 2013 the decisions were issued to grant subsidies for two business plan projects a) with the aggregate subsidy amounting to approximately CZK 1.4 million, for five business plan projects b) with the aggregate subsidy amounting to approximately CZK 6 million and for two business plan projects c) with the aggregate subsidy amounting to approximately CZK 0.5 million.

Under measure 3.2 Measures for the Protection and Development of Aquatic Animals and Plants, in 2013 the decisions were issued to grant subsidies for 80 business plan projects b) (Reintroduction of Eel) with the aggregate subsidy amounting to approximately CZK 19.3 million.

Under measure 3.4 Pilot Projects, in 2013 the decisions were issued to grant subsidies for 18 projects with the aggregate subsidy amounting to approximately CZK 18 million.

In 2013, the Ministry of Agriculture continued in the pre-financing of projects under the Operational Programme Fisheries 2007–2013. In 2013, under measure 2.1, subsidies in amount of CZK 43 million were disbursed for 19 projects. Under measure 2.2, subsidies in amount of CZK 0.1 million were disbursed for two projects. Under measure 2.4, subsidy in amount of CZK 0.6 million was disbursed for one project. Under measure 3.1, subsidies in amount of CZK 7.6 million were disbursed for twelf projects. Under measure 3.2, subsidies in amount of CZK 9.5 million were disbursed for 53 projects. Under measure 3.3, subsidies in amount of CZK 1.1 million were disbursed for four projects. Under measure 3.4., subsidies in amount of CZK 9.7 million were disbursed for nine projects. Under measure 5.1, subsidies in amount of CZK 5.8 million were disbursed for six projects.

Table 8.1.2
Operational Programme Fisheries 2007–2013

Priority axis 2 – Aquaculture, fishery and aquaculture products processing and marketing	
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 fish 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

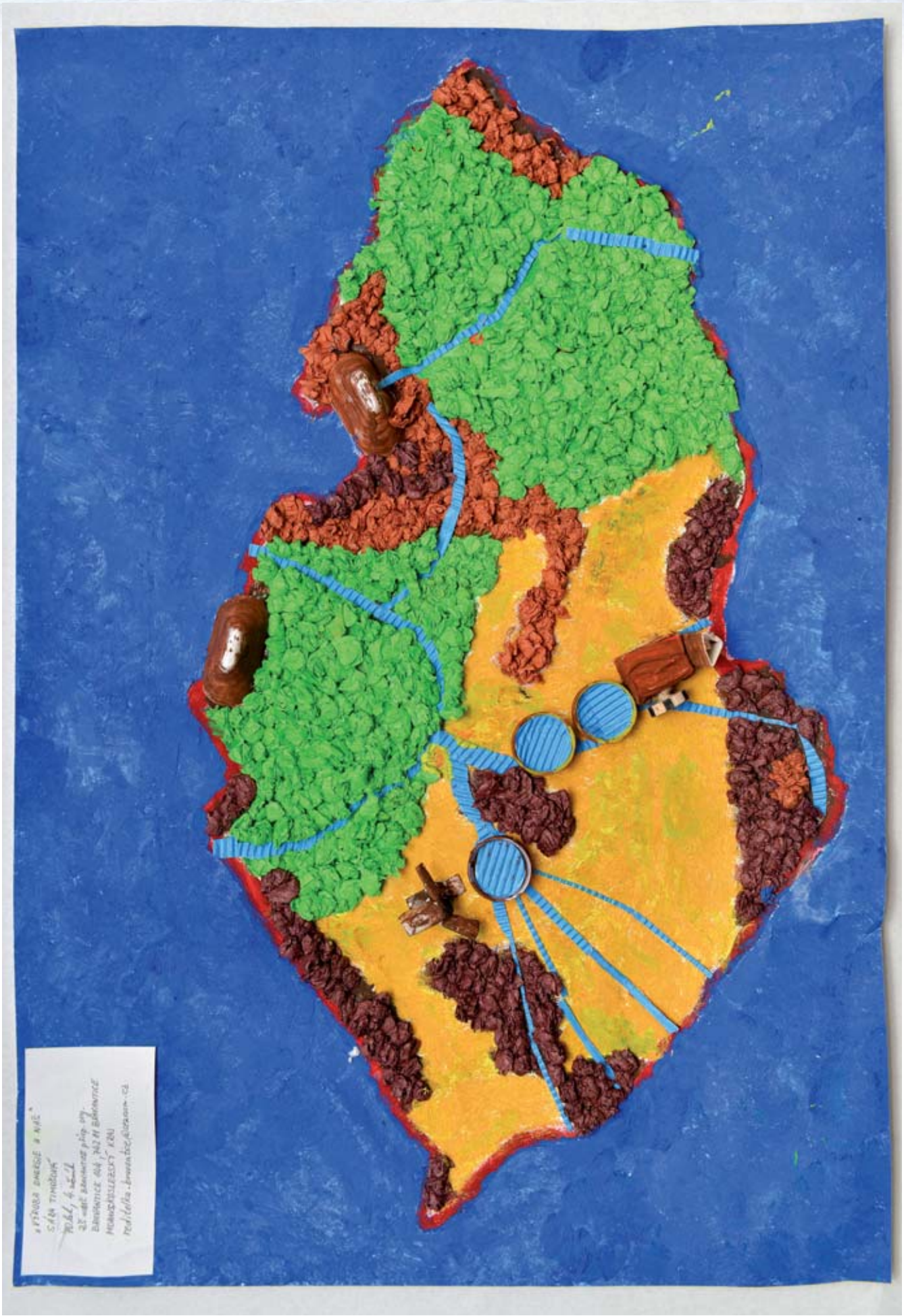
8.2 Changes in the fishpond system

The programme 229 210 "Renewal, Dredging and Rehabilitation of Fishponds and Water Reservoirs" was followed in 2007 by the programme of the Ministry of Agriculture 129 130 "Support for Renewal, Dredging and Rehabilitation of Fishponds and Construction of Water Reservoirs".

The objective of the programme 129 130 is a renewal and rehabilitation of fishponds and water reservoirs, 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 the programme 129 130, in 2013 the funding of 35 projects was under way, with the total expenditures amounting to CZK 393.694 million. In more detail, the information on the programme 129 130 funding is presented in chapter 9.

Fish pass at the Bernartice weir on the Oder River

Hamr



"Energy generation in our country" – Sára Timošová – 4th class, Bravantice primary school and nursery school, Moravskoslezský region

9. State financial support for water management

9.1 Financial support provided by the Ministry of Agriculture

In 2013, the Ministry of Agriculture provided support amounting to the total of approximately CZK 1.2 billion under its programmes 129 180 "Construction and Rehabilitation of Water Supply and Sewerage System Infrastructure II" and 129 250 "Construction and Technical Betterment of Water Supply and Sewerage System Infrastructure" 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 129 180, based on the approved documentation, was scheduled for the years 2009–2013 and subsequently extended until the end of 2014. This programme in the years 2012 and 2013 aimed to complete co-financing of multi-year projects. The follow-up subsidy programme 129 250 is scheduled for the years 2013–2015. The above support was granted to the investors both in the form of subsidies and in the form of "advantaged loans".

In 2013, in the form of subsidies, a total of 28 projects received from the state budget support amounting to approximately CZK 157 million under the sub-programmes 129 182 and 129 252 (measures aimed at water supply systems) and a total of 62 projects were granted support amounting to approximately CZK 952 million under the sub-programmes 129 183 and 129 253 (measures aimed at sewerage systems).

"Advantaged loans" were provided for the projects under programmes 129 180 "Construction and Rehabilitation of Water Supply and Sewerage System Infrastructure II" and 229 310 "Construction and Rehabilitation of Water Supply and Sewerage System Infrastructure". They were granted in the form of compensation of payments for a part of interest rates for commercial loans in case of projects requiring larger investments in the years 2008–2013. In 2013, investors of 102 projects with loan contracts amounting to a total of approximately CZK 1,578 billion were reimbursed a part of interest on these loans in the total amount of CZK 34.2 million (this is the sum of both capital investment in the amount of CZK 2.4 million and non-capital investment subsidy in the amount of CZK 31.8 million for a part of interest, therefore, this amount is included in tables 9.1.1 and 9.1.2 on the line "subsidy").

Under the programme 129 140 "Support for Remedying Flood Damage to Infrastructure of Water Supply and Sewerage Systems" there started in 2013 the implementation of sub-programme 129 144 in response to floods from the year 2013. Under the sub-programme 129 144 "Support for Remedying Damages Caused by Floods in 2013", the first project was granted support in the amount of CZK 8.1 million in 2013. At the end of 2013 the Ministry of Agriculture received another 54 applications, which are expected to be granted support in the years 2014–2015.

In 2013, 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,

Table 9.1.1
State budget funds provided in the year 2013 under the programmes 129 140, 129 180 and 129 250 of the Ministry of Agriculture, including subsidy for a part of interest on commercial loans 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 the floods in 2013	Ministry of Agriculture in total
Subsidies under programmes 129 180 and 129 250	157.393	951.636	8.068	1,117.097
Subsidies for a part of interest on commercial loans	10.322	23.874	0	34.196
Subsidies in total	**167.715**	**975.510**	**8.068**	**1,151.293**
Refundable financial assistance	0	0	0	0
Total	**167.715**	**975.510**	**8.068**	**1,151.293**

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 2009–2013, provided by the Ministry of Agriculture in millions of CZK

Financial resource	2009	2010	2011	2012	2013
Refundable financial assistance	0	0	0	0	0
State budget subsidies	1,819	2,092	2,194	1,631	1,151
Support from the state budget	**1,819**	**2,092**	**2,194**	**1,631**	**1,151**
Advantaged loan (EIB and CEB)	9	0	0	0	0
Support in total	**1,828**	**2,092**	**2,194**	**1,631**	**1,151**

Source: MoA

Table 9.1.3
State funds provided by the Ministry of Agriculture in the year 2013 for capital and current expenditures under programme financing (programmes 229 110 and 129 270) in millions of CZK

Programme identification number	Name of programme	Expenditures on programme financing
229 110	Remedying the impacts of floods on state-owned water management property	295.889
129 270	Remedying the impacts of floods on state-owned water management property II	63.484

Source: MoA

Table 9.1.4
State funds provided by the Ministry of Agriculture in the year 2013 for capital and current expenditures under programme financing (programmes 129 120, 129 130, 129 160, 129 170) in millions of CZK

Programme identification number	Name of programme	Expenditures on programme financing
129 120	Flood prevention II	2,629.578
129 130	Renewal, dredging and rehabilitation of fishponds and water reservoirs	284.387
129 160	Support for the renewal and construction of irrigation detail and optimization of irrigation systems	0
129 170	Support for increasing the functionality of hydraulic structures	0

Source: MoA

the renewal and construction of irrigation detail and optimization of irrigation systems, and the management of state-owned property on minor watercourses.

The use of state funds for capital and current expenditures is shown in tables 9.1.3 and 9.1.4.

In 2013, 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 of the respective hydraulic structure.

Sub-programme 129 125 – "Support for Definition 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-programme also includes the definition 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

Table 9.1.5
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 2013
Forests of the Czech Republic, s. e.	Flood control measures, the Stroupinský stream III – Žebrák	06/12–12/13	11.767	7.139
Elbe River Board, s. e.	The Lužická Nisa River in Jablonec nad Nisou, improving the protection of the town by diverting flood flows through Mšeno hydraulic structure	12/11–09/14	396.868	344.205
Morava River Board, s. e.	The Morava River in Uherské Hradiště, Staré Město, increase in the river channel capacity, stage I	01/13–12/14	207.519	167.221
Oder River Board, s. e.	Increase in the stream channel capacity, Jaktarka I	11/12–12/13	44.307	40.251
Ohře River Board, s. e.	Flood control measures in the town of Terezín	01/12–06/14	136.993	63.213
Vltava River Board, s. e.	Flood control measures in Veselí nad Lužnicí	09/12–09/14	175.693	142.412

Source: MoA

areas, approved by the water authority, are 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. 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 on the amendment to certain laws (the Water Act) as amended. The implementation of flood control measures under the 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 2013, the total number of projects in progress under the programme 129 120 – "Support for Flood Prevention II" included 21 projects of flood control measures with retention, 101 projects of flood control measures along watercourses, six projects aimed at increasing the safety of hydraulic structures and two projects of the definition of flood areas and studies of runoff conditions. To finance these projects, investment funds in the amount of CZK 409.224 million and non-investment funds in the amount of CZK 0.354 million from the state budget and investment funds in the amount of CZK 2,217.002 million and non-investment funds in the amount of CZK 2.997 million were used. The following table 9.1.5 shows some of the major projects under the programme 129 120.

In 2013, 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 the floods in the previous years. The rehabilitation was carried out in the year 2013 through the implementation of the sub-programme 229 117 "Remedying the Impacts of Floods in the Year 2010".

In 2013, under the sub-programme 229 117, financial support was granted to a total of 82 projects. Most of them, 48 projects, were implemented by the watercourse administrator Forests of the Czech Republic, s. e. The following table 9.1.7 shows some of the major projects under this sub-programme.

In 2013, the Ministry of Agriculture under the programme 129 270 "Remedying the Impacts of Floods on State-owned Water Management Property II" launched the implementation of the sub-programme 129 272 "Remedying the Impacts of Floods in the Year 2013".

In 2013, under the sub-programme 129 272, financial support was granted to a total of 51 projects. Most of them, 43 projects, were implemented by the watercourse administrator Vltava River Board, s. e. The following table 9.1.9 shows some of the major projects under this sub-programme.

In 2013, 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.

Programme 129 130 includes three sub-programmes, namely sub-programme 129 132 "Renewal, Dredging and Rehabilitation of Fishponds and Construction of Water Reservoirs", which ended on 31 December 2013 and in 2014 will be subjected to final evaluation; furthermore, sub-programme 129 133 "Remedying Flood Damage to Dams and Structures of Fishponds and Water Reservoirs" and sub-programme 129 134 "Remedying Emergency Situations in Fishponds and Water Reservoirs".

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

Table 9.1.6
Use of state budget funds in the year 2013 under the programme 129 120 by the individual watercourse administrators in millions of CZK

Owners and administrators	Use of funds in 2013	
	Investments	Non-investments
Elbe River Board, s. e.	996.957	0
Vltava Rier Board, s. e.	569.697	0
Ohře River Board, s. e.	76.037	0
Oder River Board, s. e.	199.223	0
Morava River Board, s. e.	660.216	0
Forests of the Czech Republic, s. e.	67.829	3.351
Minor watercourse administrators – municipalities	56.267	0
Total	**2,626.227**	**3.351**

Source: MoA

Table 9.1.7
Summary of costs of selected major projects under the sub-programme 229 117 in millions of CZK

EDS/SMVS 229 117	Name of project	Implementation period	Total costs of the project	Investor
9698	The Rožnovská Bečva River, km 32.570-36.000, repair of river channel, Horní Bečva	10/11-10/12	11.823	Morava River Board, s. e.
1043	Sediment dredging from the Mandava River in Varnsdorf	11/11-10/12	6.366	Ohře River Board, s. e.
6078	The Jeřice River in Chrastava, repair of river channel, river km 0.00-3.45	05/10-12/12	83.587	Elbe River Board, s. e.
2113	The Lomná River, km 0.000-4.000	11/11-12/12	12.308	Forests of the Czech Republic, s. e.

Source: MoA

management functions of fishponds and water reservoirs 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 2013, in total 35 projects were financed under the following breakdown: non-capital investment funds of the state budget were expended in the amount of CZK 2.388 million and capital investment funds in the amount of CZK 19.586 million, the EIB loan was used to draw non-investment funds in the amount of CZK 112.189 million and capital investment funds in the amount of CZK 150.224 million.

Table 9.1.8
Use of state budget funds in the year 2013 under the sub-programme 229 117 in millions of CZK

Owners and administrators	Use of funds in 2013	
	Investments	Non-investments
Elbe River Board, s. e.	197.097	0
Vltava River Board, s. e.	0	0
Ohře River Board, s. e.	11.110	17.572
Oder River Board, s. e.	0	0
Morava River Board, s. e.	2.518	20.567
Forests of the Czech Republic, s. e.	23.597	23.428
Total	**234.322**	**61.567**

Source: MoA

"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 at least 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 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 9.1.11 shows some of the major projects included in the programme 129 130.

Sub-programme 129 162 "Support for the Renewal and Construction of Irrigation Detail and Optimization of Irrigation Systems"

The aim of the sub-programme is to reduce the need for water for irrigation, reduce energy intensity of irrigation and make use of positive environmental and non-economic effects of irrigation as one of the adaptation measures to mitigate the impacts of climate change, and thereby improve the competitiveness of agricultural enterprises and stabilize agricultural production.

Table 9.1.9
Summary of costs of selected major projects under the sub-programme 129 272 in millions of CZK

EDS/SMVS 129 272	Name of project	Implementation period	Total costs of the project	Investor
4002	Lateral canal Vraňany – Hořín, river km 1.150–9.060, repair of canal embankment	2013	30.771	Vltava River Board, s. e.
4003	Lateral canal Troja – Podbaba, river km 1.900–3.200, repair of canal embankment	2013	15.000	Vltava River Board, s. e.
6001	The Čistá River, Rudník, repair of river channel, river km 4.42–6.00 – immediate work	2013	0.230	Elbe River Board, s. e.
6002	The Mrlina River, Budiměřice, Rašovice, repair of protective embankments, river km 4.180–6.167	2013	0.860	Elbe River Board, s. e.

Source: MoA

Table 9.1.10
Use of state budget funds in the year 2013 under the sub-programme 129 272 in millions of CZK

Owners and administrators	Use of funds in 2013	
	Investments	Non-investments
Elbe River Board, s. e.	0	1.890
Vltava River Board, s. e.	0	61.409
Ohře River Board, s. e.	0	0
Forests of the Czech Republic, s. e.	0	0.185
Total	**0**	**63.484**

Source: MoA

In 2013, the sub-programme 129 162 was not opened due to lack of financial resources under the programme 129 160. Programme 129 160 "Support for Competitiveness of Agri-food Complex – Irrigation" including its sub-programme 129 162 was extended until 31 December 2016. Extension was discussed and approved by the European Commission.

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

Table 9.1.11
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 2013
Rybářství Chlumec nad Cidlinou, a. s.	Rehabilitation of the Rejšický pond	06/12 – 12/13	20.691	15.378
Jan Kolowrat Krakowský	The desilting and rehabilitation of the Černíkovický pond	07/12 – 12/13	26.266	20.916
Rybářství Třeboň, a. s.	Rehabilitation of the Prase pond in the cadastral territory of Jižná	10/12 – 10/13	22.222	17.559
BioFish s. r. o.	Reconstruction of fishpond dam and structures at the Dolní Kladiny pond after damage	06/13 – 06/14	12.200	8.913

Source: MoA

the reliability and safety of hydraulic structures and the quality of water in reservoirs, the deterioration of which might have significant impacts.

In 2013, no new applications for the granting of support under the programme were accepted. The programme ended on 31 December 2013 and in 2014 will be subjected to final evaluation.

9.2 Financial support provided by the Ministry of the Environment

9.2.1 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 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 (SEF CR). 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 and under the intervention area 1.3.2 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 2013, the receipt of applications for the granting of support under the Operational Programme Environment was opened within four Calls. Under the priority axis 1, there were two Calls, aimed at reducing water pollution (Call 53 with the allocation of CZK 1.5 billion) and reducing flood risks (Call 56 with the allocation of CZK 0.4 billion). Under the priority axis 6, there were two Calls allowing to submit applications for support for optimization of the landscape water regime (Call 49 and Call 50).

Under the Operational Programme Environment, the priority axis 1 – Water Management Infrastructure Improvements and a Reduction of Flood Risks, funds from the ERDF/Cohesion Fund in the total amount of CZK 6,997.3 million were used. Under the priority axis 1, the Ministry of the Enviroment in 2013 approved (registration sheet issued + positive status of the project) a total of 355 projects with the total eligible costs in the amount of CZK 16.86 billion. Of that, 322 projects fell under the area of intervention 1.1 The Reduction of Water Pollution (the total support from the EU funds amounted to CZK 12.14 billion), 32 projects fell under the area of intervention 1.2 Drinking Water Quality Improvement (the total support from the EU funds amounted to CZK 2.18 billion) and 1 project fell under the area of intervention 1.3 The Reduction of Flood Risks (the

Table 9.2.1.1
Grant funds from the Operational Programme Environment for the financing of measures in the area of water management in 2013

Priority axis	Area of support	Number	Total eligible costs (millions of CZK)	ERDF (millions of CZK)	CF (millions of CZK)
1	1.1	322	14,279.1	0	12,137.2
	1.2	32	2,560.3	0	2,176.2
	1.3	1	18.2	0	15.4
Priority axis 1 in total		**355**	**16,857.6**	**0**	**14,328.8**
6	6.4	222	1,255.4	1,035.7	0
Priority axis 6 in total		**222**	**1,255.4**	**1,035.7**	**0**
Total		**577**	**18,113.0**	**1,035.7**	**14,328.8**

Source: IS Central

Table 9.2.1.2
Use of funds from the Operational Programme Environment in 2013 in millions of CZK

Priority axis	SEF CR co-financing (millions of CZK)	SEF CR loan (millions of CZK)	EU grants (millions of CZK)
1.1 – The Reduction of Water Pollution	334.3	173.4	5,683.7
1.2 – Drinking Water Quality Improvement	49.5	18.0	841.8
1.3 – The Reduction of Flood Risks	26.6	0.0	471.8
Priority axis 1 in total	**410.4**	**191.4**	**6,997.3**
6.4 – Optimization of the Landscape Water Regime	27.5	2.7	365.5
Total	**437.9**	**194.1**	**7,362.8**

Source: IS Central

total support from the EU funds amounted to CZK 15.43 million). Under the priority axis 6 – Improving the State of Nature and the Landscape, the Ministry of the Environment in 2013 approved (registration sheet issued + positive status of the project) a total of 222 projects with the total eligible costs in the amount of CZK 1.26 billion falling under the area of intervention 6.4 – Optimization of the Landscape Water Regime.

For example, in the area of support 1.3, one of the largest completed projects was mapping of flood hazard and flood risks. This project included mapping of an area with significant flood risk along the watercourses in a total length of almost 3,000 km in the amount of CZK 150.7 million. Another important projects in this area included the improvement of the system of flood service in the Plzeňský region in the amount of CZK 22.7 million, preparation of a digital flood plan, parts of the emergency plan and modernization of flood warning system for the Moravskoslezský region in the amount of CZK 44.3 million, preparation of a digital flood plan and extension of the public warning and information system for the municipality of Hranice in the amount of CZK 16.1 million, study of implementation of nature-friendly flood control measures on the Morava River between river km 269.5 and 271.55 in the amount of CZK 1.54 million, on the Svratka River between river km 2.00 and 26.37 in the amount of CZK 5.78 million, on the Moravská Dyje River between river km 43.88 and 50.75 in the amount of CZK 2.1 million and in the catchment area and watercourses of the Hranice microregion in the amount of CZK 5.8 million.

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. Projects were submitted by applicants from the public sector and total costs of the implementation of the project could not be lower than € 5 million, with the exception of technical assistance projects.

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 1 was the project of Technical Assistance and 1 was the project of remedying flood damage, approved by the European Commission in the non-standard procedure. In December 2006, the European Commission approved the last four applications for the granting of support from the Cohesion Fund. These four approved projects are in the amount of € 89.9 million, i. e. CZK 2,518.1 million (using exchange rate of 28 CZK/1 €) of the total costs, or € 80.0 million (CZK 2,241.2 million) of the eligible costs with the promised support in the amount of € 55.0 million (CZK 1,539.2 million). One of these 4 projects was the project "Reconstruction of existing and construction of new sewers and the provision of the quantity and quality of drinking water in the Jihlava region" (the eligible costs in the amount of € 15.0 million, promised support in the amount of € 10.0 million). Due to the failure to start the implementation of the project by the extended deadline for the eligibility of costs (31 December 2011), the project was formally terminated.

The total costs of 39 projects approved in the standard procedure amount to € 959.7 million (CZK 26,871 million, of which the eligible costs amount to € 867.4 million (CZK 24,287 million). CF/ISPA support allocated to these projects amounts to € 598.2 million (CZK 16,750 million). As of 31 December 2013, support in the amount of € 582.3 million (CZK 16,304 million) was received from the European Commission.

In addition to the above, there was also implemented the project to remedy flood damage, comprising 13 sub-projects that were supported from ISPA fund. The total costs of this project amounted to € 17.7 million (CZK 495.6 million), of which support granted by the European Commission amounted to € 14.6 million (CZK 408.8 million). The remaining part was covered by the final beneficiaries. The final report was approved by the European Commission at the end of 2004.

ISPA/CF support in 2013

In the sector of environment, the payments for CF projects are effected through the chapter 315/MoE of the state budget. In 2013, support in the total amount of CZK 444.5 million was transferred from the state budget to the final beneficiaries (the final payments). Paying Authority – Department of National Fund of the Ministry of Finance – then in 2013 transferred to the chapter 315/MoE of the state budget the CF funds (refund) in the amount of € 28.4 million. European Commission in 2013 approved final

Table 9.2.1.3
The allocation of funds for types of measures (approved ISPA and CF projects)

Type of measure	Number of projects	Eligible costs (millions of €)	CF/ISPA support (millions of €)
Water	35	748.2	526.6
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	**38**	**785.1**	**555.6**

Source: The State Environmental Fund of the Czech Republic

reports for a total of six CF projects and based on this the final payments in the total amount of € 18.5 million were released to the account of the National Fund of the Ministry of Finance.

9.2.2 Overview of the administration of large projects submitted since the start of the Operational Programme Environment

A large project under the Operational Programme Environment is defined as an operation comprising a series of works, activities or services intended to accomplish an indivisible task of a precise economic or technical nature, with clearly identified goals, whose total costs exceed the amount of € 50 million (a large project). The main difference, compared to individual projects, is that large projects are to be in addition approved by the European Commission.

Since the launch of the Operational Programme Environment, so far 19 applications for the granting of support in the category of large projects have been submitted. Of this, one project belongs to priority axis 3, six projects belong to priority axis 4 and the remaining projects belong to priority axis 1.

The Ohře River, revitalization of the left bank in Sokolov

Priority axis 1 – Water Management Infrastructure Improvements and a Reduction of Flood Risks

Table 9.2.2.1
Large projects approved by the European Commission – a decision to grant support was issued

Project ID	Name of project	Area of support
541408	Improving water quality in the Jihlava River and the Svratka River upstream of water reservoir Nové Mlýny*)	1.1 and 1.2
255577	Project of water protection in the Dyje River Basin – Stage II	1.1 and 1.2
222184	Cheb area – environmental measures*)	1.1
959882	Clean Bečva River II	1.1
569740	Reconstruction and extension of sewerage system in Brno	1.1

Source: The State Environmental Fund of the Czech Republic
*Note: *) After approval of projects by the European Commission, financial ceiling for the category of large projects was raised from € 25 million to € 50 million, which is not reached by these projects.*

Table 9.2.2.2
Large projects approved by the European Commission

Project ID	Name of project	Area of support
253217	Improving water quality in the upper Morava River Basin – phase II	1.1

Source: The State Environmental Fund of the Czech Republic

Table 9.2.2.3
Large projects reclassified from the category of large projects to the category of individual projects

Project ID	Name of project	Area of support
248481	Modernization of biological waste water treatment plant Pardubice	1.1
1288601	Ústí nad Orlicí – sewerage system and waste water treatment plant	1.1
1612488	Sewerage system and water in the Křivoklát area	1.1 and 1.2

Source: The State Environmental Fund of the Czech Republic

Table 9.2.2.4
Large projects – cancelled by the applicant/not accepted/not approved for funding

Project ID	Name of project	Area of support
576008	Completion of sewerage system Ostrava	1.1
374628	Ensuring the quality of drinking water in the water supply system in southwest Moravia, Žďár region	1.2
464737	Total reconstruction and extension of Central Waste Water Treatment Plant in Prague at Císařský ostrov, construction 1 – New water line including connection	1.1

Source: The State Environmental Fund of the Czech Republic

9.2.3 Optimizing the administration of the Operational Programme Environment

To reach the current form, the Operational Programme Environment has undergone many changes, including the adoption of a number of optimization and acceleration measures, many of which were applied during the year 2013. Some of these measures will show their main effect in the longer term, other short-term measures fulfilled their target in the course of 2013. Most of these measures are now in full activity and will bring their main effect at the end of 2014. For example, Ministry of the Environment in cooperation with the State Environmental Fund of the Czech Republic

Table 9.2.3
Measures taken to eliminate the risk of failing to use the financial allocation for the projects under the Operational Programme Environment

Measure	Implementation period	Responsibility	Status of implementation
Priority 1 – projects over CZK 100 million	on an ongoing basis	Managing Authority, Intermediate Body	Regular meetings of the Committee for Capital-intensive Projects.
Priority 2 – 20% of financially most demanding projects of priority axes	on an ongoing basis	Intermediate Body	
Project register release	on an ongoing basis	Intermediate Body, Managing Authority	Currently released registers of Call 27, Call 35 and Call 39.
Resolving the reported irreglarities at the Managing Authority	on an ongoing basis	Managing Authority	This is done on an ongoing basis, depends on the cooperation of the Managing Authority with tax authorities. By resolving the irregularities the amount of up to CZK 1 billion from the ERDF/CF will be unblocked.
Reducing the regulatory list deadline for delivery of documents to the decision on the granting of support to 6 months	1 January 2013	Intermediate Body	The analysis of appropriate areas of support was completed. Subsequently done on an ongoing basis for Calls in priority axes 2 and 3.
The tightening of the procedure of prolonging registrations	on an ongoing basis	Intermediate Body	Transparent and objective rules for deciding on the prolongation of registrations were established
Sanctions taken against applicants in the case of failing to respect the opinion on tender documents	28 February 2013	Intermediate Body	The procedure for enforcement of sanctions was incorporated in chapter 7 of updated Manual of Procedures for the Operational Programme Environment (version 8.1).
Increase in the SEF staff capacity	on an ongoing basis	Intermediate Body	Currently 45 persons were employed on the basis of Agreement to Perform Work to support the use of funds under the OPE, 5 staff members were temporarily transferred from the Programme of Green Savings. Selecting additional 20 persons to be employed on the basis of Agreement to Perform Work is under way. Agreements to Perform Work were approved to continue in 2014.
Closer cooperation with the Office for the Protection of Competition	on an ongoing basis	Managing Authority, Intermediate Body	Meeting with the first deputy of the Office for the Protection of Competition took place. Projects for CZK 1.5 billion.
Simplified procedure in the event of change of applicant – new registration – in case of change of type of legal entity (e. g. merger of legal persons, change of legal status of applicant, etc.)	14 October 2013	Intermediate Body	A simpler procedure was established, without the necessity to discuss changes through thematic meeting and the Steering Committee (submission to the Steering Committee ex post only) – time saving in approving changes may reach 2 months.
Crisis call centre was established	21 October 2013	Intermediate Body	Applicants were urged to submit documents for funding – invoicing, application for support, bank statements – and signed agreements on the granting of the SEF support.
The possibility of faster submission of the application for the granting of support	from 2 October 2013	Intermediate Body	Projects which under the support are co-financed by the SEF (with the Agreement on the granting of the SEF support), are allowed to generate in the BENE – FILL system the application for the granting of support even before the Agreement comes into force. By applying this instrument the beneficiaries achieve faster reimbursement of the application for the granting of support, compared to the existing procedure allowing to claim payment only after forwarding the signed Agreement back to the SEF.

Source: The State Environmental Fund of the Czech Republic

- accelerated the process of launching calls,
- shortened and streamlined the process of evaluating projects and issuing management documentation,
- shortened and streamlined the process of reimbursement,
- refined prediction of the use of funds and improved supervision of the financial and administrative steps.

Measures were taken in order to eliminate the risk of failing to use the financial allocation. Some of them are specified in the table below.

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.

As of 31 December 2013, the revenues of the SEF reached 110.6% of the budgeted revenues. In terms of collected charges for environmental pollution, the amount credited to the account of the SEF was by CZK 251.2 million lower, compared to the year 2012. Of the total revenues of the SEF as of 31 December 2013, the revenues from charges for environmental pollution reached the amount of CZK 1,373 million, in 2012 they reached the amount of CZK 1,624.2 million.

Revenues from fines and financial penalties in 2013 reached the amount of CZK 52.2 million.

The Oleška River – repair of stream channel in Heřmanice

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.

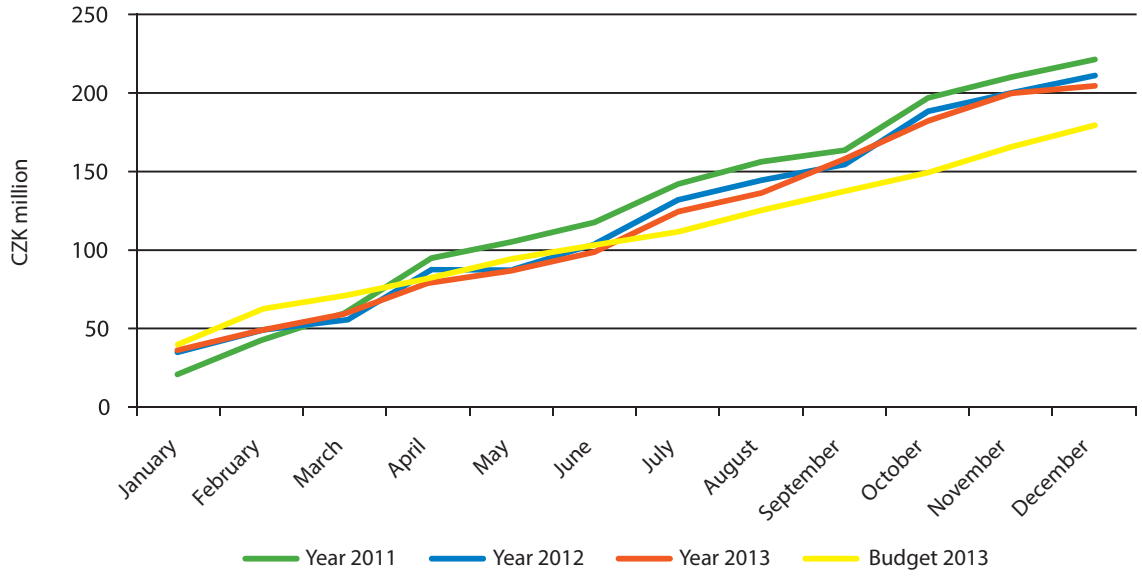
The collection of charges for waste water discharges into surface waters in the year 2013 reached 114.1% of the budgeted revenues. For the year 2013, the planned budget revenues in the amount of CZK 180 million for this item were exceeded by CZK 25.3 million. The amount of charges collected for waste water discharges each year decreases, although the number of seweraged locations grows. This is due to the fact that in the last 20 years considerable support was granted for the construction and intensification of waste water treatment plants and construction of sewerage

Table 9.3.1
The structure of the revenue part of the budget (only water-related)

Revenues from charges and penalties broken down to environmental compartments (water only)	Budget 2013 (millions of CZK)	Revenues as of 31 December 2013 (millions of CZK)	Reality in %	Difference (millions of CZK)
Waste water	180.0	205.3	114.1	25.3
Groundwater	290.0	360.5	124.3	70.5

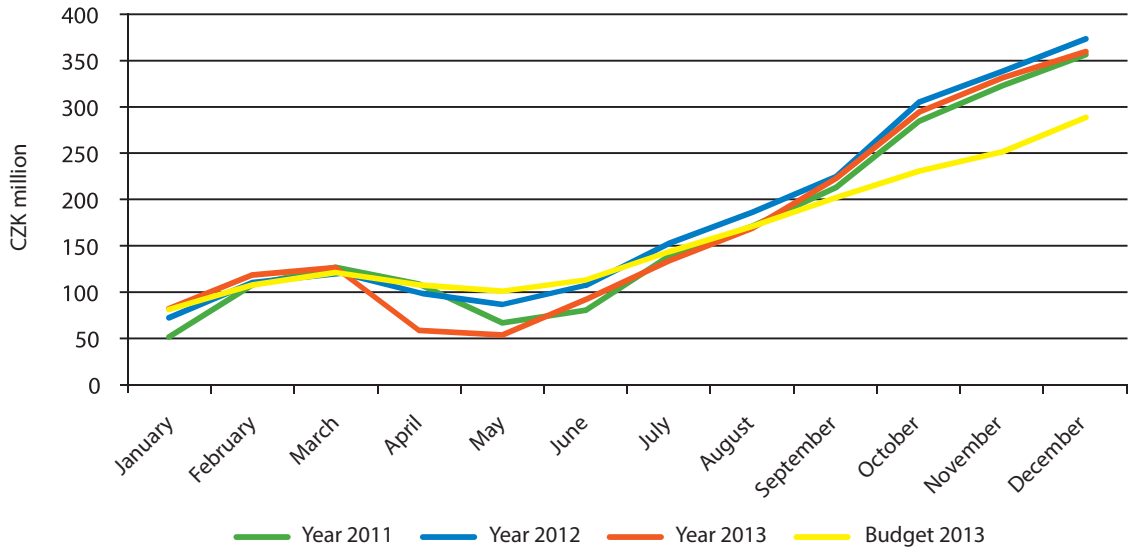
Source: The State Environmental Fund of the Czech Republic

Chart 9.3.1
Development of revenues of the State Environmental Fund of the Czech Republic from charges for waste water in the years 2011–2013 in millions of CZK



Source: The State Environmental Fund of the Czech Republic

Chart 9.3.2
Development of revenues of the State Environmental Fund of the Czech Republic from charges for groundwater in the years 2011–2013 in millions of CZK



Source: The State Environmental Fund of the Czech Republic

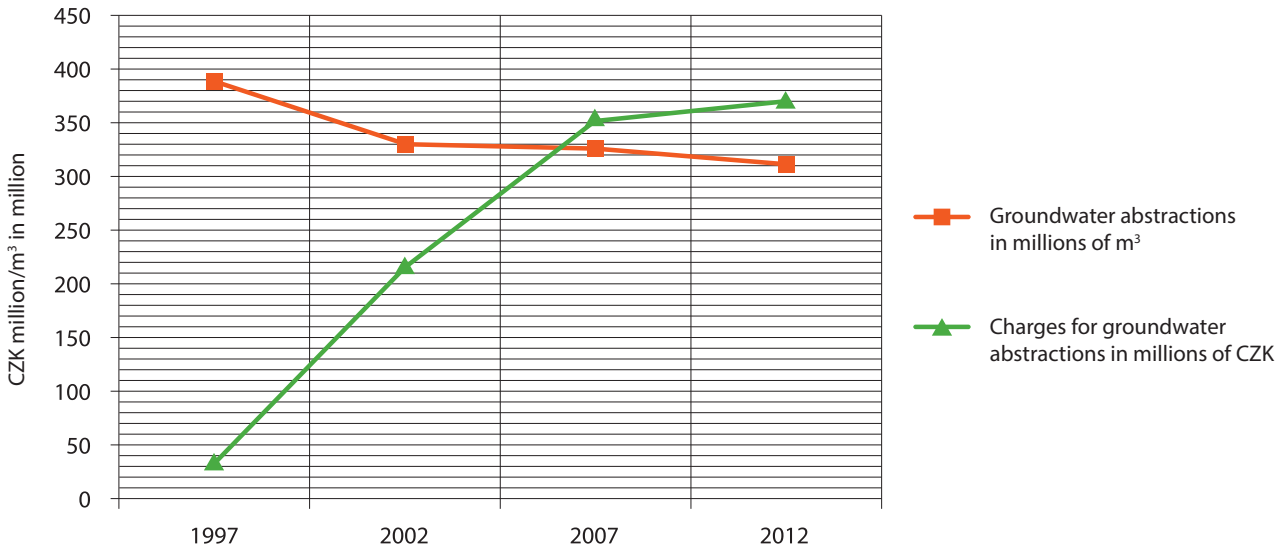
systems. Therefore, at present virtually no municipal waste water treatment plants do not pay charges for pollution discharged, because the quality of waste water discharged is good enough (COD below 40 mg/l) that polluters do not pay this charge. They pay only for waste water discharged, in the amount of CZK 0.10/ m^3. Smaller waste water treatment plants of up to approx. 2,000 PE do not pay even these charges as they are paid from 100,000 m^3/ year of waste water discharged. Over the last 20 years, the charges collected were by 78% lower (1992 compared to 2012). Charges collected in 2013 were by 3% lower, compared to 2012. The data that is available to the SEF shows that limits of charging pursuant to the Act No. 254/2001 Coll., on water and on amendments to some acts, as amended (the Water Act), for some time continue to not reflect the state of the art of waste water treatment plants.

The collection of charges for groundwater abstractions in the year 2013 reached 124.3% of the budgeted revenues. For the year 2013, the planned budget revenues in the amount of CZK 290 million for this item were exceeded by CZK 70.5 million. The available data shows that the amount of groundwater abstractions over the last 20 years constantly decreases, but the amount of collected charges does not follow this trend.

According to the data obtained, 95 to 97% of abstracted groundwater are used for the production of drinking water. The chart 9.3.3 shows groundwater abstractions and the total amount of collected charges for groundwater abstractions.

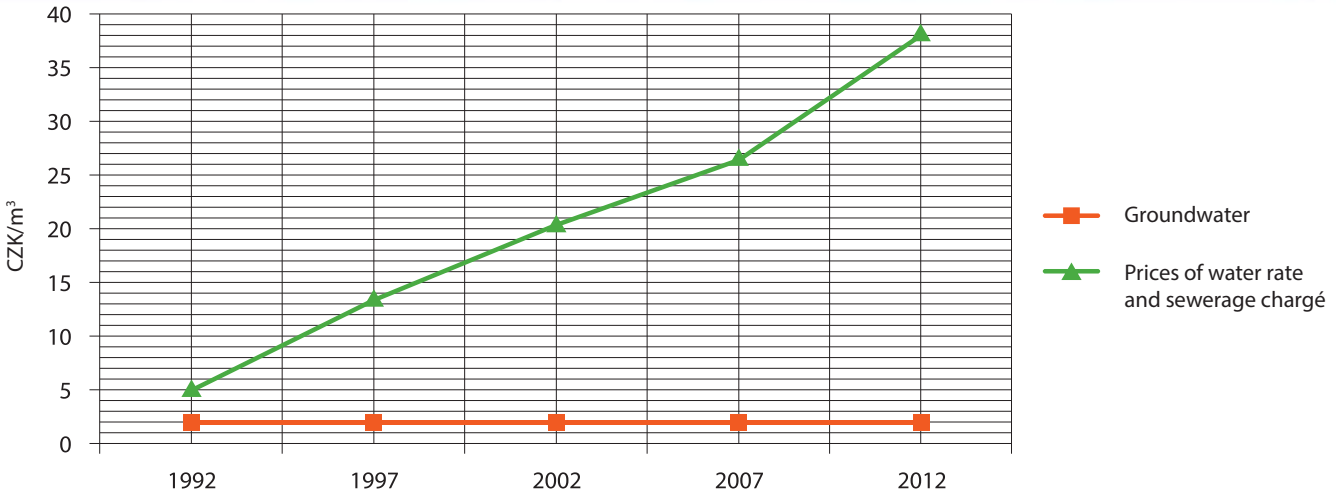
From the chart it is clear that in the 1990s the level of charges collected for abstracted groundwater was very low. Raising the level of charges was contributed to by the new Act No. 254/2001 Coll., on water, as amended, which newly established a charge for groundwater abstraction also for the purpose of production of drinking water, and the subsequent amendment

Chart 9.3.3
Groundwater abstractions and the total amount of collected charges for groundwater abstractions



Source: The State Environmental Fund of the Czech Republic

Chart 9.3.4
Development of charges for 1 m³ of groundwater and prices of water rate and sewerage chargé



Source: The State Environmental Fund of the Czech Republic

No. 20/2004 Coll., which transferred the administration of charging agenda to the Czech Environmental Inspection. In recent years, raising the level of charging for groundwater abstractions is contributed to by inspections that are carried out by staff members of the State Environmental Fund, for the last 5 years in close cooperation with the Czech Environmental Inspection. Control activities bring positive results and the level of collecting charges shows year-on-year improvements. In the long term, a slight but steady decline in revenues for the total amount of abstracted water was partially eliminated by this measure.

The chart also shows that the amount of abstractions over the last 15 years is lower by 19.6%.

From the all available data it results that the charges for groundwater abstractions in the long term do not capture its real value and that the share of charges for groundwater abstractions in the price of water rate continues to decline. So far, there was not found a political consensus for the adoption of proposals to amend existing legislation by raising charges for groundwater abstractions that would allow in the long term to stabilize the revenues in this area.

National programmes

Department of National Programmes and Swiss Funds provides for the receipt of applications and administration of projects supported under the new MoE directive No. 6/2010. There are currently three programmes (according to Annexes V, XIV and XV) related to water management infrastructure and one sub-programme (V.3).

Annex No. V – Programme of support for water management activities: In accordance with the requirements of Directive No. 2000/60/EC to carry out monitoring of waters and establish a comprehensive system for the assessment of status or potential of waters and water bodies, including the implementation into a single assessment information system, seven projects with a support amounting to a total of CZK 11.25 million were administered in eight sub-programmes V.1.A and V.1.B. Final evaluation was carried out for one project with a support in the total amount of CZK 250 thousand, the remaining six projects with a support in the total amount of CZK 11 million will be completed in 2014.

Four projects were administered under the sub-measure V.3 under the Programme of support for water management activities. Final evaluation was carried out for one project with a support in the total amount of CZK 29.9 million and with a loan in the amount of CZK 54.7 million, with the first instalment being due by March 2015.

The Prunéřovský stream, flood control measures

Annex No. XIV.2 – Programme of quick financial support for remedying the impacts of the floods in 2013: The programme was designed to reduce the impact of environmental damage due to the floods in 2013. The amount of CZK 30 million was allocated for two measures under this programme. The first measure included the purchase of means for drying buildings and for the removal of silt after the flood, the means to prevent further environmental damage and the means for the removal of silt in flooded locations in order to prevent further contamination. The latter measure focused on support for the purchase of means to help with waste disposal. The grant was intended for non-investment projects in areas affected by floods in 2013, in which the Government of the Czech Republic on 2 June 2013 declared a state of emergency. The programme was terminated on 30 August 2013. The grant in the amount of CZK 2.5 million was awarded to 35 municipalities in 2013.

Annex No. XV – Programme to support the replacement of boilers in areas affected by floods in 2013: The programme was announced in June 2013 and the allocation was set at CZK 100 million, of which CZK 50 million were intended for natural persons and 50 million for municipalities. Under this programme, a total of 605 applications were received, of which 554 were approved by the minister. Nine applications were received from municipalities, eight applications were approved with a total grant in the amount of CZK 1.5 million. A total of 596 applications were received from natural persons, 546 applications were approved to be granted support in the total amount of CZK 27.4 million. The original termination date of the Call was extended until 31 October 2013.

9.4 Financial support from international cooperation and the EU

Projects focusing on the area of water management are also implemented under the Objective 3 programmes. The implementation of water management projects continued also in 2013, especially through the individual operational programmes falling under the Objective 3 of the European Territorial Cooperation. 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.

Under the Objective 3 programmes that are represented by Operational Programmes of Cross-border Cooperation Czech Republic – Polish Republic, Czech Republic – Slovak Republic, Czech Republic – Austria, Czech Republic – Free State of Saxony and Czech Republic – Free State of Bavaria, support continues to be granted for the projects focusing on environmental protection, contributing to environmental status improvements and aiming to prevent risks (natural and technological risks including climate change, water management, etc.). Transnational Cooperation Operational Programme for Central Europe focuses, among other things, in the 2007–2013 programming period also on transfer and exchange of experience in the field of environmental protection.

During 2013, the implementation of projects from previous years as well as projects launched or approved in this year continued.

1. Operational Programme of Cross-border Cooperation between the Czech Republic and Austria in the field of environmental protection is represented mainly by the following projects:
- "Joint measures in the area of water protection on the border formed by the Dyje River" (with ERDF grant in the amount of 1,447,507 € for the Czech partner) was approved in May 2012 and its execution is currently under way,
- "Schwarzenberg navigation canal – cultural heritage revives" (with ERDF grant in the amount of 856,272 € for the Czech partners) was approved in November 2011 and its execution is currently under way,
- "Flood control measures on the Malše River in Leopoldschlag, planning" (with no financial participation of the Czech partner) was approved in November 2012 and its execution is currently under way,
- "Flood control measures on the Malše River in Leopoldschlag, extension" (with no financial participation of the Czech partner) was approved in June 2013 and currently it starts to be executed.

2. Operational Programme of Cross-border Cooperation between the Czech Republic and the Free State of Bavaria covers the implementation of the following projects:
- "Gurgling Cheb area – a river without border" with a grant in the amount of 310,564 € (terminated in 2013),
- "Integrated soil and water protection in the Drachensee Basin" with a grant in the amount of 229,500 € (scheduled termination in 2014),
- "Contaminants in the environment of the Eger – the Ohře River" with a grant in the amount of 162,000 € (scheduled termination in 2015).

3. Under the Operational Programme of Cross-border Cooperation between the Czech Republic and the Free State of Saxony, the following projects continued to be executed:
- "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 €,
- "VODAMIN" focusing on the quality of groundwater and surface water and water supply, with a grant in the amount of 3,435,975 €,
- "The Elbe River – our shared heritage", focusing on education, with a grant in the amount of 467,118 €,
- "Flood protection and remediation of flood damage Hrádek nad Nisou – Zittau focusing on the rehabilitation of damaged meadows along the Nisa River in the area of Trojmezí and acquisition of water level monitoring system on the Nisa River and tributaries", with a total grant in the amount of 1,219,179 €,
- "Reconstruction of border communications and bridges after the floods in 2010" with a grant in the amount of 2,992,816 €,
- "Clean waters in the Upper Krušné hory Mountains area, German-Czech project of waste water discharge with a grant in the amount of 6,630,789 €,
- "Jointly used groundwaters on the Czech-Saxonian border" – GRACE, with a grant in the amount of 991,701 €,
- "The revitalization of peat-bogs between Hora Sv. Šebestiána and Satzung – implementation stage" with a grant in the amount of 1,194,346 €,
- "AQUAMUNDI" focusing on education, with water as the key element, with a grant in the amount of 1,408,858 €,
- "The proposed uses of the landscape leading to sustainable improvements of water quality and erosion control measures in the transboundary Nisa River basin, with a grant in the amount of 538,595 €,
- "Flood control measures at Opárenský mlýn", with a grant in the amount of 249,315 €.

A new project approved in 2013:
- "Clean waters in the Upper Krušné hory Mountains area – implementation of joint measures for waste water disposal in the border region" with a grant in the amount of 352,767 €.

4. Under the Operational Programme of Cross-border Cooperation between the Czech Republic and the Polish Republic, the implementation of the following projects was under way in 2013:
- "Protection of waters in the Metuje River basin in Kudowa Zdrój and Náchod" with a grant in the amount of 883,566 €,
- "Protection of waters in the territory of the Sudetenland" with a grant in the amount of 2,188,066 €,
- "Improvement of water supply and sewerage infrastructure in the Czech-Polish borderland" with a grant in the amount of 728,673 €,
- "Via the clean river from the Orlické hory Mountains to the Elbe" with a grant in the amount of 719,313 €.

5. Under the Operational Programme of Cross-border Cooperation between the Czech Republic and the Slovak Republic, the following projects continued to be executed in 2013:
- "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 1,288,213 €,

The Vesnický stream - reconstruction

- "Flood control measures and early warning system Říka-Vlára-Váh Rivers, Stage II", with the ERDF support in the total amount of 338,494 €,
- "The confluence of the Morava River and the Myjava River – joint flood control measures on both banks of the Morava River", with the ERDF grant in the amount of 819,934 €,
- "Kopčany – Hodonín – joint flood control measures on both banks of the Morava River", with the ERDF grant in the amount of 814,606 €),
- "The renaturalization of the Morava River from the Radějovka River to the Myjava River", with the ERDF grant in the amount of 825,523 €,
- "We want clean water in both Slovakia and Czechia" with the ERDF grant in the amount of 214,644 €.

6. The Operational Programme for Supranational Cooperation (Central Europe) is represented especially by the following project:
- CEframe – Central European Flood Risk Assessment and Management in CENTROPE, where the Czech partners are the Ministry of the Environment, Regional Authority of the Jihomoravský region and the ERDF support amounts to 599,250 €. The project execution is scheduled between 1 April 2010 and 31 March 2013.

7. The Operational Programme for Inter-regional Cooperation (INTERREG IVC) is represented by the following project:
- Lake-Admin (Regional administration of lake restoration initiatives), where the Czech partner is the University of South Bohemia in České Budějovice, Faculty of Fisheries and Water Protection. The ERDF support for this project amounts to 157,250 €. The project execution started on 1 January 2012 and is expected to be completed not later than 31 December 2014.

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 for the period 2007–2013 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 3.7 billion €. The funding for the Rural Development Programme for the period 2007–2013 proceeds in the form of pre-financing from the state budget, i. e. all payments to beneficiaries are first effected from national resources.

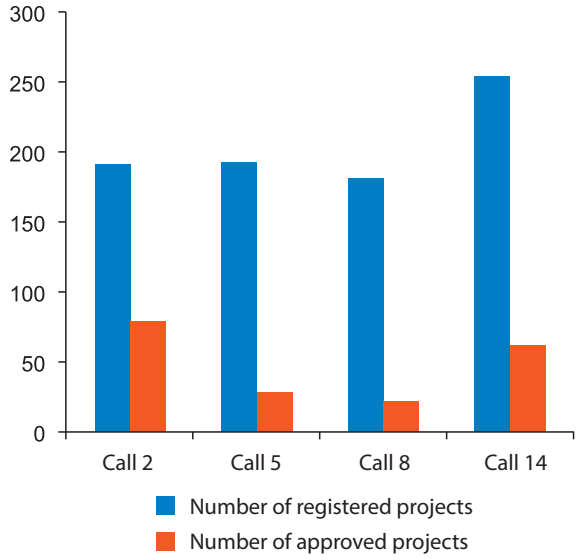
Under the Rural Development Programme for the period 2007–2013, support was also granted for investments into basic water management infrastructure in municipalities with the population of less than 2,000 PE, namely through the sub-measure III.2.1.1 Village Renewal and Development, project scheme b).

Under the project scheme b) public water supply systems, sewerage systems and waste water treatment plants, the applicants for subsidy could be municipalities and associations of municipalities. The association of municipalities could also include municipalities with the population of more than 2,000 PE, but the project had to be implemented in municipalities with the population of less than 2,000 PE.

Under this project scheme, support was 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.

For the sub-measure III.2.1.1 Village Renewal and Development, four Calls to submit the applications for the granting of support took place. The last 14th Call took place in 2011, when there were allocated all remaining funds intended for this measure in the programming period 2007–2013.

Chart 9.4.1
Registered/approved projects in Call 2, Call 5, Call 8 and Call 14 to submit the applications for support – the state of approved applications/project execution under 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 2013



Source: MoA

The above chart illustrates the high long-term interest of municipalities to get support. The chart also demonstrates that funding designed for this sub-measure failed to adequately meet the needs of municipalities.

In the period between 2007 and 31 December 2013, in total 192 applications for support in the amount of over CZK 3 billion were approved. Of this, 137 projects in the amount of CZK 2.2 billion were reimbursed, i. e. put into operation, before 31 December 2013.

Table 9.4.1
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 2013

	III.2.1.1, project scheme b)
Number of registered projects (pcs)	818
Amount claimed by registered projects (CZK)	12,048,534,637
Number of approved applications (pcs)	192
Amount covering approved projects (CZK)	3,079,871,329
Number of reimbursed projects (pcs)	**137**
Reimbursed amount (CZK)	**2,187,204,164**

Source: MoA

"Water and energy" - Barbora Jarolímová – 5th class, V Rybníčkách primary school, Prague

10. Legislative measures

10.1 Water Act and implementing regulations

Two Acts that have affected the wording of the Water Act were published in the Collection of Laws of the Czech Republic in 2013 and became effective on 1 January 2014.

Act No. 303/2013 Coll., of 12 September 2013, amending certain acts in connection with the adoption of the recodification of private law

The Act contains accompanying changes following the adoption of the new Civil Code. In response to the "surface gives way to land" principle regulated in the new Civil Code, the above-mentioned Act in Part 46 also amended the Water Act.

According to the new provision of Section 59a – The obligation of owners of land on which the hydraulic structures are located, the owner of the land is obliged to tolerate, for compensation, the hydraulic structure built before 1 January 2002 and its use.

Should the owner of the land and the owner of the hydraulic structure fail to reach an agreement on compensation for land use by 31 December 2015, based on proposal made by the landowner or the owner of the hydraulic structure the amount of compensation shall be decided by court. A claim for compensation shall lapse in the standard three-year period (i. e. as of 1 January 2019).

Following the change of policies relating to the deprivation of and restriction of legal capacity in the new Civil Code, also the provision of Section 104 of the Water Act has undergone changes.

Act No. 275/2013 Coll., of 21 August 2013 amending Act No. 274/2001 Coll., on public water supply and sewerage systems and on amendments to some acts (Act on Water Supply and Sewerage Systems), as amended, and Act No. 254/2001 Coll., on water and on amendments to some acts (the Water Act), as amended

This amendment to the Act on Water Supply and Sewerage Systems has also affected the Water Act, in Part 2 it contains a change in two areas in Section 15 and in Section 39 with a related modification of Section 9 par. 8.

The first area is related to the change in Section 8 par. 3 of Act on Water Supply and Sewerage Systems, which for the purpose of acceptance certificate establishes a condition of agreement on mutual rights and obligations of operationally related water supply systems or operationally related sewerage systems. In the provisions of Section 15 par. 3 of the Water Act there was added a sentence that establishes for the water authority the competence to impose in the building permit or public contract the obligation for the builder to submit along with the application for final approval concerning the construction of water mains, water supply facilities, water treatment plants, sewers including sewerage facilities or waste water treatment plants which are part of public water supply or sewerage systems, a permit to operate them pursuant to Section 6 of Act on Water Supply and Sewerage Systems.

The latter area does not relate to the issue of water supply and sewerage systems. By means of the above-mentioned Act No. 275/2013 Coll. there was added to Section 39 of the Water Act a new paragraph 13 allowing, from the effect of the amendment, to additionally feed fish in fishponds under legally stipulated conditions without permit (exemption) of the water authority and without water quality monitoring. The amendment to Section 9 par. 8 of the Water Act then defines the application of Section 39 par. 13 of the Water Act also for permit for the use of surface waters for the purpose of fish breeding, provided that it sets conditions for fish feeding.

Two implementing legal regulations to the Water Act were published in the Collection of Laws of the Czech Republic in 2013:

Decree No. 252/2013 Coll., of 2 August 2013, on the coverage of data in the records of surface waters and groundwaters and on the method of processing, storage and transmission of such data into public administration information systems – it became effective on 1 September 2013

The decree responded to changes in the subject of record-keeping stipulated by the amendment to the Water Act No. 150/2010 Coll. Taking into account the frequency of changes and for the sake of clarity, Decree No. 391/2004 Coll., so far in effect, was repealed and replaced by the new decree.

Filled dry polder on the Butovický stream in Studénka, flash flood

Slezská Harta water reservoir

The decree makes modifications related to changes in the terminology used, changes caused by amendments to related legislation and regulations associated with the cancellation of the Agricultural Water Management Administration, it defines the scope of data and the method of processing records in public administration information system under the responsibility of the Ministry of Agriculture and the Ministry of the Environment.

In addition to departmental responsibilities, the Decree also defines the direct responsibility of competent bodies for the collection and recording of data. They include River Boards, s. e. and Forests of the Czech Republic, s. e., State Land Office, Czech Hydrometeorological Institute and T. G. Masaryk Water Management Research Institute, public research institution.

Decree No. 414/2013 Coll. of 10 December 2013, on the scope and method of keeping records of decisions, measures of general nature, binding standpoints, approvals and notifications, which were given approval in accordance with the Water Act, and parts of decisions under the Act on integrated prevention (on water records) – it became effective on 1 January 2014

The decree reflects changes resulting from the amendment to the Water Act No. 150/2010 Coll., it completely replaced Decree No. 7/2003 Coll., on water records, and significantly reduced the scope of data that is stored in public administration information system.

The decree stipulates the scope of the identification data that is stored by administrative authorities in public administration information system, and the scope of selected data that is stored by river basin administrators.

The Ministry of Agriculture provides a uniform software for keeping water records, data storage in public administration information system and data presentation.

In 2013, due to incorrect transposition of the Directive of the European Parliament and of the Council 2006/118/EC of 12 December 2006, on the protection of groundwater against pollution and deterioration into national law, an amendment to Decree No. 24/2011 Coll., on river basin management plans and flood risk management plans, prepared in cooperation with the Ministry of the Environment, was submitted to the legislative process. The amendment related to the provisions of Section 4 and Section 17. The decree came into effect on 1 April 2014 and was published in the Collection of Laws under No. 49.

The proposed basic and supplementary measures in the river basin management plans will, pursuant to Section 4, par. 1, letter j), explicitly require taking into account of best practice, including the Best Environmental Practice and Best Available Techniques specified in other legal regulations.

The granting of exemptions pursuant to Section 17 par. 4 will be restricted to cases which do not affect the achievement of the objectives of water protection for the relevant body of groundwater in the river basin management plan; the granting of exemption consisting of the injection into geological structures of natural gas or liquefied petroleum gas for storage purposes will be subject to the public interest.

In Section 17 par. 5, administrative error consisting in reference to other provision is removed.

Interpretation Committee for the Water Act and related legislation under the authority of the Ministry of Agriculture adopted in 2013 one interpretation. Interpretations are published regularly on the website of the Ministry of Agriculture (www.eagri.cz).

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

In 2013, there were discussed comments on the draft of the act amending the Act No. 274/2001 Coll., on public water supply and sewerage systems and on amendments to some acts (Act on water supply and sewerage systems). The amendment to the above-mentioned Act by the Act No. 275/2013 was adopted on 21 August 2013, came into force on 10 September 2013 and became effective on 1 January 2014.

The main benefit of the amendment is meeting the requirements for more precise definitions of terms in cases of having failed to completely fulfil the intention of the submitter and the correction could not be addressed in interpretation practice and by methodological management of water authorities. Other benefits include the elimination of costs of new regional development plans for water supply and sewerage systems through establishing continuous updates of these plans, and detailed specification of the national development plan for water supply and sewerage systems. In addition, the benefits include the reduction of the administrative burden associated with regulatory activities through consistent electronic communication, more precise definition of the renewal of infrastructure assets of water supply and sewerage systems in the area of funding and realization and ensuring links between interrelated water supply and sewerage systems before the realization.

The area of costs reflected in the price of water tariff and the price of sewerage charge with the impact on the regulatory activities of the Ministry of Agriculture is addressed by newly defined classification of cost items, their contents, volume and quantity items and their share in the calculation of the above-mentioned

prices. It is a replacement of the measure of general nature with the rules for classification of items in the calculation of prices.

Important as well is the refinement associated with public service obligations and definition of the possibilities to temporarily restrict the use of drinking water in case of a temporary shortage of drinking water. A major benefit is the extension of the supervisory bodies for the regional authorities and changes in the area of penalties.

Reducing administrative workload will further be shown by waiving the obligation to apply for a permit from the water authority to discharge to a sewerage system and prepare operating rules for the sewerage system where there is only a minor change, for example, a change in the length of the sewerage system. Reducing administrative load also includes the possibility to use benchmarks in cases where water abstractions are carried out also from other sources, or abolishing the obligation for the regional authorities to report to the Ministry of Agriculture the results of analyses of raw water.

Of significant help is also the fact that the Ministry of Agriculture will produce uniform application forms for permit to operate water supply or sewerage systems, selected data relating to ownership and operating records and comparison of prices in the electronic form that will be available on its website. Thus, the computerization of contact will be fully completed.

Decree No. 428/2001 Coll., implementing the Act No. 274/2001 Coll., on water supply and sewerage systems, was also revised in 2013 and there was prepared a draft decree amending it in connection with the amendment to the Act No. 274/2001 Coll. Amendment to Decree No. 48 became effective on 1 April 2014.

Amendment to the decree was drawn up in accordance with the authorization in the provision of Section 40 of Act No. 275/2013 Coll., amending Act No. 274/2001 Coll., on public water supply and sewerage systems, and on amendments to some acts (Act on water supply and sewerage systems), as amended, and Act No. 254/2001 Coll., on water and on amendments to some acts (the Water Act), as amended.

The amendment to the decree responded to changes in the amendment to the Act on water supply and sewerage systems and was also based on practical experience in the application of this decree by public authorities, especially the knowledge and findings gained by water authorities at all levels, operators of water supply and sewerage systems, consumers and the professional association – the Association of Water Supply and Sewerage Systems in the Czech Republic.

Especially the following facts needed to be incorporated in the draft decree, including its annexes:

- the clarification and supplementation of some basic terms and the incorporation of changes resulting from the Act No. 275/2013 Coll., amending Act No. 274/2001 Coll., on public water supply and sewerage systems and on amendments to some acts (Act on water supply and sewerage systems), as amended; repealing the provisions of the decree, whose content was directly incorporated into the Act,
- modification of the parts connected with the change of system of development planning of public water supply and sewerage systems, instead of preparing new plans, for the reason of economy, the plans are to be updated on ongoing basis; in this area the draft clarifies the steps to be taken by the regional authorities in updating development plans for water supply and sewerage systems,
- specification of selected data from the assets and operating records,
- deletion of some of the particulars of agreements (for example, agreement on authorization to operate water supply and sewerage systems) that are newly incorporated in the Act,
- the specification of requirements of operating rules for the sewerage system,
- modifications associated with the establishment of a unified system of electronic communication in order to reduce the administrative burden,
- establishment of rules for specification of cost items when calculating the price; the content of the rules was specified in the General Measure, which was issued by the Ministry of Agriculture on 19 September 2006; given the importance of these rules and the need for better access to the content for the general public, it was decided in accordance with the mandate in the Act to incorporate the relevant measure into Annexes 19 and 19a of this decree,
- modification of part of the decree and annexes relating to the processes associated with existing record-keeping of costs and prices of drinking water supply service; the aim is to compare all items of calculation according to price regulations for water rate and sewerage charge with the reality achieved in the previous calendar year; this annex will be published mainly in the municipalities, in order for billing to be under public scrutiny,
- the implementation of minor legislative and technical modifications arising from the practical application of this legal regulation; the draft also responds, especially in the annexes, to changes in the terminology used and changes in related legislation (for example, in connection with a change of the Building Act).

The Department of Water Management of the Ministry of Agriculture issued no Guidance Document.

10.3 Audits of the execution of public 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 is 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, auditing activities were carried out 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 2012 and 2013 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 proceedings is also closely 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 and the possibility to review the content of a decision, carrying out the technical and safety supervision 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 2013

Region	Audit date
Liberecký	21 January 2013
Pardubický	25 February 2013
Moravskoslezský	23 March 2013
Vysočina	25 April 2013
Jihočeský	16 May 2013
Karlovarský	18 June 2013
City of Prague	12 June 2013
Zlínský	7 November 2013

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 in the long run. Positive as well are continuing efforts of regional authorities to provide detailed methodological guidance for water authorities in their jurisdiction. This statement can also be confirmed by the fact that no measures to remedy the situation were imposed in any of the audits. The identified irregularities, nevertheless, in none of the cases made the issued decisions unlawful. The most frequent shortcomings were identified, similarly to the previous periods, in the application of the relevant provisions of the Code of the Administrative Procedure in practice.

At the level of water authorities of municipalities with extended authority, the audits were traditionally carried out randomly in the period between July and August, in accordance with long-term efforts 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 to all interested parties as well is the acquaintance with the regional water issues and findings in the field of application of legal regulations under the authority of the Ministry of Agriculture.

The audits of water authorities of municipalities with extended authority confirm the long-term trend of improving quality of the execution of the state administration in water management sector also at this level. Most of the identified irregularities were only of formal and procedural nature and repeatedly occurred to a larger or smaller extent practically in all of the authorities. The quality of the water management agenda at the level of municipalities with extended authority is most often directly proportional to the size of the office. The quality of work of the water authorities of municipalities with extended authority is influenced by personnel and material equipment. The higher

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 2013

Municipality	Audit date
Municipal Office Odry	15 July 2013
Municipal Council Ostrava	16 July 2013
Municipal Council Havířov	16 July 2013
Municipal Office Český Těšín Těšín	17 July 2013
Municipal Office Praha 17	1 August 2013
Municipal Office Přelouč	7 August 2013
Municipal Office Kutná Hora	7 August 2013
Municipal Office Praha 14	13 August 2013
Municipal Office Sušice	13 August 2013
Municipal Office Prachatice	14 August 2013
Municipal Office Vimperk	14 August 2013
Municipal Office Rychnov nad Kněžnou	28 August 2013
Municipal Office Žamberk	28 August 2013
Municipal Office Kostelec nad Orlicí	29 August 2013
Municipal Office Vysoké Mýto	29 August 2013

Source: MoA

quality level of the administrative proceedings is usually observed at larger water authorities, better equipped with personnel and material background. This finding is not absolute, but the overall trend can be characterized in this way. Similarly to the case of identified shortcomings at the regional authorities it was not necessary to impose corrective measures, the issues in question were properly explained and discussed in order to avoid repetition of misconduct in the execution of the water agenda.

Similarly to the regional authorities, the shortcomings were mainly identified in the application of the individual provisions of the Code of the Administrative Procedure. The shortcomings also included the continued application of the wrong legal competence provisions. These shortcomings appear repeatedly in the audit findings. It has to be emphasized, nevertheless, that despite these problems the audits revealed no case of insufficient execution of the state administration.

The Department of Water Management organized as every year a work meeting with water authorities, which is traditionally of high interest to all participants. 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 2013 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

Supervision of the execution of the delegated authority in water management sector is annually carried out within the supreme water management supervision by the Ministry of the Environment as the central water authority through the Departments for Execution of State Administration. At

the regional level, the supervisory activities were carried out in accordance with the Government Resolution No. 1181 of 18October 2006 and in accordance with the "Audit Plan for the Regions and the City of Prague for the Years 2012 and 2013" of the Ministry of the Interior and the plan of supervisory activities of the departments for execution of state administration I-IX for the year 2013. At the Czech Environmental Inspection in municipalities with extended authority (water authorities) the supervisory activities were carried out by the departments for execution of state administration I-IX in accordance with the plan of supervisory activities of the Ministry of the Environment for the year 2013.

Execution of the supreme government supervision is imposed on the ministry by the Act No. 2/1969 Coll., on the establishment of ministries and other central bodies of state administration of the Czech Republic, as amended, and Act No. 254/2001 Coll., on water and on amendments to some acts (the Water Act), as amended.

Supervisory activities form an essential element of controlling the level of execution of state administration, the purpose of which is to supervise how the administration authorities at the lower level (regional authorities, water authorities and the Czech Environmental Inspection) execute state administration in the assigned area of water management. Of particular concern is the correct application of legal regulations, compliance with the relevant competence legal provisions and compliance with the provisions of the Act No. 500/2004 Coll., the Code of the Administrative Procedure, as amended. Audits focus on the manner of operation of water authorities, qualifications and experience of staff members, organization of work and material background of departments.

The purpose of the exercise of the supreme state supervision is primarily to eliminate defects of systemic nature. In individual cases, the wrong decision may be changed by means of an extraordinary legal remedy (review of the decision in review proceedings, revision).

Table 10.3.3
Audit of the execution of state administration, carried out by the Ministry of Environment at the Regional Authorities in 2013

Region	Audit date
Jihočeský	22 April – 31 May 2013
Karlovarský	11 June 2013
Pardubický	20 March 2013
Moravskoslezský	18 April 2013
Vysočina	22 – 23 April 2013
Liberecký	18 – 19 February 2013
Zlínský	20 – 22 November 2013

Source: MoE

In carrying out audits of the exercise of the delegated authority of regional authorities in the area of water management, all scheduled dates established by the Ministry of the Interior were met. No major systemic shortcomings were identified in the audited period. For that reason, it was not necessary to take measures of the fundamental (systemic) nature. Tasks resulting from special legal regulations are fulfilled and achieved. Opposition proceedings were not conducted and process penalties did not need to be imposed. Recommendations for administrative authorities were formulated in relevant protocols, other minor irregularities or administrative shortcomings were addressed and remedied during the audit, in the form of the recommendations and proposals for action.

Audits carried out at water authorities constitute a smaller part of supervisory activities of the Ministry of the Environment. More frequent and more extensive in their scope are audits carried out at the regional authorities and other bodies.

Table 10.3.4
Audit of the execution of state administration, carried out by the Ministry of the Environment at water authorities of municipalities with extended authority in 2013

Municipality	Audit date
City of Prague	17 – 25 June 2013
Municipal Office Železný Brod	30 May 2013
Municipal Office Nové Město na Moravě	12 April 2013
Municipal Office Tachov	5 – 17 June 2013
Municipal Office Rokycany	21 October – 11 November 2013

Source: MoE

Audits of the execution of the delegated authority of water authorities did not identify deficiencies with the need to impose remedial measures. Minor errors or administrative deficiencies that did not affect the effectiveness, validity or legality of the administrative acts issued, were corrected during the audit or discussed with the staff members in the course of the supreme water management supervision within the methodological assistance.

Table 10.3.5
Audit of the execution of state administration, carried out by the Ministry of the Environment at the Czech Environmental Inspection in 2013

Regional Inspectorate of the Czech Environmental Inspection	Audit date
Plzeň	20 November – 12 December 2013
Hradec Králové	24 June 2013

Source: MoE

Audit of the execution of state administration under the Water Act, carried out by the Ministry of the Environment at the Czech Environmental Inspection was paid due attention. The supreme water supervision found no significant deficiencies. Despite the considerable complexity and difficulty of the agenda, the execution of state administration at the department of water protection is at a high level, both in terms of organization and in terms of expertise.

Based on the conclusions of the audits carried out within the supreme water supervision by the departments for the execution of state administration it can be stated that the exercise of the delegated powers in the field of water protection by regional authorities, water authorities and the Czech Environmental Inspection audited in 2013 is provided at a very good level, the decisions issued contain the particulars required by the Code of the Administrative Procedure and references to the correct provisions of the Water Act. The MoE methodologies and guidelines are respected in the proceedings and decision-making. Positively assessed are also supervisory activities of the regional authorities and methodical guidance provided to lower-level water authorities in their administrative ward, which in turn is positively reflected in the fact that none of the audited water authorities in 2013 were imposed remedial measures.

"The water itself is power" – Adam Agler – 3rd class, Lovosice primary school, Ústecký region

11. Priority tasks, programmes and key documents in water management

11.1 Planning in the field of waters

In 2013 there continued the process of preparation of the second river basin management planning cycle for the period 2015–2021, consisting in reviews and updates of the current River Basin Management Plans. Within the framework of preparing flood risk management plans, maps of flood hazards and maps of flood risks were completed.

In preparation for the second river basin management planning cycle, in accordance with legislative requirements, as one of the main outputs of the preparatory work in 2013 there was prepared and for six months made available to the public for comments a preliminary overview of the significant water management issues identified in part of the international Elbe/Oder/Danube River Basin District in the Czech Republic.

Within the methodological management and coordination of the process there were prepared and updated a number of methodologies, on the basis of which, for example, the status of water bodies is monitored and assessed. And just these methodologies represented one of the major uncertainties from the first river basin management planning cycle.

The significant part of the second water management planning cycle is also the implementation of the Directive 2007/60/EC of the European Parliament and of the Council, on the assessment and management of flood risks. In 2013, in accordance with the requirements of the Directive, maps of flood hazards and maps of flood risks were completed. These maps are available to the public through the Central Data Store and can be found on the website of the Czech Hydrometeorological Institute (www.hydro.chmi.cz).

Integral and essential part of the planing process is also the involvement of the public and water users. All current and general information on the planning process in the water sector, including working papers and records of the meetings of the Commission for Water Planning are available to the public on the website of the Ministry of Agriculture (www.eagri.cz) with links to the website of the Ministry of the Environment and websites of each of the river basin administrators. More information relating to water management planning is provided on the website of Public Administration Information System WATER (www.voda.gov.cz). For the purposes of implementation of the Flood Directive, Flood Information System (www.povis.cz) is used as a communication platform.

Husinec hydraulic structure on the Blanice River

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.

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.

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 sewerage and treatment.

195 statements were issued in 2013. In total for the period 2006–2013, the Ministry of Agriculture issued 3,859 statements.

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 in the Czech Republic is based on a synthesis of information from the Regional Development Plans for Water Supply and Sewerage Systems, including their updates, that were prepared, discussed and approved by the councils of regional authorities, and represents 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 National Development Plan for Water Supply and Sewerage Systems in the Czech Republic also includes standpoints of the Ministry of Agriculture issued to each of the updates of the Regional Development Plans for Water Supply and Sewerage Systems.

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 was adopted by the Czech Republic Government Resolution No. 226 of 22 March 2010. This resolution established an obligation to prepare every two

years, starting in 2012, the information on the progress of implementation of the Programme and submit it to the Government as part of the Report on Water Management in the Czech Republic for the previous period. This Programme follows up with the identical government-approved Programme for the period 2004–2009.

The Programme to Reduce Surface Water Pollution by Hazardous Harmful Substances and Especially Hazardous Harmful Substances (hereinafter the "Programme") is valid for the entire territory of the Czech Republic for the period 2010–2013, and relates to the substances or groups of substances hazardous to (or through) the aquatic environment, listed in Annex 1 of the Water Act. The Programme specifies the main measures related to water protection and other measures not directly related to water protection, but which ultimately contribute to water protection.

The discharge of waste waters containing especially hazardous harmful substances, listed in Annex 1 to the Act No. 254/2001 Coll., on water and on amendments to some acts (the Water Act), as amended, and specified in part C of Annex 1 to the Government Order No. 61/2003 Coll., on indicators and values of permissible pollution of surface waters and waste waters, on requirements for permits to discharge waste waters to surface waters and to sewerage systems and on vulnerable areas, as amended, to surface waters and sewerage systems may only be performed if permitted by the water authority (Section 38, Subsection 3 and Section 16, Subsection 1 of the Water Act). Permissible values of pollution indicators for waste waters with the contents of especially hazardous harmful substances for industries and specified types of production are listed in Annex 1, part C of the Government Order No. 61/2003 Coll., as amended.

In connection with the amendment to the Water Act there was established an obligation to report data pursuant to Section 38, Subsection 4 of the Water Act through the integrated system of reporting obligations in the field of the environment under the Act on integrated pollution register and integrated system of reporting obligations in the field of the evironment and on amendments to some acts. Given the fact that the mentioned method is used to report only data required by the specific permit for water use, it happens that such data often does not contain information in the scope collected into the Register of Industrial Pollution Sources before 2010.

According to the latest available data (reference year 2010), it is estimated that in the Czech Republic there exist approximately 60 important economic entities or their plants that by the activity according to the sectoral classification (CZ-NACE) fall within the scope of part C of Annex 1 to the Government Order No. 61/2003 Coll., as amended. Many of them use especially hazardous substances in closed technologies, where no waste waters are produced. Waste water containing especially hazardous substances produced by other enterprises is disposed of as hazardous waste through the specialized firms and therefore there is also no discharge of such waste water. By reviewing currently available reports obtained from the integrated system of reporting obligations for 2013 it was found that the concentration emission standards set in part C of Annex 1 to the Government Order No. 61/2003 Coll., as amended, for waste waters discharged into surface waters were met. Due to insufficient data it was not possible to assess whether mass emission standards were met.

In terms of mercury, on the basis of the Commission Regulation (EU) No. 847/2012 of 19 September 2012, a significant change was made in the use of all thermometers and hydrometers (all measuring devices) containing mercury intended for professional and industrial use. Such devices must not be placed on the market from 10 April 2014 and are no longer manufactured in the Czech Republic. Products purchased before 10 April 2014 are allowed to be used after this date.

One of the two chemical plants that use in the production significant amounts of mercury (production of chlorine and hydroxides using amalgam electrolysis) is currently preparing the introduction of membrane electrolysis, which is one of high-tech applications and is most environmentally friendly. In the Czech Republic this will be the first facility of this type. A preparation for putting the new technology into operation has already started, the initial investment required a sum of over CZK 130 million. Permit for production using the existing technology will expire on 31 December 2015.

The latter of the plants performs in the electrolysis operation the separation of mercury-contaminated water, which is subsequently demercurized. Waste water from the productions with the occurrence of volatile chlorinated hydrocarbons (1,2-EDC, vinylchloride) is cleaned by water vapour stripping. The effectiveness of these pre-treatment technologies is monitored before entering the central sewerage system, which channels waste water to the final mechanical and biological treatment plant. Part of volatile chlorinated hydrocarbons from production escapes into the air. In 2012, a demolition of the building used for the old amalgam electrolysis technology was carried out in the plant, underground sealing wall was completed and work to cover the above-ground part of eco-containment was under way. The remediation was completed at the end of 2013. In 2014, trial operation and validation are under way.

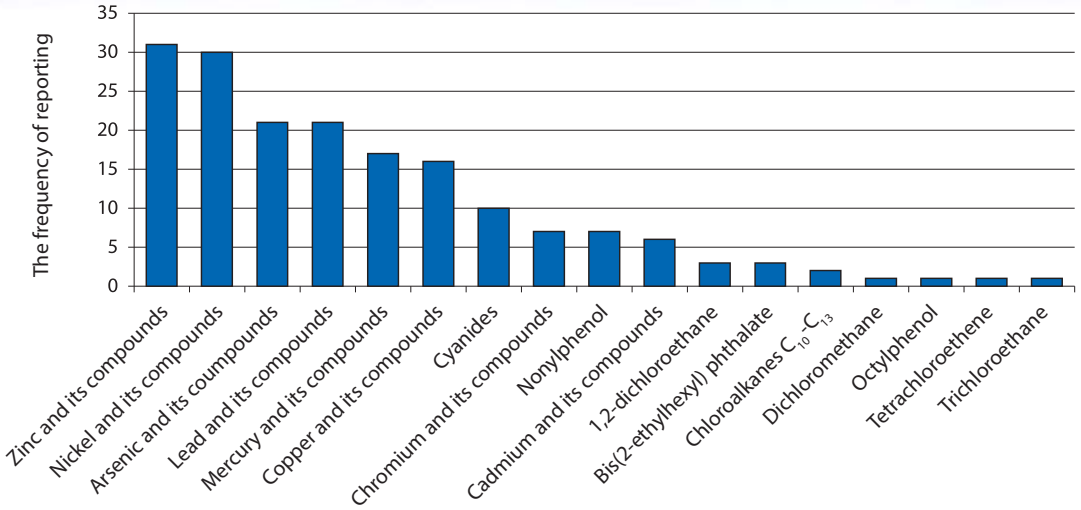
Data on above-threshold emissions discharged by polluters in the Czech Republic is collected in the Integrated Pollution Register (Act No. 25/2008 Coll., as amended). It also includes information on releases of especially hazardous harmful substances and hazardous harmful substances into the water and on their transfers in waste waters. Basic overviews of annually reported data are published in the Summary Report for the relevant year. Detailed data can be obtained in the search system directly on the website http://www.irz.cz/. In 2012, substances reported for releases into the water reached the number of 27 and for transfers via waste waters they reached the number of 32.

The reported releases of selected substances into water and total quantities released into water and transfers in waste waters in 2012 are shown in charts 11.3.1 and 11.3.2.

Reporting thresholds for releases into water are often exceeded by municipal sources of pollution, due to the high volume of water discharged from urban waste water treatment plants. They often belong to the dominant polluters, such as waste water treatment plant Ostrava, biological waste water treatment plant Pardubice, waste water treatment plant Brno-Modřice, central waste water treatment plant Prague and other. Given the significant proportion of rainwater in discharges from these sources, not all releases must come from waste waters only. According to the Integrated Pollution Register, major industrial sources of water pollution include primarily metallurgical plants (cyanides, phenols, polycyclic aromatic hydrocarbons, metals), large chemical plants (chlorinated hydrocarbons, AOX, zinc, mercury), power plants (metals, fluorides) and paper mills (AOX).

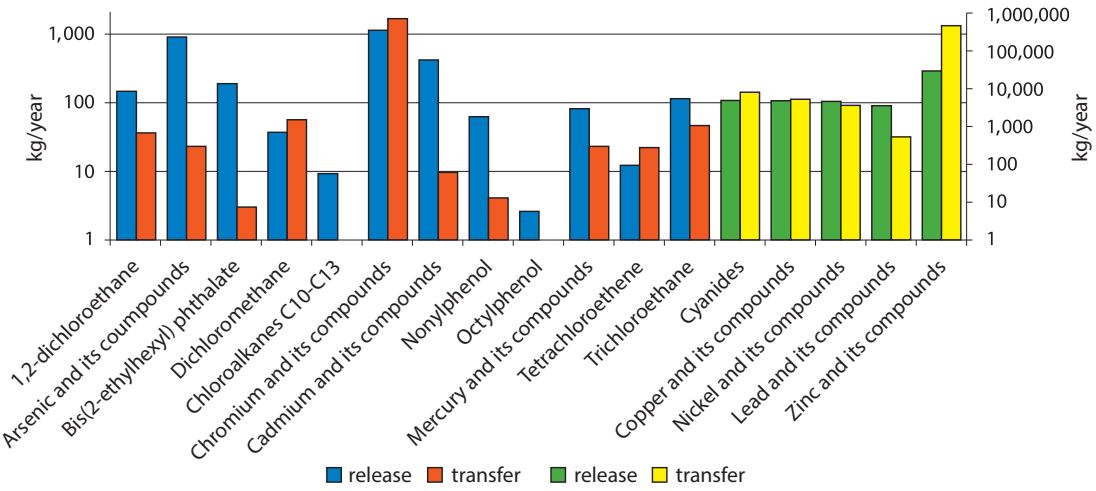
The main tool for reducing or step-by-step eliminating discharges of selected hazardous substances are gradually becoming river basin management plans drawn up in accordance with the requirements of the so-called Framework Directive for Community Water Policy 2000/60/EC. In the plans for the period 2010–2015 (the first planning cycle) there are formulated measures for surface water bodies where good chemical status fails to be achieved. In the case of especially hazardous harmful substances, the measures are specified at rather general level but may be used by water authorities in granting permits to discharge waste water. Evaluations of the effectiveness of the measures included in the first river basin management plans will make part of the second cycle plans, whose preparation is currently under way.

Chart 11.3.1
Reported releases of selected substances into water in 2012



Source: Integrated Pollution Register

Chart 11.3.2
Total released quantities of selected substances into water and their transfers in waste waters in 2012 (kg/year)



Source: Integrated Pollution Register

Control activities in the management of hazardous substances

In 2013, a total of 108 inspections were carried out in facilities handling large quantities of harmful substances (such as oil products storage facilities, long distance pipelines, military installations, airports, fuel storage facilities, etc.). 18 administrative proceedings were initiated, 10 decisions on the penalties in the total amount of CZK 245,000 came into force. The most significant case was the accidental release of a hazardous harmful substance – hazardous waste containing oil products and chromium from the premises of waste water treatment plant of KLIO, s. r. o. into surface waters.

Moreover, a thorough inspection was carried out in 8 industrial complexes (Česká Rafinérská, a. s. – plant in Kralupy n. Vltavou, KDYNIUM Kdyně a. s., Železárny Hrádek a. s., Česká Rafinérská, a. s. – plant in Litvínov, Synthesia, a. s., DEZA, a. s. Valašské Meziříčí, BorsodChem MCHZ, s. r. o., FEREX-ŽSO spol. s r.o.). Two penalties in the total amount of CZK 250,000 were lawfully imposed, three cases are under appeal and one administrative proceedings will be initiated.

194 inspections of pollution sources with a valid integrated permit were carried out. 25 administrative proceedings on imposing a penalty or corrective measures were initiated. Inspectors also participated in 255 controls pursuant to the Act No. 76/2002 Coll., on integrated pollution prevention.

128 inspections of industrial enterprises and 121 inspections of agricultural companies were carried out. 54 penalties in the total amount of CZK 2.7 million and 22 corrective measures were imposed. 24 administrative proceedings have not yet final decision.

In 2012, in total 7 kg of Hg, 300 kg of Cd and 37,000 kg of AOX contained in discharged waste waters were charged for.

The Czech Environmental Inspection in cooperation with the regional authorities and integrated inspection bodies, pursuant to the Act No. 59/2006 Coll., on the major accident prevention, carried out in 2013 on the basis of the annual control plan approved by the Ministry of the Environment 156 audits, 41 inspections were carried out beyond the approved annual plan. During 2013 there were two major accidents in accordance with the meaning of the Act No. 59/2006 Coll. In the premises of Synthesia, a. s. there was a fire, in particular burn of mixers containing pigment alcohol suspension. The latter major accident was a release of diesel fuel into the ground when pumping from rail tanks to storage tanks in the premises of PARAMO, a. s.

Construction projects for water quality protection completed in 2013

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 2012 (N = nitrification, DN = denitrification, BP = biological removal of phosphorus, CHP = chemical removal of phosphorus):

New municipal waste water treatment plants (43,967 PE in total): Studénka (9,500 PE, N, DN, BP), Veverská Bitýška (6,000 PE, N, DN, CHP), Hradec nad Moravicí (4,400 PE, N, DN, CHP), Zbýšov (4,200 PE, N, DN, CHP), Zlechov-Břestek-Tupesy (3,950 PE, N, DN, CHP), Hať (2,881 PE, N, DN, CHP), Kořenov (2,600 PE, N, DN, CHP), Svitávka (2,228 PE, N, DN, CHP), Kopidlno (2,200 PE, N, DN, CHP), Brodek u Přerova (2,008 PE, N, DN), Bánov (2,000 PE, N, DN, CHP), Byšice (2,000 PE, N, DN, CHP).

Furthermore, the following waste water treatment plants were reconstructed or extended in 2013:

The existing municipal waste water treatment plants: Pardubice (130,137 PE, N, DN, CHP), Cheb (65,000 PE, N, DN, CHP), Náchod (45,989 PE, N, DN, CHP), Kutná Hora (36,000 PE, N, DN, CHP), Česká Třebová (20,000 PE, N, DN, CHP), Mariánské Lázně (16,802 PE, N, DN, CHP), Říčany (16,158 PE, N, DN, CHP), Hořovice (15,900 PE, N, DN, CHP), Stříbro (15,500 PE, N, DN, CHP), Čáslav – a new WWTP (15,000 PE, N, DN, CHP), Nová Paka (14,000 PE, N, DN, CHP), Lysá nad Labem (10,310 PE, N, DN, CHP), Čelákovice (9,600 PE, N, DN, CHP), Blatnice pod Sv. Antonínkem (8,890 PE, N, DN, CHP), Opočno (7,700 PE, N, DN, CHP), Milotice (7,000 PE, N, DN, CHP), Pasohlávky – stage I (village, camp, thermal spa) (6,200 PE, N, DN, CHP), Chýně (6,000 PE, N, DN), Studená (5,200 PE, N, DN, CHP), Šestajovice (5,100 PE, N, DN, CHP), Bohuňovice (4,000 PE, N, DN, CHP), Strání (4,000 PE, N, DN), Hrušovany u Brna (3,877 PE, N, DN, CHP), Zlaté Hory (3,136 PE, N, DN, CHP), Suchdol nad Odrou (3,000 PE, N, DN, CHP), Dolany (2,976 PE, N, DN, CHP), Neveklov (2,610 PE, N, DN), Všechlapy (2,500 PE, N, DN, CHP), Sloup (2,100 PE, N, DN, CHP), Bochov (2,050 PE, N, DN).

The existing industrial waste water treatment plants: Sugar factory České Meziříčí (214,917 PE, N, DN), KRPA PAPER, a. s., Hostinné (15,000 PE, N, DN, CHP).

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

In 1991, Council Directive 91/676/EEC on the protection of waters against pollution caused by nitrates from agricultural sources, the 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 (the Water Act), where it is imposed on the government to specify by order vulnerable zones and in these zones to regulate the use and storage of fertilizers and livestock manure, crop rotation and implementation of erosion control measures (the so-called Action Programme).

Vulnerable zones 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. The list of vulnerable zones was promulgated by the Government Order No. 103/2003 Coll., on specification of vulnerable zones and on the use and storage of fertilizers and farmyard manure, crop rotation and implementation of erosion control measures in these zones. Vulnerable zones are subject to review, according to the requirements of the Nitrate Directive, at least every four years from their promulgation. The first review of vulnerable zones was carried out in 2007 and promulgated through the amendment to the Government Order No. 219/2007 Coll., with effect from 1 September 2007. The second review of the specification of vulnerable zones was carried out in March 2011 and promulgated through the Government Order No. 262/2012 Coll., on specification of vulnerable zones and action programme, with effect from 1 August 2012.

The Action Programme which is also updated every period of four years, represents mandatory methods of management in the defined vulnerable zones which are aimed at reducing the risk of nitrogen leaching into surface waters and groundwaters. Through the Government Order No. 262/2012 Coll., the so-called Action Programme 3 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:

1. Period, when the use of certain types of fertilizers and farmyard manure is prohibited.
2. The establishment of maximum nitrogen fertilization limits for the individual crops.
3. 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).
4. Ban on wide-row crop growing on land threatened by erosion.
5. Reduction of the application of fertilizers on sloping land.
6. Maintaining a protection zone near surface water bodies.

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 zone will not exceed on average the limit of 170kg nitrogen per hectare per year.

Government Order No. 262/2012 Coll. slightly extended vulnerable zones and, mainly based on comments raised by the European Commission, it tightened some methods of land use and management in these areas. This is particularly the extension of the period when the use of fertilizers is prohibited, the harmonization of farming on sloping land with the requirements of the standard of good agricultural and environmental condition (GAEC) and the increase in the capacity of farmyard manure storage facilities for six-month production.

In 2013 there was an amendment to Decree No. 274/1998 Coll., on the storage and use of fertilizers, which in the context of the EC comments on the implementation of the Nitrate Directive updated the normative values of the average intake of nutrients in farmyard manure and specified the annual production of farmyard manure per livestock unit including modification of the normatives for production of nitrogen on grazing land. Current legislation under No. 377/2013 Coll. will be effective from 1 January 2014.

For the year 2014 it is envisaged to produce the amendment to Government Order No. 262/2012 Coll., which will extend the period of the ban on fertilizing in the spring, modify the capacity of farmyard manure storage facilities to 5-month production, expand the list of crops in the table of fertilization limits, impose restrictions of fertilization on sloping grassland and modify fertilizer application under adverse soil conditions.

11.4 Information system WATER CZ

Central Register of Water Records

Following the amendment to the Water Act by Act No. 150/2010 Coll., the system of entering information into the so-called water records has changed since August 2010. Water authorities newly enter only final water decisions, including basic identification data, and river basin administrators (River Boards, state enterprises) add to these records the so-called selected data. On 1 January 2014 there came into effect Decree No. 414/2013 Coll., on the extent

and manner of keeping records of decisions, general measures, binding opinions, approvals and notifications, for which approval was given pursuant to the Water Act, and parts of decisions pursuant to the Act on integrated pollution prevention and control (on water records), which was published on 16 December 2013 in the Collection of Laws under No. 161.

Ministry of Agriculture in 2013 ensured, in accordance with the above mentioned Decree, the development, training and delivery of new software for water authorities and River Boards, state enterprises. From 1 January 2014, the Central Register of Water Records will be available on the website of the Ministry of Agriculture (www.eagri.cz).

In the past, the keeping of water records was under full responsibility of water authorities. Water authorities pursuant to the previous Decree No. 7/2003 Coll., on water records, as amended, filled in the central database the final water decisions and selected information from these decisions. To fulfil this legislative obligation, of help to water authorities was a software tool (Editor of Water Decisions) received from the Ministry of Agriculture. Ministry of Agriculture since 2003 carefully evaluated the keeping of water records and repeatedly pointed out that a number of water authorities failed to fully exercise this legal obligation (central records were kept at approx. 60%). Water authorities in connection with this specifically referred to the undue time load on water authorities´ staff members and the fact that water authorities use in no way for their activities the data from water records. Ministry of Agriculture subsequently took into account these facts in preparing the amendment to the Water Act No. 150/2010 Coll., which established changes in competencies in this area. Ministry of Agriculture expects this step to improve the overall state of water records and continuous and responsible increasing in the volume of data in the Central Register of Water Records. Ministry of Agriculture immediately after coming into effect of the amendment to the Water Act began work on the amendment to Decree No. 7/2003 Coll., which was eventually fully replaced by the above-mentioned Decree No. 414/2013 Coll.

Funding for new software was ensured by the Ministry of Agriculture under the project Integrated Operational Programme – Development and Improvement of Agricultural Registers, which was implemented by the Ministry of Agriculture in the years 2012–2013. The project allowed to produce a sophisticated software tool, which allows to enter data in the register by all responsible bodies (water authorities and river basin administrators).

Central Register of Water Records is operated as a database application running on the server of the Ministry of Agriculture, to which the users have online access from outside. The application consists of three interrelated basic modules – online application for water authorities used to record the decisions issued by water authorities, module for River Boards, s. e., which is supplemented with selected data pursuant to Decree No. 414/2013 Coll., and a search module, which is not only used to aggregate data according to chosen parameters by water authorities, but may also be used by the public. This module provides a presentation of data from the Central Register of Water Records that have already been completed with all required selected data, and such decisions are published. Outputs from the Central Register are presented on the website of the Ministry of Agriculture (www.eagri.cz), and on the website of the Public Administration Information System – WATER (www.voda.gov.cz).

Preparation of stage II of the project

Ministry of Agriculture is engaged in further development of information systems in water management. In this respect, long-term efforts are made to raise funds to implement the so-called stage II of the project of the Public Administration Information System – WATER. Part of the funds necessary to ensure the operability of water registers and data management was provided by the Integrated Operational Programme (IOP) under the programme Development and Improvement of Agricultural Registers. Transfer of records required by law in the competence of the Ministry of Agriculture and update of the WATER register allowed to provide water management data through technical services of portal eAGRI. In the future it is planned to further develop the Public Administration Information System – WATER and place the register in the public administration portal, which, given the importance of water management data, will contribute to improving their availability to the public and enable more effective performance of river basin administration and state administration in water management.

11.5 Czech Republic´s reporting to the European Union

Reporting pursuant to Directive of the European Parliament and of the Council 2006/7/EC of 15 February 2006, concerning the management of bathing water quality and the repeal of Directive 76/160/EEC

In terms of the European legislation, the issues of bathing waters are governed by the following Directives: Council Directive 76/160/EEC of 8 December 1975, concerning the quality of bathing water, which will be repealed with effect from 31 December 2014, and Directive of the European Parliament and of the Council 2006/7/EC of 15 February 2006, concerning the management of bathing water quality and the repeal of Directive 76/160/EEC.

Every year, before the start of the bathing season, a list of waters identified as bathing waters is prepared pursuant to Section 6g par. 1 letter a) of the Act No. 258/2000 Coll., as amended by the Act No. 151/2011 Coll. This list is prepared by the Ministry of Health in cooperation with the Ministry of the Environment and the Ministry of Agriculture. In the Czech Republic, waters used for open air bathing of persons are divided into natural open air bathing pools operated on surface waters used for bathing (surface waters where bathing services are offered by the pool operator) and surface waters where large numbers of persons are expected to bathe and for which no permanent ban on bathing or permanent warning against bathing was issued by the relevant public health protection authority (so-called other surface waters used for bathing). Before the start of the bathing season 2013, a list of waters identified as bathing waters for the recreational season 2013 was submitted to the European Commission.

Ministry of the Environment in cooperation with the Ministry of Health submitted to the European Commission a report on the results of monitoring and assessment of quality of surface waters specified in the List for bathing season 2013. This report for the year 2013 was prepared according to the requirements of Directive 2006/7/EC. Bathing waters were classified on the basis of their quality as poor, acceptable, good or excellent. The assessment was carried out based on the quality data set compiled for the bathing season 2013 and the four preceding bathing seasons. Reports from European countries after processing of the results are annually presented on the portal of the European Commission (http://ec.europa.eu/environment/water/water-bathing/index_en.html).

The most frequent problems of water quality in the Czech Republic are associated with the mass presence of cyanobacteria, which during the bathing season 2013 led to the ban on bathing at 9 sites. At 8 sites, the ban on bathing was imposed due to mass presence of cyanobacteria and at one site the ban on bathing was imposed due to exceedances of the microbiological indicators. Of the total number of 157 reported bathing waters, only 3 sites were classified as failing to comply with the requirements defined by Directive 2006/7/EC.

"A journey of discovery" – Filip Štěpánek – 2nd class, nám. E. Beneše primary school, Varnsdorf, Ústecký region

12. International relations

International cooperation of the Czech Republic in the field of water protection is based on the principles arising from the UNECE Convention on the Protection and Use of Transboundary Watercourses and International Lakes, which the Czech Republic is a party to.

The roots of the involvement of the Czech Republic in international cooperation in the protection of waters can be found in 1928, when the Joint Technical Commission was established between the former Czechoslovak Republic and Austria. This commission in the period of its action dealt with technical issues in transboundary stretches of the Danube River, the Dyje River and the Morava River and also watercourses in the Malše River and the Lužnice River basins.

Today, the Czech Republic is a party to nine international treaties in the field of water protection. This international cooperation can be divided into the following areas:

1. cooperation within UNECE,
2. cooperation in the area of international river basins of the Danube, the Elbe and the Oder,
3. cooperation of the Czech Republic with the neighbouring states in the field of water management on transboundary watercourses.

As mentioned above, activities of the Czech Republic in the field of water protection at international level build on the long-time basis, which cannot be compared to any similar cooperation in the world. Based on this fact, cooperation of the Czech Republic with other states in the field of water management is considered higher than standard.

12.1 Cooperation within UNECE

The Convention on the Protection and Use of Transboundary Watercourses and International Lakes (Water Convention) is intended to strengthen national measures for the protection and ecologically sound management of transboundary surface waters and groundwaters. The Convention obliges Parties to prevent, control and reduce transboundary impact, use transboundary waters in a reasonable and equitable way and ensure their sustainable management.

The basic principle is bilateral cooperation of neighbouring states in the field of water management, based on concluded international agreements, treaties and conventions. Emphasis is laid on mutual exchange of information, joint research and development (for example, through bilateral and multilateral projects), improving warning and alarm systems, as well as access to information by the public, etc.

The Convention on the Protection and Use of Transboundary Watercourses and International Lakes

The UNECE Convention on the Protection and Use of Transboundary Watercourses and International Lakes entered into force on 6 October 1996. Czech Republic is a party to the Convention from 10 September 2000. Representatives of the Czech Republic participate in activities relating to the fields of integrated management of water resources and water ecosystems, adaptation to climate change, protection of waters against accidental pollution from industrial sources, support for international cooperation on transboundary watercourses and in commissions for international river basins. Cooperation under the Convention also focuses on the relation between water quality and human health. The supreme body of the Convention is the Meeting of the Parties, held once every three years. The next, 7th Meeting of the Parties will take place in 2015 in Hungary.

The current topic that is discussed at the level of the Convention is to allow access to the Convention also for non-member countries of the UN ECE. The basic condition for the realization of this step is to update Articles 25 and 26 of the Convention, which are aimed at ratification, adoption, approval and entry into force of this Convention. Based on the information that was given at the 8th meeting of the Working Group for Integrated Management of Water Resources in September 2013, amendments to the above-mentioned articles should enter into force during 2014. Czech Republic adopted the update of the above-mentioned articles of the Convention on 29 January 2008.

The Convention also discusses the possibility of establishing regular reporting on the progress of implementation of the Convention in the Member States. Czech Republic participated in the questionnaire survey inquiring whether the obligation for the Member States to regularly report on the implementation should be established and, if so, in what detail and at what frequency. Czech Republic did not grant consent to the establishment of the above-mentioned obligation.

Protocol on Water and Health

Within the UNECE Convention, in cooperation with the World Health Organization (WHO) a convention document was produced with focus on the connection between water and human health – the Protocol on Water and Health. Although the Protocol entered into force in 2005, the Czech Republic has been a party to the Protocol since 2001. Czech Republic set national targets to the Protocol already in 2008. Update of these targets was approved on 1 June 2013. The reason for this update was that some targets have already been met or their achieving in the future is ensured by legislation.

The third Meeting of the Parties, attended by official delegations from 29 countries, took place between 25 and 27 November 2013 in Oslo, Norway. At this meeting, the programme of work for the following years 2014–2016 was approved. There was also presented an evaluation of the questionnaire on the situation in the area of water supply from small sources, which was prepared by an international team of authors with Czech participation. The next Meeting of the Parties will be held in 2016 in Switzerland.

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

12.2 International cooperation 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 the Water Framework 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 Elbe River Basin is shared by four states: the predominant part is situated in Germany (65.5%) and the Czech Republic (33.7%), very small part in Austria (0.6%) and Poland (0.2%). In order to improve the status of surface waters, the Agreement on the International Commission for Protection of the Elbe was signed on 8 October 1990. This Agreement entered into force on 14 September 1992. The Protocol to the Agreement on the International Commission for Protection of the Elbe, through which the Commission acquired legal subjectivity, came into effect on 13 August 1993. International cooperation at the level of the International Commission for Protection of the Elbe can be considered the most important board of the Czech-German cooperation in the field of water protection in the Elbe River Basin. The cooperation focuses 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 accidental pollution and especially on the coordinated approach to meeting the requirements of the Water Framework Directive (2000/60/EC) and improving flood control measures through the coordinated approach to meeting the requirements of the EC Directive on the assessment and management of flood risks (2007/60/EC).

With regard to the work on the preparation of the second International Elbe River Basin District Management Plan according to the Water Framework Directive, the International Commission for Protection of the Elbe at its 26th session (between 15 and 16 October 2013, Prague) discussed and approved, inter alia, the final version of the time schedule and work programme for the development of part A of the International Elbe River Basin Management Plan for the second planning cycle, document for public comments in accordance with Article 14 of the Water Framework Directive to a preliminary overview of the significant water management issues identified in the International Elbe River Basin District for the plan update for the period 2016–2021 and an outline and time schedule for the development of part A of the International Elbe River Basin District Management Plan. Furthermore, the International Commission for Protection of the Elbe approved the International Programme of Measurement of the Elbe 2014.

As part of ongoing work on the preparation of the first International Plan for the Management of Flood Risks in the Elbe River Basin according to the Flood Directive (2007/60/EC) the International Commission for Protection of the Elbe (ICPE) at its 26th session turned to the Czech and the German delegations with a request to initiate work on the preparation of national contributions to the International Plan for the Management of Flood Risks in the Elbe River Basin. ICPE also took note of the information on the preparation of the workshop "The Flood in June 2013 and the International Plan for the Management of Flood Risks in the Elbe River Basin" on 21 November 2013 in Magdeburg and, in addition, asked for a preparation of "Hydrological Evaluation of the Floods in the Elbe River Basin in June 2013".

The International Commission for Protection of the Elbe is also significantly involved in organizing the Magdeburg Workshop on protection of waters, which is held every two years, alternately in the Czech Republic and Germany, and is the most important international expert and scientific event in the field of water protection in the Elbe River Basin. The 16th meeting of the Magdeburg Workshop will take place between 18 and 19 September 2014 in Špindlerův Mlýn, Czech Republic. The main topics of the workshop will include hydromorphology (passability for sediments and biota, diversity of the environment, maintenance, regulations, revitalizations and flood plains), communities and their habitats (the biological quality elements according to the Water Framewok Directive) and water quality (nutrients, pollutants, remobilization, dynamics of transport and new water pollution).

To involve the public in the process of implementation of the Water Framework Directive in the Elbe River Basin, the ICPE established the International Elbe Forum, whose purpose is consulting international issues with the public. The key points that were discussed within the forum held in 2013, can be considered:

- discussing the implementation of the Water Framework Directive at the international level and the implementation of national programmes of measures,
- presentation of the results of the Action Plan for Flood Protection and the steps in the implementation of the Flood Directive in the Elbe River Basin.

Fig. 12.2.1
Catchment areas of major tributaries of the Elbe

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

In terms of the area covered, the Danube River Basin belongs to the most significant river basins in Europe and is shared by 19 European states. The Danube

River Basin takes an area of 801,463 km^2, the Danube River itself reaches a length of 2,857 km and after the Volga River it is the second longest river in Europe. In order to reach coordinated approach to the protection of watercourses in the Danube River Basin, the Convention on Cooperation for Protection and Sustainable Use of the Danube River was signed on 29 June 1994. This Convention entered into force on 22 October 1998. The Convention currently has 15 Parties, ranking it on the position of the most significant structure built to protect the particular river basin. The body to coordinate the implementation of this Convention is the International Commission for Protection of the Danube River (ICPDR).

In 2013, at the level of heads of delegations of the Parties, two meetings were held. The first of them, the 11th meeting of the Steering Group took place on 18 – 19 June 2013 in Sarajevo. The second meeting was the 16th plenary session of the International Commission for Protection of the Danube River, which took place on 10 – 11 December 2013 in Vienna.

In June, the heads of delegations of the Parties adopted, inter alia, the document "Guiding Principles on Sustainable Hydropower Development in the Danube Basin". It is a set of recommendations aiming to promote the coordinated implementation of the relevant legislation, in particular the EU directive on renewable energy sources, the Water Framework Directive and other legislative provisions relating to the protection of the environment. These recommendations are not legally binding, it is a document, which was prepared by representatives of the national ministries, the energy sector, scientists and non-governmental organizations such as the World Wildlife Fund (WWF). This document is available on the website of the Ministry of the Environment (www.mzp.cz).

At the December meeting there was adopted, inter alia, a document "Preliminary Overview of the Significant Water Management Issues in the Danube River Basin District", which was subsequently provided to the public for comments on the website of the ICPDR.

Members of the ICPDR expert groups, in which the Czech Republic has representatives from the Ministry of the Environment, the Ministry of Agriculture, the Czech Hydrometeorological Institute, the Czech Environmental Inspection, Morava River Board, s. e., and T. G. Masaryk Water Management Research Institute, public research institution, are involved in preparing the report on updated analysis of the Danube River Basin in 2013. There also began a preparation of the second International Danube River Basin Management Plan.

In 2013, the third joint research of the Danube River was completed, whose results will be published in 2014.

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).

Fig. 12.2.2
Map of the Danube River Basin

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

International Commission for Protection of the Oder River against Pollution is another important commission established to protect waters in the basin, whose area is shared by more than one country.

International Commission for Protection of the Oder River against Pollution was established by the international Agreement on the International Commission for Protection of the Oder River against Pollution, which was concluded by the Government of the Czech Republic, the Government of the Republic of Poland, the Government of the Federal Republic of Germany and the European Community on 11 April 1996. The Agreement entered into force after ratification on 26 April 1999.

The activity of the Commission is focused especially on international coordination of meeting the requirements of the Water Framework Directive (2000/60/EC), flood protection and prevention of water pollution. The work of the Commission is carried out in working groups focused mainly on flood protection, accidental pollution, legal issues, monitoring and data management.

The work performed in 2013 was evaluated at the 16th plenary session of the International Commission for Protection of the Oder River against Pollution, which took place from 21 to 22 November 2013 in Wroclaw. This meeting approved work plans of the Steering Working Group and its subgroups for 2014, draft overview of the significant water management issues in the International Oder River Basin District for the second planning cycle under the Water Framework Directive and a draft of the relevant document for consultation with the public. The Working Group for the area of Water Planning focused on the completion of strategies to meet joint goals for the significant water management issues in the International Oder River basin District and work to harmonize the characteristics of border and cross-border water bodies, in particular the question of the definition of heavily modified water bodies in each state. The Working Group for Data Management prepared a document describing the presentation of maps using the website of the International Commission for Protection of the Oder River against Pollution, taking into account the possibility of using the GeoPortal and other alternative solutions. The Working Group for Monitoring continues to compare national methods for

Fig. 12.2.3
International Oder River Basin District

the assessment of the chemical and quantitative status of groundwater bodies. This Working Group was also involved in the exchange of information on the methodological approach of each country and the work on the preparation of inventories of emissions, discharges and releases of priority substances and pollutants.

Next, the 17th plenary session of the International Commission for Protection of the Oder River against Pollution will take place from 2 to 3 December 2014.

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 neighbouring states is 2,290 km, of which approximately 740 km are known as the "wet line", i. e. that more than 30% of the state border are constituted by watercourses and water bodies.

Transboundary waters are not only watercourses or water bodies that are crossed by the state border. Transboundary waters are also considered watercourses which criss-cross the state border and surface waters and groundwaters where the measures implemented on the territory of one party would substantially affect water management conditions on the territory of the other party. To avoid potential disputes with neighbouring states, the Czech Republic has with all neighhbouring states international agreements concluded. Through these agreements, or through the relevant commissions for transboundary waters, the following issues are addressed at the level of bilateral cooperation: regulation and maintenance of transboundary watercourses including construction and operation of structures on these watercourses, water supply and amelioration of border reaching territories, the protection of transboundary waters against pollution (including the respective monitoring, joint monitoring of the quality of transbounary 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 proceedings regarding transboundary waters, the protection of aquatic and littoral habitats (in the Bavarian part of the state border protection of freshwater pearl mussel), the course of the state border on transboundary watercourses (in collaboration with the Ministry of the Interior), etc.

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

The total length of the state border between the Czech Republic and the Federal Republic of Germany is 811 km. Of this length, 290 km are constituted by watercourses or water bodies. 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.

With regard to the territorial division of the Federal Republic of Germany, the cooperation takes place at the first level through the Standing Committee Bavaria and the Standing Committee Saxony. Collectively, the cooperation is roofed by the Czech-German Commission for Transboundary Waters.

In 2013, the following meetings took place:
- 15th session of the Standing Committee Bavaria (3 – 5 April 2013, Prague, Czech Republic),
- 15th session of the Standing Committee Saxony (19 – 21 June 2013, Seiffen, Federal Republic of Germany),
- 16th session of the Czech-German Commission for Transboundary Waters (6 – 7 November 2013, Bayreuth, Federal Republic of Germany).

The key points that were discussed during the above mentioned meetings include, for example, the issue of realization of emergency profile on the Elbe in Hřensko profile, particularly the possibilities of funding for this project, change of the "Agreement between the Government of the Czechoslovak Socialist Republic and the Government of the German Democratic Republic on the adjustment of some of the common issues associated with the construction and operation of the water reservoir in the Flöha stream valley near Rauschenbach" (concerning the new calculation of the elevation of upper level of the retention area of the Rauschenbach water reservoir), joint cross-border projects aimed at improving the quality and quantity of surface waters and protection of freshwater pearl mussel and blunt mussel (Unio crassus) in transboundary waters and their catchment areas.

Regarding the realization of the emergency profile on the Elbe in Hřensko it was agreed that due to a new technical solution, the planned simplification of project documentation, and thereby also reducing the funds needed to implement the measure, financial participation of Saxon party is no longer necessary. The stable emergency profile is expected to be realized in 2014.

The results of these meeting are included in the "Protocol on the 16th meeting of the Czech-German Commission for Transboundary Waters", which was submitted to heads of the departments concerned for their standpoint and subsequently approved by the Minister of the Environment.

Next, the 17th session of the Commission will take place on 29 – 30 October 2014 in the Czech Republic.

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

The total length of the state border between the Czech Republic and the Republic of Austria is 466 km, of which 173 km (approx. 37%) of the state border are constituted by watercourses and water bodies. The cooperation on transboundary waters with Austria is governed by 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 from 18 March 1970. This agreement is implemented through the Czech-Austrian Commission for Transboundary Waters, which involves the Sub-commission I and Sub-commission II.

The 21st session of the Czech-Austrian Commission for Transboundary Waters took place on 25 – 26 June 2013 in Vienna and a regular meeting of the representatives of the Governments for the purpose of mutual informing about current issues in the field of water management was held at the beginning of December. In addition to issues of maintenance of transboundary watercourses, their quality monitoring and joint monitoring, the main topics were the floods that in May and June 2013 affected both countries, and the impacts on the Dyje River caused by the Austrian chemical plant in Pernhofen.

As regards the issue of floods in May and June 2013, the Czech party informed the Austrian party of the ongoing project assessing recent floods. The Czech party promised to send the Austrian party the result of this project after its completion. In connection with the floods in 2013, both parties informed one another about the current state of projects aiming to improve flood protection in the Morava River and the Dyje River basins.

As regards the impacts on the Dyje River caused by the Austrian chemical plant in Pernhofen, the Czech party informed about the growing interest of mayors in the Dyje River Basin in this issue.

The Czech party informed the Austrian party about the meeting, where representatives of the municipalities were informed about the current situation in this matter. In addition to this information, within the joint meeting there was also discussed the current state of a mutually acceptable procedure for issuing a new permit for the discharges of waste water from this chemical plant.

The result of the meeting of the Commission is included in the mutually agreed and signed Protocol on the 21st Meeting of the Czech-Austrian Commission for Transboundary Waters, which was subjected to interdepartmental discussion and approved by the Minister of the Environment.

Next, the 22nd session of the Commission will take place on 27 – 28 May 2014 in Prague, Czech Republic.

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

The total length of the state border between the Czech Republic and the Slovak Republic is 252 km. Of that, watercourses and water areas constitute 71 km. Cooperation of both states in the field of water management is governed by the Agreement between the Government of the Czech Republic and the Government of the Slovak Republic on Cooperation on Transboundary Waters, which was signed and became effective on 16 December 1999. This agreement is implemented through the Czech-Slovak Commission for Transboundary Waters, which for its activities established four working groups focusing on technical issues, hydrology, water protection and the Water Framework Directive (2000/60/EC).

The 13th session of the Commission took place on 28 – 30 May 2013 in Bratislava, Slovakia.

Within the framework of the Czech-Slovak cooperation on transboundary waters, mainly discussed are joint cross-border projects aimed at improving flood protection, in terms of construction (project "Joint Flood Control Measures on Both Banks of the Morava River"), and in terms of technical support for improving the exchange of current data (project "Automation of the Exchange of Crisis Data in the Hydrological Catchment Area of the Morava River and the Dyje River").

The project "Joint Flood Control Measures on Both Banks of the Morava River" is divided into three project parts, funded under the programme of the European Territorial Cooperation between the Slovak Republic and the Czech Republic 2007–2013. The project comprises a study part and a realization part. In particular, it includes the study of revitalization measures, the levelling of left-bank dike of the Morava River between border km 48.20 and 49.00 and levelling of the vertical alignment of the dike between the road bridge and weir in Hodonín. All the three projects are expected to be completed in 2015. Both parties inform each other about the state of progress of the work and potential cross-border impacts.

The aim of the project "Automation of the Exchange of Crisis Data in the Hydrological Catchment Area of the Morava River and the Dyje River" is to streamline, expand and link existing systems of hydrological data transmission in cross-border catchment areas of the Morava River and the Dyje River, using the web portal for transmission of current important data for the relevant institutions. At present, the realization of the project on the Czech part is under way, the date of completion has been extended by 18 months from the signing of the contract with the contractor, i. e. until 28 February 2015. On the Slovak part, tenders for the project contractor are under way. Also a request for changing the project completion date from December 2013 to February 2015 was submitted to the relevant ministry.

Other discussed topics of the Czech-Slovak cooperation are included in the Protocol on the 13th session of the Czech-Slovak Commission for Transboundary Waters, which was subjected to interdepartmental discussion and subsequently approved by the Minister of the Environment.

Next, the 14th session of the Commission will take place on 24 – 25 June 2014 in Prague, Czech Republic.

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 length of the state border between the Czech Republic and Poland is 762 km, of that approximately 220 km are constituted by watercourses and water areas. Cooperation between both countries is regulated by the Convention between the Government of the Czechoslovak Republic and the Government of the People´s Republic of Poland on Water Management on Transboundary Waters, which was signed on 21 March 1958 and became effective on 7 August 1958. The Convention is implemented through meetings 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. Within the framework of the Czech-Polish cooperation there are established five standing working groups focused on investment plans, hydrology, hydrogeology, flood protection, regulation of watercourses, the protection of waters against pollution and the Water Framework Directive (2000/60/EC).

The 15th meeting of the representatives of the governments took place on 16 – 18 December 2013 in Prague, Czech Republic.

In terms of cooperation on transboundary waters with Poland, special attention is paid to the negotiation of a New Agreement between the Government of the Czech Republic and the Government of the Republic of Poland on Cooperation in Water Management on Transboundary Waters. Negotiation on a new agreement was initiated in 2002, the procedure was revived in 2009, when at the 11th meeting of representatives of the governments for transboundary waters it was stated that both parties would take national action in accordance with relevant national legislation, to be followed by international negotiations. In February 2013, the Polish party informed the Czech party of having accepted the Czech comments. In addition to the acceptance of these comments, the Polish party in April 2014 sent to the Czech party the comments of the Legislative Council of the Republic of Poland and the legal department of the Ministry of the Environment of the Republic of Poland. The new agreement is expected to be concluded during 2014.

Other discussed topics of the Czech-Polish cooperation on transboundary waters are included in the Protocol on the 15th meeting of representatives of the Government of the Czech Republic and the Government of the Republic of Poland for cooperation in the field of water management on transboundary waters, which was subjected to interdepartmental discussion and subsequently approved by the Minister of the Environment.

Next, the 16th meeting of representatives of the Governments will take place on 19 –21 November 2014 in the Republic of Poland.

The signing of the Protocol on the 15th meeting of representatives of the Government of the Czech Republic and the Government of the Republic of Poland for cooperation in the field of water management on transboundary waters

"Milling, milling…" – Viktorie Bočková – 3rd class, Palachova primary school, Žďár nad Sázavou, Vysočina region

13. Research and development in the competence of the Ministry of Agriculture

In 2013, the Ministry of Agriculture provided special-purpose and institutional funding to address research and development projects and a research scheme in the field of water management in the amount of CZK 44 million.

In 2013, the funds to support water management R&D projects amounted in total to CZK 39,331 thousand. The R&D projects launched in 2009 were funded by the amount of CZK 6,094 thousand, one R&D project launched in 2010 was granted support amounting to CZK 2,324 thousand, the R&D projects launched in 2011 were granted support amounting to CZK 10,509 thousand and the R&D projects launched in 2012 were granted support amounting to CZK 17,898 thousand. In 2013, two new R&D projects tackling the issues of water management were launched. These projects were granted support amounting to CZK 2,506 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 addressing the impacts of climate change.

An overview of the addressed R&D projects is shown in a summarized form in table 13.1.

Water management R&D projects resulted from public tenders called under the research programmes of the Ministry of Agriculture, namely the Research in Agricultural Complex 2009–2014 and Complex Sustainable Systems in Agriculture 2012–2018. These sectoral programmes also include sub-programmes, research trends or objectives relating to water management issues.

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.

Sub-programme II of the programme Complex Sustainable Systems in Agriculture 2012–2018 is called Sustainable Development of Forestry and Water Management and Other Areas of Agriculture.

The Jeřice River in Chrastava

One of the objectives of this sub-programme is to create tools to support systems of water protection against pollution caused by agricultural production.

In 2013, 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 institutional financial support in the amount of CZK 5,000 thousand.

Publicly accessible data on R&D projects and research schemes are available on the website of the Council for Research, Development and Innovation (www.vyzkum.cz) in the section Information System R&D&I (the Central Register of R&D projects, Central Register of research schemes). The information on the results of the R&D projects and research schemes is available on the same website in the Information Register of R&D results.

Table 13.1
Research and development projects in the field of water management financed from the budget chapter of the Ministry of Agriculture in 2013

Project No.	Name of project	From - to	Coordinator	Funds (thousands of CZK)
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	1,478
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	1,023
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	849

Project No.	Name of project	From - to	Coordinator	Funds (thousands of CZK)
QI92A207	Recovery and long-term nature friendly management of watercourse bank vegetation	1 June 2009 31 December 2013	Silva Tarouscy Research Institute for Landscape and Ornamental Gardening, public research institution	2,744
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	2,324
QI111C034	Influence of livestock grazing on soil properties, water quality and quantity and species biodiversity in the landscape	1 January 2011 31 December 2014	Research Institute for Soil and Water Reclamation, public research institution	4,641
QI112A132	Research of measures to ensure drinking water supply in the period of climate change	1 January 2011 31 December 2014	Mining University - Technical University of Ostrava	2,225
QI112A174	Forestry and agricultural aspects of management of water component in the landscape	1 January 2011 31 December 2014	Research Institute for Forestry and Game Management, public research institution	3,643
QJ1220007	Possibilities of the capture of reactive nitrogen from agriculture in the most vulnerable zone in terms of water management	1 April 2012 31 December 2016	Mendel University in Brno	1,545
QJ1220029	The planting and maintenance of pond dam vegetation with regard to its use	1 April 2012 31 December 2016	Mendel University in Brno	1,545
QJ1220033	Optimization of water regime on the Morava River floodplain model	1 April 2012 31 December 2015	Mendel University in Brno	1,808
QJ1220050	Strengthening the infiltration processes through regulating water runoff from small river basins	1 April 2012 31 December 2015	Research Institute for Soil and Water Reclamation, public research institution	3,072
QJ1220052	The use of remote sensing for the identification and definition of the functions of drainage systems	1 April 2012 31 December 2016	Research Institute for Soil and Water Reclamation, public research institution	1,826
QJ1220218	The development of effective measures to eliminate the impact of invasion of Chalara fraxinea in forest nurseries and related aspects of forestry and water management	1 April 2012 31 December 2016	Silva Tarouscy Research Institute for Landscape and Ornamental Gardening, public research institution	1,844
QJ1220233	The assessment of the area in the former fishpond systems (water bodies) in order to strengthen sustainable management of water and land resources in the Czech Republic	1 April 2012 31 December 2015	Palacký University in Olomouc	1,799
QJ1220346	Emissions and their impact on the aquatic environment	1 April 2012 31 December 2014	T. G. Masaryk Water Management Research Institute, public research institution	1,909
QJ1230319	Water regime of soils on sloping agricultural land	1 April 2012 31 December 2015	Czech Agricultural University in Prague	2,550
QJ1320122	Optimization of management of afforestation of agricultural land in relation to improving the retention potential of the landscape	1 January 2013 31 December 2017	Research Institute for Soil and Water Reclamation, public research institution	1,319
QJ1320213	Innovation of farming systems in the environment of Quaternary sediments, their verification and application in water protection zones	1 January 2013 31 December 2017	Research Institute for Crop Production, public research institution	1,187
Total				**39,331**

Source: MoA

List of acronyms in text

AOX	Adsorbable organic halides
BOD_5	Biochemical five-day oxygen demand
CEB	Council of Europe Development Bank
CF	Cohesion Fund
CHP	Chemical removal of phosporus
COD_{Cr}	Chemical oxygen demand
CSN	Czech Technical Standard
CZK	Czech crown
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 aktivity degree
HCH	Hexachlorocyklohexan
ISPA	Instrument for Structural Policies for Pre-Accession
MoA	Ministry of Agriculture
MoE	Ministry of Environment
N	Nitrification
NACE	Nomenclatur statistique des activités économiques dans la Communauté européenne (sectoral classification of economic activitie according to Eurostat)
OECD	Organization for Economic Co-operation and Development
OPE	Operational Programme Environment
PE	Population equivalent
Q_a	Long-term annual average flow
Q_m	Long-term monthly average flow
R&D	Research and development
R&D&I	Research, development and innovation
s. e.	State enterprise
UNECE	United Nations Economic Commission for Europe
VAT	Value added

Water reservoir on Rouchovanka stream

Important contacts in water management

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Těšnov 65/17, Praha 1, 110 00, 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, Moravská Ostrava, 701 26, www.pod.cz
Morava River Board, state enterprise
Dřevařská 932/11, Brno, 601 75, www.pmo.cz
Forests of the Czech Republic, state enterprise
Přemyslova 1106/19, Hradec Králové, 501 68, www.lesycr.cz
Czech Hydrometeorological Institute
Na Šabatce 2050/17, Praha 412 – Komořany, 143 06, www.chmu.cz
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Polder on the Skalička River in Skalice u Znojma

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