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REPORT FROM THE COMMISSION TO THE EUROPEAN PARLIAMENT AND THE COUNCIL

on the Implementation of the Water Framework Directive (2000/60/EC)

River Basin Management Plans

{COM(2012) 670 final}

1. GENERAL INFORMATION

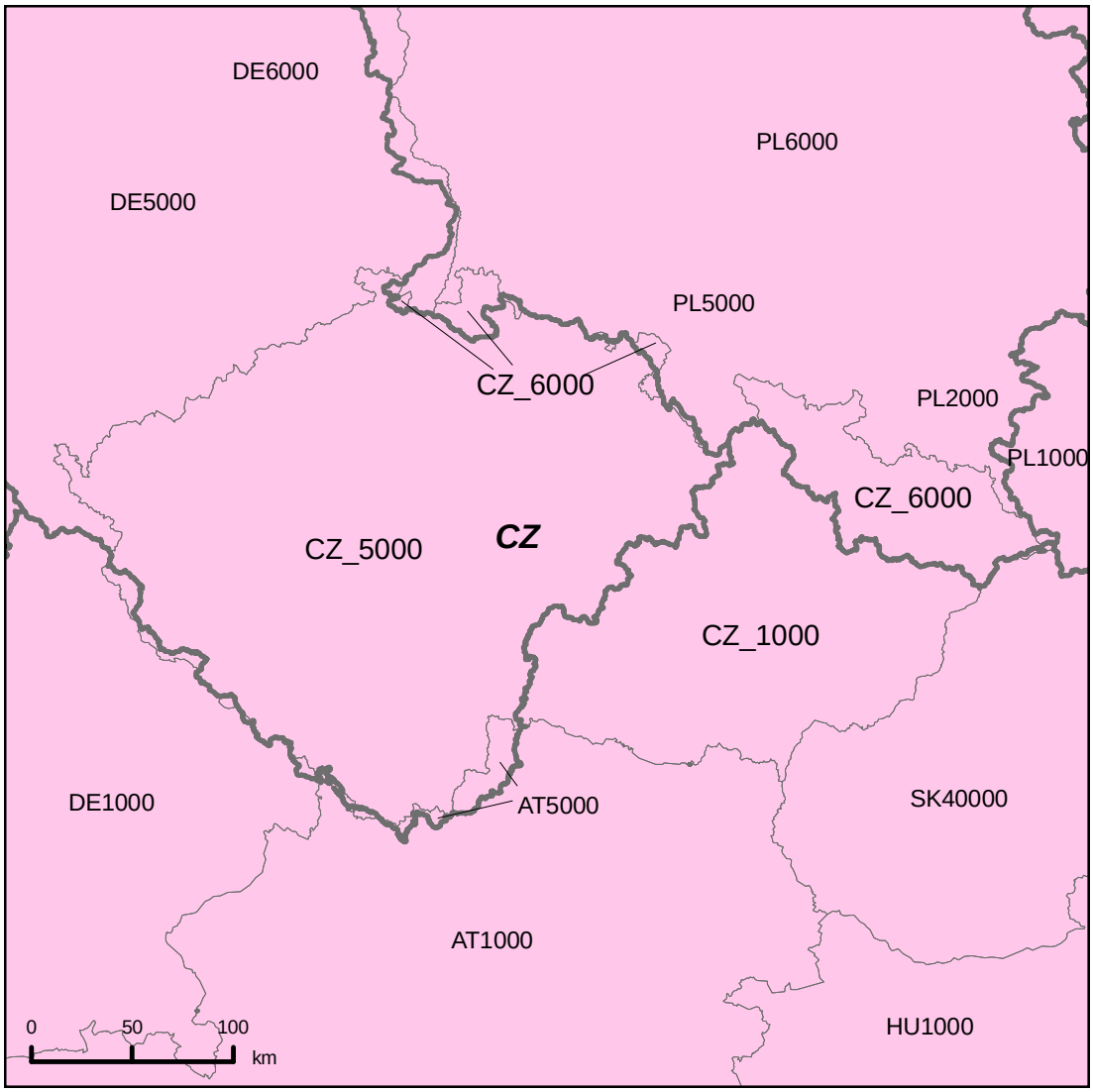

Figure 1.1: *Map of River Basin Districts*

International River Basin Districts (within EU)
International River Basin Districts (outside EU)
National River Basin Districts (within EU)
Countries (outside EU)
Coastal Waters

Source: *WISE, Eurostat (country borders)*

The total area of the Czech Republic is 78866 km² and the population is 10.5 million. Manufacturing is still a major economic activity, especially the production of cars, machine tools, and engineering products. Iron and steel industries are important in Moravia in the east of the country. Arable land, other agricultural land and forests cover approximately 39%, 15% and 33% of the country area, respectively. The main crops are maize, sugar beet, potatoes, wheat, barley and rye. The territory of the Czech Republic lies in three international river basin districts (RBDs): Danube River basin, Elbe River basin and Oder River basin.

The information on areas of the national river basin districts including sharing countries is provided in the following table:

RBD	Name	Size (km²)	Countries sharing borders
CZ_1000	Dunaj (Danube)	21688	AT, PL, SK
CZ_5000	Labe (Elbe)	49933	AT, DE, PL
CZ_6000	Odra (Oder)	7246	DE, PL

Table 1.1: *Overview of the Czech Republic's River Basin Districts*
Source: *River Basin Management Plans reported to WISE[1]: http://cdr.eionet.europa.eu/cz/eu/wfdart13*

The share of the CZ republic in the respective RBDs are 2.7% (Danube), 33.7% (Elbe) and 5.9% (Oder).

Name international river basin	National RBD	Countries sharing borders	Co-ordination category	
			1	
			km²	%
Danube	CZ_1000	AT, PL, SK	21688	2.7
Elbe	CZ_5000	AT, DE, PL	49933	33.7
Oder	CZ_6000	DE, PL	7278	5.9

Table 1.2: *Transboundary river basins by category (see CSWD section 8.1) and % share in the Czech Republic[2]*
Category 1: Co-operation agreement, co-operation body, RBMP in place.
Category 2: Co-operation agreement, co-operation body in place.
Category 3: Co-operation agreement in place.
Category 4: No co-operation formalised.
Source: *EC Comparative study of pressures and measures in the major river basin management plans in the EU.*

[1] This MS Annex reflects the information reported by the MS to WISE which may have been updated since the adoption of the RBMPs. For this reason there may be some discrepancies between the information reported in the RBMPs and WISE.

[2] Categorisation determined under the EC Comparative study of pressures and measures in the major river basin management plans in the EU (Task 1b: International co-ordination mechanisms).

2. STATUS OF RIVER BASIN MANAGEMENT PLAN REPORTING AND COMPLIANCE

2.1 Adoption of River Basin Management Plans (RBMPs)

RBMPs in the Czech Republic were prepared on three levels:

A Plans – International RBMPs;

B Plans – National RBMPs;

C Plans – Sub-basin RBMPs.

As well as the National RBMPs, International RBMPs and Sub-basin RBMPs were also adopted.

International RBMPs were approved by the heads of delegations of the Danube, Elbe and Oder Commissions (Elbe, 2 October 2009; Danube, 10 December 2009; Oder, 12 March 2010). Sub-basins plans were approved by the regional authorities (at different times up to 22 December 2009).

2.2 The main strengths and shortcomings

The main strengths of the plans are as follows:

- The content and all methodologies (including those for delineation of water bodies, characterisation, impact and pressures assessment, risk assessment, setting of monitoring programmes and status assessment) for development of RBMPs were co-ordinated at the national level.
- Main national environmental objectives have been co-ordinated within the international RBMPs.
- Public consultation has been carried out for all three levels of RBMPs and relevant comments were adopted[3] in the plans.
- Most of the significant pressures were well identified.
- Methodologies for chemical status assessment of surface waters and groundwater follow CIS Guidance documents and they were clearly explained (surface waters in C Plans only).
- Physico-chemical and hydromorphological quality elements were assessed for all surface water bodies.

[3] As stated by the Czech authorities although no detailed information has been provided.

- Lists of assessment results and planned measures for each water body (surface water and groundwater) were prepared in C Plans. All planned measures have a clear link to a specific water body.

The main shortcomings of the plan are as follows:

- Different levels of plans are not well harmonized.
- No type specific reference conditions were established for biological assessment.
- Intercalibration results were not used for assessment of any biological quality element (BQE).
- Ecological potential was not defined for rivers, only for heavily modified lakes (reservoirs).
- Assessment of the ecological status was rather simplified - only BQEs for benthic invertebrates and in some cases fish and chlorophyll-a were used.
- No relationship between BQEs and physico-chemical quality elements was indicated in the RBMPs.
- Many of the measures are only general or they are planned for the next cycle of RBMP.
- There is no clearly responsible body assigned for the implementation of some measures in the RBMPs.

3. GOVERNANCE

3.1 Timeline of implementation

All RBMPs were reported to the Commission on 22 March 2010 and several of them (e.g. B Plans, surface water body files, protected areas files) re-submitted from April to December 2010.

Consultations according to Article 14 of the WFD were held as follows:

- Timetable and work programme: 30/11/2006
- Significant water management issues: 30/09/2007
- Draft River basin Management Plans: 22/12/2008

3.2 Administrative arrangements - river basin districts and competent authorities

Three different levels of plans were prepared in the Czech Republic: (i) international plans for Danube, Elbe and Oder RBDs (A Plans), co-ordinated by the respective International

River Basin Commissions, (ii) national plans for the national Danube, Elbe and Oder RBDs (B Plans), co-ordinated by the Ministry of Environment, and (iii) 8 sub-basin plans (C Plans), co-ordinated by the Czech Commission of water planning.

The Czech Republic is situated within three international river basin districts. Due to the state border geography, small parts of basin districts (Danube and Oder RBDs) are located separately from the main catchment area and in the 1st plans they were subjoined to the Elbe RBD, which resulted in preparation of eight sub-basin plans (C Plans). However, the national plans (B Plans) include all relevant parts of RBDs, including these small separate areas. The Czech Republic announced that in the 2nd cycle of RBMPs 10 sub-basin plans will be prepared.

3.3 RBMPs – Structure, completeness, legal status

The structure of all three national RBMPs (B Plans) follows the structure of the international Elbe RBMP and includes mostly a brief summary of results, whereas other information can be found in sub-basin plans (C Plans).

National RBMPs refer to the relevant international plans available at:

- Danube: www.icpdr.org/participate
- Elbe: www.ikse-mkol.org
- Oder: www.mkoo.eu

The Ministry of Environment and the Ministry of Agriculture are the competent authorities for WFD implementation. Among other government authorities participating in the process are the Ministry of Transport, Ministry of Health and other ministries, which have specific tasks in the field of water management imposed by the WFD and its related directives. Regional authorities are responsible for adoption of sub-basin plans.

The national approach in WFD implementation has been followed on the whole territory of the Czech Republic, no specific differences can be distinguished among RBDs or sub-basins.

The requirements of the WFD have been implemented into Czech legislation by the Act No. 254/2001 Col. on water and Amendments to Some Acts (Water Act) through the Amendment No. 150/2010 Col.

The national level RBMPs (B-level) are **adopted** by the Government, and the sub-basin RBMPs (C-level) are adopted by the regions.

The **legal effect** of the existing RBMPs from the first planning cycle was regulated. Both the existing national river basin management plans and the regional sub-basin management plans have been split into a binding part and a non-binding (recommending) part. The binding parts have been approved and published in the form of legislative acts. Specifically, the binding part of the national river basin management plan has been approved and issued in the form of a Governmental Regulation; the binding parts of the regional river basin management plans have been approved and issued in the form of Regulations of the regions´ councils. The binding parts of the aforementioned plans are binding on everybody.

The legal status of the next RBMPs seem to be subject to change, these will be sectoral plans which have the same rank as plans and programmes in other sectors such as transport or trade. They will not have the form of legislation. Thus, they will be subordinate to all types of applicable legislation.

Currently, RBMPs are background documents for the execution of the public administration, especially for land use planning and for water law procedures. Thus, the authorities involved in land use planning or in water law procedures have to take into account the existing RBMPs. The requirement "to take into account" means that the authorities do not have to comply with the RBMPs if they can provide a proper justification for not doing so; on the other hand the requirements of RBMP´s are expressed as binding assessments of water authorities, that have a legal effect on all affected procedures. RBMPs themselves do not create rights and obligations for individuals, but are binding for water and town and country planning authorities. Rights and obligations for individuals are created by individual decisions issued, modified or cancelled on the basis of the RBMPs.

The current RBMPs have a relationship with individual decisions. Existing RBMPs in the first planning cycle, the environmental objectives and PoMs are included in the binding parts of the RBMPs, and thus binding on everyone, including permitting authorities. RBMPs which are being prepared for the second planning cycle will not be formally binding. However, the environmental objectives adopted in them are materially binding on the authorities which have to apply the objectives as a minimum standard to new decisions. Besides that, they are required to review or cancel old decisions which are not in line with those objectives.

3.4 Consultation of the public, engagement of interested parties

The strategies to involve the public into the process of development of the RBMPs (especially on sub-basin level) were started in 2005. The public had already been involved in the preparatory phase of those strategies. Consequently, the detailed action plans for the public involvement in 2006, 2007 and 2008 were carried out with the focus on public consultations.

Within the process of developing C Plans the public was consulted in three stages: (i) announcement of the timetable; (ii) announcement of the significant water management issues (SWMIs) and (iii) announcement of proposal of the C Plans. The received comments were assessed and the changes in relevant documents were made. The comments mostly addressed the proposed measures and proposals regarding new areas of surface water accumulation. Regional workshops for public and specific groups of major water users were also organized on a regular basis.

3.5 International cooperation and coordination

The Czech Republic is a signatory of the Danube, Elbe and Oder River Protection Conventions and a Contracting Party to their international commissions. The basin-wide co-operation and transboundary RBM issues are dealt with by the bilateral commissions established with the Slovak Republic, Germany, Austria and Poland. In the process of preparing and drafting the RBMPs, the data for commonly shared water bodies were harmonised (delineation of transboundary water bodies, pressures and impacts analysis results, risks of not achieving good status, economic analysis, water management problems

and status of water bodies). The most important international environmental objectives were established at the level of respective international commissions and they were adopted in the national RBMPs.

4. CHARACTERISATION OF RIVER BASIN DISTRICTS

4.1 Water categories in the RBDs

The Czech Republic is a land-locked country so the only water categories in the basin are rivers and lakes (all lakes are heavily modified reservoirs). There are no transitional or coastal waters.

4.2 Typology of surface waters

RBD	Rivers	Lakes	Transitional	Coastal
CZ_1000	54	10	0	0
CZ_5000	35	22	0	0
CZ_6000	31	8	0	0

Table 4.2.1: *Surface water body types at RBD level*
Source: *WISE*

Surface water typology has been developed for rivers and lakes using abiotic criteria (Systems A and B). According to recent information from the Czech authorities validation with the biological data was not done because there were no reliable reference conditions available at the time of the development of the RBMP. Reference conditions were set only in some cases for rivers by expert judgement and for a limited scope.

A proposal for type-specific reference conditions was developed only after the deadline set by the Commission. The typology was re-researched during the period of development of the first RBMPs and the revision has been accepted in the new Decree No. 49 as of 21 February 2011 "O vymezení útvarů povrchových vod – On designation of surface water bodies". WFD compliant type-specific reference conditions will be used for the development of the 2nd plans.

No background document was reported or mentioned in the RBMPs except of the title of the new Decree (cf. above); the new typology was not used in the first RBMPs.

4.3 Delineation of surface water and groundwater bodies

RBD	Surface Water				Groundwater	
	Rivers		Lakes			
	Number	*Average Length (km)*	*Number*	*Average Area (sq km)*	*Number*	*Average Area (sq km)*
CZ_1000	316	16	16	3	54	436
CZ_5000	615	19	47	4	99	570
CZ_6000	138	14	8	2	20	406
Total	*1069*	*17*	*71*	*4*	*173*	*509*

Table 4.3.1: *Surface water bodies, groundwater bodies and their dimensions*
Source: *WISE*

Delineation of surface water bodies was performed for all relevant water bodies (rivers and lakes). Small water bodies (rivers with catchment area less than 10 km^2 and reservoirs with area smaller than 0.5 km^2) were not delineated separately and were considered to be a part of a water body in the catchment in which they are located. None of the natural lakes exceeds the above threshold of 0.5 km^2. All reported lakes belong either to the category of heavily modified water bodies (HMWBs) or artificial water bodies (AWBs).

4.4 Identification of significant pressures and impacts

The pressures, which could be the reason for not achieving good status or potential, are considered as 'provisionally' significant. The provisionally significant pressures are results of the risk assessment and if they are validated by (i) the final identification of a heavily modified or artificial water body (water flow regulations and hydromorphological alterations) or (ii) by status/ potential assessment results (for all other pressures), they are considered as significant. This concept was applied for all RBDs in a unified manner.

Surface waters:

Review of significant pressures on surface waters in the Czech Republic includes:

- Point sources of pollution;
- Diffuse sources of pollution;
- Abstractions and water transfers;
- Flow regulation and hydromorphological alterations;
- Other pressures.

The most frequent pressures in all RBDs (source: national Plans) were water flow regulation and hydromorphological alterations; diffuse pollution sources and point pollution sources. Abstractions were not identified as a significant pressure for any of the surface water bodies.

The following point sources of pollution were considered as provisionally significant:

- All discharges (communal, industrial, IPPC and others; treated or untreated) with a volume higher than 6000 m^3/year or 500 m^3/month.

The following **diffuse sources** of pollution were considered as provisionally significant:

- Nitrogen emission loads from agriculture and atmospheric deposition;
- Phosphorus emission load from erosion;
- Pesticides from agriculture;
- Sulphur emission load from atmospheric deposition.

The nitrogen, phosphorus and sulphur emission loads were calculated from statistical information and other[4] data in the model. Emission loads of pesticides were identified by expert judgement.

The following **abstractions** and water transfers were considered as provisionally significant:

[4] No details provided in the information reported to the Commission.

- All abstractions (agriculture, public water supply, manufacturing, electricity cooling and quarries) with a volume higher than 6 000 m^3/year or 500 m^3/month;

- Water transfers (by expert judgement[5]).

The following **water flow regulations** and **hydromorphological alterations** were considered as provisionally significant:

- Reservoirs with capacity higher than 1000000 m^3 or other significant reservoirs (by expert judgement);

- Barriers (dams, weirs and others) higher than 1 m;

- Locks, flood defence dams and diversions (numerical tool and expert judgement);

- Physical alterations of channels (numerical tool and expert judgement).

The following other pressures were considered as provisionally significant:

- Thermal conduits, navigations, engineering activities, dredging and others (not specified).

Groundwater:

Review of significant pressures on groundwater in the Czech Republic includes:

- Point sources of pollution;

- Diffuse sources of pollution;

- Abstractions;

- Other pressures (mostly mining).

The most frequent pressures in all RBDs (source: national B Plans) were diffuse pollution sources and point pollution sources. Abstractions were identified as a significant pressure for 26% of groundwater bodies in the Danube and 21% in the Elbe and only 5% in the Oder RBD.

The following **point sources** of pollution were considered as provisionally significant:

- Old contaminated sites with concentrations of hazardous substances above the limit value;

- Discharges to groundwater (based on expert judgement).

The following **diffuse sources** of pollution were considered as provisionally significant:

[5] No details provided in the information reported to the Commission.

- Nitrogen emission loads from agriculture and atmospheric deposition;
- Pesticides from agriculture;
- Sulphur emission loads from atmospheric deposition;
- Emission loads from urban and industrial areas.

The nitrogen and sulphur emission loads were calculated from statistical and other data in the model. Emission loads of pesticides and emission loads from urban and industrial areas were identified by expert judgement.

The following abstractions were considered as provisionally significant:

- All abstractions (agriculture, public water supply, manufacturing, electricity cooling and quarries) with a volume higher than 6000 m^3/year or 500 m^3/month.

The following other pressures were considered as provisionally significant:

- Former and existing mining (based on expert judgement).

Industrial emissions (energy, metal industry, food processing industry and chemical industry) were identified in the RBMPs as the main contributing sectors to the **chemical pollution** by priority and hazardous substances in surface waters.

RBD	No pressures		Point source		Diffuse source		Water abstraction		Water flow regulations and morphological alterations		River management		Transitional and coastal water management		Other morphological alterations		Other pressures	
	No.	**%**	**No.**	**%**	**No.**	**%**	**No.**	**%**	**No.**	**%**	**No.**	**%**	**No.**	**%**	**No.**	**%**	**No.**	**%**
CZ_1000	17	5.12	152	45.78	198	59.64	0	0	255	76.81	72	21.69	0	0	0	0	40	12.05
CZ_5000	34	5.14	295	44.56	331	50	0	0	409	61.78	139	21	0	0	0	0	116	17.52
CZ_6000	8	5.48	58	39.73	55	37.67	0	0	102	69.86	23	15.75	0	0	0	0	26	17.81
Total	*59*	*5.18*	*505*	*44.3*	*584*	*51.23*	*0*	*0*	*766*	*67.19*	*234*	*20.53*	*0*	*0*	*0*	*0*	*182*	*15.96*

Table 4.4.1: *Number and percentage of surface water bodies affected by significant pressures*
Source: *WISE*

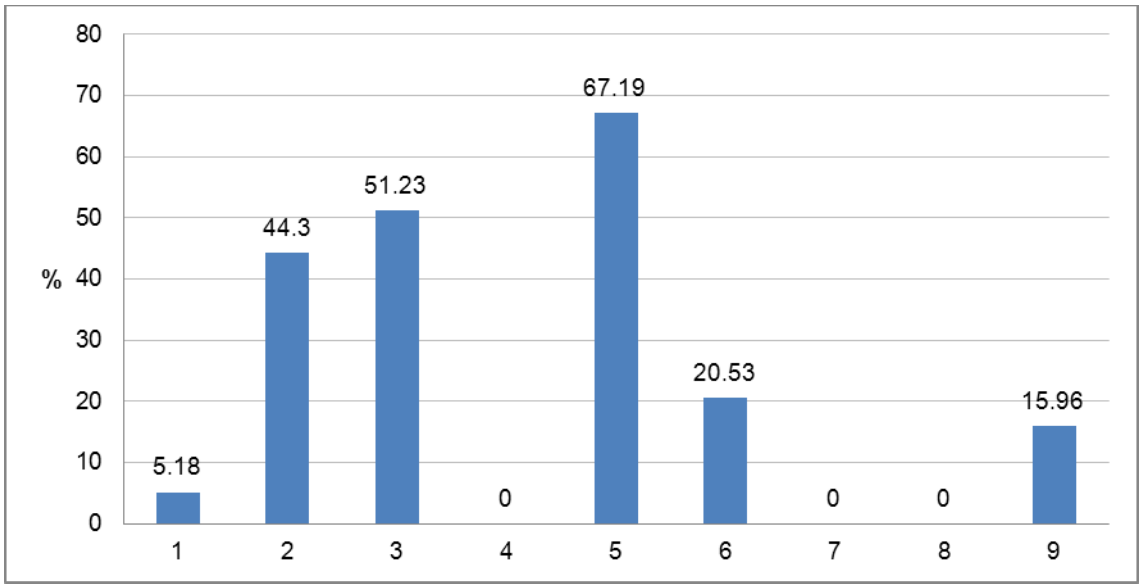

Figure 4.4.1: *Graph of percentage of surface water bodies affected by significant pressures*
1 = No pressures
2 = Point source pollution
3 = Diffuse source pollution
4 = Water abstraction
5 = Water flow regulations and morphological alterations
6 = River management
7 = Transitional and coastal water management
8 = Other morphological alterations
9 = Other pressures
Source: *WISE*

4.5 Protected areas

The following protected areas were addressed in the RBMPs:

- Drinking Water Protected Areas;
- Bathing water areas (Directive 76/160/EEC);
- Sensitive areas and vulnerable zones;
- Natura 2000 sites designated under Directive 92/43/EEC (Habitats) and Directive 79/409/EEC (Birds);
- National protected areas: small area protected areas (not including in Natura 2000 sites) and sites from Freshwater Fish Directive.

RBD	Number of PAs										
	Article 7 Abstraction for drinking water	Bathing	Birds	European Other	Fish	Habitats	Local	National	Nitrates	Shellfish	UWWT
CZ_1000	591	40	7			132		210	1487		
CZ_5000	1878	114	7			269		481	4375		
CZ_6000	204	34	1			38		55	178		
Total	*2673*	*188*	*15*			*439*		*746*	*6040*		

Table 4.5.1: *Number of protected areas of all types in each RBD and for the whole country, for surface and groundwater*[6]
Source: *WISE*

[6] This information corresponds to the reporting of protected areas under the WFD. More/other information may have been reported under the obligations of other Directives.

5. MONITORING

5.1 General description of the monitoring network

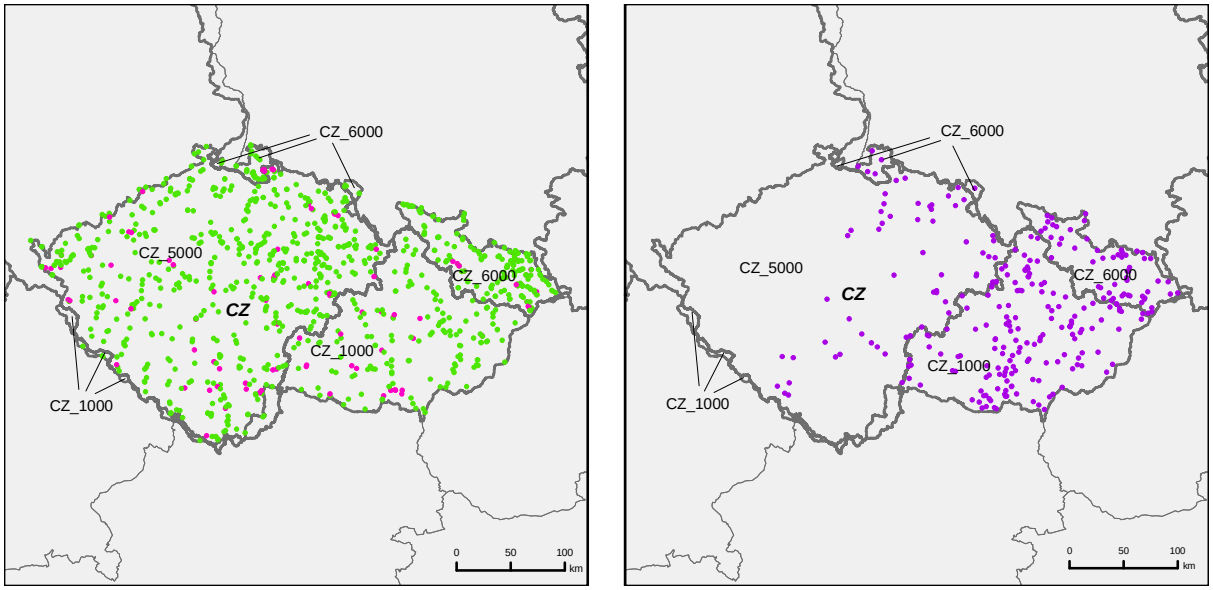

Figure 5.1.1: *Maps of surface water (left) and groundwater (right) monitoring stations*

- *River monitoring stations*
- *Lake monitoring stations*
- *Transitional water monitoring stations*
- *Coastal water monitoring stations*
- *Unclassified surface water monitoring stations*
- *Groundwater monitoring stations*
- *River Basin Districts*
- *Countries outside EU*

Source: *WISE, Eurostat (country borders)*

The information about monitoring networks and programmes in the national RBMPs was based on Article 8 reporting from 2007. Only the list of monitored priority hazardous substances, river basin specific pollutants and assessment referring to a rather limited use of biological monitoring data were updated in the plans.

RBD	Rivers											Lakes										
	QE1.1 Phytoplankton	QE1.2 Other aquatic flora	QE1.2.3 Macrophytes	QE1.2.4 Phytobenthos	QE1.3 Benthic invertebrates	QE1.4 Fish	QE1.5 Other species	QE2 Hydromorphological QEs	QE3.1 General Parameters	QE3.3 on priority specific pollutants	QE3.4 Other national pollutants	QE1.1 Phytoplankton	QE1.2 Other aquatic flora	QE1.2.3 Macrophytes	QE1.2.4 Phytobenthos	QE1.3 Benthic invertebrates	QE1.4 Fish	QE1.5 Other species	QE2 Hydromorphological QEs	QE3.1 General Parameters	QE3.3 Non priority specific pollutants	QE3.4 Other national pollutants
CZ_1000																						
CZ_5000																						
CZ_6000																						

Table 5.1.1: *Quality elements monitored*

	QE Monitored
	QE Not monitored
-	*Not Relevant*

Source: *WISE*

RBD	Rivers		Lakes		Groundwater		
	Surv	Op	Surv	Op	Surv	Op	Quant
CZ_1000	32	137	6	22	104	104	156
CZ_5000	67	528	16	41	38	38	49
CZ_6000	12	170	5	13	25	25	63
Total by type of site	*111*	*835*	*27*	*76*	*167*	*167*	*268*
Total number of monitoring sites[7]	*885*		*76*		*275*		

Table 5.1.2: *Number of monitoring sites by water category*
Note: Surv = Surveillance, Op = Operational, Quant = Quantitative
Source: *WISE*

5.2 Monitoring of surface waters

The design of monitoring programmes was carried out in accordance with WFD Article 8 on programmes for monitoring of water status.

The same design approach, methodologies and standards have been applied in all three RBDs.

Specific monitoring programmes for operational, surveillance and investigative monitoring have been set up. These monitoring programmes are based on the WFD objectives as well as on those in the national Water Law.

Surveillance and operational monitoring schemes have two specific sub-programmes – one for rivers and one for lakes (reservoirs). A priority in site selection for both types of sub-programmes is given to the existing monitoring network. The design of surveillance monitoring includes those sites which are meeting at least one of the criteria for selection of monitoring sites required by the WFD. Operational monitoring is a multi-purpose programme addressing the requirements of the WFD, those of the Czech national Water Law and also the international commitments of the Czech Republic towards the international river basin commissions.

All relevant quality elements (QEs) were being monitored within the surveillance monitoring of surface waters. Hydromorphological QEs included barriers, hydrological regime and morphology. The operational monitoring programme included monitoring of protected areas. There was no information given in the RBMPs on how the BQEs have been selected for the operational monitoring and whether they had been selected based on certain pressures.

All priority substances and a long list of other specific pollutants were being monitored, however, the description of the process of their selection is not available[8]. Sediment and biota were monitored only within the surveillance monitoring network and international monitoring

[7] The total number of monitoring sites may differ from the sum of monitoring sites by type because some sites are used for more than one purpose.

[8] This information has been pointed by the national authorities after the reporting.

network[9]. The data have been systematically observed only since 2007 and, therefore, they could not be used for the water quality trends assessment in the sub-basin plans.

The methodology for grouping of the water bodies for monitoring has not been developed. Instead of grouping of water bodies, an indirect assessment (based on pressure data) was used in cases when monitoring data were not available.

According to the International Danube River Basin District Management Plan there is an international monitoring network for rivers in place (ICPDR TNMN). Two monitoring sites in the Czech Republic are part of the programme[10].

The international monitoring programme for the Elbe RBD was established for seven monitoring sites in the Czech Republic and two monitoring sites are part of the international monitoring programme for the Oder RBD[11].

No link was provided to background documents or detailed additional information.

5.3 Monitoring of groundwater

The groundwater monitoring network includes both chemical and quantitative monitoring. In 2007 there were 451 sites used for groundwater chemical monitoring and 671 sites for groundwater quantitative monitoring (both surveillance and operational). Surveillance and operational monitoring sites are identical and monitor the same range of parameters. It is not clear if the monitoring network can detect all existing pressures. This is especially the case for point sources of pollution.

The monitoring programme is reported to be able to detect significant and sustained upward trends in pollutants caused by anthropogenic activities.

The international monitoring programmes for the Elbe and Oder RBDs are focused on harmonisation of common monitored pollutants and limits of quantification. In the Danube RBD, as with surface waters, there is an international monitoring network for groundwater in place under the ICPDR.

The monitoring network has been changed during the last few years (new monitoring sites were established), however, no specific information was provided in the plans.

No link was provided to background documents or detailed additional information.

5.4 Monitoring of protected areas

Information was provided on drinking water protected areas.

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[9] This information has been pointed by the national authorities after the reporting.

[10] No details on parameters monitored or how is complemented with national monitoring are provided.

[11] No details on parameters monitored or how is complemented with national monitoring are provided.

Monitoring of drinking water protected areas is carried out in line with the Decree 428/2001 by the public water supply management companies. Some of these sites were included in the groundwater chemical monitoring network in 2008.

No data was reported to WISE on the number of monitoring sites in protected areas.

6. OVERVIEW OF STATUS (ECOLOGICAL, CHEMICAL, GROUNDWATER)

RBD	Total	High		Good		Moderate		Poor		Bad		Unknown	
		No.	(%)	No.	(%)	No.	(%)	No.	(%)	No.	(%)	No.	(%)
CZ_1000	212	0	0	37	17.5	76	35.8	99	46.7	0	0	0	0
CZ_5000	561	0	0	83	14.8	60	10.7	418	74.5	0	0	0	0
CZ_6000	113	0	0	55	48.7	13	11.5	43	38.1	0	0	2	1.8
Total	*886*	*0*	*0*	*175*	*19.8*	*149*	*16.8*	*560*	*63.2*	*0*	*0*	*2*	*0.2*

Table 6.1: *Ecological status of natural surface water bodies.*
Source: *WISE*

RBD	Total	High		Good		Moderate		Poor		Bad		Unknown	
		No.	(%)	No.	(%)	No.	(%)	No.	(%)	No.	(%)	No.	(%)
CZ_1000	115	0	0	4	3.5	5	4.3	106	92.2	0	0	0	0
CZ_5000	101	0	0	8	7.9	0	0	89	88.1	0	0	4	4.0
CZ_6000	33	0	0	6	18.2	1	3.0	26	78.8	0	0	0	0
Total	*249*	*0*	*0*	*18*	*7.2*	*6*	*2.4*	*221*	*88.8*	*0*	*0*	*4*	*1.6*

Table 6.2: *Ecological potential of artificial and heavily modified water bodies.*
Source: *WISE*

RBD	Total	High		Good		Moderate		Poor		Bad		Unknown	
		No.	(%)	No.	(%)	No.	(%)	No.	(%)	No.	(%)	No.	(%)
CZ_1000	5	0	0	0	0	0	0	0	0	0	0	5	100
Total	*5*	*0*	*0*	*0*	*0*	*0*	*0*	*0*	*0*	*0*	*0*	*5*	*100*

Table 6.3: *Ecological status of surface water bodies not specified as being natural, heavily modified ot artificial*
Source: *WISE*

RBD	Total	Good		Poor		Unknown	
		No.	%	No.	%	No.	%
CZ_1000	212	148	69.8	64	30.2	0	0
CZ_5000	561	405	72.2	156	27.8	0	0
CZ_6000	113	84	74.3	27	23.9	2	1.8
Total	*886*	*637*	*71.9*	*247*	*27.9*	*2*	*0.2*

Table 6.4: *Chemical status of natural surface water bodies*
Source: *WISE*

RBD	Total	Good		Poor		Unknown	
		No.	%	No.	%	No.	%
CZ_1000	115	77	67.0	38	33.0	0	0
CZ_5000	101	70	69.3	31	30.7	0	0
CZ_6000	33	19	57.6	14	42.4	0	0
Total	*249*	*166*	*66.7*	*83*	*33.3*	*0*	*0*

Table 6.5: *Chemical status of artificial and heavily modified water bodies*
Source: *WISE*

RBD	Total	Good		Poor		Unknown	
		No.	%	No.	%	No.	%
CZ_1000	54	10	18.5	44	81.5	0	0
CZ_5000	99	21	21.2	78	78.8	0	0
CZ_6000	20	6	30.0	14	70.0	0	0
Total	*173*	*37*	*21.4*	*136*	*78.6*	*0*	*0*

Table 6.6: *Chemical status of groundwater bodies*
Source: *WISE*

RBD	Total	Good		Poor		Unknown	
		No.	%	No.	%	No.	%
CZ_1000	54	39	72.2	15	27.8	0	0
CZ_5000	99	57	57.6	42	42.4	0	0
CZ_6000	20	16	80	4	20	0	0
Total	*173*	*112*	*64.7*	*61*	*35.3*	*0*	*0*

Table 6.7: *Quantitative status of groundwater bodies*
Source: *WISE*

RBD	Total	Global status (ecological and chemical)					Good ecological status 2021		Good chemical status 2021		Good ecological status 2027		Good chemical status 2027		Global exemptions 2009 (% of all SWBs)			
		Good or better 2009		Good or better 2015		Increase 2009 - 2015									Art 4.4	Art 4.5	Art 4.6	Art 4.7
		No.	%	No.	%	%	No.	%	No.	%	No.	%	No.	%	%	%	%	%
CZ_1000	332	28	8.4	28	8.4	0									90	0	0	0
CZ_5000	662	74	11.2	79	11.9	0.7									88	0	0	0
CZ_6000	146	54	37.0	54	37.0	0									62	0	0	0
Total	*1140*	*156*	*13.7*	*161*	*14.1*	*0.4*									*65*	*0*	*0*	*0*

Table 6.8: *Surface water bodies: overview of status in 2009 and expected status in 2015, 2021 and 2027*[12]
Waterbodies with good status in 2009 fall into the following category:
1. Ecological status is high or good and the chemical status is good, exemptions are not considered
Waterbodies expected to achieve good status in 2015 fall into the following categories:
1. Ecological status is high or good and the chemical status is good, exemptions are not considered
2. Chemical status is good, and the ecological status is moderate or below but no ecological exemptions
3. Ecological status is high or good, and the chemical status is failing to achieve good but there are no chemical exemptions
4. Ecological status is moderate or below, and chemical status is failing to achieve good but there are no ecological nor chemical exemptions
Note: Waterbodies with unknown/unclassified/Not applicable in either ecological or chemical status are not considered
Source: *WISE (for data on status in 2009, 2015 and exemptions) and RBMPs (for data on status in 2021 and 2027)*

[12] Data for 2009 and 2015 extracted from WISE. Data for 2021 and 2027 established during the compliance assessment of the RBMPs.

RBD	Total	Ecological status					Good ecological status 2021		Good ecological status 2027		Ecological exemptions (% of all SWBs)			
		Good or better 2009		Good or better 2015		Increase 2009 - 2015					Art 4.4	Art 4.5	Art 4.6	Art 4.7
		No.	%	No.	%	%	No.	%	No.	%	%	%	%	%
CZ_1000	212	37	17.5	37	17.5	0					88.7	0	0	0
CZ_5000	561	83	14.8	88	15.7	0.9					86.5	0	0	0
CZ_6000	113	55	48.7	5	48.7	0					55.8	0	0	0
Total	*886*	*175*	*19.8*	*180*	*20.3*	*0.5*					*83.1*	*0*	*0*	*0*

Table 6.9: *Natural surface water bodies: ecological status in 2009 and expected status in 2015, 2021 and 2027*[13]
Source: *WISE (for data on status in 2009, 2015 and exemptions) and RBMPs (for data on status in 2021 and 2027)*

RBD	Total	Chemical status					Good chemical status 2021		Good chemical status 2027		Chemical exemptions (% of all SWBs)			
		Good or better 2009		Good or better 2015		Increase 2009 - 2015					Art 4.4	Art 4.5	Art 4.6	Art 4.7
		No.	%	No.	%	%	No.	%	No.	%	%	%	%	%
CZ_1000	212	148	69.8	148	69.8	0					30.2	0	0	0
CZ_5000	561	405	72.2	405	72.2	0					27.8	0	0	0
CZ_6000	113	84	74.3	84	74.3	0					23.9	0	0	0
Total	*886*	*637*	*71.2*	*637*	*71.2*	*0*					*27.9*	*0*	*0*	*0*

Table 6.10: *Natural surface water bodies: chemical status in 2009 and expected status in 2015, 2021 and 2027*[14]
Source: *WISE (for data on status in 2009, 2015 and exemptions) and RBMPs (for data on status in 2021 and 2027)*

[13] Data for 2009 and 2015 extracted from WISE. Data for 2021 and 2027 established during the compliance assessment of the RBMPs.

[14] Data for 2009 and 2015 extracted from WISE. Data for 2021 and 2027 established during the compliance assessment of the RBMPs.

RBD	Total	GW chemical status					Good chemical status 2021		Good chemical status 2027		GW chemical exemptions (% of all GWBs)			
		Good or better 2009		Good or better 2015		Increase 2009 - 2015					Art 4.4	Art 4.5	Art 4.6	Art 4.7
		No.	%	No.	%	%	No.	%	No.	%	%	%	%	%
CZ_1000	54	10	18.5	17	31.5	13.0					69	0	0	0
CZ_5000	99	21	21.2	27	27.3	6.1					74	0	0	0
CZ_6000	20	6	30.0	7	35.0	5.0					65	0	0	0
Total	*173*	*37*	*21.4*	*51*	*29.5*	*8.1*					*71*	*0*	*0*	*0*

Table 6.11: *Groundwater bodies: chemical status in 2009 and expected status in 2015, 2021 and 2027*[15]
Source: *WISE (for data on status in 2009, 2015 and exemptions) and RBMPs (for data on status in 2021 and 2027)*

RBD	Total	Groundwater quantitative status					Good quantitative status 2021		Good quantitative status 2027		GW quantitative exemptions (% of all GWBs)			
		Good or better 2009		Good or better 2015		Increase 2009 - 2015					Art 4.4	Art 4.5	Art 4.6	Art 4.7
		No.	%	No.	%	%	No.	%	No.	%	%	%	%	%
CZ_1000	54	39	72.2	39	72.2	0					28	0	0	0
CZ_5000	99	57	57.6	59	59.6	2.0					40	0	0	0
CZ_6000	20	16	80.0	16	80.0	0					20	0	0	0
Total	*173*	*112*	*64.7*	*114*	*65.9*	*1.2*					*34*	*0*	*0*	*0*

Table 6.12: *Groundwater bodies: quantitative status in 2009 and expected status in 2015, 2021 and 2027*[16]
Source: *WISE (for data on status in 2009, 2015 and exemptions) and RBMPs (for data on status in 2021 and 2027)*

[15] Data for 2009 and 2015 extracted from WISE. Data for 2021 and 2027 established during the compliance assessment of the RBMPs.

[16] Data for 2009 and 2015 extracted from WISE. Data for 2021 and 2027 established during the compliance assessment of the RBMPs.

RBD	Total HMWB and AWB	Ecological potential					Good ecological potential 2021		Good ecological potential 2027		Ecological exemptions (% of all HMWB/AWB)			
		Good or better 2009		Good or better 2015		Increase 2009 - 2015					Art 4.4	Art 4.5	Art 4.6	Art 4.7
		No.	%	No.	%	%	No.	%	No.	%	%	%	%	%
CZ_1000	115	4	3.5	4	3.5	0					96.5	0	0	0
CZ_5000	101	8	7.9	8	7.9	0					94.1	0	0	0
CZ_6000	33	6	18.2	6	18.2	0					81.8	0	0	0
Total	*249*	*18*	*7.2*	*18*	*7.2*	*0*					*93.4*	*0*	*0*	*0*

Table 6.13: *Heavily modified and artificial water bodies: ecological potential in 2009 and expected ecological potential in 2015, 2021 and 2027*[17]
Source: *WISE (for data on status in 2009, 2015 and exemptions) and RBMPs (for data on status in 2021 and 2027)*

RBD	Total HMWB and AWB	Chemical status					Good chemical status 2021		Good chemical status 2027		Chemical exemptions (% of all HMWB/AWB)			
		Good or better 2009		Good or better 2015		Increase 2009 - 2015					Art 4.4	Art 4.5	Art 4.6	Art 4.7
		No.	%	No.	%	%	No.	%	No.	%	%	%	%	%
CZ_1000	115	77	67.0	77	67.0	0					33.0	0	0	0
CZ_5000	101	70	69.3	70	69.3	0					33.7	0	0	0
CZ_6000	33	19	57.6	19	57.6	0					42.4	0	0	0
Total	*249*	*166*	*66.7*	*166*	*66.7*	*0*					*33.3*	*0*	*0*	*0*

Table 6.14: *Heavily modified and artificial water bodies: chemical status in 2009 and expected status in 2015, 2021 and 2027*[18]
Source: *WISE (for data on status in 2009, 2015 and exemptions) and RBMPs (for data on status in 2021 and 2027)*

[17] Data for 2009 and 2015 extracted from WISE. Data for 2021 and 2027 established during the compliance assessment of the RBMPs.

[18] Data for 2009 and 2015 extracted from WISE. Data for 2021 and 2027 established during the compliance assessment of the RBMPs.

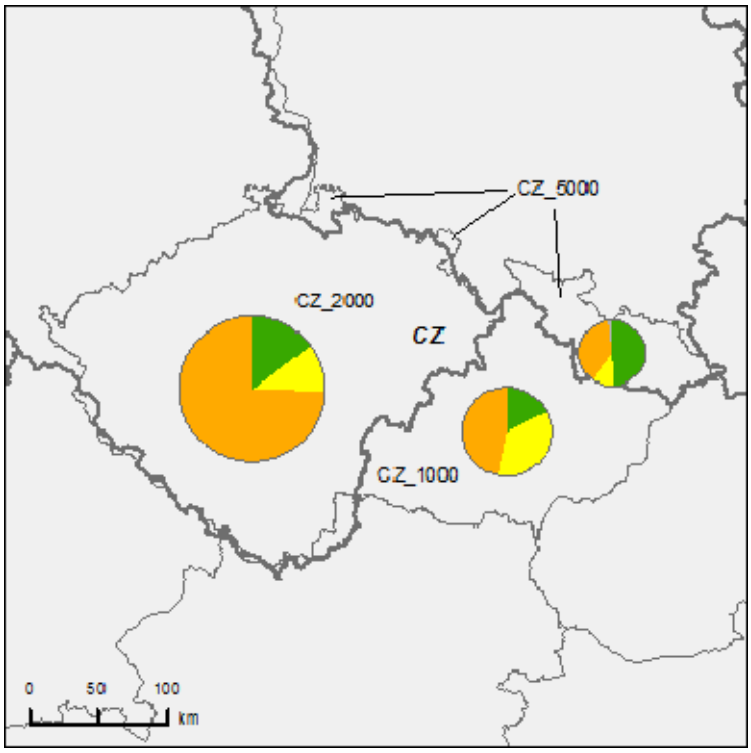


Figure 6.1: *Map of ecological status of natural surface water bodies 2009*

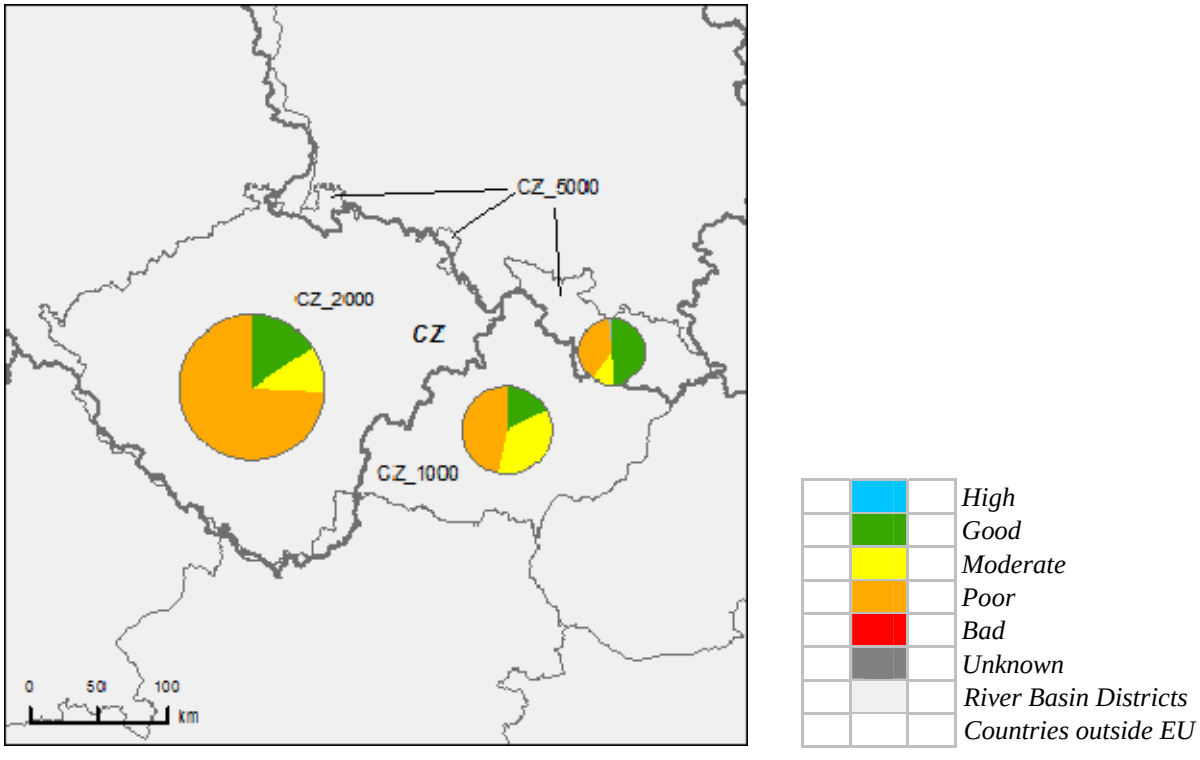


Figure 6.2: *Map of ecological status of natural surface water bodies 2015*
Note: Standard colours based on WFD Annex V, Article 1.4.2(i).
Source: *WISE, Eurostat (country borders)*

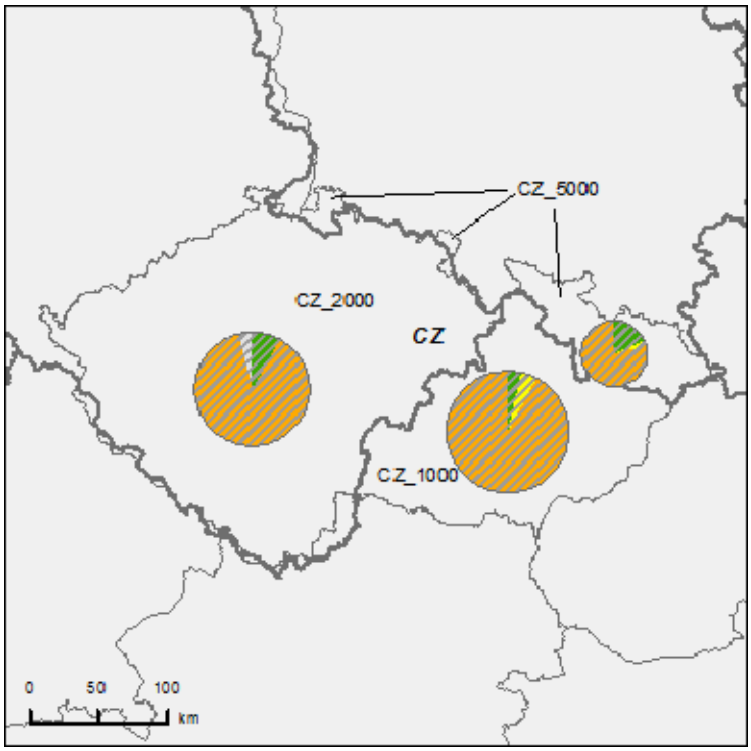


Figure 6.3: *Map of ecological potential of artificial and heavily modified water bodies 2009*

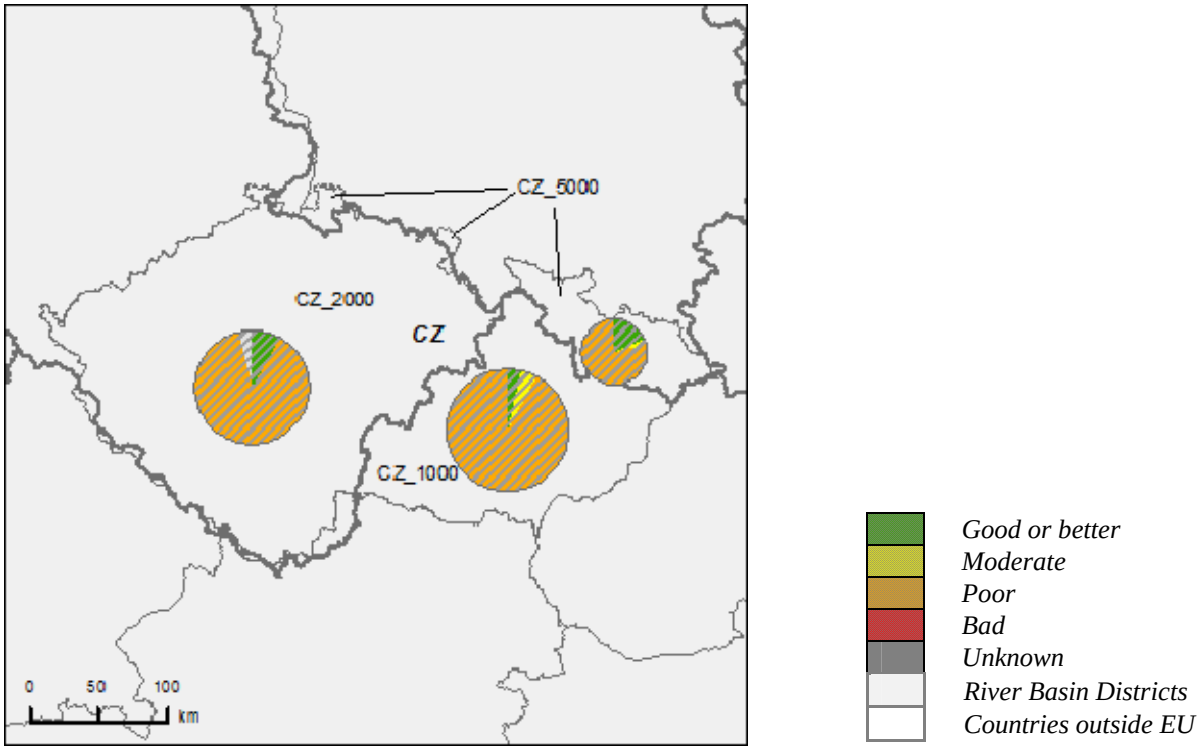


Figure 6.4: *Map of ecological potential of artificial and heavily modified water bodies 2015*
Note: Standard colours based on WFD Annex V, Article 1.4.2(ii).
Source: *WISE, Eurostat (country borders)*

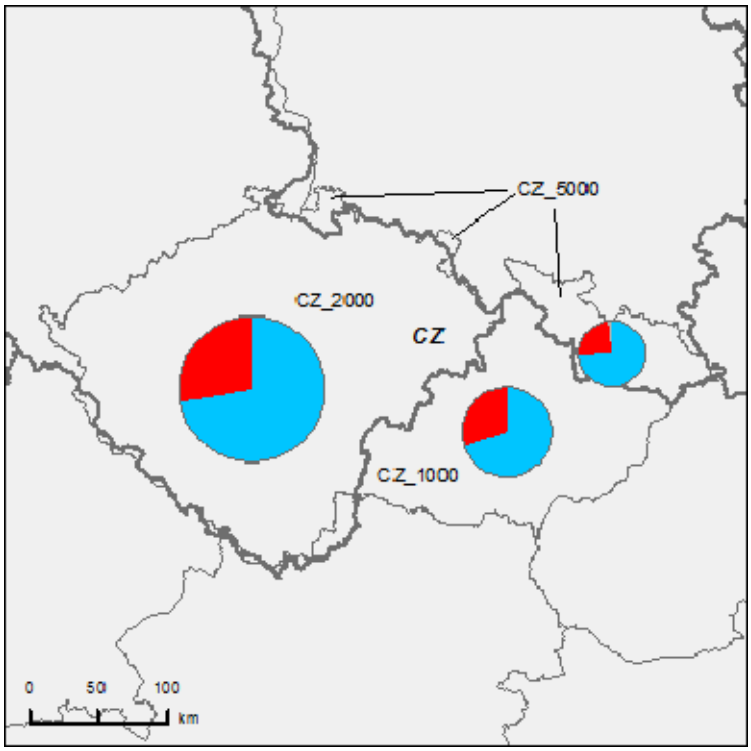


Figure 6.5: *Map of chemical status of natural surface water bodies 2009*

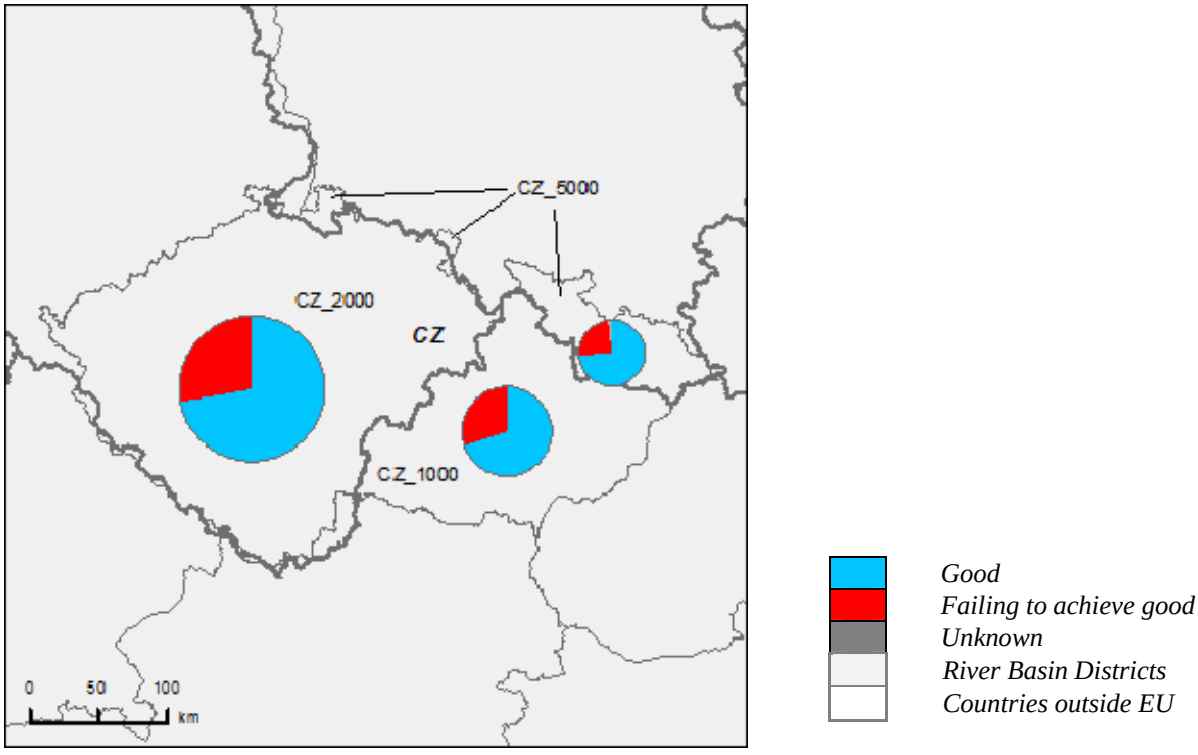


Figure 6.6: *Map of chemical status of natural surface water bodies 2015*
Note: Standard colours based on WFD Annex V, Article 1.4.3.
Source: *WISE, Eurostat (country borders)*

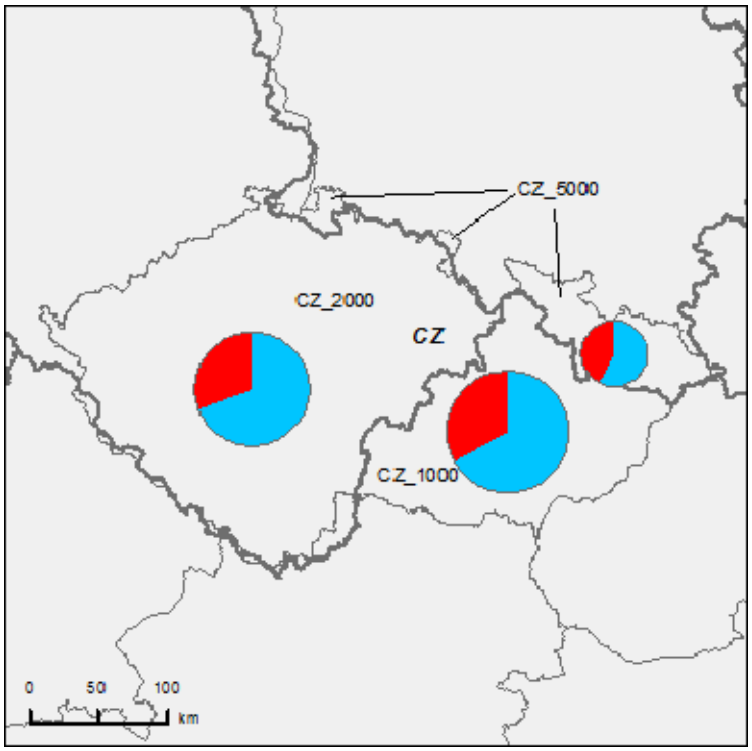


Figure 6.7: *Map of chemical status of artificial and heavily modified water bodies 2009*

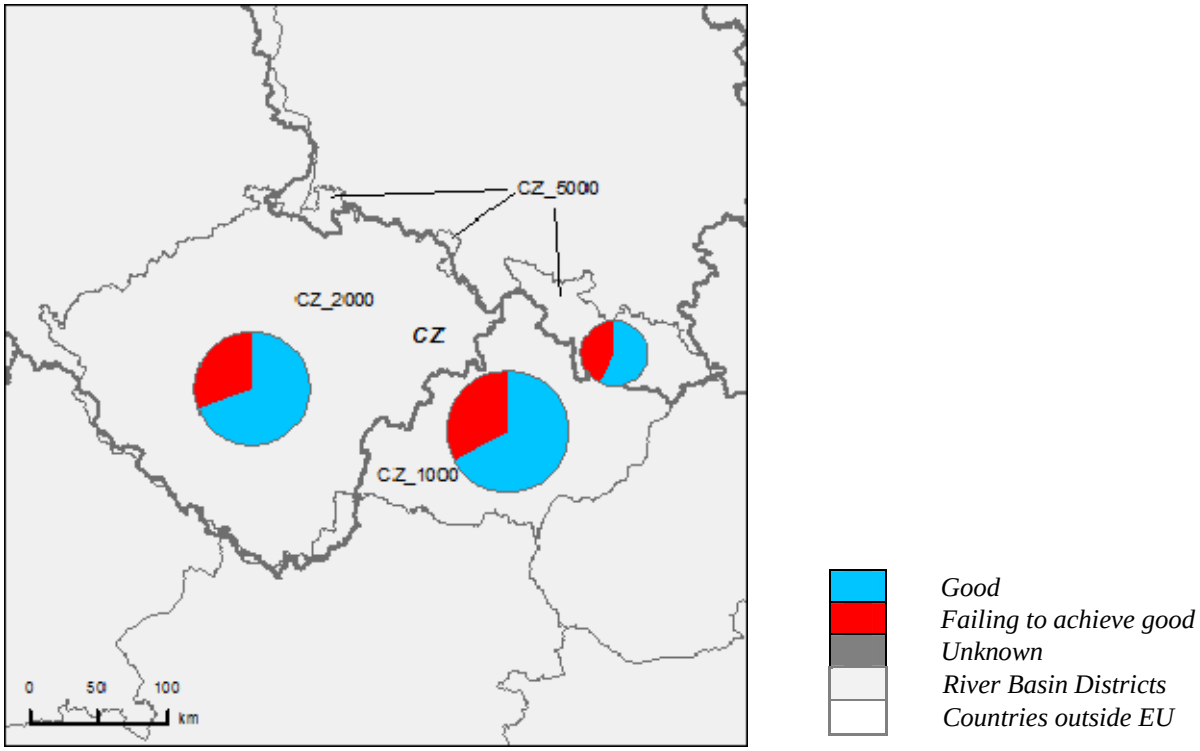


Figure 6.8: *Map of chemical status of artificial and heavily modified water bodies 2015*
Note: Standard colours based on WFD Annex V, Article 1.4.3.
Source: *WISE, Eurostat (country borders)*

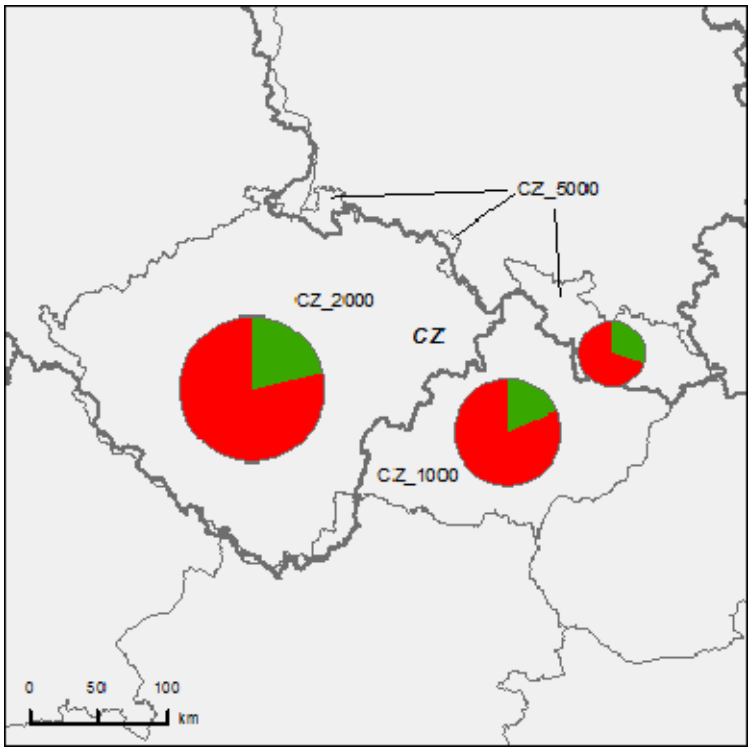


Figure 6.9: *Map of chemical status of groundwater bodies 2009*

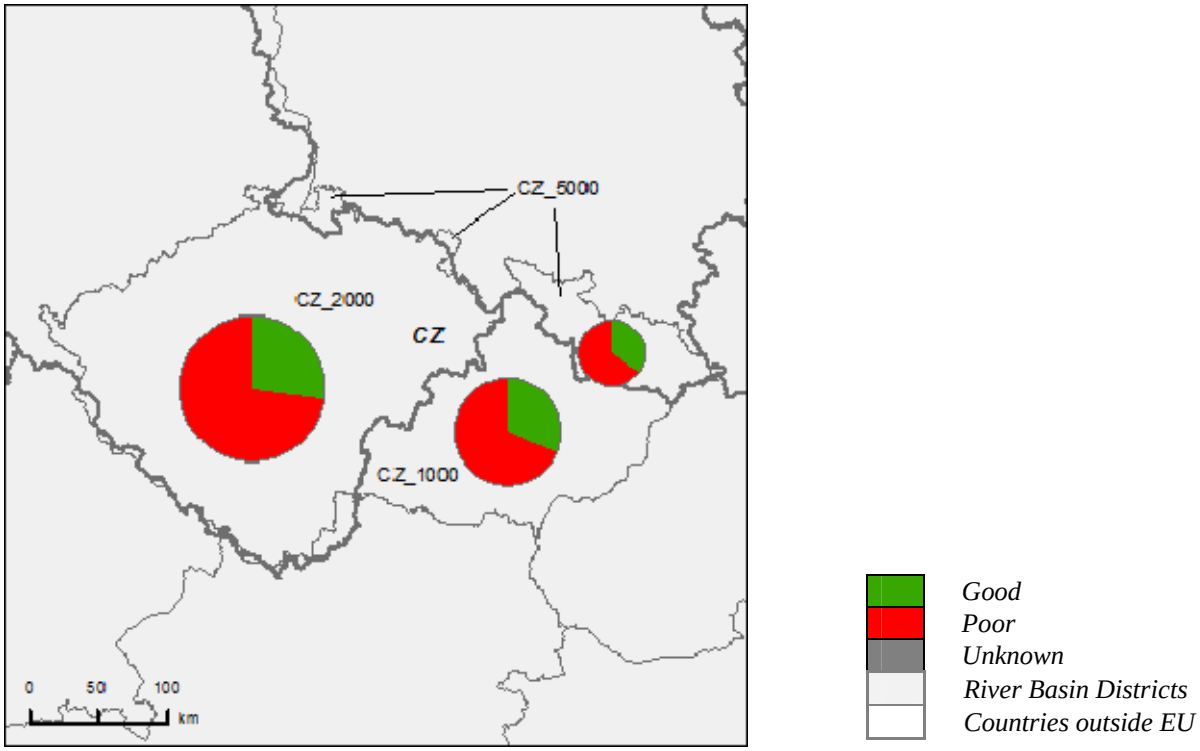


Figure 6.10: *Map of chemical status of groundwater bodies 2015*
Note: Standard colours based on WFD Annex V, Article 2.4.5.
Source: *WISE, Eurostat (country borders)*

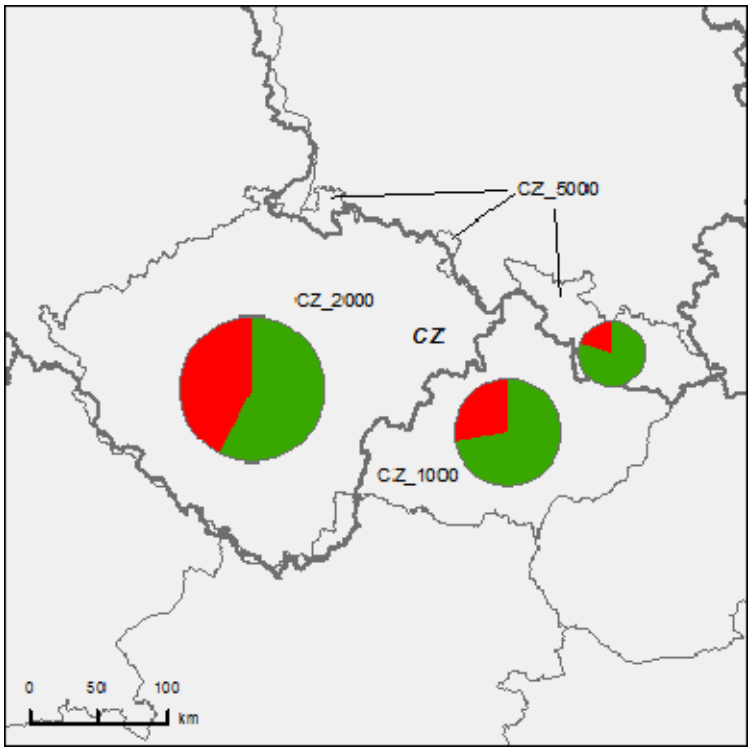
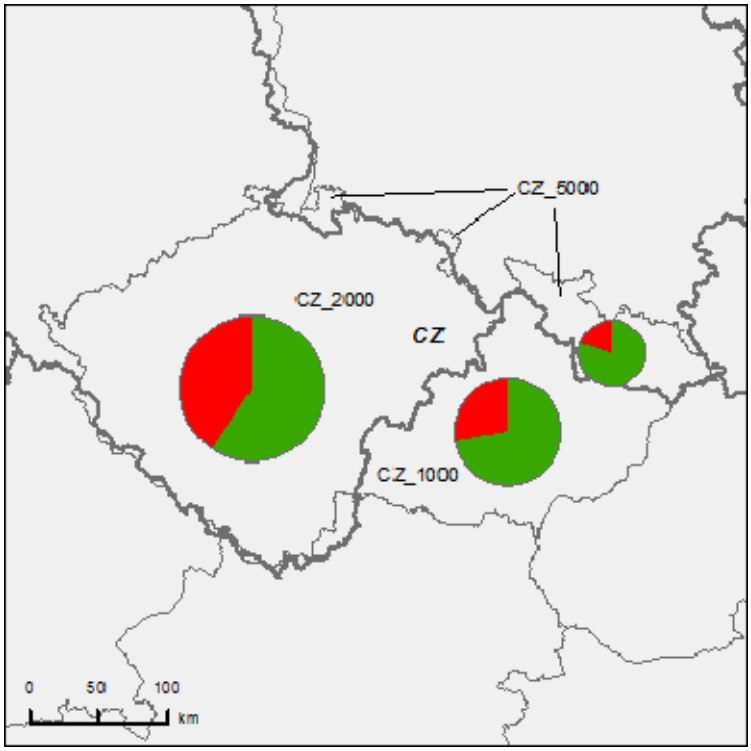


Figure 6.11: *Map of quantitative status of groundwater bodies 2009*



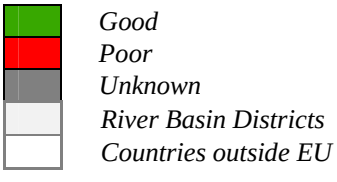


Figure 6.12: *Map of quantitative status of groundwater bodies 2015*
Note: Standard colours based on WFD Annex V, Article 2.2.4.
Source: *WISE, Eurostat (country borders)*

7. ASSESSMENT OF ECOLOGICAL STATUS OF SURFACE WATERS

7.1 Ecological status assessment methods

There is a national approach in the Czech Republic to the ecological status assessment, which was identically applied for all three RBDs. CIS Guidance No. 13 on Classification of Ecological Status was applied for assessing the ecological status.

Biological assessment methods were not developed for the 1st cycle of plans. However, according to the 2009 WFD implementation report the assessment methods for classification of ecological status were fully developed for all BQEs. However, the Czech authorities explained that this was a misunderstanding - the submitted methodologies refer to the sampling procedure including analysis but not to assessment methods for classification of the ecological status. A simplified, non WFD compliant method of assessment of ecological status[19] (e.g. use of the saprobic index instead of benthic invertebrates assessment or chlorophyll-a instead of phytoplankton assessment) was used in the first planning cycle. An implementation of the WFD compliant methodologies is expected in the second planning period based[20] on the new accepted Decree No. 24/2011 Col. "O plánech povodí a plánech pro zvládání povodňových rizik - River Basin Management Planning and Flood Risk Management". This new methodology is now in its final approval[21] stage.

Standards for all requested physico-chemical quality elements and hydromorphological QEs have been set in accordance with the procedure described in WFD. Because the benthic invertebrate methods for biological assessment were missing and fish monitoring results were available for around 1/10 of water bodies, the assessments of general physico-chemical QEs were used instead of benthic invertebrate results and hydromorphological QEs substituted for missing fish monitoring results.

The EQSs have been established for specific pollutants with regards to their eco-toxicity and were based on scientific research results. The data sources were research databases (Water Research Institute T.G.M. Prague and Czech Hydrometeorological Institute).

The one-out-all-out principle has been applied to derive the overall ecological status.

The required reliability of the above methodologies was not evaluated during their preparation and therefore it was only estimated for the reporting.

Intercalibration results were not used for the ecological status assessment.

Classification systems were type specific and covered all types of general physico-chemical quality elements.

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[19] This information has been provided by the national authorities after the reporting.

[20] This information has been provided by the national authorities after the reporting.

[21] This information has been provided by the national authorities after the reporting.

The methodological document was provided by the Czech Republic later.

7.2 Application of methods and ecological status results

Most of the existing methods for physico-chemical and hydromorphological quality elements were used in the ecological status assessment. It is not clear if the methods dealing with the hydrological regime were applied (information is missing). Although the methodology document includes more than 100 specific river basin pollutants, only nitrobenzene was mentioned in the national RBMPs as a specific pollutant responsible for failure of achieving good ecological status for 11 surface water bodies (approximately 1%).

Development and use of physico-chemical and hydromorphological quality elements for ecological status assessment for natural rivers were WFD compliant (no other natural water categories are relevant in the Czech Republic – all lakes are heavily modified reservoirs). Due to missing reference conditions, the biological elements methods used were not WFD compliant and missing biological elements results were substituted by physico-chemical and hydromorphological quality elements results in most water bodies.

RBD	Rivers							Lakes							Transitional							Coastal					
	Phytoplankton	Macrophytes	Phytobenthos	Benthic invertebrates	Fish	Physico-Chemical	Hydromorphological	Phytoplankton	Macrophytes	Phytobenthos	Benthic invertebrates	Fish	Physico-Chemical	Hydromorphological	Phytoplankton	Macroalgae	Angiosperms	Benthic invertebrates	Fish	Physico-Chemical	Hydromorphological	Phytoplankton	Macroalgae	Angiosperms	Benthic invertebrates	Physico-Chemical	Hydromorphological
CZ_1000															-	-	-	-	-	-	-	-	-	-	-	-	-
CZ_5000															-	-	-	-	-	-	-	-	-	-	-	-	-
CZ_6000															-	-	-	-	-	-	-	-	-	-	-	-	-

Table 7.2.1: *Availability of biological assessment methods*

Assessment methods fully developed for all BQEs

Assessment methods partially developed or under development for all or some BQEs

Assessment methods not developed for BQEs, no information provided on the assessment methods, unclear information provided

\- *Water category not relevant*

Source: *RBMPs*

8. DESIGNATION OF HEAVILY MODIFIED WATER BODIES (HMWB) AND ASSESSMENT OF GOOD ECOLOGICAL POTENTIAL (GEP)

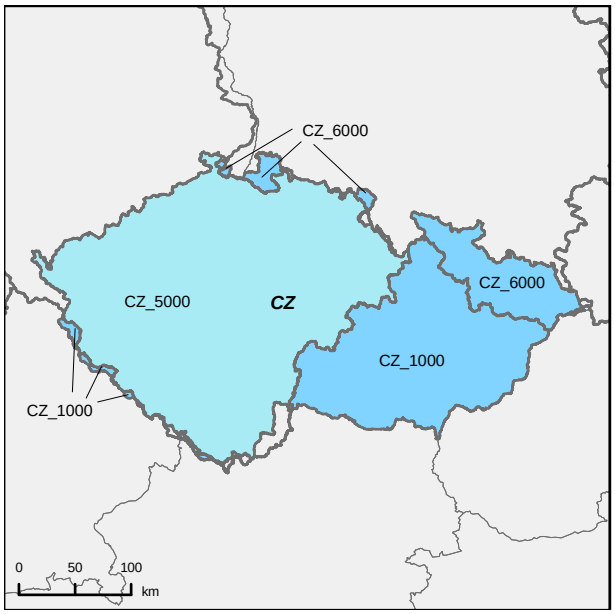

Figure 8.1: *Map of percentage Heavily Modified and Artificial waterbodies by River Basin District*

0 – 5 %
5 – 20 %
20 – 40 %
40 – 60%
60 – 100 %
No data reported
River Basin Districts
Countries outside EU

Source: *WISE, Eurostat (country borders)*

8.1 Designation of HMWBs

The provisional designation of HMWBs in 2007[22] resulted in the designation of 50% of water bodies as HMWBs, and less than 1% as artificial water bodies (AWBs). In the RBMPs, 245 HMWBs and four AWBs have been designated in the Czech Republic, which represent 21% and 0.4% of the total number of water bodies, respectively.

The RBMPs specify the water use for which the water body has been designated as a HMWB (navigation including port facilities, recreation, storage for drinking water supply, storage for power generation, water regulation and flood protection), and describe the kinds of physical modifications that have led to the designation of HMWBs (locks, weirs/dams/reservoirs, channelization/straightening/bed stabilisation, bank reinforcement/embankment, land reclamation/coastal modifications/ports and barriers higher than 1 m).

[22] http://ec.europa.eu/environment/water/water-framework/implrep2007/pdf/sec_2007_0362_en.pdf

For designation of HMWBs a national methodological approach has been taken which mainly followed the stepwise approach of the CIS Guidance No. 4[23] (definition of substantial changes in character due to human activity, assessment of significant adverse effects of restoration measures on the use or wider environment). The RBMPs do not show the uncertainty in relation to the designation of HMWB.

As informed by the Czech Republic, after the RBMPs were reported to the Commission, the Czech Republic has been working on improving the methodologies for HMWBs designation for the second planning cycle[24].

8.2 Methodology for setting GEP

The methodology is not clear and very preliminary. GEP has been defined using expert judgement but this was done only for lakes. No MEP was defined. Development of a new methodology is planned, but no details were provided. No reference was found to mitigation measures or the expected effects.

The Czech Republic is currently working on development of new methodologies for the second planning cycle[25].

8.3 Results of ecological potential assessment in HMWB and AWB

172 (97%) out of 178 heavily modified and artificial river water bodies and 58 (82%) out of 71 reservoirs were classified as having poor or moderate ecological potential. For details, see tables in chapter 6.

The Czech methodologies for provisional and final HMWB designation in the first planning cycle are WFD compliant as they were based on CIS principles, although, they were not applied to their full extent. The assessment for good ecological potential for reservoirs was not WFD compliant, because it did not cover all BQEs; assessment of GEP for rivers was missing. These gaps will be addressed in the next planning cycle[26].

9. ASSESSMENT OF CHEMICAL STATUS OF SURFACE WATERS

9.1 Methodological approach to the assessment

Good surface water chemical status means the chemical status required to meet the environmental objectives for surface waters established in WFD Article 4(1)(a), that is the chemical status achieved by a body of surface water in which concentrations of pollutants do

[23] http://circa.europa.eu/Public/irc/env/wfd/library?l=/framework_directive/guidance_documents/gds04shmwbspolicyssummar/_EN_1.0_&a=d

[24] This information has been pointed by the national authorities after the reporting.

[25] This information has been provided by the national authorities after the reporting.

[26] This information has been provided by the national authorities after the reporting.

not exceed the EQSs established in WFD Annex, and under other relevant Community legislation setting environmental quality standards at Community level.

The Directive 2008/105/EC lays down EQSs for priority substances and certain other pollutants as provided for in WFD Article 16 of Directive 2000/60/EC, with the aim of achieving good surface water chemical status.

All EQSs, except brominated diphenylether, laid down in Part A of Annex I of the Directive 2008/105/EC have been applied for the assessment of the chemical status in the Czech Republic. A proposal of the Directive 2008/105/EC as of 21 June 2007 was used for setting up the monitoring parameters, based on annual average and maximum allowable concentration values.

All priority substances pursuant to the draft (at that time) Directive 2008/105/EC were monitored at surveillance monitoring points for the assessment of chemical status of surface water bodies. Analyses of sediments and biota were not included in the chemical status assessment.

Background concentrations for heavy metals have not been set. Mixing zones were not used for chemical status assessment. There was no explanation found on how bioavailability factors of metals were considered in the assessment of compliance with EQS neither in the plans nor background documents.

9.2 Substances causing exceedances

The priority substances responsible for exceedances are shown in the table below including the percentage of water bodies failing good chemical status:

CAS Number	Name of substance	% of water bodies failing good chemical status		
		CZ_1000	CZ_5000	CZ_6000
7440-43-9	Cadmium	10.8	36.0	21.9
7439-92-1	Lead	6.9	23.0	2.7
7439-97-6	Mercury	25.6	85.0	5.5
7440-02-0	Nickel	9.3	31.0	6.2
2921-88-2	Chlorpyriphos	0.3	1.0	0.0
34123-59-6	Isoproturon	0.3	1.0	0.0
608-93-5	Pentachlorobenzene	0.3	1.0	0.0
120-12-7	Anthracene	0.9	3.0	0.0
107-06-2	1,2-Dichloroethane	0.6	2.0	2.1
140-66-9	Octylphenol	4.2	14.0	0.0
18-74-1	Hexachlorobenzene	0.3	1.0	0.0
191-24-2	Benzo(g,h,i)perylene	0.3	1.0	15.8
193-39-5	Indeno(1,2,3-cd)pyrene	0.3	1.0	15.8
36643-28-4	Tributyltin compounds	0.9	3.0	0.0
206-44-0	Flouranthene	0.0	0.0	1.4
104-40-5	Nonylphenol	0.0	0.0	1.4
75-09-2	Dichloromethane	0.0	0.0	0.7

Table 9.2.1: *Substances causing exceedances*
Source: *RBMPs*

Heavy metals and octylphenol are the most frequent priority substances responsible for not achieving good chemical status of surface water bodies in the Czech Republic.

The chemical status assessment was in principle compliant with the WFD following the provisions of the EQSD but more clarity is needed as to which priority substances were monitored in which water bodies, and, in the event that some substances were not analysed because they were considered as not relevant based on the pressures and impacts analysis, a respective justification should be added. Since biota were not monitored to assess chemical status, a water EQS for mercury, hexachorobenzene and hexachlorobutadiene providing a level of protection equivalent to that provided by the biota EQS in the EQSD should have been derived, but there is no mention of this.

10. ASSESSMENT OF GROUNDWATER STATUS

Information on groundwater status was based on the assessment of groundwater chemical and quantitative status and trend assessment.

The groundwater body risk assessment was carried out during the characterisation in accordance with WFD Article 5. Results of the analysis were published in the 2005 Report and reported to WISE.

The RBMPs provide information that groundwater quality standards or threshold values (TVs) for 35 pollutants (e.g. nitrates, chlorides, sulphates, metals, selected pesticides and other specific pollutants) have been exceeded. Most frequently occurring pollutants causing groundwater bodies to fail to reach good chemical status are nitrates, pesticides, ammonium, aluminium and acidity. Pollutants from old contaminated sites are mainly polyaromatic hydrocarbons (PAHs), cadmium, lead, mercury, benzene and tetrachlorethylene.

10.1 Groundwater quantitative status

For the assessment of groundwater quantitative status, the following WFD required criteria were applied:

- The available groundwater resource is not exceeded by the long-term annual average rate of abstraction;
- There is no significant damage to groundwater dependent terrestrial ecosystems resulting from an anthropogenic water level alteration.

The RBMPs indicate that 'available groundwater resource' has been fully applied in accordance with Article 2.27 of the WFD. A comparison of annual average groundwater abstraction against ‘available groundwater resource’ has been reported to have been calculated for every groundwater body. 33 out of 173 groundwater bodies in all RBDs failed to achieve good quantitative status because of this criterion. Quantitative status was assessed as comparison of groundwater abstraction to natural sources of groundwater in several scenarios with different abstraction demands and availability of groundwater resources.

Impacts of abstractions have been considered for quantitative status assessment, for dependent terrestrial ecosystems and associated surface waters. Other possible significant pressures were taken into account as well, especially mining and geothermal boreholes in artesian aquifers.

10.2 Groundwater chemical status

The relationship between chemical status of groundwater bodies and status of associated surface waters or groundwater dependent terrestrial ecosystems (GWDTE) was taken into account in the risk assessment of groundwater bodies. Diminution of surface water chemistry and ecology and damage to GWDTE due to transfer of pollutants from groundwater body were not identified. It is anticipated that a more detailed assessment will be performed in the second RBM cycle[27].

All substances of Annex II Part B of the Groundwater Directive (GWD) have been taken into account in the establishment of groundwater threshold values. The reference values used for calculation of threshold values were derived from drinking water standards, except metals, where natural background values were used.

Where the monitoring network was not fully representative for identified significant pressures, the groundwater body was assessed as being of potential poor chemical status and the results should be verified. For WFD reporting purposes potential poor chemical status is reported as poor chemical status.

Trend assessment for groundwater pollutants has been performed based on data from 2001-2006. The assessment of the impacts of existing plumes of pollution could not be performed due to the lack of relevant data. Trend reversal (for existing significant and sustained upward trends of pollutants) was not considered in the first RBMPs, because it is planned as a tool to assess the effects of applied measures.

No transboundary groundwater bodies were identified.

10.3 Protected areas

Summary of status of groundwater Article 7 Drinking Water Protected Areas in the Czech Republic:

RBD	Good	Failing to achieve good	Unknown
CZ_1000	10	40	
CZ_5000	16	72	
CZ_6000	5	14	
Total	*31*	*126*	*0*

Table 10.3.1: *Status of groundwater drinking water protected areas*
Source: *WISE*

[27] This information has been provided by the national authorities after the reporting.

11. ENVIRONMENTAL OBJECTIVES AND EXEMPTIONS

Based on surface water body and groundwater body status assessment Czech programmes of measures were assigned to each water body leading to status improvement, to reach good status by 2015. There are various pressures causing less than good status of surface water bodies or groundwater bodies hence it was necessary to adopt more measures. The risk assessment and the efficiency of measures assessment were affected by high level of uncertainty in the first planning cycle and a lack of data, therefore, a decision was made at the national level that exemptions according to Articles 4(5) and 4(7) would not be applied in the Czech Republic and only deadline extensions according to Article 4(4) would be applied.

Impacts causing the application of exemptions according to the Article 4.4 were not mentioned in the RBMPs, though drivers or pressures were identified for groundwater exemptions, and substances or elements were identified for surface waters.

Methodology for the assessment of disproportionate costs was not relevant for the Czech Republic, because that type of exemption was not used.

A general message provided by the plans reported was that, given the large number of measures required for achieving the environmental objectives, it was not possible to complete them by the deadline set by the WFD. This was either due to a lack of technical capacities or a longer time period need to finalise related complicated legal procedures.

The main reason for exemptions according to the Article 4(4) would be technical feasibility. Natural conditions were identified as a justification of exemptions for groundwater bodies in deep hydrogeological structures.

No exemptions related to preventing or limiting input of pollutants to groundwater were mentioned in the RBMPs. Exemptions of groundwater chemical and quantitative status are extensions of the deadline (Article 4(4)) only and they are justified by the technical infeasibility and/or natural conditions for deep hydrogeological structures with slow groundwater flow and long time of recovery. The substances and pressures responsible for the exemptions are the same as for not achieving good chemical status: nitrates, pesticides (agriculture) and metals and other substances from old contaminated sites. Only the total number of groundwater bodies with exemptions was provided, without any accompanying detailed information on responsible pollutants. Exemptions according to the Article 4(6) were not applied.

National plans stated that no exemptions were applied for drinking water protected areas.

RBD	Global[28]					
	Technical feasibility		Disproportionate costs		Natural conditions	
	Article 4(4)	Article 4(5)	Article 4(4)	Article 4(5)	Article 4(4)	Article 4(5)
CZ_1000	299	0	0	0	0	-
CZ_5000	585	0	0	0	0	-

[28] Exemptions are combined for ecological and chemical status

RBD	Global[28]					
	Technical feasibility		Disproportionate costs		Natural conditions	
	Article 4(4)	Article 4(5)	Article 4(4)	Article 4(5)	Article 4(4)	Article 4(5)
CZ_6000	90	0	0	0	0	-
Total	*974*	*0*	*0*	*0*	*0*	-

Table 11.1: *Numbers of Article 4(4) and 4(5) exemptions*
Source: *WISE*

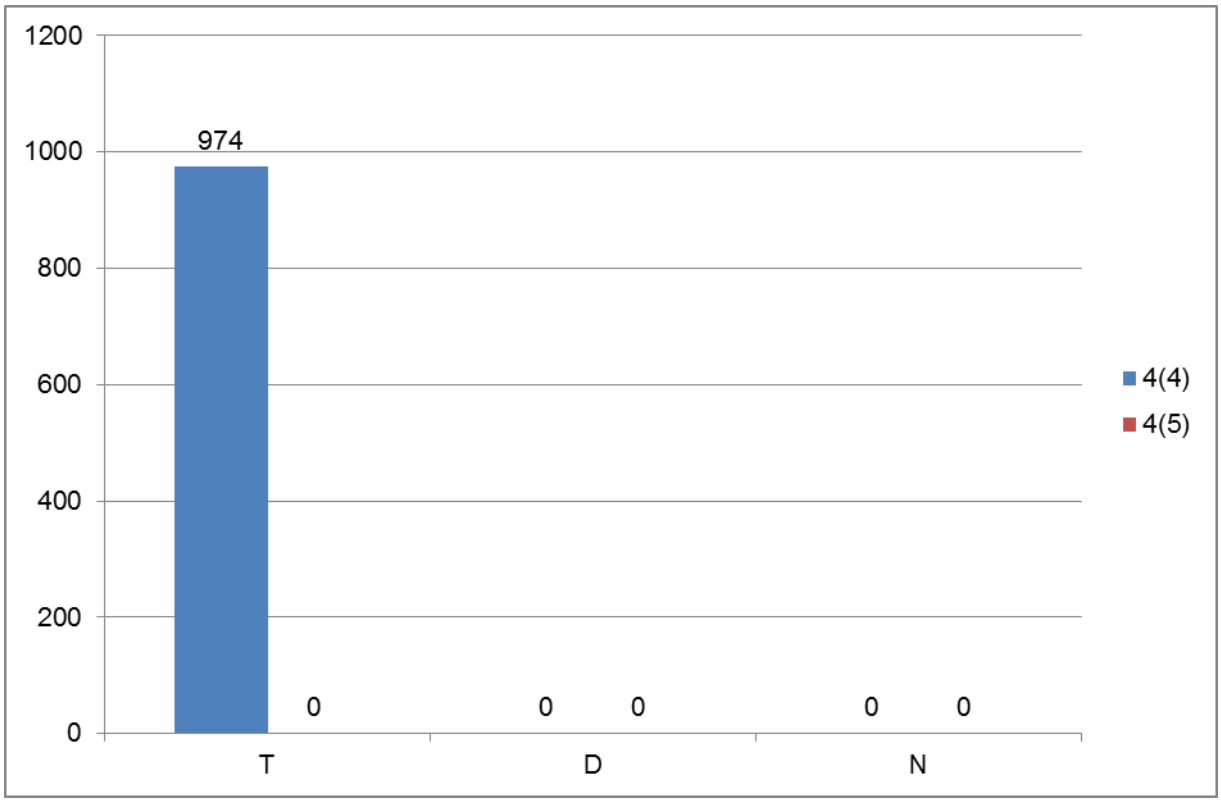

Figure 11.1: *Numbers of Article 4(4) and 4(5) exemptions*
T = Technical feasibility
D = Disproportionate costs
N = Natural conditions
Blue = Article 4(4) exemptions
Red = Article 4(5) exemptions
Source: *WISE*

11.1 Additional objectives in protected areas

Objectives for DWPAs have been established for main pollutants and for untreated water (surface water and groundwater) according to the Czech legislation. These objectives are not more stringent than objectives of good status for groundwater bodies (threshold values for good chemical status are the same or more stringent than drinking water standards). The situation is not clear as regards surface water bodies.

Shellfish protected areas are not relevant for the Czech Republic.

Objectives for bathing water areas have been established according to the Directive 76/160/EEC (BaD). No comparison with status objectives was provided – it is not clear if BaD objectives are more stringent than good status for surface water bodies. No parameters were mentioned in the RBMPs.

Natura 2000 sites were analysed and selection of sites *at risk* has been performed. Additional objectives were not mentioned in national plans. No detailed information about risk analysis was provided.

The application of exemptions was co-ordinated in a transboundary context in the Danube RBD. In the international Danube River Basin District Management Plan the exemptions applied in the different Danube countries have been put together to provide a basin wide overview.

No reference to the transboundary co-operation on the establishment of exemptions to the environmental objectives was mentioned in the Elbe and Oder RBMPs.

Use of exemptions according to Article 4(4) for surface and groundwater bodies and their justification is in line with the provision of Article 4(4) WFD, however, more details about responsible pressures and pollutants especially for surface water bodies should be provided in the next planning cycle. Also additional objectives for protected areas should be defined more precisely.

12. PROGRAMMES OF MEASURES

According to Annex VII of the WFD, the RBMPs should contain a summary of the programmes of measures (PoM), including the ways in which Member States expect to achieve the objectives of WFD Article 4. The programmes should have been established by 2009, but are required to become operational only by December 2012. The assessment in this section is based on the PoM as summarised by the Member State in its RBMP, and the compliance of this with the requirements of Article 11 and Annex VII of the WFD.

It therefore does not include a comprehensive assessment of compliance with the requirements of Article 11(3)[29] on basic measures. It focuses in particular on key sets of measures. Member States will report to the Commission by December 2012 on the full implementation of their PoMs, including on the progress on the implementation of basic measures as required by Article 11(3). The Commission will assess what Member States report and will publish its assessment in accordance with WFD Article 18.

[29] These are the minimum requirements to be complied with and include the measures required under other Community legislation as well as measures to achieve the requirements of other WFD Articles and to ensure appropriate controls on different activities affecting water management.

12.1 Programmes of measures – general

The programmes of measures were in line with WFD requirements based on the status assessment and identification of relevant pressures. However, if data from monitoring or methodologies for individual BQEs were not available, the measures were based on risk (pressures and impact) analysis only.

All basic measures according to WFD Articles 11.3a) and 11.3b) were reported as implemented; supplementary measures for surface waters were needed for point and diffuse sources of pollution, water flow regulations and morphological alterations of surface water, river management and other pressures. Groundwater supplementary measures were needed for all main types of pressures except artificial recharge and saltwater intrusions.

All measures were established at a water body level and an overview of measures is provided for sub-basins, national level and RBDs. The overview provides, e.g., number of WWTPs, fish by-passes, etc. Timing of measures was indicated in three categories – short-term, middle term and long-term, mostly without mention of detailed years because of a high level of uncertainty; the timeline was provided in detail only for some measures.

Information about the proposed measures is also provided in the so-called 'list of measures', where each measure is described in detail in the sub-basin plans. For water bodies where specific pressures were not known (e.g. pressures responsible for exceedance of a specific pollutant's EQS), only general measures were proposed and applied (e.g. an investigative monitoring programme).

The 'measure applicants', *i.e.* the provider responsible for the implementation of the measure including its financing, is identified for some specific measures (building and reconstruction of UWWT plants and specific hydromorphology measures), however, other type of measures are not linked to any responsible authority. This could have a negative impact on the proper application of planned measures.

The programmes of measures were co-ordinated among the Member States for all three RBDs as a part of international RBMPs and basin-wide problems were identified as a basis for national measures and adopted in the national plans.

The specific international measures for the Elbe and Oder RBDs were focused on river continuity issues (the Elbe River and its 40 tributaries were selected for river continuity measures for the Elbe International RBMP, whereas the Oder River and Luzicka Nisa River were taken for river continuity measures for the Oder International RBMP). A 24% reduction in nutrient load was settled as an international objective for the Elbe International RBMP; the Czech Republic and Germany agreed on the reduction of emission loads for selected pollutants for several profiles on the main rivers as well. Exceedance of EQS due to transboundary chemical pollution was mentioned in the Oder International RBMP, however without specific measures.

An international Joint Programme of Measures (JPM) was developed for the whole Danube RBD. The JPM is firmly based on the national programmes of measures, which shall be made operational by December 2012, and describes the expected improvements in water status by 2015. Priorities for the effective implementation of national measures on the basin-wide scale are highlighted and provide the basis for further international co-ordination. Some additional

joint initiatives and measures on the basin-wide level that show transboundary character and are undertaken through the framework of the ICPDR, are presented in the JPM as well.

Cost of measures

Information on the cost of measures differs significantly between the WISE summary and RBMPs reported to the Commission and it is not possible to say which one is correct. According to recent information from the Czech authorities this can be explained by the fact that the C plans also contain flood protection measures while the costs of measures in the B plans are strictly related to the implementation of measures following from the WFD.

The numbers from national B Plans were used below. The exchange rate of 26.19 (EUR/CZK) was used for recalculation of costs in Euros.

Danube RBMP: Only total cost breakdown by basic measures (17663,4 million CZK = € 674,4 million EUR), Article 11(3)(a) measures (16775,9 million CZK = € 640,5 million) and Article 11(3)(b) and supplementary plus additional measures (117 million CZK = € 3,1 million EUR).

Elbe RBMP: Only total cost breakdown by basic measures (47 064,1 million CZK = € 1 797 million), Article 11(3)(a) measures (18320,3 million CZK = € 699,5 million) and Article 11(3)(b) and supplementary plus additional measures (529 million CZK = € 20,2 million).

Oder RBMP: Only total cost breakdown by basic measures (14899,6 million CZK = € 568,9 million), Article 11(3)(a) (8649,2 million CZK = € 330,2 million) and Article 11(3)(b) and supplementary plus additional measures (50 million CZK = € 1,9 million).

The background document "Plán hlavních povodí České republiky", approved by the Czech government, includes a strategy on financing for the proposed programme of measures at a general level – e.g., construction of urban waste water treatment plants would be financed from the Ministry of Environment fund programme and state budget.

12.2 Measures related to agriculture

Diffuse sources of pollution from nitrogen and pesticides were identified as the main significant pressures from agriculture in Czech Republic. Point source pollution, over abstraction and morphological modification were not mentioned as significant pressures from agriculture; eutrophication was mentioned as an issue due to agriculture and households. Soil erosion was identified as significant, but not related to agriculture only, as it is not clear what proportion of erosion is related to the agricultural land.

Information on how the measures have been discussed with the farmers and other stakeholders, economic instruments, non-technical measures and other more detailed information may actually be part of the current Nitrates Directive implementation. This was not mentioned in the RBMPs and/or supporting documents.

Measures	CZ_1000	CZ_5000	CZ_6000
Technical measures			
Reduction/modification of fertiliser application	✓	✓	✓
Reduction/modification of pesticide application	✓	✓	✓
Change to low-input farming (e.g. organic farming practices)			
Hydromorphological measures leading to changes in farming practices	✓	✓	✓
Measures against soil erosion	✓	✓	✓
Multi-objective measures (e.g. crop rotation, creation of enhanced buffer zones/wetlands or floodplain management)			
Technical measures for water saving			
Economic instruments			
Compensation for land cover			
Co-operative agreements			
Water pricing specifications for irrigators			
Nutrient trading			
Fertiliser taxation			
Non-technical measures			
Additions regarding the implementation and enforcement of existing EU legislation	✓	✓	✓
Institutional changes			
Codes of agricultural practice	✓	✓	✓
Farm advice and training	✓	✓	✓
Raising awareness of farmers	✓	✓	✓
Measures to increase knowledge for improved decision-making			
Certification schemes			
Zoning (e.g. designating land use based on GIS maps)			
Specific action plans/programmes			
Land use planning			
Technical standards			
Specific projects related to agriculture			
Environmental permitting and licensing			

Table 12.2.1: *Types of WFD measures addressing agricultural pressures, as described in the PoM*
Source: *RBMPs*

The reduction of fertiliser over-use is a part of the programme of measures though the measure is actually related to the action programmes under the Nitrates Directive implementation. Only general measures (reduction/modification of pesticide application) are part of the programme of measures. Technical measures against soil erosion were mentioned in the RBMPs. A commonly agreed approach for this type of issue would be necessary for the second cycle of the WFD. It is not clear whether additional measures are planned.

All the measures are related to a specific water body, but the actual area affected by a specific measure is not specified in the PoM.

The cost of the WFD measures for agriculture was not clearly identified. Some measures contributing to the elimination of diffuse pollution were being applied with the support of the Rural Development programmes.

Timing for the implementation of the agriculture measures was not mentioned in the plans in sufficient detail. The Czech Republic provided information that these measures could not be applied at the time because they would affect the level of employment in relevant regions and would lead to high financial compensation.

12.3 Measures related to hydromorphology

The planned hydromorphological measures are appropriate for the identified pressures (cross profile constructions and interruptions of continuity, longitudinal profile construction and interruptions of lateral continuity, channelisation/straightening, modifications on the substrate of the river, etc.).

The expected improvements due to the hydromorphological measures are described in the RBMPs: fish ladders, habitat restoration, building spawning and breeding areas, removal of structures: weirs, barriers, bank reinforcement, reconnection of meander bends or side arms, restoration of bank structure and remeandering of formerly straightened water courses.

Hydromorphological measures were planned in some HMWBs, however a significant number of them would be postponed for the next planning cycle. Water bodies affected by hydromorphological pressures were subject to exemption according to Article 4(4) on grounds of technical feasibility due to the present insufficient preparation related, for example, to guaranteed financing and detailed project documentation.

Ecological flow regimes were not applied as a measure because they had already been implemented in current legislation and applied through the legal enforcement.

Measures	CZ_1000	CZ_5000	CZ_6000
Fish ladders	✓	✓	✓
Bypass channels			
Habitat restoration, building spawning and breeding areas	✓	✓	✓
Sediment/debris management			
Removal of structures: weirs, barriers, bank reinforcement	✓	✓	✓
Reconnection of meander bends or side arms	✓	✓	✓
Lowering of river banks			
Restoration of bank structure	✓	✓	✓
Setting minimum ecological flow requirements			
Operational modifications for hydropeaking			
Inundation of flood plains			
Construction of retention basins			
Reduction or modification of dredging			
Restoration of degraded bed structure			
Remeandering of formerly straightened water courses	✓	✓	✓

Table 12.3.1: *Types of WFD measures addressing hydromorphological pressures, as described in the PoM*
Source: *RBMPs*

No specific background document has been reported.

In general, the national approach for implementation of hydromorphology measures follows the provisions of WFD Article 11(3) (i), however most of the measures will probably be applied in the next planning cycle. It was not clear, if all relevant specific pressures were identified because of missing assessment methods for BQEs.

12.4 Measures related to groundwater

In general, the national approach to implementation of measures related to groundwater follows the provisions of the WFD and the Groundwater Directive however most of them (except remediation of old contaminated sites) are rather general.

There is a clear link between identified significant pressures (based on risk assessment), status assessment results and planned measures in the RBMPs. For every groundwater body the specific pollutants or reason of not achieving good status is mentioned with the relevant type of pressure (e.g. diffuse pollution from agriculture) and linked measures. Only for water bodies with unknown specific pressures, was more detailed monitoring or study planned.

Basic and supplementary measures (groundwater abstraction authorisation, groundwater abstraction measurement, reporting of abstracted groundwater volume for abstractions > 6000 m^3/year or 500 m^3/month, possibility of artificial recharge exploration, possibility to further reduce abstracted groundwater volume because of minimal groundwater level depletion; new hydrogeological exploration for better quantification of available groundwater resources) were established to tackle potential over-exploitation of groundwater.

Prohibition of direct or indirect discharges of hazardous substances and indirect discharges of non-hazardous substances to groundwater are possible only with the appropriate authorisation and remediation of old contaminated sites (especially those releasing metals) as measures to prevent and limit inputs of pollution. The remediation is being implemented at all groundwater bodies in the vicinity of significant old contaminated sites (including groundwater bodies with good chemical status), which were identified in a need of supplementary measures.

There are no transboundary groundwater bodies in the RBDs. No international co-ordination for measures related to groundwater bodies was necessary.

12.5 Measures related to chemical pollution

An inventory of priority substances and certain other pollutants, non-priority specific pollutants identified at the river basin level, deoxygenating substances and nutrients has been performed by evaluation of monitoring results and/or identification of relevant pressures. It has been found that urban waste waters, industrial waste waters and other point sources are contributing significantly to the chemical pollution. However, there is also a contribution from traffic and non-urban infrastructure.

General measures for industrial emissions prevention or reduction (e.g. authorisation of discharges, use of best available techniques), development or intensification of urban waste water treatment plants and measures against accidental pollution (monitoring, action plans) were included in the programmes of measures.

In any case where a link between the pollution by hazardous substance(s) and their sources is not clear (i.e. the relevant source of pollution was not found), investigative monitoring would take place before defining a specific measure.

No information about measures targeted to specific substances or groups of substances was provided.

The national approach to implementation of measures related to chemical pollution follows the provisions of WFD Article 11 (3) (g,h,k,l), but it lacks information on the specific measures and effectiveness of the planned measures.

12.6 Measures related to Article 9 (water pricing policies)

No definition of water services was provided. The term "water services" was used in the national plans for abstractions and discharges only. Agriculture, industry, hydropower and cooling water use were linked either to abstractions only (agriculture, hydropower, cooling) or abstractions and discharges (industry).

Significant water uses were identified as follows:

- households, industry and agriculture were identified concerning water supply and discharges;
- hydropower plants in main dams and small hydropower plants in rivers, gravel extraction from flowing and stagnant waters, navigation, flood protection, cooling water use, irrigation, fish management, fishing and recreation were mentioned as water uses in the sub-basin plans. All mentioned water uses were identified as significant pressures.

In general, the adequate contribution to cost-recovery is stated in the national plans, but it is not properly explained. In the plans, there was only a reference to the impact of water services and water use on the cost of water services identified for drinking water supply and discharges from UWWTPs. In the relation to the above, cost recovery rates were applied for drinking water supply and treatment of waste waters (public supply) only.

The cost recovery calculation includes capital, operating and maintenance costs.

Subsidies are taken into account within the cost recovery calculation.

The environmental and resource costs are not considered due to a lack of data and an appropriate methodology.

According to the RBMPs, the polluter-pays principle has been applied in the Czech Republic since 1975, however for water supply (abstraction) and treatment only[30].

It is reported that current water pricing policies provide adequate incentives for households and industry connected to the public water supply by use of water metering. The drinking water supply and urban waste water treatment fees are the same for all sectors in the Czech Republic. However incentive pricing is not reported to be introduced for other users. No significant changes except possible increasing of water supply and treatment fees are planned in future.

The costs of navigation maintenance and the water use for hydropower are not charged.

Flexibility provisions of Article 9 are applied for households, industry and agriculture. It is stated that no significant increase in fees was possible because of negative social impact to public (affordability for households). Moreover increasing drinking water supply and urban waste water treatment fees would probably lead to difficulties in production, energy industry, services and agriculture as well. Maximum planned fees would be about 2% of the household allowances. No specific information was found about international co-operation in applying Article 9. Some national co-operation concerning implementation of Article 9 among RBDs is recorded.

12.7 Additional measures in protected areas

All water bodies are linked to the relevant protected areas and the environmental objectives for the protected areas are defined. A risk assessment is mentioned in relation to the Natura 2000 protected areas, for other types of protected areas (except drinking water) there is only a note about requirements of other EU directives. No further explanation about the risk assessment was provided. No specific additional measures are mentioned in the RBMPs.

Measures under the Birds Directive, Habitats Directive and Bathing Water Directive are covered in the RBMPs and programmes of measures. The Shellfish Directive is not relevant in the Czech Republic. The sites from the Freshwater Fish Directive are not considered in the Czech Republic as areas designated for the protection of economically significant aquatic species (focused on sport fishing only). However, sites from the Freshwater Fish Directive are mentioned in the plans as “national” protected areas.

Additional measures are generally mentioned only as a requirement of other directives or WFD Article 7 (Waters used for the abstraction of drinking water). No specific measures linking to good chemical or ecological status were mentioned in the RBMPs.

Safeguard zones to protect drinking water abstractions are mandatory for all public water supplies. Specific management of the safeguard zones and plans for improving of the surface water quality were reported. However, no specific measures for waters used for the abstraction of drinking water were mentioned in the RBMPs except planning of new abstractions.

[30] No details on criteria and methodologies have been provided.

13. CLIMATE CHANGE ADAPTATION, WATER SCARCITY AND DROUGHTS AND FLOOD RISK MANAGEMENT

13.1 Water Scarcity and Droughts

Water scarcity is not explicitly stated as relevant in the RBMPs. A balance between water demands (e.g. abstraction) and water availability for current situation and the 2015 baseline scenario is included in the RBMPs. The balance results show that water use at the RBD scale is appropriate to the available sources. At a local scale, approximately a quarter (28%) of the groundwater bodies is subject to over-abstraction of water leading to groundwater bodies being in poor quantitative status.

The trend for water abstraction demand is included into the 2015 baseline scenario and itemised by surface and ground water type and households, agriculture, industry and energy/cooling use. Data for present water consumption are based on direct water consumption measurements. Projections of future water demands are based on conceptual documents: "Conception of Water Management Policy of the Ministry of Agriculture of the Czech Republic for the Period after EU Accession 2004 – 2010" and "State Environmental Policy of the Czech Republic". Present and future water availability data are represented by long-term hydrological and hydrogeological characteristics and accumulation capacity. The range of expected minimum/maximum increase in water abstraction in 2015 for water use sectors is included into the economic analysis.

RBD-wide or sub-basin/local drought periods and their hydrological characteristics are listed.

RBMPs identify water bodies where it was found appropriate to apply measures in catchment areas focused on retention improvement and accumulation capacity of the area and where the programme of measures in the RBMPs relevant to drought and water scarcity issues is being intensively discussed. Water scarcity and droughts will be part of the RBMPs in the second planning cycle.

The issue of water scarcity and droughts has been addressed in general terms in the international RBMP for the Danube RBD as a future challenge in relation to the impact of climate change.

13.2 Flood Risk Management

The issue of flood risk management was mentioned as a separate significant water management issue and some technical measures against floods (mostly new dykes) were included in the programmes of measures in the sub-basin plans, but they have not been addressed in the national RBMPs.

Flood risk management was not used as a specific reason of HMWB designation and Article 4.6 and Article 4.7 were not used for exemptions in the Czech Republic.

The issue has been addressed in general terms in the international RBMP for the Danube RBD, but without clear relation to the national plans. Future co-ordination of river basin management with the implementation of the Floods Directive is mentioned in the plans.

13.3 Adaptation to Climate Change

In the national RBMPs the issue of climate change was mentioned in very general terms in connection with economic analysis of water use and the programme of measures. An impact analysis of climate change was not included into the 2015 baseline scenario, detailed analyses are expected in the 2nd and 3rd planning cycles. Preparation for adaptation measures was only generally noticed among the programmes of measures, particularly in connection with flood protection.

At the national level, several studies evaluating the impact of climate change on water availability and water demand have been carried out separately from the RBMPs.

The issue of climate change has been addressed in general terms in the international RBMP for the Danube RBD, but without clear relation to the national plans. The issues referred to in relation to adaptation to climate change were as follows:

- Specific monitoring for climate change impacts;
- Analysis of variability and changes of selected hydrological and climatic elements;
- Impacts on agricultural production;
- Impacts on forest ecosystems;
- Proposal of adaptation measures in water management.

14. RECOMMENDATIONS

Following the steps of river basin planning as set out in the WFD should ensure that water management is based on a better understanding of the main risks and pressures in a river basin and as a result, interventions are cost effective and ensure the long term sustainable supply of water for people, business and nature.

To deliver successful water management requires linking these different steps. Information on **pressures** and risks should feed into the development of **monitoring programmes**, information from the monitoring programmes and the **economic analysis** should lead to the identification of **cost effective programmes of measures** and justifications for exemptions. **Transparency** on this whole process within a clear governance structure will encourage **public participation** in both the development and delivery of necessary measures to deliver sustainable water management.

To complete the 1st river basin management cycle, and in preparing for the second cycle of the WFD, it is recommended that:

- Different levels of plans should be better harmonized and cross-referenced in the 2nd RBMP cycle.

- Type-specific reference conditions should be established for biological assessment. Intercalibration results should be used for assessment of any biological quality element (BQE).

- Assessment of the ecological status was rather simplified in the first RBMP, only BQEs for benthic invertebrates and in some cases fish and chlorophyll-a were used, elaboration of biological assessment methods needs to be improved in the 2nd RBMP cycle.

- Relationship between BQEs and physico-chemical quality elements should be established. Ecological potential should be defined for rivers.

- Where there are currently high uncertainties in the characterisation of the RBDs, identification of pressures, and in the assessment of status, these need to be addressed in the current cycle, to ensure that adequate measures can be put in place before the next cycle.

- The identification of river basin specific pollutants needs to be more transparent, with clear information on how pollutants were selected, how and where they were monitored, where there are exceedances and how such exceedances have been taken into account in the assessment of ecological status. It is important that there is an ambitious approach to combatting chemical pollution and that adequate measures are put in place.

- Links between status and responsible specific pressures should be made clear.

- The Czech methodologies for provisional and final HMWB designation in the first planning cycle were not applied to their full extent. The designation of HMWBs should comply with all the requirements of Article 4(3). The assessment of significant adverse effects on their use or the environment and the lack of significantly better environmental options should be specifically mentioned in the RBMPs. This is needed to ensure transparency of the designation process.

- Assessment of good ecological potential for reservoirs was not WFD compliant, because it did not cover all biological quality elements and GEP for rivers was missing. These gaps should be addressed in the next planning cycle.

- More clarity is needed as to which priority substances were monitored in which water bodies and in the event that some substances were not analysed because they were considered as not relevant, based on the pressures and impacts analysis, a justification should be added.

- Mercury, hexachlorobenzene and hexachlorobutadiene should be monitored in biota for comparison with the biota standards in the EQSD, unless water EQS providing an equivalent level of protection are derived. Trend monitoring in sediment or biota for the substances specified in EQSD Article 3(3) will also need to be reflected in the next RBMP.

- More details about pressures and pollutants leading to exemptions, especially for surface water bodies, should be provided in the next planning cycle. Also additional objectives for protected areas should be elaborated in more detail.

- It is unclear whether there are new physical modifications planned in RBMPs. If this is the case, the use of exemptions under Article 4(7) should be based on a thorough assessment of all the steps as requested by the WFD, in particular an assessment of whether the project is of overriding public interest and whether the benefits to society outweigh the environmental degradation, and regarding the absence of alternatives that would be a better environmental option. Furthermore, these projects may only be carried out when all possible measures are taken to mitigate the adverse impact on the status of the water. All conditions for the application of Article 4(7) in individual projects must be included and justified in the RBMPs as early in the project planning as possible.

- The Programme of Measures should be made more specific. Meaningful information regarding the scope, the timing and the funding of the measures should be included in the PoM so the approach to achieve the objectives is clear and the ambition in the PoM is transparent. All the relevant information on basic and supplementary measures should be included in the summary of the PoM to ensure transparency on the planned actions for the achievement of the environmental objectives set out in the WFD.

- Responsibilities for the implementation of the measures including its financing, is identified for some specific measures (building and reconstruction of UWWT plants and specific hydromorphology measures). However, other types of measures are not linked to any responsible authority. More transparency is needed in this field.

- Some measures (especially hydromorphological ones) are planned in water bodies in good status without clear explanation.

- Regarding agriculture, the PoM should not only build on the current implementation of the Nitrates Directive but use also additional measures if needed.

- Agriculture is indicated as exerting a significant pressure on the water resources in the Czech Republic. This should be translated into a clear strategy that defines the basic/mandatory measures that all farmers should adhere to and the additional supplementary measures that can be financed. This should be developed with the farming community to ensure technical feasibility and acceptance. There needs to be a very clear baseline so that any farmer knows the rules this can be adequately advised and enforced and so that the authorities in charge of the CAP funds can adequately set up Rural Development programmes and cross compliance water requirements.

- The cost-recovery should address a broad range of water services, including impoundments, abstraction, storage, treatment and distribution of surface waters, and collection, treatment and discharge of waste water, also when they are "self-services", for instance self-abstraction for agriculture. The cost recovery should be transparently presented for all relevant user sectors, and environment and resource costs should be included in the costs recovered. Information should also be provided on the incentive function of water pricing for all water services, with the aim of ensuring an efficient use of water. Information on how the polluter pays principle has been taken into account should be provided in the RBMPs.