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KEY MESSAGES

Since the early 1990s, the Czech Republic has experienced a marked improvement in surface water quality, which has resulted mainly from the reduction of pollution discharged into surface water.

The significant reduction in pollution discharged into surface water is not solely the result of industrial restructuring from the early 1990s. Equally important is the construction and the modernisation of sewer systems and waste water treatment plants, which is supported both from the state budget and through European Union funds.

Even though surface water quality has improved significantly in the Czech Republic, attention still needs to be paid to pollution with nutrients and, locally, with some hazardous substances.

Similarly to elsewhere in Europe, the quality of eutrophication-affected stagnant water seems problematic, as both a longer period of time and a larger number of financially demanding measures are needed there.



REFERENCES AND OTHER INFORMATION

Comprehensive information about water quality and water management

Ministry of the Environment – <http://www.mzp.cz>,
<http://www.ochranavod.cz>

Ministry of Agriculture – <http://www.mze.cz>

Czech Hydrometeorological Institute – <http://www.chmi.cz>,
<http://voda.chmi.cz/ojv2>

T. G. Masaryk Water Research Institute – <http://www.vuv.cz>
CENIA, the Czech Environmental Information Agency
– <http://www.cenia.cz>

Information portals

The Water Management Information Portal

– <http://www.voda.gov.cz>

The T.G.M. WRI Hydroecological Information System

– <http://heis.vuv.cz>

The Portal of the Public Administration of the Czech Republic

– <http://geoportal.cenia.cz>

Information about the infrastructure on significant watercourses and water quality in reservoirs

Povodí Vltavy, state enterprise – <http://www.pvl.cz>

Povodí Labe, state enterprise – <http://www.pla.cz>

Povodí Ohře, state enterprise – <http://www.poh.cz>

Povodí Odry, state enterprise – <http://www.pod.cz>

Povodí Moravy, state enterprise – <http://www.pmo.cz>

Information about minor watercourses and small reservoirs

Agricultural Water Management Authority – <http://www.zvhs.cz>

Information about bathing water quality

Ministry of Health – <http://www.mzcr.cz>



THE ENVIRONMENT OF THE CZECH REPUBLIC

© 2008, CENIA, the Czech Environmental Information Agency

Translation: Lucie Krágllová

Graphic design: Daniela Reháková

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Contact:

CENIA, the Czech Environmental Information Agency

Litevská 8, 100 05 Praha 10

www.cenia.cz, info@cenia.cz, tel: +420 267 225 340

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The Czech Republic is located at the watershed of three different seas and there are three main hydrological river basins – those of the Elbe, the Odra and the Danube Rivers. The Czech Republic's watercourses flow off to neighbouring countries. While the quality of outflowing water may, to some extent, be connected with natural conditions, it largely depends on the amount of pollution from economic activities. Having recognised its responsibility for reducing the pollution flowing out of its territory, the Czech Republic has defined all its surface waters as sensitive areas in which the requirements under Council Directive 91/271/EEC concerning urban waste-water treatment must be met.

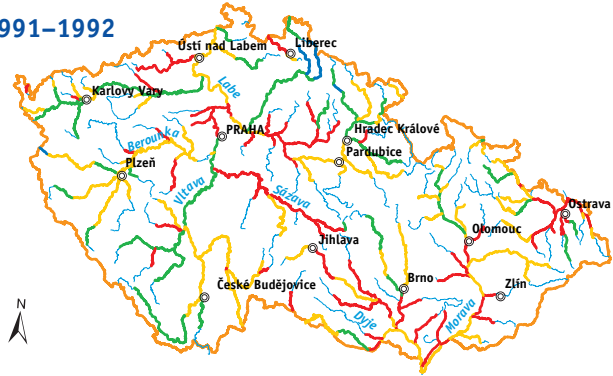
THE DEVELOPMENT IN THE QUALITY OF WATERCOURSES

Since 1991–1992, the quality of surface water has markedly improved. Traditionally, surface water quality is classified into 5 categories. A comparison of the maps below makes it obvious that there has been a shift in water quality in watercourses from categories IV and V to categories I through III, mainly due to the considerable reduction in the pollution discharged from industrial and municipal sources.

☛ A comparison of water quality in the Czech Republic's watercourses, 1991–1992 and 2006–2007

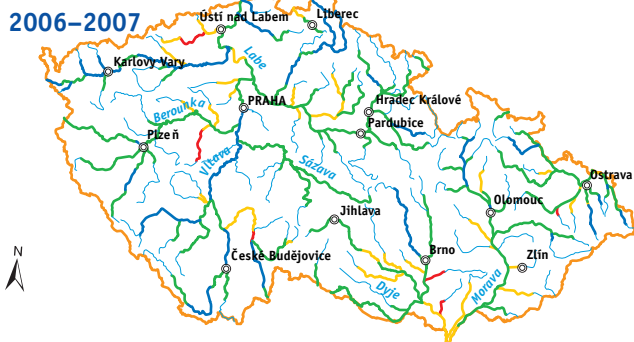
Source: T. G. Masaryk Water Research Institute

1991–1992



Classes according to ČSN 75 7221
 I and II – Unpolluted and slightly polluted water
 III – Polluted water
 IV – Heavily polluted water
 V – Very heavily polluted water

2006–2007



Note: The basic classification is the aggregate of the following indicators: BOD₅, COD_{Cr}, N-NH₄⁺, N-NO₃⁻, P_{total} and the saprobic index of macroinvertebrate communities.

☛ Surface water quality classes according to ČSN 75 7221

Class I	Unpolluted water	indicators do not exceed values consistent with normal natural background in surface streams
Class II	Slightly polluted water	the existence of a rich, balanced and sustainable ecosystem is possible
Class III	Polluted water	conditions may not be in place for the existence of a rich, balanced and sustainable ecosystem
Class IV	Heavily polluted water	the conditions only permit the existence of an unbalanced ecosystem
Class V	Very heavily polluted water	the conditions only permit the existence of a very unbalanced ecosystem

DISCHARGED POLLUTION

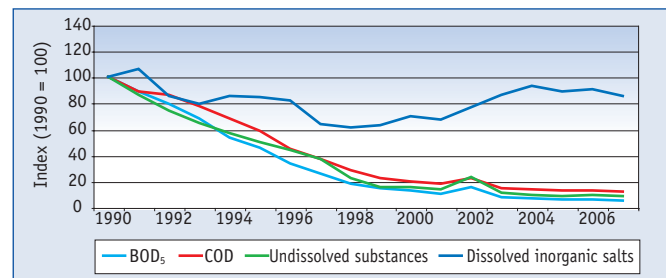
In addition to the industrial restructuring that took place mainly during the first half of the 1990s (the termination or reduction of some production activities, technological changes associated with reduced water consumption and wastewater discharge) the improvement in water quality is, to a significant degree, attributable to the construction and modernisation of sewer systems and waste water treatment plants. Also, another factor contributing to pollution reduction is the application of the “polluter pays” principle, compliance with which is overseen by the Czech Environmental Inspectorate.

Permissible surface and waste water pollution levels (emission and local concentration standards) and the requirements for permits for discharging waste water into surface water and into sewer systems are specified by Government Regulation No 229/2007 Sb.

Between 1990 and 2007, the amount of pollution discharged from point sources decreased by 94.7% for biochemical oxygen demand, by 88% for chemical oxygen demand, by 90% for undissolved substances and by 14.6% for dissolved inorganic salts.

☛ The trend of discharged pollution expressed as indexes with 1990 as the base year, 1990–2007

Source: T. G. Masaryk Water Research Institute



The construction of waste water treatment plants and sewer systems is supported from financing programmes both from the state budgets and through European Union funds. The objective is to meet the requirements under Council Directive 91/271/EEC by the end of 2010. These include ensuring that waste water in all Czech Republic agglomerations with a population equivalent of more than 2 000 is treated in such a way as to allow for the requirements for the concentrations of discharged pollutants to be met in those agglomerations. Since 1990, the number of waste water treatment plants in the Czech Republic

has more than tripled (from 626 in 1990 to 2065 in 2007) and the percentage of the population connected to sewer systems whose waste water is adequately treated has also risen. Between 2001 and 2004, in comparison to other European countries, the total proportion of the Czech Republic's population connected to waste water treatment plants failed to reach the EU15 average, which stood at 80%. In the Czech Republic, 80% of the population is currently connected to a sewer system, while 96% of waste water that is routed into sewer systems is treated.

THE RESULTS OF WATER QUALITY MONITORING

The monitoring of water quality in watercourses has a long tradition in the Czech Republic. About 200 profiles were monitored as early as the 1960s, with 15 indicators being looked at 12 times a year. Even though monitoring requirements have gradually increased, the majority of the expansion of the monitoring scope has taken place in recent years along with the implementation of surveillance and operational monitoring under the Framework Directive.

Surveillance monitoring of surface water quality is performed at 111 profiles on significant watercourses that are the larger aggregate river-basins of these watercourses. Monitoring is performed by the T. G. Masaryk Water Research Institute (a public research institution) that is the successor to the State Hydrological Institute that was established as early as 1919, i.e. one year after the declaration of the Czechoslovak Republic.

Operational monitoring of surface water quality at 1 287 other profiles (of that 300 profiles are within the state network) is performed by the state enterprises Podniky povodí.

As part of the extensive surface water quality monitoring mandated by the Water Framework Directive (2000/60/EC), data for 2007 showed that most watercourses are only moderately polluted with metals and specific organic substances. In some localities where elevated pollution was detected, the findings of sediment and suspended sediment monitoring have also confirmed that contamination is decreasing. However, some localities continue to be polluted with some difficult-to-eliminate substances. The overall positive development of surface water quality has had a positive effect on the revitalisation and the species composition of the communities of organisms, which is also clearly visible to the general public since some fish species that require high water quality have re-emerged.

One persistent problem is the pollution of water sources by nutrients (phosphorus and nitrogen compounds) originating from both point sources (despite the targeted application of the tertiary stage within waste water treatment technologies in new and intensified waste water treatment plants) and from diffusion sources. In the summertime, such pollution considerably contributes to the development of algae and blue-green algae, especially in reservoirs and water tanks, which is the most common problem in bathing waters (under Directive 2006/7/EC), which are continuously monitored by the Ministry of Health through the Public Health Service.

CLEANER WATER WITHOUT BORDERS

The positive development of surface water quality is significantly facilitated by international cooperation, which allows for the protection of watercourses in their entirety, i.e. within their natural rather than political borders. Coordinated efforts to remedy the unfavourable state inherited from the past is made by the International Commission for the Protection of the Elbe River (ICPER), the International Commission for the Protection of the Danube River (ICPDR) and the International Commission for the Protection of the Odra River (ICPOR). The Czech Republic also has a long tradition of cooperating with neighbouring countries on border waters, which takes place under the umbrella of bilateral commissions for border waters.