The Danube River Basin District Management Plan – Update 2015

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ANNEX

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Competent authorities and Weblinks to National RBM Plans in the DRB

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Annex 1
DRBM Plan – Update 2015

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Austria
Federal Ministry for Agriculture, Forestry, Environment and Water Management
Stubenring 1
A-1012 Wien
Web link: www.bmlfuw.gv.at
Web link national RBM Plan: http://wisa.bmlfuw.gv.at

Bosnia and Herzegovina
Ministry of Foreign Trade and Economic Relations
Musala 9
BiH-71000 Sarajevo
Web link: www.mvteo.gov.ba

Federal Ministry of Agriculture, Water Management and Forestry
Marka Marulica 2BiH-71000 Sarajevo
Web link: www.fmpvs.gov.ba

Ministry of Agriculture, Forestry and Water Management of Republika Srpska
Trg Republike Srpske 1BiH-78000 Banja Luka
Web link: www.vladars.net

Bulgaria
Ministry of Environment and Water
22 Maria-Luisa Blvd.
BG-1000 Sofia
Web link: www.moew.government.bg

Danube River Basin Directorate
60, Chataldzha str.
BG -5800 Pleven
Web link: www.bd-dunav.org
Web link national RBM Plan: http://www.bd-dunav.org/content/upravlenie-na-vodite/plan-za-upravlenie-na-rechniia-baseyn/

Croatia
Ministry of Agriculture
Ulica grada Vukovara 78
HR-10000 Zagreb
Web link: http://www.mps.hr

Czech Republic
Ministry of Environment
Vrsovická 65
CZ-10010 Praha 10
Web link: www.mzp.cz

Ministry of Agriculture
Tesnov 17
CZ-117 05 Praha 1
Web link: www.mze.cz
Web link national RBM Plan:
http://portal.mze.cz/public/web/mze/voda/planovani-v-oblasti-vod/

Germany
Bavarian State Ministry for Environment and Consumer Protection
Rosenkavalierplatz 2
D-81925 München
Web link: www.stmuv.bayern.de/

Ministry for Environment Baden-Württemberg
Kernerplatz 10
D-70182 Stuttgart
Web link: www.um.baden-wuerttemberg.de/

Hungary
Ministry of Interior
Jozsef Attila u. 2-4
H-1051 Budapest
Web link: www.kormany.hu/hu/belugyminiszterium
Web link national RBM Plan: www.euvki.hu; www.vizeink.hu

Moldova
Ministry of Environment
9 Cosmonautilor St.
MD-2005 Chisinau
Web link: www.mediu.gov.md

Montenegro
Ministry of Agriculture, Forestry and Water Management
Rimski Trg 46
ME – 81000 Podgorica
Web link: www.minpolj.gov.me

Romania
Ministry of Environment
12 Libertatii Blvd., Sector 5
RO-04129 Bucharest
Web link: www.ape-paduri.ro

National Administration “Apele Romane”
6 Edgar Quinet St., Sector 1
RO-010018 Bucharest
Web link: http://www.rowater.ro

Serbia
Ministry of Agriculture and Environmental Protection
Nemanjina 22-26
RS-11000 Beograd
Web link: http://www.mpzzs.gov.rs/

Slovak Republic
Ministry of the Environment
Námestie L’ Stúra 1
SK-81235 Bratislava
Web link: www.enviro.gov.sk; www.vuvh.sk/rsv2

Slovenia
Ministry of the Environment and Spatial Planning
Dunajska 48
SI-1000 Ljubljana
Web link: www.mop.gov.si/en/
Web link national RBM Plan:
http://www.mop.gov.si/si/delovna_podrocja/voda/nacrt_upravljanja_voda/nuv_besedilni_in_kartografski_del/
Web link PoMs:
http://www.mop.gov.si/si/delovna_podrocja/voda/nacrt_upravljanja_voda/#c18223

Ukraine
Ministry for Environmental Protection of Ukraine
35, Uritskogo str.
UA-03035 Kyiv

State Committee of Ukraine for Water Management
8, Chervonoarmiyska Str.
UA-01601 Kyiv
Web link: www.menr.gov.ua

Update on DRBD Surface Water Typology

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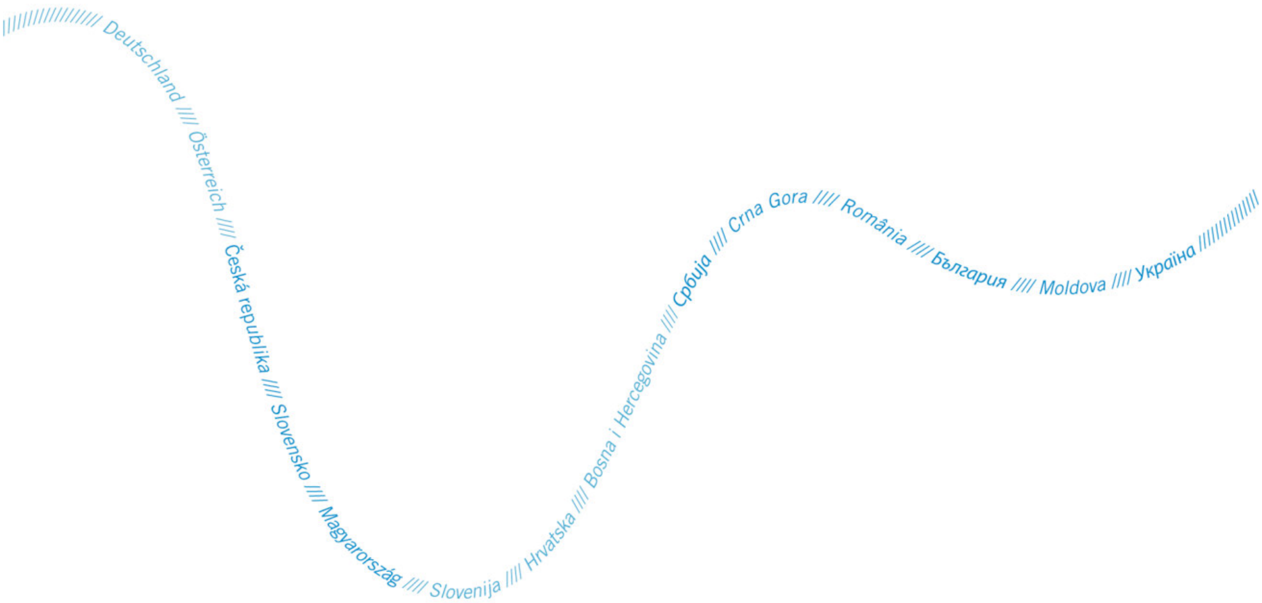
Annex 2

DRBM Plan – Update 2015



Typology of the Danube River

The typology of the Danube River has been developed in a joint activity by the countries sharing the Danube River for the first DBA in 2004. The Danube typology therefore constitutes a harmonised system used by all these countries. The Danube typology was based on a combination of abiotic factors of System A and System B. The most important factors are ecoregion, mean water slope, substratum composition, geomorphology and water temperature.

Ten Danube section types were identified (see Figure 1). The morphological and habitat characteristics are outlined for each section type. In order to ensure that the Danube section types are biologically meaningful, these were validated with biological data collected during the first Joint Danube Survey in 2001. Further details including definition of individual section types are given in the DBA 2013.

Figure 1: Danube section types; the dividing lines refer only to the Danube River itself.

Typology of the tributaries in the Danube River Basin District

The typologies of the Danube tributaries were developed by the countries individually. Stream types relevant on transboundary water courses were bilaterally harmonised with the neighbours. An overview of national surface water typologies is given in the DBA 2013.

Most countries in the DRB (Germany, Austria, Czech Republic, Hungary, Slovenia, Bosnia and Herzegovina, Serbia, Croatia, Romania, Bulgaria) have applied System B (Annex II, 1.2.1 WFD) for establishing their river typology. Only Slovakia and Ukraine have used System A. Countries using System B have used a number of optional factors to further describe the river types. River discharge, mean substratum composition and mean water slope are most frequently used.

Table 1 gives an overview of the class boundaries used by the DRB countries for the common descriptors: altitude, catchment area and geology.

Table 1: Obligatory factors used in river typologies (Systems A and B)

Descriptor	Country	Class boundaries				
Altitude	Germany	0-200 m	200-800m	> 800 m		
	Austria	0-200 m	200-500 m	500-800 m	800-1600 m	> 1600 m
	Czech R.	0-200 m	200-500 m	500-800 m	> 800 m	
	Slovak R.	0-200 m	200-500 m	500-800 m	> 800 m	
	Hungary[1]	0-200 m	200-500 m	> 500 m		
	Croatia	0-200 m	200 - 600 m	600-800 m		
	Slovenia	no altitude classes were used in river typology				
	Serbia	0-200 m	200-500 m	> 500 m		
	Romania	0-200 m	200-500 m	> 500 m		
	Bulgaria	0-200 m	200-800 m	> 800 m		
	Bosnia and Herzegovina	< 200 m	200-500 m	500-800 m	> 800 m	
	Moldova	0-200 m	200-800m	> 800 m		
	Montenegro					
	Ukraine	< 200 m	200-500 m	500-800 m		
Catchment area	Germany	10-100 km²	100-1000 km²	1000-10,000 km²	> 10,000 km²	
	Austria	10-100 km²	100-500 km²	500-1000 km²	1000-2500 km²	2500-10,000 km²
	Czech R.	Not applied anymore				
	Slovak R.[2]	10-100 km²	100 – 1 000 km²	1000 – 10000 km²		
	Hungary	10-100 km²	100-1000 km²	1000-10,000 km²	10,000-100,000 km²	> 100,000 km²
	Croatia	10-100 km²	100-1000 km²	1000-10,000 km²	> 10,000 km²	
	Slovenia	<10 km²	10-100 km²	100-1000 km²	1000-10,000 km²	> 10,000 km²
	Serbia	10-100 km²	100-1000 km²	1000-4000 km²	4000-10,000 km²	> 10,000 km²
	Romania	10-100 km²	100-1000 km²	1000-10,000 km²	> 10,000 km²	
	Bulgaria	10-100 km²	100-1000 km²	1000-10,000 km²		
	Bosnia and Herzegovina	<100 km²	100-1000 km²	1000-4000 km²	4000-10,000 km²	> 10,000 km²
	Moldova	10-100 km²	100-1000 km²	1000-10,000 km²	> 10,000 km²	
	Montenegro					
	Ukraine	10-100 km²	100-1000 km²	1000-10,000 km²	> 10,000 km²	
Geology	Germany	siliceous	calcareous	organic		
	Austria	cristalline	tertiary and quaternary sediments	flysch and helveticum	limestone and dolomite	
	Czech R.	crystalline and vulcanites	sandstones, mudstones and quaternary			
	Slovak R.	mixed				
	Hungary	siliceous	calcareous			
	Croatia	siliceous	calcareous	organic	mixed	
	Slovenia	siliceous	calcareous	flysch[3]		
	Serbia	siliceous	calcareous	organic		
	Romania	siliceous	calcareous	organic		
	Bulgaria	siliceous	calcareous	organic	mixed	
	Bosnia and Herzegovina	siliceous	calcareous	organic		
	Moldova	siliceous	calcareous	organic		
	Montenegro					
	Ukraine	siliceous	calcareous	organic		

[1] River type-classification of waterbodies based on the slope category more powerful then altitude (biological validation results).

[2] The river typology is not based on strict boundaries of catchment area. Rivers > 1,000 km² make up individual types; definition of types for smaller rivers is based on ecoregion, altitude and geology.

[3] not for the tributaries in the Danube river basin district

Lakes

In total, four lakes were reported at the DRB overview level: Neusiedler/Fertö-to (Austria/Hungary), Balaton (Hungary), Ialpug (Ukraine) and Razim/Razelm (Romania). Information is provided in Table 2. Further details of the lake typology are given in the DBA 2013.

Table 2: Lakes selected for the basin-wide overview and their types

Lakes > 100 km²	Country(s)	Type of lake	Ecoregion	Altitude class	Depth class	Size class	Geology
Neusiedler See / Fertő-tó	AT, HU	large shallow, salinic steppe-type lake	11	lowland: < 200 m	< 3 m	> 100 km²	calcareous
Lake Balaton	HU	very large shallow steppe-type lake	11	lowland: < 200 m	3-15 m	> 100 km²	calcareous
Ozero Ialpug	UA	n.a.	12	n.a.	n.a.	> 100 km²	n.a.
Lacul Razim / Razelm	RO	lowland, very shallow, calcareous, very large lake type	12	lowland: < 200 m	< 3 m	> 100 km²	calcareous

Transitional and coastal waters

The transitional and coastal waters of the DRB are located in Romania and Ukraine. For the development of the typology of transitional and coastal waters System B was applied. The transitional waters are differentiated into lacustrine and marine transitional waters (Table 3).

Table 3: Types of transitional waters in the DRBD

Transitional water	Type
Lake Sinoe	Transitional lacustrine type
Black Sea coastal waters (northern sector) – Chilia mouth to Periboina	Transitional marine type

Two coastal water types have been defined for the coastal waters in the DRBD (Table 4). Further information can be obtained from the DBA 2013.

Table 4: Types of coastal waters in the Danube River Basin District

Coastal water	Type
Periboina – Singol Cape	Sandy shallow coastal water
Singol Cape – Vama veche	Mixed shallow coastal water

Urban Waste Water Inventory

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ANNEX 3

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Results of the ICPDR Urban Waste Water Inventory 2015

on

Agglomerations ≥2000 Population Equivalents

Reference date: 31/12/2012

Technical report
23/10/2015

CONTENT

1. Executive summary

The Water Framework Directive (WFD; 2000/60/EC) requires Member States to regularly publish river basin management plans, which should include a summary of significant anthropogenic pressures and impacts of human activity on the status of surface water and groundwater. One fraction of these anthropogenic pressures is wastewater emissions from municipal sources that include significant loads of organic pollutants (BOD_5 (5-day biochemical oxygen demand) and COD (chemical oxygen demand)) and nutrients (nitrogen (N) and phosphorus (P)).

Since 1997, the ICPDR has prepared inventories on point source emissions including emissions from municipal sources, with the existing wastewater treatment plant being the core element of the inventory. Since 2006, the ICPDR Municipal Emission Inventory is modified in order to be consistent with the collection of data under the Urban Wastewater Treatment Directive (UWWT Directive; 91/271/EEC). In contrast to former Emission Inventories, since then the *agglomeration*[1] represents the core element of the inventory. This approach has the advantage of including those municipal areas where no collecting system and/or wastewater treatment plant is yet in place, which is still the case in many downstream countries of the Danube River Basin (DRB). Due to this approach further needs and measures to develop the urban wastewater sector can be clearly demonstrated on agglomeration level. However, there are even some weaknesses with respect to evaluate and balance emissions from agglomerations, which is not the task within the UWWWT Directive Compliance Assessment, but plays a central role in the ICPDR Municipal Emission Inventory. In this report it is tried to combine the strength of the dataset without alternative and to adapt it to the special tasks of an Emission Inventory.

The first emission inventory under the new concept was elaborated in 2006/2007. In this report the concept is largely maintained. The objective is to describe the “present situation” (2012) of wastewater treatment and emissions of BOD_5, COD, N_{tot} (total nitrogen) and P_{tot} (total phosphorus) from agglomerations ≥2000 Population Equivalents (PE) in the DRB (*reference situation*). In addition, focus is placed on the elaboration of different future scenarios, taking into account that the Black Sea has been designated as a *sensitive area* due to the need to protect against eutrophication. According to Article 5(5) of the UWWT Directive, it is necessary to identify the catchment area of the Black Sea, and hence the DRB, as the *catchment of a sensitive area*, thereby requiring more stringent wastewater treatment in agglomerations with more than 10,000 PE.

In brief, the different scenarios can be summarised as follows:

- **Reference Situation UWWT 2012 (RefSit-UWWT):** This scenario gives an overview of the current situation regarding wastewater treatment (reference date 31/12/2012) and treatment efficiency in the DRB.
- **Baseline scenario UWWT 2021 (BS-UWWT):** This scenario describes the agreed measures for the second cycle of implementation of the WFD on the basin-wide scale (until 2021). It is based on the assumption that all EU Member States (EU MS) comply with Directive 91/271/EEC, as far as individual transitional periods require the implementation. For Non EU Member States (Non EU MS), the scenario considers the reported number of wastewater treatment plants with secondary or more stringent treatment to be constructed or extended by 2021.
- **Midterm scenario (MT-UWWT):** This scenario is based on BS-UWWT and assumes that UWWTD is fully implemented in the EU MS whilst for Non EU MS P removal is in place for agglomerations ≥10,000 PE. Additionally, the scenario assumes that P-free detergents for laundry and dishwasher are used everywhere.
- **Vision scenario (VS-UWWT):** This scenario goes beyond the BS-UWWT and the MT-UWWT and therefore far beyond the requirements of UWWT Directive. It is based on the assumption that the full technical potential of wastewater treatment regarding the removal of organic influents and nutrients is exploited for both EU and Non EU MS. It is assumed that agglomerations ≥10,000 PE are equipped with N and P removal (tertiary wastewater treatment) and all agglomerations ≥2000 PE are equipped with secondary treatment.

[1] ‘Agglomeration’ means an area where the population and/or economic activities are sufficiently concentrated for urban wastewater to be collected and conducted to an urban wastewater treatment plant or to a final discharge point (Directive 91/271/EEC).

Figure 1 summarises the emissions of BOD_5, COD, N_{tot} and P_{tot} as assessed for the different scenarios. In all scenarios, differentiation was made between emissions from generated load, which is collected in a collecting system and treated in a wastewater treatment plant (darker coloured part of the columns) and emissions from generated load not collected in a collecting system (lighter coloured part of the columns). Consequently presentation of results differs from the first ICPDR Municipal emission inventory where differentiation was made between emissions originating from agglomerations where at least part of the generated load is collected in a collecting system and treated in a wastewater treatment plant and emissions from agglomeration where the entire generated load is not collected in a collecting system. In the author's opinion these modifications emphasize the surface water aspect of the evaluations and are helpful to:

- more precisely express the real potential and needs of improvements in the wastewater sector;
- differentiate more clearly between loads directly emitted to the surface water (loads selected in collecting systems and/or treated in a wastewater treatment plant) and loads (probably) emitted to the environment and partly to the surface water via diffuse pathways.

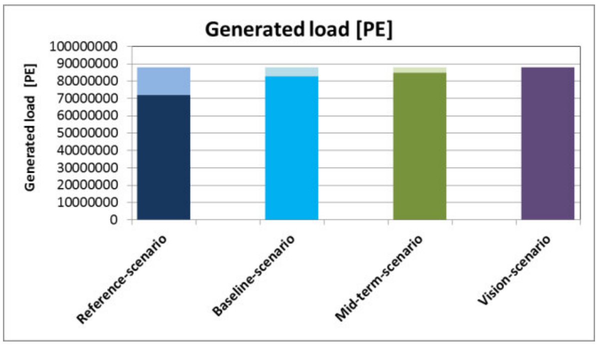
For the reference date 2012, 5,698 agglomerations ≥2000 PE (87,808,425 PE) were reported in the DRB (without Montenegro), of which 4,426 agglomerations (17,709,455 PE) were of the size class 2000-10,000 PE and 1,272 agglomerations (70,098,969 PE) had a size ≥10,000 PE. There were 124 agglomerations with a size of ≥100,000 PE, which produce about 45% of the total generated wastewater.

In 2012 about 72% of total generated load was collected and treated in the Danube River Basin, while further 10% was collected in a collecting system but not treated. The latter caused significant discharged loads of BOD_5, COD, N_{tot} and P_{tot}, into surface waters contributing approx. 65% of BOD_5, 55% of COD, 30% of N_{tot} and 40% of P_{tot} loads. However, a considerable number of agglomerations, reflecting approximately 18% of the total generated load, was not connected to either a collecting system or treatment plant. Agglomerations without connection to waste water treatment plants generated the highest discharged loads of BOD_5, COD, N_{tot} and P_{tot}, contributing approx. 80% of BOD_5, 75% of COD, 51% of N_{tot} and 63% of P_{tot}.

From the 124 agglomerations ≥100,000 PE (39,396,708 PE), 15 agglomerations reflecting 10% of the generated load in big agglomerations and around 5% of the total generated load had no wastewater treatment.

A rough comparison of data from 2005/2006 reference year with those from the 2012 evaluation show a clear tendency with an increase of tertiary treatment types, in most cases with N removal and P removal in place.

More indicative is the comparison of emissions reported for 2005/2006 and 2012. For all parameters addressed (BOD_5, COD, N_{tot} and P_{tot}) a total emission reduction of about 20% can be stated. Emissions reported for 2012 are situated between the 2005/2006 reference year and the *baseline scenario* (forecasting the 2015 status) addressed in the ICPDR Municipal Emission Inventory 2009.



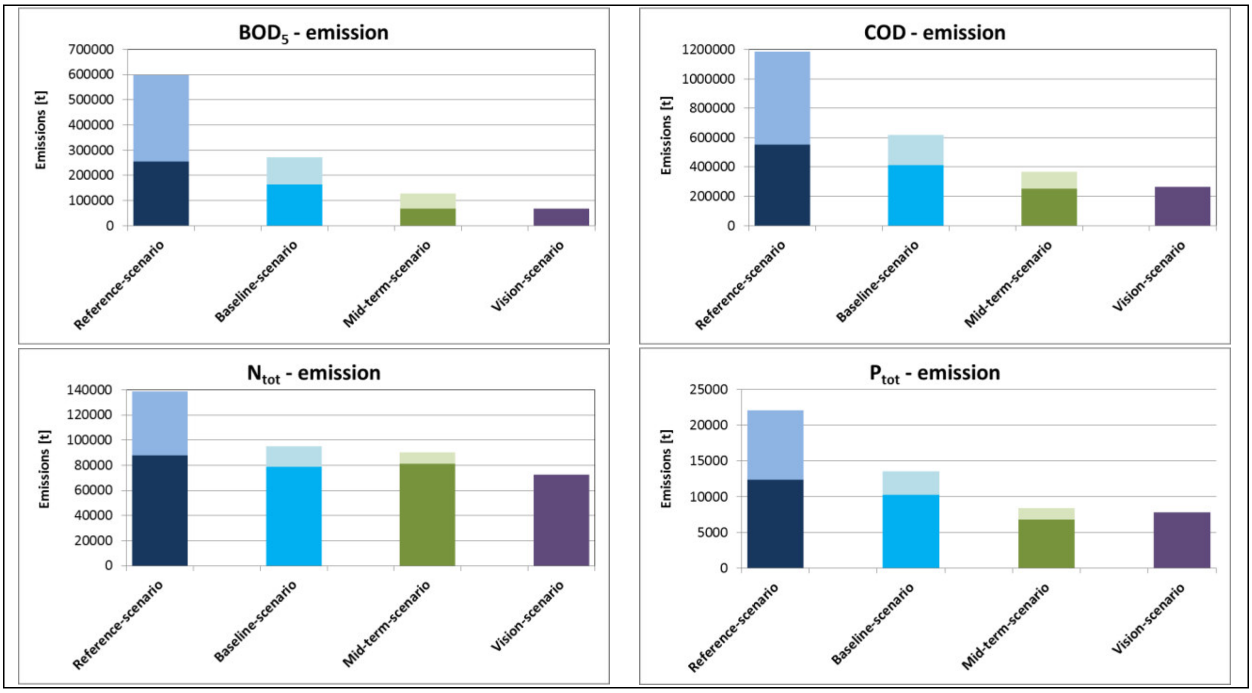


Figure 1: Emissions (t/a) of BOD_5, COD, N_{tot} and P_{tot} under different scenarios

Implementation of the *baseline scenario* would require construction/extension of sewer systems and treatment plants for 14,523,060 PE at 2555 agglomerations and upgrade of the existing wastewater treatment for 426 agglomerations (15,890,363 PE) in order to provide appropriate treatment for the entire generated load. Compared to the reference scenario, emissions of BOD_5 would be reduced by 55% and emissions of COD by approx. 48%. For N_{tot} a reduction of 31% could be achieved, and for P_{tot} emissions, a 39% reduction.

The establishment of the *midterm scenario* would require additional construction/extension of sewer systems and treatment plants for 6,423,820 PE at 274 agglomerations and additional upgrade of the existing wastewater treatment for 78 agglomerations (2,911,710 PE) in order to provide appropriate treatment for the entire generated load. Compared to the *reference scenario*, these measures would decrease the emissions of BOD_5 by 79%, COD by 69%, N_{tot} by 35% and P_{tot} by 62%.

Finally, the implementation of the *vision scenario* would require, additionally to those identified for *midterm scenario*, construction/extension of sewer systems and treatment plants for 3,190,933 PE at 865 agglomerations and upgrade of the existing wastewater treatment for 214 agglomerations (9,062,120 PE). Compared to the *reference scenario*, the emissions would be reduced by approx. 89% and 78% for BOD_5 and COD respectively, 48% for N_{tot} and 65% for P_{tot}.

2. Background

2.1 General framework of the Municipal Emission Inventory

Emission inventories are fundamental requisites to assess human influences on the environment. In addition to international reporting requirements, information on emissions to water is of essential importance for national authorities and international organisations dealing with water resource planning and management. For the ICPDR, emission inventories serve as a valuable basis for:

- River Basin Management Plans
- Joint Action Programme
- DABLAS (Danube Black Sea Task Force)

For the reference years 1997, 2000 and 2002, the ICPDR has prepared inventories on point source emissions including: emissions from municipal sources (2000: existing wastewater treatment plants; 2002: untreated and treated municipal sources), industrial sources and agro-industrial point sources (2002 only) (ICPDR, 2000).

In the year 2006, the ICPDR Municipal Emission Inventory was modified in such a way as to be consistent with the collection of data under the UWWT Directive (Council Directive 91/271/EEC). The reason for this modification was the need to design a systematic approach for the collection and compilation of emission data in line with EU obligations. As the EU MS and accession countries already have to fulfil the extensive reporting requirements of the UWWT Directive, which cover most of the information required for the ICPDR tasks, this information forms the basis for the data collection for the ICPDR. This approach is continued for the 2012 data presented in this Annex.

The main difference between the ICPDR Municipal Emission Inventory 2006 as well as the actual ICPDR Municipal Emission Inventory 2012 and former emission inventories on point sources is the central object of the inventory. The central concept in the Emission Inventory 2012 is the agglomeration (i.e. an area where the population and/ or economic activities are sufficiently concentrated for urban wastewater to be collected and conducted to an urban wastewater treatment plant (UWWTP) or to a final discharge point), whereas the former emission inventories were based on already existing urban wastewater discharges (existing pressures). The agglomeration approach has the advantage of presenting pressures from those human settlements where the actual connection rate to public sewer systems and wastewater treatment plants is still low (which is the case for most of the lower Danube countries).

The collection of data on municipal emissions was designed as a two-step approach. In the first phase data not obligatory reported to the UWWT-Directive assessment (like BOD_5-, COD-, TN- and TP-loads) by EU MS but needed for the ICPDR Emission Inventory could be either sent within the UWWT-Directive reporting or directly to the ICPDR. In the second phase both data sets were harmonized.

The present report summarizes the results of the 2012 UWWT-Directive data collection, describing the wastewater treatment of all agglomerations ≥2000 PE in the DRB for the reference year 31/12/2012 (*reference scenario*). Besides this description of the present situation, three possible future scenarios of wastewater treatment are given.

2.2 Description of scenarios

The scenarios presented in this report include a description of the current situation of wastewater treatment in agglomerations with at least 2000 PE in the DRB at reference date 31/12/2012 (*reference scenario*).

At reference date 2012, 8 EU MS were contributing to the DRB. In two of these countries, the UWWT Directive had to be fully implemented by 31st December 2005, whereas for the remaining 6 Member States, different transitional periods for implementation of the Directive apply. In general, the final deadline for compliance is 31st December 2015 (for smaller agglomerations in Romania only - 2000 PE – 10,000 PE - a final deadline of 31st December 2018 applies.

The present report additionally describes three future scenarios of wastewater treatment. The *baseline scenario* (BS-UWWT) describes the agreed measures for the second cycle of implementation of the WFD on the basin-wide scale until 2021. Two additional scenarios, the *midterm scenario* (MT-UWWT) and the *vision scenario* (VS-UWWT) have been developed describing further steps toward the vision for organic pollution as an orientation for future policy decisions.

In brief, the scenarios can be described as follows:

- **Reference Situation UWWT 2012 (RefSit-UWWT):** This scenario gives an overview of the current situation of wastewater treatment (reference date 31/12/2012) and treatment efficiency in the DRB.
- **Baseline scenario UWWT 2021 (BS-UWWT):** This scenario describes the agreed measures for the second cycle of implementation of the WFD on the basin-wide scale (until 2021). Measures that are legally required for EU MS and other measures that can be realistically taken by the Non EU MS have been taken into account.

  As the Black Sea has been designated as a *sensitive area* due to the need to protect against eutrophication, it is necessary to identify the catchment area of the Black Sea as the *catchment of a sensitive area* according to Article 5(5) of the UWWT Directive. Accordingly, the *baseline scenario* was based on the consideration that, under the UWWT Directive, the entire Danube Basin is a *'catchment of a sensitive area*', with N and P sensitivity. Hence, the following assumptions for measures to be implemented by 2021 were taken:

  - ***EU MS with a final deadline of 31st December 2005 to comply with Directive 91/271/EEC*** (Austria, Germany): Both EU MS apply Article 5(8) and Article 5(4) of Directive 91/271/EEC (minimum percentage of the reduction of the overall load entering all UWWTPs is at least 75% for total N and total P) and have already complied with the Directive at reference date 31/12/2005 or 31/12/2006. Hence, from a legal point of view, no need for further improvement of wastewater treatment is identified. However, both Member States indicated that wastewater treatment for several agglomerations will be further improved by 2021 and beyond. Since this information was not available at the agglomeration-level for the next management cycle, further improvements have been considered for the vision scenario only.
  - ***EU MS with a final deadline of 31st December 2015 to comply with Directive 91/271/EEC:*** For these Member States, it was assumed that Directive 91/271/EEC would be fully implemented by 2021. Several EU MS apply Article 5(4) in their entire country or in their national parts of the DRB. For these areas, it is required that the minimum percentage of the reduction of the overall load entering all UWWTPs is at least 75% for total N and total P and hence, a forecast of wastewater treatment at the agglomeration-level is difficult. In the cases where no other information was available from the countries, it was assumed for the purpose of this report that, in order to achieve the required removal-rates, N and P removal will be implemented for all agglomerations >10,000 PE, whereas secondary treatment will be implemented in agglomerations ≥2000 PE–10,000 PE. It has to be stressed that this approach does not necessarily reflect the treatment requirements for implementation of Directive 91/271/EEC (the 75% reduction rate for total N and total P loads may be achieved in the case where not all agglomerations >10,000 PE are treated by N and P removal). However, it serves as interim assumption for the present report in order to calculate forecasted emissions.
  - ***EU MS with a final deadline of after 31st December 2015 to comply with Directive 91/271/EEC*** (Romania and Croatia): In Romania, agglomerations with a size >10,000 PE have to comply with Article 3, Article 4 and Article 5(2) by 31st December 2015 at the latest, whilst agglomerations ≤10,000 PE are subject to a transitional period until 31st December 2018. The interim target date to comply with Article 3 (80% of the total biodegradable load of agglomerations of 2000 PE-10,000 PE) and Article 4 (77% of the total biodegradable load of agglomerations of 2,000 PE-10,000 PE) is 31st December 2015. For Romania it was assumed that agglomerations >10,000 PE will be served by N and P removal by 2021. For agglomerations 2000 PE– 10,000 PE, it was assumed that secondary treatment will be in place. For Croatia the final deadline for the implementation of the UWWTD is

end of 2023 whilst the interim deadline for agglomerations above 10,000 PE in sensitive areas is end of 2020. Therefore, this assessment assumes that the first priority in Croatia is the development of agglomerations above 10,000 PE where N- and P removal will be in place by 2021. Agglomerations below 10,000 PE will comply with the UWWTD requirements after 2021.

  - ***Non EU MS:*** Non EU countries were asked for forecasted improvements until the year 2021. In the cases where information was available on agglomeration-level, these data were taken into account for the *baseline scenario*. In the cases where no data was available on agglomeration level, it was assumed that the situation for wastewater treatment in 2021 would be identical to that in the reference year 2012.

- **Midterm scenario (MT-UWWT):** This scenario is based on the baseline scenario. In addition, it assumes that the UWWTD will be fully implemented in Croatia and for Non EU MS P removal will be in place for agglomerations >10,000 PE in order to achieve the management objectives.

  In the framework of the daNUbs project (TU Vienna, 2005), consistent removal of P from all waste water treatment plants (larger than 1000 PE) was assessed as sensible for the sake of protecting water in river basins, economically justified and technically simple. In contrast to N removal, which requires a specific size of wastewater treatment plant and hence structural measures, P removal can be realised more easily by adding P precipitants to the wastewater treatment process. In order to elaborate the mid-term scenario as realistic as possible, P removal was only considered for agglomerations >10,000 PE.

- **Vision scenario (VS-UWWT):** This scenario goes beyond the BS-UWWT and the MT-UWWT and therefore far beyond the requirements of UWWT Directive. It is based on the assumption that the full technical potential of wastewater treatment regarding the removal of organic influents and nutrients is exploited for both EU and Non EU MS. If such a scenario was to be realised, it is assumed that agglomerations >10,000 PE are equipped with N and P removal (secondary/tertiary wastewater treatment), whereas all agglomerations ≥2000 PE are equipped with secondary treatment.

3. Method of data evaluation

3.1 Basic concept

According to the data model of the UWWT Directive, the data model of the ICPDR Municipal Emission Inventory 2012 considers the following relation between agglomeration, UWWTP / collecting system without treatment and discharge point (see also Figure 2):

- **One agglomeration** can be served by **one or no UWWTP / Collecting system without treatment** (relation 1:1);
- **One agglomeration** can be served by **several UWWTPs / Collecting systems without treatment** (relation 1:n);
- **Several agglomerations** can be connected to **one UWWTP / Collecting system without treatment** (relation m:1)
- **Several agglomerations can be connected to several UWWTP / Collecting system without treatment (relation m:n)**
- **One UWWTP Collecting system without treatment** discharges wastewater by **one** (relation 1:1) **or several discharge points** (relation 1:n)

Figure 2: Data model under EMIS 2007 (according to the data model under Article 15 of Directive 91/271/EEC)

Besides this general relation between agglomeration, UWWTP / Collecting system without treatment and discharge point, the second important parameter to consider is the pathway of wastewater from the agglomeration to discharge to the environment. The main pathways of wastewater from an agglomeration can be described as follows:

- Collection in a collecting system (= system of conduits) and treatment in an UWWTP;
- Collection in a collecting system (= system of conduits) and discharge without treatment (in the ICPDR Municipal Emission Inventory 2012 this situation is presented by so called “NOTCON” referring to a “Collecting system without treatment”);
- Collection in individual and appropriate systems - IAS - (e.g. cesspools) and transport to an UWWTP by truck;
- Collection in individual and appropriate systems - IAS - (e.g. cesspools) and not transported to an UWWTP by truck;
- Discharge without collection and treatment.

These possible pathways are described in Figure 3 in more detail:

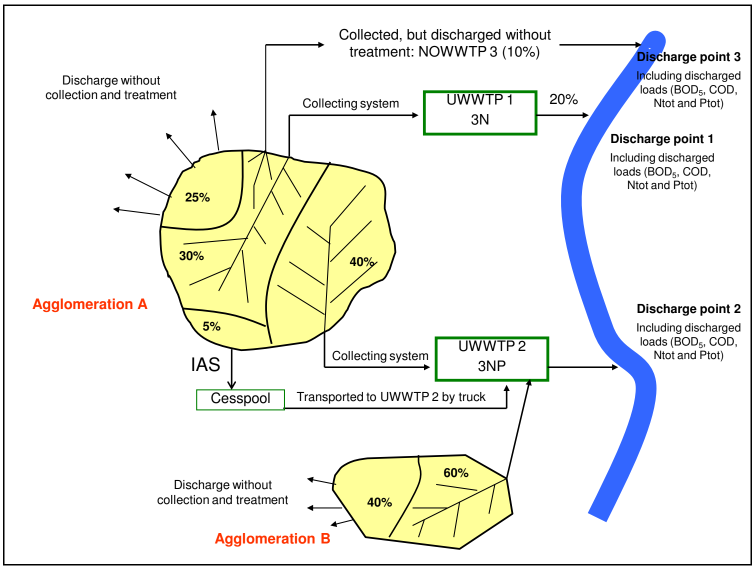


Figure 3: Major pathways of wastewater from agglomerations as covered by the Municipal Emission Inventory 20012

3.2 Data evaluation for the Municipal Emission Inventory 2012: situation as of 31/12/2012

In general the method used in the last ICPDR Emission Inventory "reference year 2005/2006" was applied. Nevertheless a few changes were made to increase transparency and to address the improved data quality in the 2012 assessment.

1. Only agglomerations with a generated load ≥2000 PE were considered for data evaluation.
2. For EU MS (status 2012), data format reported to ICPDR for the DRB was identical to information reported under the UWWT Directive Article 15 (Questionnaire Article 15). However, EU MS could choose to report BOD_5, COD, N_{tot} and P_{tot} loads either by UWWT Questionnaire, to ICPDR or both. Hungary reported 2012 data to ICPDR and 2011 data under the UWWT Directive. Further Czech Republic decided to modify generated loads reported in the UWWT Directive. Consequently PE reported in the ICPDR Emission Inventory exceeds those numbers reported in the UWWT - Directive.
3. Data reported under the UWWT Directive Article 15 and to the ICPDR were harmonized in a first screening of completeness and accordance of reported information (e.g. investigations as to whether IDs were unique, the data model was correctly established and reported agglomerations were located within the borders of the Danube catchment). After this first screening of data, some corrections were required and Member States provided an update of these data. For Non EU MS data inconsistencies were evaluated and - if necessary – corrected by the countries.
4. It was investigated whether all agglomerations (where a specific % is collected in a collecting system) were linked to at least one UWWTP/NOTCON and whether all UWWTPs/NOTCONs were linked to at least one discharge point via IDs. In cases where the link via IDs was not established, efforts were taken to define the link via names of agglomerations, UWWTPs/NOTCONs and discharge points.

   In cases where an UWWTP/NOTCON could not be linked to a discharge point, a discharge point was created based on the location of the respective agglomeration. In case of more agglomerations the discharged loads from this UWWTP/NOTCON were estimated according to the method described under point 7.

   In cases where an agglomeration could not be linked to any UWWTP/NOTCON and where the parameter "*% of generated load collected in a collecting system*" was 0, then it was assumed that the total generated load of this agglomeration was not collected and discharged without treatment.

In cases where an agglomeration could not be linked to any UWWTP/NOTCON where the parameter "*% of generated load collected in a collecting system*" was not 0, then it was assumed that the generated load of this agglomeration collected in a collecting system is discharged without treatment. In this case, a NOTCON was created and discharged loads were calculated for this NOTCON.

5. Besides the link between agglomerations, UWWTPs/NOTCONs and discharge points via IDs, it is crucial to know which fractions (=% of the generated load) enter the different wastewater pathways. In cases where this parameter was not reported in ICPDR 2012 by EU MS, this information was taken over from the UWWT Questionnaire 2012. In cases where the parameter *"% of the generated load of the agglomeration treated in this UWWTP"* was not given for a UWWTP/NOTCON in the Non EU MS, this parameter was considered as identical to the parameter "*% of generated load collected in a collecting system" and/ or "% of generated load collected but discharged without treatment"* (in cases where NOTCONs were reported).
   In cases where these parameters were also not reported, then the parameter *"% of population connected to combined sewage network*" and/or the parameter *"% of population connected to separate sewage network*" were taken into consideration. In cases where no information was reported for all the above mentioned parameters, the average connection rate of the respective countrywas used for the parameter "% of generated load collected in a collecting system".

6. Under the UWWT Directive, one wastewater pathway covers the generated load addressed through individual and appropriate systems (IAS). Wastewater addressed through IAS can be treated locally (e.g. domestic sewage treatment plant) or transported to a treatment plant (e.g. collected in a cesspool and then transported to a UWWTP by truck). In the UWWT-Directive Questionnaire Article 15, it was foreseen that the fraction of the generated load collected in a cesspool and transported to an UWWTP by truck is included in the parameter "% of the generated load of the agglomeration treated in this UWWTP" in the template UWWTP_Agglo. In cases where this parameter was not reported but a specific fraction of the generated load was reported to be addressed through IAS, then it was assumed that the emissions from the UWWTP already covered the generated load of the connected agglomeration addressed through IAS. Otherwise it was assumed that waste water collected by IAS is treated locally. Since the treatment stage and the receiving media (surface water or groundwater) is unknown at agglomeration level, no specific discharges into surface water were calculated from these IAS.

7. In cases where more than one agglomeration was connected to one UWWTP/NOWWTP, the emissions (BOD_5, COD, N_{tot} and P_{tot}) reported for the discharge-point connected to this UWWTP/NOTCON were allocated to the different agglomerations. Allocation was done under consideration of the generated load of the agglomerations (PE) and the percentage of the generated load treated in the UWWTP/NOTCON.

8. In cases where emissions for BOD_5, COD, N_{tot} and/or P_{tot} were missing, this data was calculated by using the following estimation factors:

BOD_5	60 g/PE/day
COD	110 g/PE/day
N_{tot}	8.8 g/PE/day

The Ukrainian authorities insist to calculate BOD_5 emissions with a modified estimation coefficient (50g/PE/day) for their country. Calculation of generated loads of total P for reference date 31/12/2012 took into account the fact that some countries in the DRB have not completely introduced P-free detergents. For this reason, country specific coefficients were used to estimate the generated loads of P_{tot} per population equivalent. On the basis of country-specific P emissions per inhabitant and per day (Van Gils et al., 2005 in: Kroiss et al., 2008), the following estimation coefficients were taken into account for population equivalents (PE).

Country	Coefficient (g P/ (PE d)
Austria	1.5
Bosnia and Herzegovina	2.05
Bulgaria	1.5
Croatia	2.05

Country	Coefficient (g P/ (PE d)
Czech Republic	1.5
Germany	1.5
Hungary	1.5
Moldova	2.05

Country	Coefficient (g P/ (PE d)
Romania	1.5
Serbia	1.8
Slovakia	1.5

Country	Coefficient (g P/ (PE d)
Slovenia	1.9
Ukraine	2.05

For the calculation of future scenarios for the reference year 2021 (*baseline-scenario*), the use of P-free detergents was assumed for all EU-MS in the DRB, while in the *midterm scenario* it was assumed for all DRB countries. For this reason, total generated loads of total P for the year 2015 were calculated by the use of an estimation coefficient of 1.5 g/PE/day. This value was reported by Zessner & Lindtner (2005) for Austria, where P-free detergents have been used for several years.
In a second step, discharged loads were calculated on the basis of generated loads and treatment type:

No treatment	Generated loads are reported as discharged ones.
Primary treatment	BOD_5 reduction: 30% COD reduction: 30% N_{tot} reduction: 10% P_{tot} reduction: 10%
Secondary treatment	BOD_5 reduction: 90% COD reduction: 80% N_{tot} reduction: 20% P_{tot} reduction: 30%
More stringent treatment	BOD5 reduction: 95% COD reduction: 90% N_{tot} reduction: 80% P_{tot} reduction: 90%

As result of these calculations, discharged loads of BOD_5, COD, N_{tot} and P_{tot} were available for all UWWTPs/NOTCONs.

9. The type of treatment was defined for each agglomeration. In cases where an agglomeration was served by more than one UWWTP/NOTCON, UWWTPs/NOTCONs with the same treatment level were grouped together and the respective percentage values for the *generated load of the agglomeration treated in this UWWTP* were summarised.

Example: Agglomeration 1:

The generated load (PE) is served by

UWWTP 1	primary treatment	4%	→	primary treatment	64%
UWWTP 2	secondary treatment	20%		secondary treatment	20%
UWWTP 3	primary treatment	60%		no treatment	16%
UWWTP 4	no treatment	16%			

After grouping treatment levels for each agglomeration, the definition of treatment types was undertaken as described in the table below. In each case, the highest treatment type available was considered for the purpose of definition of the treatment type.

≥80% of an agglomeration treated in a UWWTP with 3NP, 3N or 3P	More stringent treatment
<80% of an agglomeration treated in a UWWTP with 3NP, 3N or 3P	Partial more stringent treatment
≥80% of an agglomeration treated in a UWWTP with 2	Secondary treatment
<80% of an agglomeration treated in a UWWTP with 2	Partial secondary treatment

≥80% of an agglomeration treated in a UWWTP with 1	Primary treatment
<80% of an agglomeration treated in a UWWTP with 1	Partial primary treatment
≥80% of an agglomeration connected to NOTCON	Collected but not treated
<80% of an agglomeration connected to NOTCON	Partial collected but not treated
≥80% of an agglomeration addressed through IAS	Addressed through IAS
<80% of an agglomeration addressed through IAS	Partial addressed through IAS
Agglomeration treated in UWWTP with no treatment	No treatment

The following example illustrates this approach:

Example: Agglomeration 2:

50% collected and given primary treatment 10% collected and given secondary treatment 40% not collected / no treatment	Partial secondary treatment

10. The emissions of BOD_5, COD, N_{tot} and P_{tot} were summarised for all treatment types in a country.
11. For all large agglomerations (≥100,000 PE) in a country, a more detailed analysis of the treatment levels was provided, in that the generated load (PE) treated in UWWTPs/NOTCONs with different treatment levels was indicated.

3.3 Data evaluation for the Municipal Emission Inventory 2012: future scenarios

1. Non EU MS provided information on size and treatment of agglomerations where collecting systems and/or UWWTP will be upgraded or constructed by 2021.
2. The calculation of emissions for future scenarios was elaborated based on estimation coefficients (see chapter 3.2) and reduction efficiencies for the different types of wastewater treatment. In cases where the calculated emissions of an assumed "higher" treatment type exceeded the emissions reported for reference year 2012, then the latter data were taken into account and not the calculated ones.

3.4 Presentation of results

The presentation of results was undertaken in the following way:

3.4.1 Presentation of the situation as of 31/12/2012

For the presentation of the current situation regarding wastewater treatment, all agglomerations were attributed to the dominant treatment category according to the methodology described in chapter 3.2, point 8. However, the emissions of BOD_5, COD, N_{tot} and P_{tot} were summarised for the total amount of sewage collected in collecting systems from the agglomeration only (this includes IAS; generated loads collected but not connected to treatment plants and the total treatment on wastewater treatment plants). Generated loads not collected are separated from the strictly agglomeration based view, calculated separately and presented as a total in the line "Not collected and no treatment". To the authors opinion the disentanglement from the strict agglomeration based view is reasonable for a more transparent reporting of open tasks and for a more precise separation of BOD_5, COD, N_{tot} and P_{tot} loads which are emitted directly to the surface water and those, which are (partly) emitted to the environment and reach surface water mainly via diffuse pathways. Furthermore generated loads in IAS are presented for agglomerations, where no further treatment is available, or where IAS is the dominant treatment or collecting type in the table; in the text even the total amount of generated loads (PE) collected and treated in IAS is mentioned. In some cases the modifications lead to heterogeneities in the presentation of results; e.g. cases can appear, where no agglomeration is defined as the main collecting or sampling system but generated loads and emission loads are shown. In the example (see Table 1) no agglomeration is defined as mainly served by "collected and no treatment", therefore the number of agglomeration is 0. However generated loads and emissions are reported for this class which are mainly addressed by IAS. Therefore generated loads as well as emissions from the pathway "collected and no treatment" are reported.

Table 1: Example of the presentation of wastewater treatment (reference date 31/12/2012)

Name of country	Number of agglomeration	Generated load (PE)	Emissions BOD_5 (t/a)	Emissions COD (t/a)	Emissions N_{tot} (t/a)	Emissions P_{tot} (t/a)
Collected plus tertiary treatment (3NP)	99	1944450	578,676	3587,962	1182,506	111,449
Collected plus tertiary treatment (3N)	17	70635	26,000	148,800	90,300	11,400
Collected plus tertiary treatment (3P)	12	84686	23,800	164,900	71,560	5,700
Collected plus partially tertiary treatment (3NP)	15	102355	38,554	254,725	95,740	9,735
Collected plus partially tertiary treatment (3N)	4	12163	15,222	37,273	11,510	2,226
Collected plus partially tertiary treatment (3P)	1	15200	12,900	27,300	9,900	0,400
Collected plus secondary treatment	28	132381	73,925	337,378	133,099	16,566
Collected plus partial secondary treatment	4	9709	46,327	110,428	18,490	2,864
Collected plus primary treatment						
Collected plus partial primary treatment						
Collected and treatment - total	**180**	**2371579**	**815,404**	**4668,766**	**1613,105**	**160,34**
Collected and no treatment		16979	285,765	541,352	45,404	8,192
Adressed by IAS	5	7150				
Not collected and no treatment						
Total	**185**	**2395708**	**1101,169**	**5210,118**	**1658,509**	**168,532**

The following example illustrates the methodology: 85% of agglomeration A (50,000 PE) was treated in a UWWTP with N and P removal, whereas the remaining fraction of 15% (8824 PE) was discharged without treatment. Emissions of BOD_5 from the UWWTP providing N and P removal amounts to 9.8 t/a, whereas emissions from the fraction that is discharged without treatment amounts to 164 t/a. In the results table, agglomeration A is presented as follows:

	Number of agglomerations	generated load (PE)	Emissions BOD (t/a)	Emissions COD (t/a)	Emissions N_{tot} (t/a)	Emissions P_{tot} (t/a)
Collected plus more stringent treatment (3NP)	1	50,000	9.8			
Not collected and not treated		8824	164 t/a			

It is always the highest treatment type that is considered in the results table (e.g. an agglomeration is treated by a UWWTP that provides primary and secondary treatment. The agglomeration is only counted once for secondary treatment and not for primary and secondary treatment).

3.4.2 <u>Presentation of the situation for agglomerations ≥100,000 PE as at 31/12/2005 or 31/12/2006</u>

To present the wastewater treatment situation for agglomerations ≥100,000 PE, the absolute PE amount entering the different wastewater purification stage and pathways is depicted.

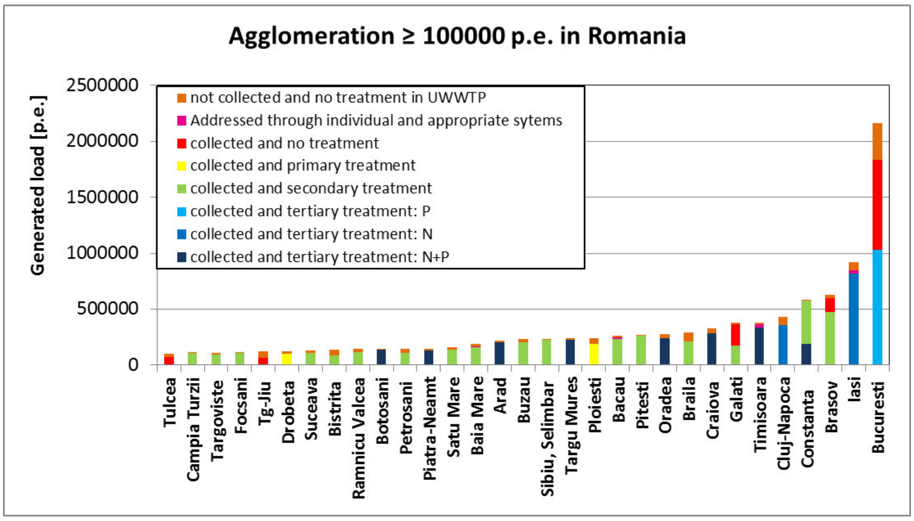


Figure 4: Example of the presentation of wastewater treatment in agglomerations ≥100,000PE

3.4.3 Presentation of future scenarios for each country

For the presentation of future scenarios, the emissions to the environment from agglomerations ≥2000 PE are given separately for BOD_5, COD, N_{tot} and P_{tot}. The figures (see example in Figure 5) represent the decrease in emissions due to improved wastewater treatment in 2021 in relation to the current situation (*reference scenario* = column 1). As it represents the *reference scenario*, the emissions reported for reference year 2012 in column 1 always represent 100%. In each column, the emissions of BOD_5, COD, N_{tot} and P_{tot} are differentiated into emissions resulting from i) generated loads from agglomerations collected in collecting systems (darker coloured parts of the columns), and ii) generated loads from agglomerations not collected (lighter coloured parts of the columns). The latter fraction reaches the environment as diffuse pollution and hence effects the aquatic environment of the DRB less directly than point sources. However, as the *agglomeration* including *all* generated loads represents the central concept of the Emission Inventory and as the collection of all wastewater in a collecting system is foreseen in Article 3 of Directive 91/271/EEC, this fraction is also presented in Figure 5.

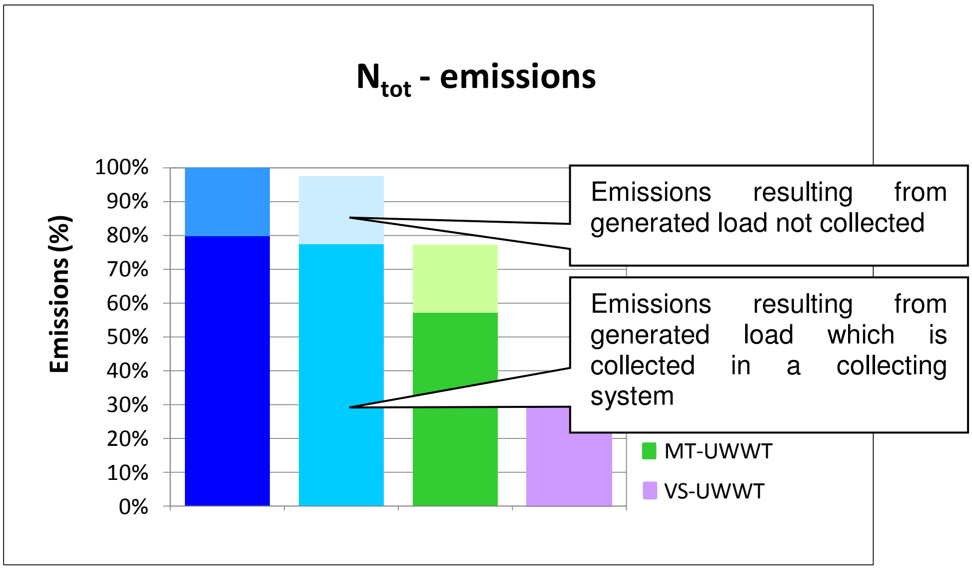


Figure 5: Example of the presentation of emissions under different scenarios

3.5 Comparison of ICPDR Emission Inventory of reference years 2005/2006 with reference year 2012

An explicit comparison of results from the ICPDR Emission Inventory of the reference years 2005/2006 with results from the actual ICPDR Emission Inventory (Reference date 31/12/2012) is not useful. On the one hand data requirements and quality significantly changed within six years and data evaluation is not comparable in general (many parameters calculated in the 2005/2006 data set are now reported by the countries and are based on measurements or different calculation procedures) on the other hand even general numbers on agglomeration amounts and generated loads reported are not totally comparable within these two datasets. A further restriction to an explicit comparison of data is that the evaluation procedure changed in some details (see chapter 3.2 and 3.3). In view of these restrictions only a relative comparison of 2005/2006 and 2012 results is reasonable and should address in particular clear differences in both datasets. To reflect the described situation in the structure of the Annex at the best, it was decided not to summarize comparison results in an extra chapter, but to provide information within the description of the 2012 results.

4. Results and conclusions

The results of the ICPDR Emission Inventory 2012, as well as the future scenarios, are presented in the following way. Separated into agglomerations served by different treatment types, Table 2 to Table 5 present the annual emissions of BOD_5, COD, N_{tot} and P_{tot} from DRB agglomerations ≥2000 PE under consideration of each of the different scenarios. (N.B. The agglomerations are always attributed to the highest level of treatment type available, however loads and emissions caused by sewage not collected are calculated and presented under *not collected and not treated*).) The tables give a rough overview of the present situation on wastewater treatment in the DRB, reflecting that in 2012 72% of total generated load was collected and treated in the Danube River Basin, while further 10% was collected in a collecting system but not treated. However in 2012 there was still a high number of agglomerations ≥2000 PE which were neither connected to a collecting system nor to a sewage treatment plant with 18% of the total generated load. Less than 0.5% of the total generated loads from agglomerations are mainly addressed by IAS without connection to centralized treatment plants.

A direct comparison of the numbers from the 2005/2006 reference year with those from 2012 is difficult, because the presentation of the results changed. While in 2005/2006 all generated loads (PE) as well as BOD_5-, COD-, N_{tot}- and P_{tot} loads from one agglomeration mainly addressed by one treatment type were subsumed under this type – in the 2012 data assessment the generated loads and matter loads from the pathway *not collected and not treated* were separately addressed even when a treatment plant has been in place. However, the datasets are suitable to identify tendencies developed in the six year period between 2005/2006 and 2012.

The main tendency for this six year period is a clear increase of tertiary treatment, in most cases with N-removal and P removal in place. Under consideration of the changes in assessment even the constant share of total generated loads addressed by *no collection and no treatment* and *collection but not treated* (27% for 2005/2006 as well as for 2012) underlines improvements in the urban wastewater treatment sector of the Danube River Basin.

Even more indicative is the comparison of emissions reported for 2005/2006 and 2012. For all parameters addressed (BOD_5, COD, N_{tot} and P_{tot}) a total emission reduction of about 20% can be stated from 2005/2006 to 2012. Emissions reported for 2012 are situated between the 2005/2006 reference year and the *baseline scenario* (forecasting the 2015 status) addressed in the ICPDR Municipal Emission Inventory 2009. This underlines that the tendencies of the emission developments were going in the right and foreseen direction.

In Table 2-5 the entire agglomeration and all associated emissions from treatment plants (allocated to the highest treatment type) as well as from the pathways *collected but not treated* and *not collected and not treated* are presented.

Figure 6 summarises the influence of the different scenarios on emissions of BOD_5, COD, N_{tot} and P_{tot}.

All scenarios in Figure 6 differentiate between emissions originating from those agglomerations where at least part of the generated load is collected in collecting systems and emissions from agglomerations where the generated load is not collected in a collecting system. This differentiation was undertaken as emissions not yet collected in a collecting system do not directly enter surface waters. As they either drain into the ground or are used for agricultural purposes, they enter the aquatic environment mainly via groundwater.

Because data reported by Montenegro were not suitable to develop scenarios and taking particular account to the comparability of the results (*reference scenario* and *future scenarios*) they were not included in the total evaluation of loads and emissions in the DRB in this report. Nevertheless, data from Montenegro have been assessed in the Annex of this report and also in the main report of the DRBMP – Update 2015.

Table 2: Reference scenario: wastewater treatment in agglomerations ≥2000 PE in the DRB and emissions of BOD_5, COD, N_{tot} and P_{tot} into the environment (reference date 31/12/2012)

Reference scenario	Number of agglomeration	Generated load (PE)	Emissions BOD_5 (t/a)	Emissions COD (t/a)	Emissions N_{tot} (t/a)	Emissions P_{tot} (t/a)
Collected plus tertiary treatment (3NP)	1276	37244282	14287	70231	27302	2191
Collected plus tertiary treatment (3N)	162	2350774	3859	11565	3166	496
Collected plus tertiary treatment (3P)	147	1006379	453	2258	1136	78
Collected plus partially tertiary treatment (3NP)	195	5191385	9127	21789	4798	518
Collected plus partially tertiary treatment (3N)	32	244882	162	536	178	30
Collected plus partially tertiary treatment (3P)	15	1165461	24996	53369	5664	748
Collected plus secondary treatment	428	9794310	29669	60979	13432	2369
Collected plus partial secondary treatment	574	5447241	27042	59454	9649	1364
Collected plus primary treatment	18	278408	1350	2831	433	78
Collected plus partial primary treatment	88	651164	7308	14459	1523	330
Collected and treatment - total	**2935**	**63374286**	**118253**	**297471**	**67281**	**8202**
Collected and no treatment	533	8270924	134416	247497	20184	4092
Adressed by IAS*	195	296327				
Not collected and no treatment	2035	15866888	343049	637056	50965	9733
Total	**5698**	**87808425**	**595718**	**1182024**	**138430**	**22027**

* Generated loads are shown only if the IAS are not connected to centralized waste water treatment plant, otherwise loads are added to those of the respective treatment type.

As can be seen from Table 2 5,698 agglomerations ≥2000 PE (87,808,425 PE) were reported for the reference date 2012 in the DRB (without Montenegro), of which 4,426 agglomerations (17,709,455 PE) were of the size class 2000-10,000 PE and 1,272 agglomerations (70,098,969 PE) had a size ≥10,000 PE. There were 124 agglomerations with a size of ≥100,000 PE, which produce about 45% of the total generated wastewater.

In 2012 about 72% of total generated load was collected and treated in the Danube River Basin. However, a considerable number of 2035 agglomerations, reflecting approximately 18% of the generated load from agglomerations, was not connected to either a collecting system or treatment plant. The generated load of agglomerations with wastewater collected in collecting systems but discharged without treatment, amounted to approximately 10%. These untreated discharges resulted in significant loads of BOD_5, COD, N_{tot} and P_{tot}, into surface waters contributing approx. 65% of BOD_5, 55% of COD, 30% of N_{tot} and 40% of P_{tot} total discharges. The two fractions representing untreated waste water releases into the environment produced in the highest emissions of BOD_5, COD, N_{tot} and P_{tot}, contributing around 80% of BOD_5, 75% of COD, 51% of N_{tot} and 63% of P_{tot}.

Of the 124 agglomerations ≥100,000 PE (39,396,708 PE), 15 agglomerations (reflecting 10% of the generated load in big agglomerations and around 5% of the total generated load) had no wastewater treatment.

Table 3: Baseline scenario: wastewater treatment in agglomerations ≥2000 PE in the DRB and emissions of BOD_5, COD, N_{tot} and P_{tot} into the environment for 2021

Baseline scenario	Number of agglomeration	Generated load (PE)	Emissions BOD_5 (t/a)	Emissions COD (t/a)	Emissions N_{tot} (t/a)	Emissions P_{tot} (t/a)
Collected plus tertiary treatment (3NP)	1684	61598061	32167	134612	36710	2878
Collected plus tertiary treatment (3N)	158	1077570	677	2991	709	322
Collected plus tertiary treatment (3P)	147	988718	456	2250	1100	77
Collected plus partially tertiary treatment (3NP)	210	2694527	3062	7638	1372	156
Collected plus partially tertiary treatment (3N)	20	76477	38	112	41	6
Collected plus partially tertiary treatment (3P)	6	49788	20	65	32	2
Collected plus secondary treatment	2075	9773719	25792	77698	21865	3479
Collected plus partial secondary treatment	359	1837867	6689	14616	2907	499
Collected plus primary treatment	4	77081	757	1381	199	43
Collected plus partial primary treatment	20	59801	1037	1967	192	33
Collected and treatment - total	**4683**	**78233609**	**70695**	**243330**	**65127**	**7495**
Collected and no treatment	266	4404755	92007	168711	13543	2762
Adressed by IAS	6	32723				
Not collected and no treatment	743	5137338	108299	206264	16501	3252
Total	**5698**	**87808425**	**271001**	**618305**	**95171**	**13509**

The ***baseline scenario*** (Table 3) describes measures for the second cycle of implementation of the WFD on the basin-wide scale until 2021. For the EU MS, it was assumed that Directive 91/271/EEC is implemented in the countries, as far as foreseen by the final deadlines or transitional periods for implementation. For the Non EU MS, improvements in wastewater treatment in committed UWWTPs were taken into account. Compared to the *reference situation*, implementation of the baseline scenario would require construction/extension of sewer systems and treatment plants for 14,523,060 PE at 2555 agglomerations and upgrade of the existing wastewater treatment for 426 agglomerations (15,890,363 PE) in order to provide appropriate treatment for the entire generated load. Connection to waste water treatment aiming N- and P removal for the entire generated load would be accomplished for 423 agglomerations (24,353,779 PE). Establishment of secondary treatment would concern 1647 agglomerations. Agglomerations, where generated load is neither collected nor treated should decrease by 1292 (from 2035 to 743) or 10,729,550 PE, while agglomerations, where load is collected but not treated should decrease by 276 (3,866,169 PE). Thus the *baseline scenario* implies that 1559 agglomerations (covering around 17% of the total generated load in 2021) that had not been connected to a collecting system in reference year 2012, will be equipped with a collecting system, which means that the load entering wastewater treatment plants will significantly increase. In order to avoid a deterioration of the actual situation, it is therefore required to combine the establishment of collecting systems with the establishment of wastewater treatment plants, as shown in the *baseline scenario*.

However, under the *baseline scenario* there will still be a considerable number of agglomerations for which no collecting system is in place for the entire generated load (including 20 agglomerations with a size >10,000 PE) and also for which a collecting system but no wastewater treatment is available for the entire generated load (including 83 agglomerations >10,000 PE).

The improvement in wastewater treatment results in a clear shift to the tertiary treatment with N-removal and P removal in place and also to a significant shift in the relevance of the wastewater fraction not connected to collecting systems and/or wastewater treatment plants and those collected but not connected to a treatment plant. In contrast to the *reference scenario*, only 74% of total BOD_5 emissions, 61% of total COD emissions, 32% of total N_{tot} emissions and 45% of total P_{tot} emissions originate from these fractions, which is a reduction of 15 - 20%.

Table 4: Midterm scenario: wastewater treatment in agglomerations ≥2000 PE in the DRB and emissions of BOD_5, COD, N_{tot} and P_{tot} into the environment in 2021

Midterm scenario	Number of agglomeration	Generated load (PE)	Emissions BOD_5 (t/a)	Emissions COD (t/a)	Emissions N_{tot} (t/a)	Emissions P_{tot} (t/a)
Collected plus tertiary treatment (3NP)	1688	62157979	32780	136860	37070	2908
Collected plus tertiary treatment (3N)	156	676570	238	1381	452	137
Collected plus tertiary treatment (3P)	325	9468660	9282	34983	21571	528
Collected plus partially tertiary treatment (3NP)	208	2594752	900	3656	1051	91
Collected plus partially tertiary treatment (3N)	20	76477	38	112	41	6
Collected plus partially tertiary treatment (3P)	6	49788	20	65	32	2
Collected plus secondary treatment	2152	8258307	15946	57630	18313	2714
Collected plus partial secondary treatment	318	1295588	1892	5303	1612	229
Collected plus primary treatment	0	0	0	0	0	0
Collected plus partial primary treatment	15	31068	542	1118	109	17
Collected and treatment - total	**4888**	**84609189**	**61638**	**241108**	**80251**	**6632**
Collected and no treatment	144	268947	5490	10096	805	138
Adressed by IAS	6	32723				
Not collected and no treatment	660	2897566	59711	116337	9307	1586
Total	**5698**	**87808425**	**126839**	**367541**	**90363**	**8356**

The ***midterm scenario*** (Table 4) reflects the situation where - in addition to the *baseline scenario* - P removal is supplied for all agglomerations >10,000 PE in the Non EU MS. Compared to the *baseline scenario*, implementation of this scenario would require additional construction/extension of sewer systems and treatment plants for 6,423,820 PE at 274 agglomerations and additional upgrade of the existing wastewater treatment for 78 agglomerations (2,911,710 PE) in order to provide appropriate treatment for the entire generated load. Technical enhancement would concern 178 agglomerations (8,479,942 PE) in order to provide P removal for the entire generated load and 4 other agglomerations (559,918 PE) with provision of N- and P removal for the entire generated load. The wastewater fraction not connected to collecting systems and/or wastewater treatment plants only amounts to 47% of BOD_5 loads, 32% of COD loads, 10% of N_{tot} loads and 19% of P_{tot} loads. The sum of emissions not collected and not treated and collected but not treated decreases to 51% of BOD_5 loads, 34% of COD loads, 11% of N_{tot} loads and 21% of P_{tot} loads.

Finally, the ***vision scenario*** (Table 5) aims to present the results of the full use of the technical potential for wastewater treatment concerning the removal efficiencies of nutrients and goes beyond the treatment requirements for implementation of Directive 91/271/EEC. Compared to the *midterm scenario*, implementation of the *vision scenario* would require construction/extension of sewer systems and treatment plants for 3,190,933 PE at 865 agglomerations and upgrade of the existing wastewater treatment for 214 agglomerations (9,062,120 PE). Establishment of N and P removal for the entire generated load would concern 198 agglomerations (9,068,872 PE). Provision of secondary treatment would be accomplished in 843 agglomerations (3,263,981 PE).

Table 5: Vision scenario: wastewater treatment in agglomerations ≥2000 PE in the DRB and emissions of BOD_5, COD, N_{tot} and P_{tot} into the environment

Vision scenario	Number of agglomeration	Generated load (PE)	Emissions BOD_5 (t/a)	Emissions COD (t/a)	Emissions N_{tot} (t/a)	Emissions P_{tot} (t/a)
Collected plus tertiary treatment (3NP)	1886	71226851	41834	170790	42366	3388
Collected plus tertiary treatment (3N)	151	614881	230	1301	427	134
Collected plus tertiary treatment (3P)	133	480676	257	1210	606	48
Collected plus partially tertiary treatment (3NP)	208	2594752	900	3656	1051	91
Collected plus partially tertiary treatment (3N)	20	76477	38	112	41	6
Collected plus partially tertiary treatment (3P)	6	49788	20	65	32	2
Collected plus secondary treatment	2995	11522288	22306	83111	26537	3960
Collected plus partial secondary treatment	293	1209989	1303	4260	1430	195
Collected plus primary treatment	0	0	0	0	0	0
Collected plus partial primary treatment	0	0	0	0	0	0
Collected and treatment - total	**5692**	**87775702**	**66888**	**264505**	**72490**	**7824**
Collected and no treatment	0	0	0	0	0	0
Adressed by IAS	6	32723				
Not collected and no treatment	0	0	0	0	0	0
Total	**5698**	**87808425**	**66888**	**264505**	**72490**	**7824**

The effects of the implementation of the different future scenarios become also clear in Figure 6. Under consideration of the *baseline scenario* emissions of BOD_5 could be reduced by 55% and emissions of COD by around 48%. For N_{tot}, a reduction of 31% could be achieved and the reduction of P_{tot} emissions would amount to 39%.

Compared to the *reference scenario*, implementation of the *midterm scenario* would decrease the emissions of BOD_5 by 79%, COD by 69%, N_{tot} by 35% and P_{tot} by 62%.

Compared to the *reference scenario*, establishing the *vision scenario* would reduce the emissions of BOD_5 and COD by 89% and 78%, respectively. Furthermore, emissions for N_{tot} would be reduced by 48% and the emissions of P_{tot} by around 65%.

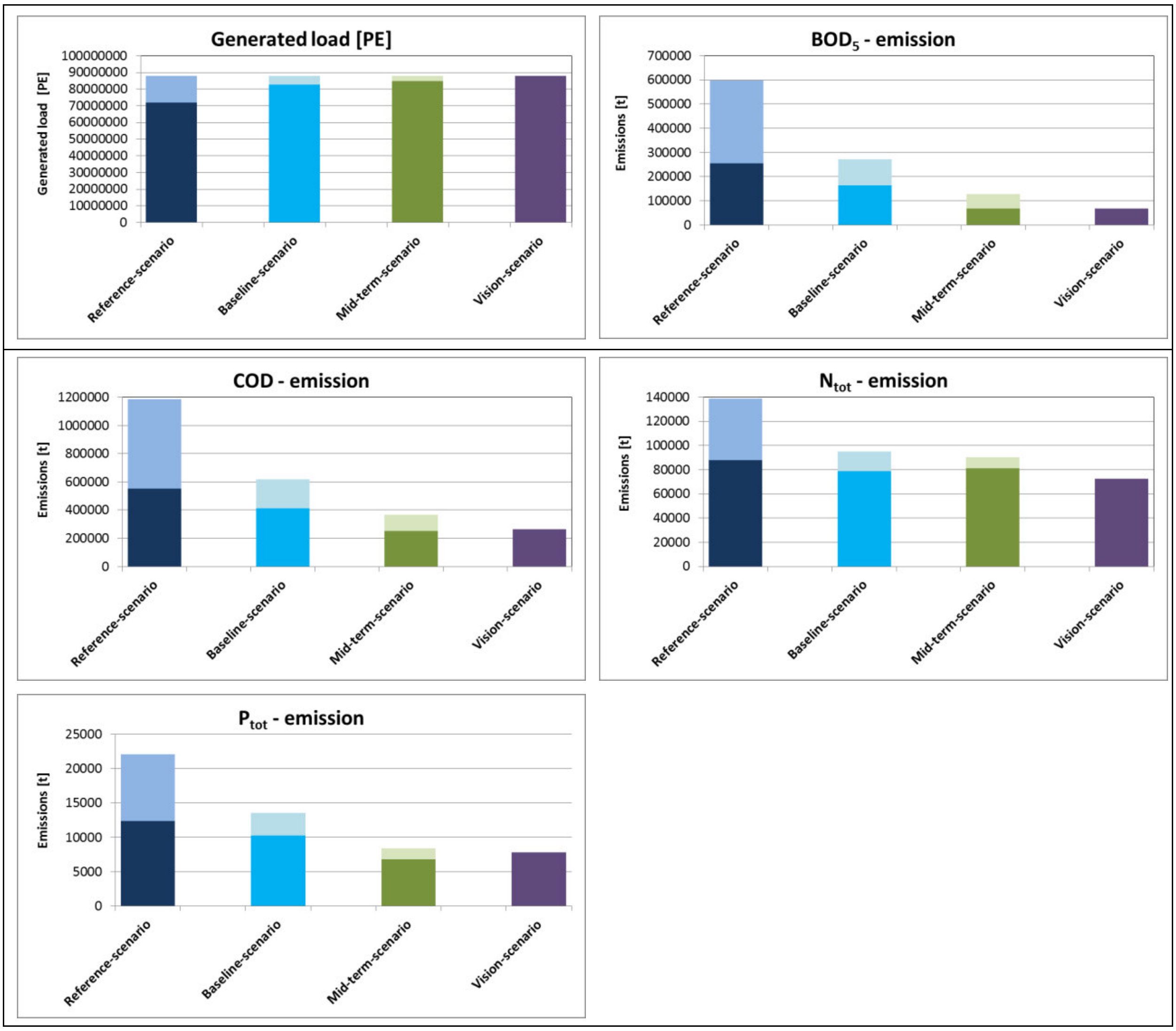


Figure 6: Emissions (t/a) of BOD_5, COD, N_{tot} and P_{tot} under different scenarios

5. Literature

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6. Annex: Detailed evaluation for each country

6.1 Germany

6.1.1 General information about the data evaluation

- In the framework of the ICPDR Emission Inventory 2012, two datasets from Germany were considered for the data evaluation:
  - Data reported to the UWWT Directive under Questionnaire Article 15
  - Data reported under the ICPDR 2015 Emission Inventory.
- Completion of datasets in the context of harmonisation was realized by Bavaria and Baden-Württemberg.
- The reference date of both datasets was 31/12/2012.
- As a Member State of the European Union, Germany applies Art. 5(2,3) of the UWWT Directive. In July 1991, Germany designated the entire drainage area of the North Sea and Baltic Sea as a *sensitive area*, applying Article 5(4) of the Directive in both *sensitive areas* from January 1999 onwards. Concerning water bodies in the Danube catchment, Bavaria designated the important Bavarian lakes (and their catchments) as *sensitive areas* in an August 1992. Since the Danube infiltrates to a considerable degree at the city of Fridingen, (the water eventually flowing via Lake Constance to the North Sea), Baden-Wuerttemberg designated the respective uppermost Danube stretch and its catchment as sensitive in a December 1993 Act. In all the cases addressed above, the designation criterion of *eutrophication* was applied.
- In September 2007, Germany applied Art. 5(8) of the UWWT Directive because it was shown that, from 2005 onwards, the minimum percentage reduction of overall load entering all UWWTPs was at least 75% for total P and total N.

In the DRB of Germany, one agglomeration is served by one UWWTP / collecting system without treatment, so the ratio [agglomeration : UWWTP] = [1 : 1] was used.

6.1.2 Country specific considerations for data evaluation

No specific considerations for data evaluation in the datasets were made.

6.1.3 Results of data evaluation for the situation as of 31/12/2012

Germany reported 718 agglomerations ≥2000 PE for the reference year 2012, of which 473 agglomerations (2,150,459 PE) were ≤10,000 PE and 245 agglomerations (11,479,069 PE) were >10,000 PE. In the reference year 2012, 99.8% of the generated load of 212 agglomerations >10,000 PE were already served by UWWTPs with more stringent treatment (99.2% with 3NP, 0.1% with 3P and 0.5% with 3N). Compared to 2005/2006 data this is an improvement of the 3NP treatment by 15% for agglomeration > 10,000 PE. All agglomerations with a size of ≥2000 PE – 10,000 PE were reported to be served by at least secondary treatment.

Germany addressed 18,459 PE collected by IAS with 100% of the generated load transported by trucks to wastewater treatment plants (see Table 6).

Compared to 2005/2006 the amount of agglomerations reported for the German part of the Danube catchment increased by 37, while reported generated load grew by more than one million PE. Nevertheless, reported BOD_5 and COD loads decreased by more than twenty percent, whereas P_{tot} and N_{tot} loads remain almost constant.

In agglomerations ≥100,000 PE improvements could be recorded for Memmingen (130,000PE) and München I (1,074,759), being improved from tertiary treatment with P removal to tertiary treatment with N and P removal.

Table 6: Wastewater treatment in agglomerations ≥2000 PE and emissions of BOD, COD, N_{tot} and P_{tot} into the environment in the German part of the DRB

Germany	Number of agglomeration	Generated load (PE)	Emissions BOD_5 (t/a)	Emissions COD (t/a)	Emissions N_{tot} (t/a)	Emissions P_{tot} (t/a)
Collected plus tertiary treatment (3NP)	425	12474212	3575,256	20102,942	11203,798	741,778
Collected plus tertiary treatment (3N)	109	468428	157,659	1024,512	297,788	114,429
Collected plus tertiary treatment (3P)	47	218326	123,289	641,153	331,138	28,789
Collected plus partially tertiary treatment (3NP)						
Collected plus partially tertiary treatment (3N)						
Collected plus partially tertiary treatment (3P)						
Collected plus secondary treatment	137	468562	684,488	2376,897	686,013	141,063
Collected plus partial secondary treatment						
Collected plus primary treatment						
Collected plus partial primary treatment						
Collected and treatment - total	**718**	**13629528**	**4540,692**	**24145,504**	**12518,738**	**1026,058**
Collected and no treatment						
Adressed by IAS						
Not collected and no treatment						
Total	**718**	**13629528**	**4540,692**	**24145,504**	**12518,738**	**1026,058**

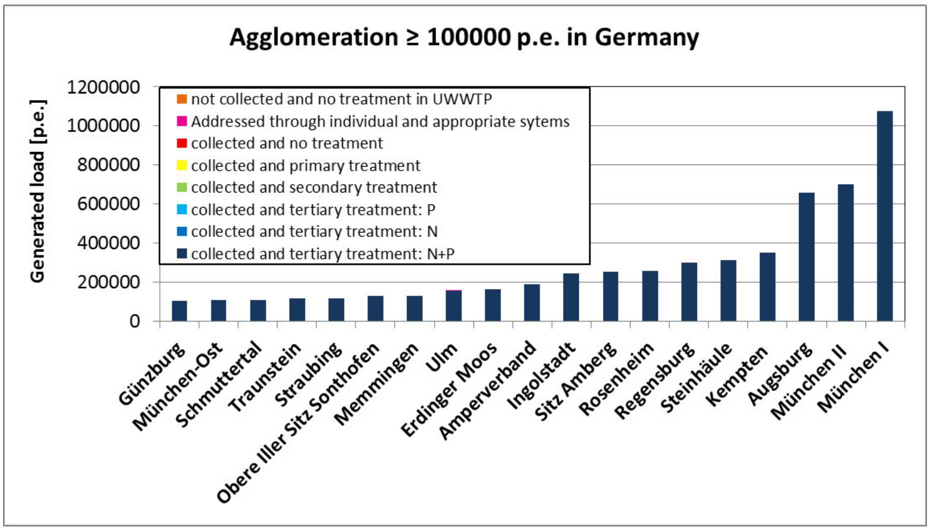

Figure 7: Wastewater treatment in agglomerations ≥100,000 PE in the German part of the DRB

6.1.4 Outlook for wastewater treatment in Germany until 2021

Germany applies Article 5(8) and - for a part of the Danube catchment - Article 5(4) of Directive 91/271/EEC and was in full compliance with the Directive in the reference year 2012. Implementation of the *baseline scenario* would hence require no need for further improvement of wastewater treatment. For Germany, the implementation of the *midterm scenario* is identical to the *baseline scenario*. Table 7 summarizes the foreseen changes in generated load (PE) for the different treatment types and pathways.

Table 7: Forecasted changes of generated loads (PE) for different treatment types and pathways in Germany

Scenario	Not collected [p.e.]	IAS [p.e]	Collected-not treated [p.e.]	Primary treatment [p.e.]	Secondary treatment [p.e.]	Tertiary treatment: 3 N [p.e.]	Tertiary treatment: 3 P [p.e.]	Tertiary treatment: 3 NP [p.e.]	Total [p.e.]
Reference-scenario	0	18459	0	0	470537	465660	218042	12456830	13629528
Baseline-scenario	0	18459	0	0	470537	465660	218042	12456830	13629528
Midterm-scenario	0	18459	0	0	470537	465660	218042	12456830	13629528
Vision-scenario	0	18459	0	0	451337	404039	207892	12547801	13629528

The *vision scenario* aims at making use of the full technical potential of wastewater treatment as concerns the removal efficiencies of nutrients, even when Directive 91/271/EEC does not require stricter standards than reflected in the *baseline scenario*. This means that the *vision scenario* goes beyond the requirements of Directive 91/271/EEC. Accordingly, it was assumed in this scenario that all agglomerations >10,000 PE are treated by N and P removal, and agglomerations ≥2000 PE-≤10,000 PE are served by at least secondary treatment.

For Germany, implementation of the *vision scenario* would require an upgrade of the wastewater treatment of one agglomeration (19,200 PE) served by secondary treatment in 2012, 21,621 PE served by N removal in 2012 and 10,000 PE served by P removal in 2012, in order to provide N and P removal.

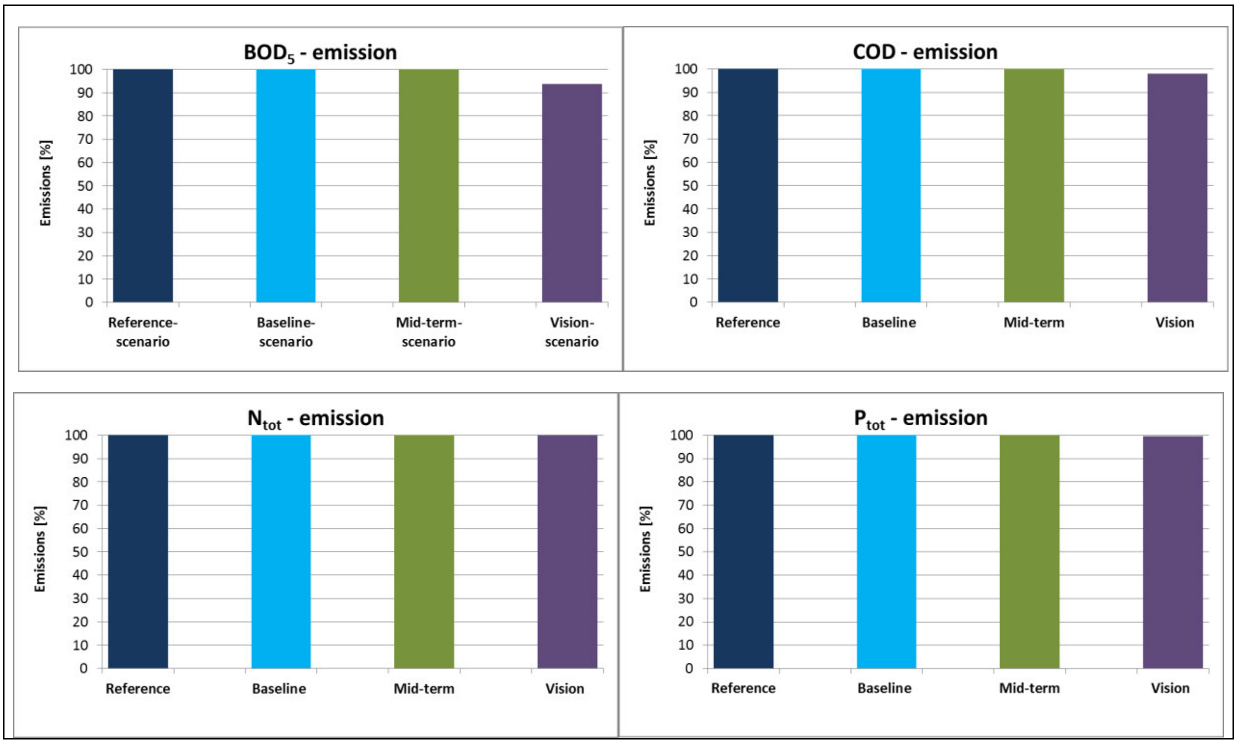

Figure 8: Emissions (%) of BOD_5, COD, N_{tot} and P_{tot} under the different scenarios

The scenarios presented in Figure 8 express, that only a slight reductions of BOD_5 and COD emissions can be expected in case of an implementation of the *vision scenario*.

6.2 Austria

6.2.1 General information about the data evaluation

- In 2014, Austria reported information on all agglomerations ≥2000 PE with the reference date 31/12/2012 for the ICPDR Emission Inventory 2015.
- As an EU MS, Austria applies Article 5(8) and Article 5(4) of the UWWT Directive (91/271/EEC). This means that the minimum percentage reduction of the overall load entering all UWWTPs in the entire country has to be at least 75% for total P and at least 75% for total N.
- In Austria, one agglomeration is served by one UWWTP / collecting system without treatment which means that the ratio [agglomeration : UWWTP] = [1 : 1] is used.
- In Austria generated load of agglomerations is reported as capacity, which is compliant to the UWWT Directive (91/271/EEC). This leads to an overestimation of actual PE of about 30%. To present more realistic numbers for Austria, both, the generated load (calculated from capacity) and the “current load” (additionally reported in the UWWT-D Questionnaire and in the ICPDR Emission Inventory Questionnaire by Austria) are presented in this report. The “current load” represents PE calculated from BOD_5 loads on wastewater treatment plants.
- The presentation of agglomerations ≥100,000 PE in this report refers to “generated load – capacity” to provide the possibility to compare the 2012 numbers to the 2005/2006 results.
- However, the modification of PE distribution within scenario analyses is based on the “current load” to create more realistic numbers.

6.2.2 Country specific considerations for data evaluation

No specific considerations for data evaluation in the datasets were made.

6.2.3 Results of data evaluation for the situation as of 31/12/2012

As can be seen from Table 8, Austria reported 608 agglomerations ≥2000 PE for the reference year 2012. Of these, 417 agglomerations (2,733,890 PE “capacity” and 1,215,803 PE “current load”) were in the class ≤10,000 PE and 191 agglomerations (16,104,208 PE “capacity” and 11,622,168 PE “current load”) were in the class >10,000 PE. A high fraction of the total generated load was already treated by N and P removal (93.2%), N removal (0.01%) or P removal (6.7%) in 2006. Compared to 2005/2006 data this is an improvement of the 3NP treatment type by 9%.

Austria addressed 94,387 PE collected by IAS with 100% of the generated load transported by trucks to wastewater treatment plants.

Compared to 2005/2006 the amount of agglomerations reported for the Austrian part of the Danube catchment decreased by 4, while reported load grew by more than 600,000 PE (on base “generated load -capacity”). Nevertheless, reported BOD_5 and COD loads decreased by 31% and 15%, whereas for N_{tot}- and P_{tot} loads reductions of 11% and 18% are reported.

Twenty eight agglomerations ≥100,000 PE are reported in Austria for the reference year 2012. These are two additional agglomerations compared to the reference years 2005/2006. Within the period 2005/2006 and 2012 the waste water treatment plant of Graz (500,000 PE “generated load – capacity”) was improved from secondary treatment to tertiary treatment with N and P removal operated (2007). Additional two treatment plants with former tertiary treatment with P removal were extended to tertiary treatment with N and P removal.

As an EU MS, Austria applies Article 5(8) and Article 5(4) of the UWWT Directive. For the reference year 31/12/2012, the percentage reduction of the overall load entering all UWWTPs >50 PE in the Danube catchment of Austria was 80% for total N *and 90% for total P, which means that Directive 91/271/EEC was fully implemented in the reference year 2012. In the DRB of* Austria (which covers 96% of the area of Austria), the percentage reduction also amounted to 80% for total N and 90% for total P as well[2].

[2] BMLFUW, 2014. Bundesministerium für Land- und Forstwirtschaft, Umwelt und Wasserwirtschaft. Kommunale Abwasserrichtlinie der EU -91/271/EWG Österreichischer Bericht 2014 [Federal Ministry of Agriculture, Forestry, Environment and Water Management, Situation Report on the disposal on urban wastewater and sludge 2014].

Table 8: Wastewater treatment in agglomerations ≥2000 PE and emissions of BOD_5, COD, N_{tot} and P_{tot} into the environment in the Austrian part of the DRB

Austria	Aggl.	Generated load-capacity (PE)*	Current load (PE)**	Emissions BOD_5 (t/a)	Emissions COD (t/a)	Emissions N_{tot} (t/a)	Emissions P_{tot} (t/a)
Collected plus tertiary treatment (3NP)	518	17549505	12449711	3955,711	24623,797	7711,070	599,996
Collected plus tertiary treatment (3N)	1	2400	1470	0,356	2,607	0,353	0,122
Collected plus tertiary treatment (3P)	84	1265273	677726	297,361	1423,074	722,318	42,103
Collected plus partially tertiary treatment (3NP)							
Collected plus partially tertiary treatment (3N)							
Collected plus partially tertiary treatment (3P)							
Collected plus secondary treatment	5	20920	9064	8,577	29,120	19,714	5,0535
Collected plus partial secondary treatment							
Collected plus primary treatment							
Collected plus partial primary treatment							
Collected and treatment - total	**608**	**18838098**	**13137971**	**4262,007**	**26078,599**	**8453,456**	**647,276**
Collected and no treatment							
Adressed by IAS							
Not collected and no treatment							
Total	**608**	**18838098**	**13137971**	**4262,007**	**26078,599**	**8453,456**	**647,276**

*In Austria “generated load” is reported as capacity

**To impart actual magnitude for Austrian PE the parameter “current load” is added

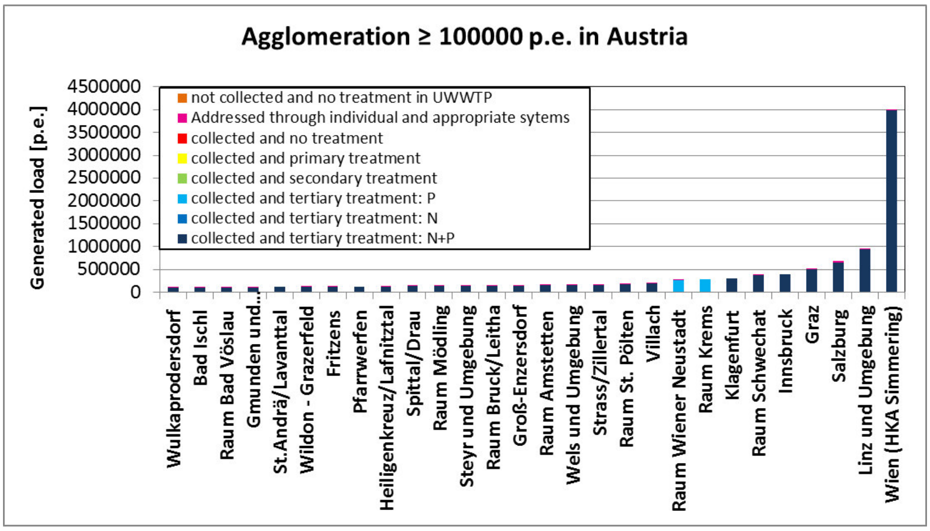

Figure 9: Wastewater treatment in agglomerations ≥100,000 PE in the Austrian part of the DRB based on "generated load – capacity" (bottom graph)

6.2.4 Outlook for wastewater treatment in Austria until 2021

Applying Article 5(8) and 5(4) of Directive 91/271/EEC, Austria complies with the UWWT Directive in the reference year 2012. Implementation of the *baseline scenario* would hence require no need for further improvement of wastewater treatment. For Austria, the implementation of the *midterm scenario* is identical to the *baseline scenario*. However, some smaller improvements on wastewater treatment plants are still possible by 2021, which are summarized in the *vision scenario*. Because the vision scenario goes beyond the requirements of Directive 91/271/EEC, measures addressed here represent an optimal status, without any need for implementation. Table 9 summarizes the foreseen changes in generated load (PE) for the different treatment types and pathways.

Table 9: Forecasted changes of generated loads (PE) for different treatment types and pathways in Austria

Scenario	Not collected [p.e.]	IAS [p.e]	Collected-not treated [p.e.]	Primary treatment [p.e.]	Secondary treatment [p.e.]	Tertiary treatment: 3 N [p.e]	Tertiary treatment: 3 P [p.e.]	Tertiary treatment: 3 NP [p.e.]	Total [p.e.]
Reference-scenario	0	94387	0	0	9037	1466	676398	12356684	13137971
Baseline-scenario	0	94387	0	0	9037	1466	676398	12356684	13137971
Midterm-scenario	0	94387	0	0	9037	1466	676398	12356684	13137971
Vision-scenario	0	94387	0	0	9037	1466	179248	12853833	13137971

The *vision scenario* aims at making use of the full technical potential of wastewater treatment as concerns the removal efficiencies of nutrients, even though Directive 91/271/EEC does not require stricter standards than reflected in the *baseline scenario*. This means that the *vision scenario* goes beyond the requirements of Directive 91/271/EEC. Accordingly, under the *vision scenario*, it was assumed that all agglomerations >10,000 PE are treated with N and P removal, and agglomerations ≥2000 PE - ≤10,000 PE are served by at least secondary treatment.

For Austria, implementation of the *vision scenario* would require an upgrade of the wastewater treatment of 13 agglomerations (497,149 PE) reported to have tertiary treatment with P-removal in 2012, to N and P removal.

The scenarios presented in Figure 10 express, that only a very slight reduction of N_{tot} emissions can be expected in case of an implementation of the *vision scenario*.

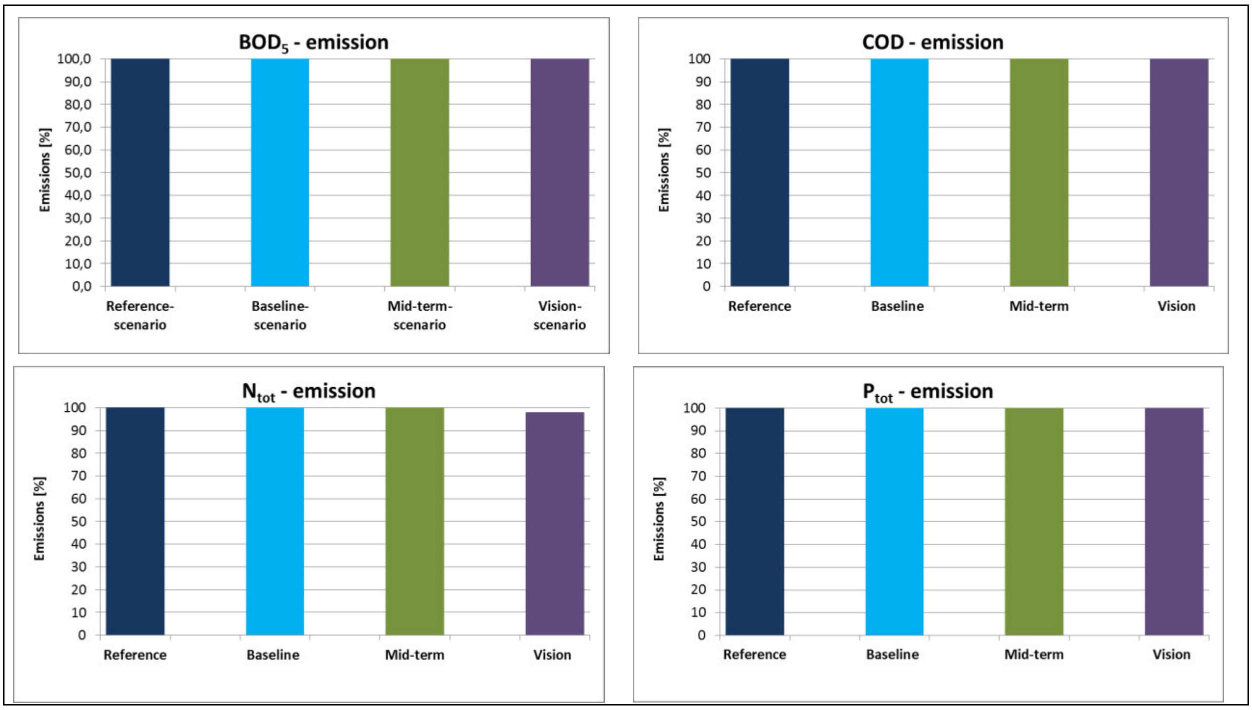

Figure 10: Emissions (%) of BOD_5, COD, N_{tot} and P_{tot} under the different scenarios

6.3 Czech Republic

6.3.1 General information about the data evaluation

- In 2014, Czech Republic reported information on all agglomerations ≥2000 PE with the reference date 31/12/2012 for the ICPDR Emission Inventory 2015. These data differ from data reported to UWWT-Directive with respect to calculated "generated loads". In general PE calculated in the ICPDR data set exceed PE reported in the UWWT-Directive Questionnaire. Czech Republic decided that numbers (PE) reported to ICPDR should be used for the ICPDR Municipal Emission Inventory 2015.
- Czech Republic applies Article 5(8) and Article 5(2,3) for the entire territory for reason of eutrophication (nitrogen and phosphorus).
- In the Czech Republic, one agglomeration can be served by one or more UWWTP / collecting system without treatment, while at the same time one UWWTP can serve more than one agglomeration. This means that the ratio [agglomeration : UWWTP] = [m : n] is used.

6.3.2 Country specific considerations for data evaluation

No specific considerations for data evaluation in the datasets were made.

6.3.3 Results of data evaluation for the situation as of 31/12/2012

As can be seen from Table 10, the Czech Republic reported 185 agglomerations ≥2000 PE for the reference year 2012. Of these, 144 agglomerations (581,823 PE) were classed ≤10,000 PE and 41 agglomerations (1,813,885 PE) were classed >10,000 PE. Compared to the reference year 2005/2006 this is a decrease of 52 agglomerations, while the total PE reported decreases by 330,000 PE.

In the Danube catchment area of the Czech Republic 128,206 PE are addressed by IAS in total, but generated load of only 5 agglomerations is mainly collected by IAS (7150 PE). Only 0.7% of the total generated load was reported to have a collecting system but no wastewater treatment plant.

The majority of agglomerations (or at least parts of them) are served by wastewater treatment plants providing various treatment levels. 81% of the total generated load originates from agglomerations with tertiary treatment with N- and P removal in place. Further 12% of the total generated load originates from agglomerations with tertiary treatment where either N- and P removal, N removal or P removal is in place at least for parts of the load. The share of generated load purified by secondary treatment could be significantly reduced from 15% to 6% in the period between 2005/2006 and 2012.

As a result of these efforts (and to a minor extent through a reduction of PE) BOD_5, COD, N_{tot} and P_{tot} emissions reported decreased significantly between 2005/2006 and 2012, at least by more than 40% for N_{tot}.

In 2012 only Olomouc and Brno are reported as agglomerations ≥100,000 PE in the Danube part of the Czech Republic, while Zlin (reported in the ICPDR Municipal Emission Inventory 2007) falls below this threshold.

Table 10: Wastewater treatment in agglomerations ≥2000 PE and emissions of BOD, COD, N_{tot} and P_{tot} into the environment in the Czech part of the DRB

Czech Repulic	Number of agglomeration	Generated load (PE)	Emissions BOD_5 (t/a)	Emissions COD (t/a)	Emissions N_{tot} (t/a)	Emissions P_{tot} (t/a)
Collected plus tertiary treatment (3NP)	99	1944450	578,676	3587,962	1182,506	111,449
Collected plus tertiary treatment (3N)	17	70635	26,000	148,800	90,300	11,400
Collected plus tertiary treatment (3P)	12	84686	23,800	164,900	71,560	5,700
Collected plus partially tertiary treatment (3NP)	15	102355	38,554	254,725	95,740	9,735
Collected plus partially tertiary treatment (3N)	4	12163	15,222	37,273	11,510	2,226

Czech Repulic	Number of agglomeration	Generated load (PE)	Emissions BOD_5 (t/a)	Emissions COD (t/a)	Emissions N_{tot} (t/a)	Emissions P_{tot} (t/a)
Collected plus partially tertiary treatment (3P)	1	15200	12,900	27,300	9,900	0,400
Collected plus secondary treatment	28	132381	73,925	337,378	133,099	16,566
Collected plus partial secondary treatment	4	9709	46,327	110,428	18,490	2,864
Collected plus primary treatment						
Collected plus partial primary treatment						
Collected and treatment - total	**180**	**2371579**	**815,404**	**4668,766**	**1613,105**	**160,34**
Collected and no treatment		16979	285,765	541,352	45,404	8,192
Adressed by IAS	5	7150				
Not collected and no treatment						
Total	**185**	**2395708**	**1101,169**	**5210,118**	**1658,509**	**168,532**

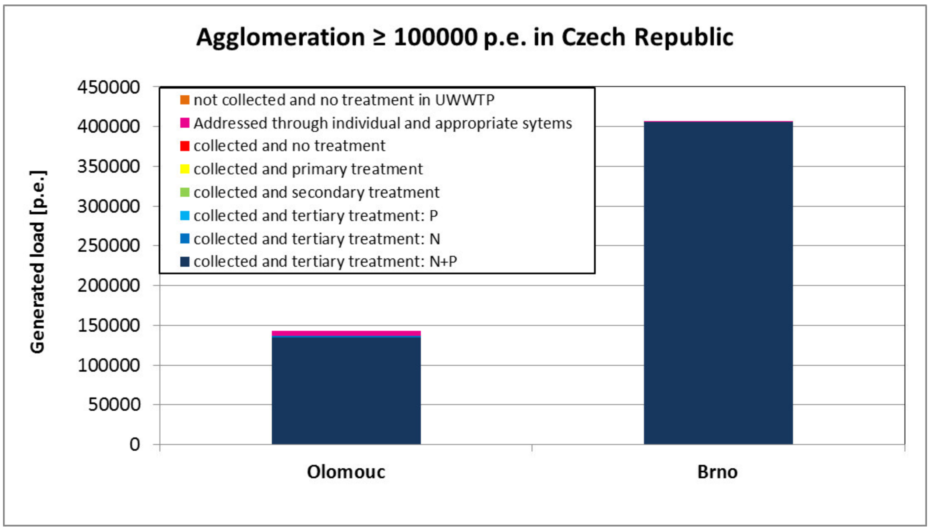

Figure 11: Wastewater treatment in agglomerations ≥100,000 PE in the Czech part of the DRB

6.3.4 Outlook for wastewater treatment in the Czech Republic until 2021

As part of the EU, the Czech Republic had to comply fully with the UWWT Directive since 31st December 2010. Czech Republic applies Article 5(8) and Article 5(2,3) for the entire territory for reason of eutrophication (nitrogen and phosphorus).

Table 11 summarizes the foreseen changes in generated load (PE) for the different treatment types and pathways.

For this reason the *baseline scenario* was based on the assumption that all agglomerations ≥2000 PE–10,000 PE are served by at least secondary treatment, whereas agglomerations >10,000 PE are served by more stringent treatment with N and P removal. For agglomerations ≥10,000 PE that were already reported to be served by UWWTPs with more stringent than secondary treatment at the reference date 31/12/2012 (tertiary treatment with either N removal or P removal), this treatment type was considered to be upgraded to tertiary treatment with N removal and P removal for 2021.

Table 11: Forecasted changes of generated loads (PE) for different treatment types and pathways in the Czech Republic

Scenario	Not collected [p.e.]	IAS [p.e]	Collected-not treated [p.e.]	Primary treatment [p.e.]	Secondary treatment [p.e.]	Tertiary treatment: 3 N [p.e.]	Tertiary treatment: 3 P [p.e.]	Tertiary treatment: 3 NP [p.e.]	Total [p.e.]
Reference-scenario	0	128206	16979	0	136414	76146	93245	1944718	2395708
Baseline-scenario	0	128206	0	0	122550	51007	80734	2013211	2395708
Midterm-scenario	0	128206	0	0	122550	51007	80734	2013211	2395708
Vision-scenario	0	128206	0	0	122550	51007	80734	2013211	2395708

The implementation of the *baseline scenario* is identical to the *midterm scenario* and the *vision scenario*. It requires the upgrade of wastewater treatment from agglomerations ≥2000 PE–10,000 PE with partly no treatment (9744 PE) to secondary treatment as well as from agglomerations >10,000 PE (7235 PE) with partly no treatment being upgraded to tertiary treatment with N- and P removal. 23,608 PE from agglomerations with secondary treatment as well as 25,139 PE from agglomerations with N removal and 12,511 PE from agglomerations with P removal need to be upgraded to N and P removal.

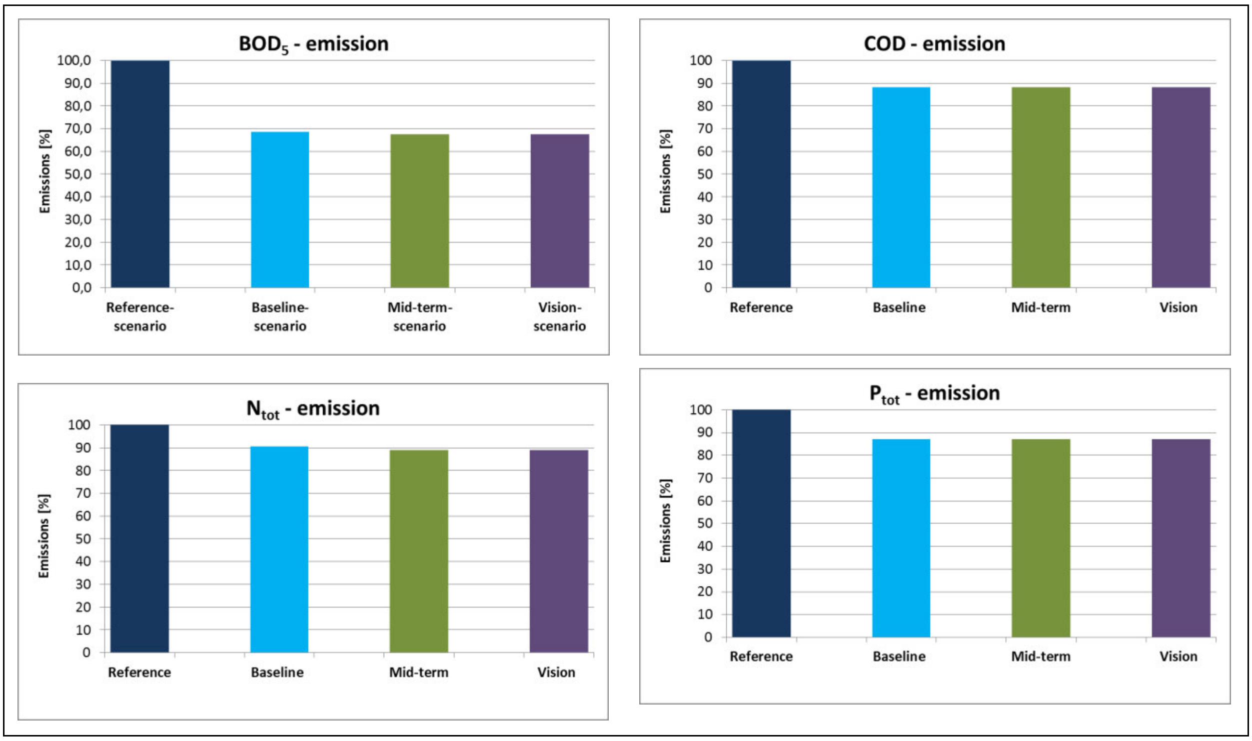

Figure 12: Emissions (%) of BOD_5, COD, N_{tot} and P_{tot} under the different scenarios

The scenarios express that a further reduction of emission from the urban wastewater sector can be expected. This ranges in the magnitude of 30% for BOD_5 and 10% for COD, N_{tot} and P_{tot}.

6.4 Slovakia

6.4.1 General information about the data evaluation

- In 2014, Slovakia reported information on all agglomerations ≥2000 PE with the reference date 31/12/2012 for the ICPDR Emission Inventory 2015. These data could be harmonized with the dataset reported to the UWWT-Directive Questionnaire (Article 5).
- As an EU MS, Slovakia applies Article 5(2,3) of the UWWT Directive (91/271/EEC). In August 2003, the entire area of Slovakia was designated as one *sensitive area* due to sensitivity for nitrogen and phosphorus.
- In Slovakia, one agglomeration can be served by one or more UWWTPs / collecting system without treatment while at the same time one UWWTP can serve more than one agglomeration. This means that the ratio [agglomeration : UWWTP] = [m : n] is used.

6.4.2 Country specific considerations for the data evaluation

- No specific considerations for data evaluation in the datasets were made.

6.4.3 Results of data evaluation for the situation as of 31/12/2012

For the reference year 2012, the Slovakian authorities reported 344 agglomerations ≥2000 PE (see Table 12). Of these, 267 (1,076,750 PE) were of ≤10,000 PE and 77 agglomerations (3,704,569 PE) of >10,000 PE. For 72 agglomerations (around 4% of the total generated load or 204,615 PE), collection of sewer is addressed by IAS. Total use of IAS in the Danube part of Slovakia is reported for 648,141 PE. Only 1% is reported as collected and not treated and 0.4% of the total generated load is reported as not collected. For 121 agglomerations tertiary or partial tertiary treatment is in place, with 54% of the total load being addressed to tertiary or partial tertiary treatment with N- and P removal and further 4% being addressed by tertiary or partial tertiary treatment with N removal in place. In 36% of the total generated load secondary treatment is in place for at least parts of the agglomeration.
In the reference year 2012 the reported total generated load grew by 345,000 PE, while the number of agglomerations decreased by one.
Compared to 2005/2006 the situation in 2012 showed a significant improvement with a shift from dominant secondary treatment to tertiary treatment. As a consequence, BOD_5, COD, N_{tot} and P_{tot} loads reported decreased significantly, at least by more than 50% for N_{tot}.

The evaluation of agglomerations ≥100,000 PE in the Danube catchment of Slovakia shows the reduction of this class by one (Banska Bistrica in 2012 falls below the threshold). With the exception of the agglomerations Bratislava and Ruzomberok (with around 600,000 PE the biggest agglomerations by far) in 2012 the loads of five other agglomerations ≥100,000 PE were more or less completely treated by tertiary treatment with N- and P removal. Compared to the 2005/2006 situation with a mix of no collection and no treatment, collection but no treatment, secondary treatment and tertiary treatment with N removal in place in those agglomerations, the 2012 situation underlines the huge efforts made during the period of 2005/2006 and 2012 in the sector of urban wastewater treatment.

Table 12: Wastewater treatment in agglomerations ≥2000 PE and emissions of BOD, COD, N_{tot} and P_{tot} into the environment in the Slovakian part of the DRB

Slovakia	Number of agglomeration	Generated load (PE)	Emissions BOD_5 (t/a)	Emissions COD (t/a)	Emissions N_{tot} (t/a)	Emissions P_{tot} (t/a)
Collected plus tertiary treatment (3NP)	51	1713638	1120,307	3981,429	1785,339	129,774
Collected plus tertiary treatment (3N)	18	117841	48,087	197,466	95,909	11,905
Collected plus tertiary treatment (3P)						
Collected plus partially tertiary treatment (3NP)	35	872871	250,176	1320,431	1047,968	51,528
Collected plus partially tertiary treatment (3N)	17	60418	17,794	73,367	33,071	4,106
Collected plus partially tertiary treatment (3P)						

Slovakia	Number of agglomeration	Generated load (PE)	Emissions BOD_5 (t/a)	Emissions COD (t/a)	Emissions N_{tot} (t/a)	Emissions P_{tot} (t/a)
Collected plus secondary treatment	51	1229650	944,456	5936,347	1027,749	90,239
Collected plus partial secondary treatment	97	488229	350,964	1276,975	1002,926	55,576
Collected plus primary treatment						
Collected plus partial primary treatment	3	19776	175,923	318,023	49,647	7,034
Collected and treatment - total	**272**	**4502423**	**2907,707**	**13104,038**	**5042,609**	**350,162**
Collected and no treatment	0	52119	396,557	725,056	122,124	13,759
Adressed by IAS	72	204615				
Not collected and no treatment	0	22162	485,354	889,815	71,185	12,134
Total	**344**	**4781319**	**3789,618**	**14718,909**	**5235,918**	**376,055**

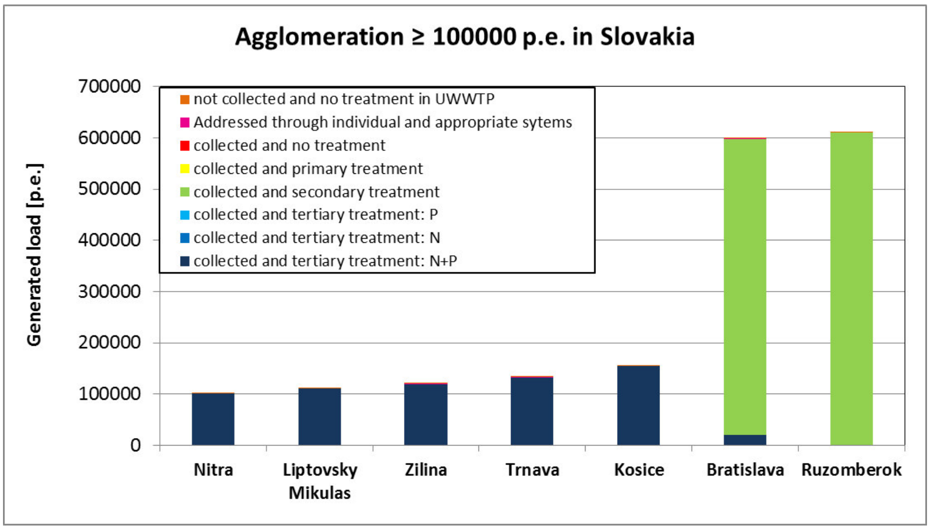

Figure 13: Wastewater treatment in agglomerations ≥100,000 PE in the DRB of Slovakia

6.4.4 Outlook for wastewater treatment in Slovakia until 2021

As part of the EU, Slovakia has to comply fully with the UWWT Directive by 31st December 2015. On 31 December 2004 Slovakian authorities decided to designate the entire country as one sensitive area (application of Articles 5(1) and 5(2,3)). The reason for designation was the risk of eutrophication (application of criterion a, nitrogen and phosphorus).

For this reason the *baseline scenario* was based on the assumption that all agglomerations ≥2000 PE–10,000 PE are served by at least secondary treatment, whereas agglomerations >10,000 PE are served by more stringent treatment with N and P removal. For agglomerations ≥10,000 PE that were already reported to be served by UWWTPs with more stringent than secondary treatment at the reference date 31/12/2012 (tertiary treatment with either N removal or P removal), this treatment type was considered to be upgraded to tertiary treatment with N removal and P removal for 2021. To achieve the situation described in the *baseline scenario*, a generated load of 1,814,326 PE would have to be upgraded to provide N and P removal.

Table 13 summarizes the foreseen changes in generated load (PE) for the different treatment types and pathways.

Table 13: Forecasted changes of generated loads (PE) for different treatment types and pathways in Slovakia

Scenario	Not collected [p.e.]	IAS [p.e]	Collected-not treated [p.e.]	Primary treatment [p.e.]	Secondary treatment [p.e.]	Tertiary treatment: 3 N [p.e.]	Tertiary treatment: 3 P [p.e.]	Tertiary treatment: 3 NP [p.e.]	Total [p.e.]
Reference-scenario	22162	648141	52120	9137	2080757	136744	0	1832258	4781319
Baseline-scenario	0	648141	0	0	362363	124231	0	3646584	4781319
Midterm-scenario	0	648141	0	0	362363	124231	0	3646584	4781319
Vision-scenario	0	648141	0	0	362363	124231	0	3646584	4781319

In 72 agglomerations (4% of the total generated load) sewage is collected in IAS or not collected and not treated. As Article 3 of Directive 91/271/EEC foresees that "…all agglomerations are provided with collecting systems for urban wastewater…", the implementation of all future scenarios would require the extension of the collecting system. From 343 agglomerations (22,162 PE) sewage not collected needs to be upgraded as well as sewage (52,100 PE) from 20 agglomerations, which is collected but not treated. Five agglomerations with primary treatment in place (9137 PE) and 1,736,539 PE from 23 agglomerations with secondary treatment will be upgraded to tertiary treatment with N removal and P removal in place as well as one agglomeration ≥10,000 PE served by tertiary treatment with N removal.

For Slovakia, the *midterm scenario* and the *vision scenario* are identical to the *baseline scenario*.

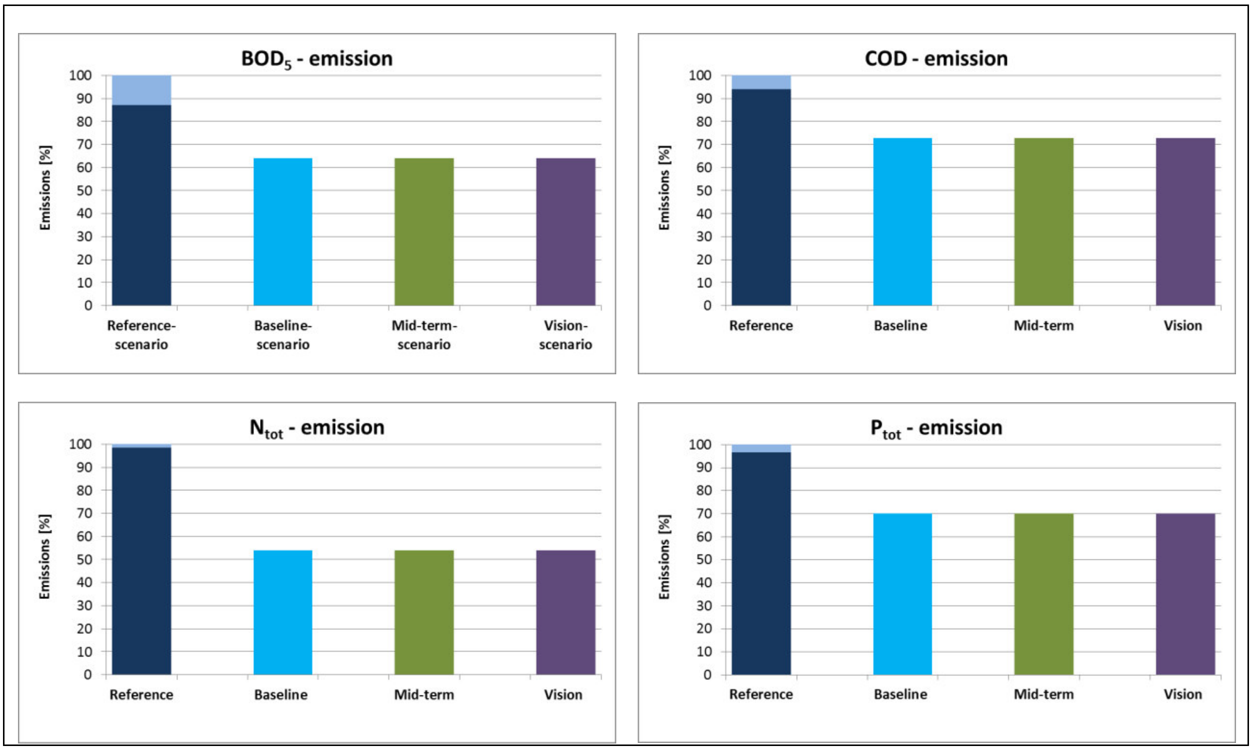

Figure 14: Emissions (%) of BOD_5, COD, N_{tot} and P_{tot} under the different scenarios

The scenarios underline the potential of further BOD_5 (up to 35%), COD (30%), N_{tot} (45%) and P_{tot} (30%) emissions from the urban wastewater sector.

6.5 Hungary

6.5.1 General information about the data evaluation

- In 2014, Hungary reported information on all agglomerations ≥2000 PE with the reference date 31/12/2012 for the ICPDR Emission Inventory 2015. These data could not be harmonized with the dataset reported to the UWWT-Directive Questionnaire (Article 5) because data reported within UWWT-Directive refer to reference date 31/12/2011. However, to ensure data quality, 2012 data were checked in a second stage (instead of harmonisation procedure) from the Hungarian authorities and released for a further assessment within the ICPDR Municipal Emission Inventory 2015.
- As an EU MS, Hungary applies Art. 5(2,3) of the UWWT Directive. As for the last report, Hungary has reported three sensitive areas: Lake Balaton and its catchment, the Hungarian part of Lake Neusiedl/Fertő tó and its catchment as well as Lake Velence and its catchment. All sensitive areas were designated in December 2004 for designation criterion a (risk of eutrophication, relevant parameters nitrogen and phosphorus) and designation criterion b (surface freshwaters intended for the abstraction of drinking water).
- In Hungary, one agglomeration can be served by one or more UWWTPs / collecting systems without treatment, which means that the ratio [agglomeration : UWWTP] = [1 : n] is used.

6.5.2 Country specific considerations for data evaluation

- Hungarian data reported within the ICPDR Municipal Emission Inventory 2015 are not comparable to these reported under the UWWT-Directive Questionnaire. The reference date in UWWT-D data (31/12/2011) differs from that of the ICPDR Inventory (31/12/2012).

6.5.3 Results of data evaluation for the situation as of 31/12/2012

As can be seen from Table 14, Hungary reported 511 agglomerations ≥2000 PE for the reference year 2012. The number of agglomerations reported for 2012 increased compared to 2005/2006 by 81. However, the total generated load reported in 2005/2006 and 2012 (11,698,020 PE) is comparable and decreased by less than 160,000 PE. Of the reported 511 agglomerations 314 (1,588,054 PE) were of ≤10,000 PE and 197 agglomerations (10,109,966 PE) were of >10,000 PE. A high percentage of the total generated load was treated or partial treated by tertiary treatment with N and P removal (68%) in place, or with or with partial N removal or P removal (5%) in 2012. 198 agglomerations representing 26% of the total generated load were treated by secondary treatment. Three agglomerations, representing only 0,2% of the total generated load, were addressed by IAS. The total amount of generated loads addressed by IAS in Hungary is 1,741,253 PE.

Compared to data reported in 2005/2006 the 2012 data express an improvement of the urban waste water treatment sector in Hungary with a significant upgrading of secondary treatment to tertiary treatment.

BOD_5, COD, N_{tot} and P_{tot} loads reported by Hungary underline this improvement with percentage reduction of loads between 2005/2006 and 2012 make up at least 48% for N_{tot}.

The number of agglomerations ≥100,000 PE reported in 2005/2006 and 2012 decreased by six to seventeen of which generated loads of twelve were treated by tertiary treatment with N- and P removal in place. The reduction of agglomerations ≥ 100,000 PE partly results from a combination of former four agglomerations in Budapest to a single one. Especially in Budapest, with considerable parts of generated loads not connected to wastewater treatment plants reported in 2005/2006, an improvement with tertiary treatment with N and P removal in place can be stated. Furthermore, Szeged has installed secondary treatment between 2005/2006 and 2012.

Table 14: Wastewater treatment in agglomerations ≥2000 PE and emissions of BOD, COD, N_{tot} and P_{tot} into the environment in the Hungarian part of the DRB

Hungary	Number of agglomeration	Generated load (PE)	Emissions BOD_5 (t/a)	Emissions COD (t/a)	Emissions N_{tot} (t/a)	Emissions P_{tot} (t/a)
Collected plus tertiary treatment (3NP)	157	6595963	2574,116	11577,427	4153,220	451,780
Collected plus tertiary treatment (3N)	13	343052	66,540	395,456	169,400	38,075
Collected plus tertiary treatment (3P)	4	25641	8,828	28,383	10,666	1,318
Collected plus partially tertiary treatment (3NP)	110	1316394	491,221	2021,576	573,699	54,194
Collected plus partially tertiary treatment (3N)	7	93617	82,790	243,288	91,063	13,555
Collected plus partially tertiary treatment (3P)	11	115987	40,436	147,870	62,756	5,148
Collected plus secondary treatment	82	2039573	1761,101	5115,198	1665,422	210,598
Collected plus partial secondary treatment	116	1047291	631,330	1834,088	737,656	97,930
Collected plus primary treatment	4	71023	85,599	226,619	58,470	5,869
Collected plus partial primary treatment	4	32131	2,734	13,754	3,525	0,352
Collected and treatment - total	**508**	**11680672**	**5744,695**	**21603,659**	**7525,877**	**878,819**
Collected and no treatment						
Adressed by IAS	3	17348				
Not collected and no treatment						
Total	**511**	**11698020**	**5744,695**	**21603,659**	**7525,877**	**878,819**

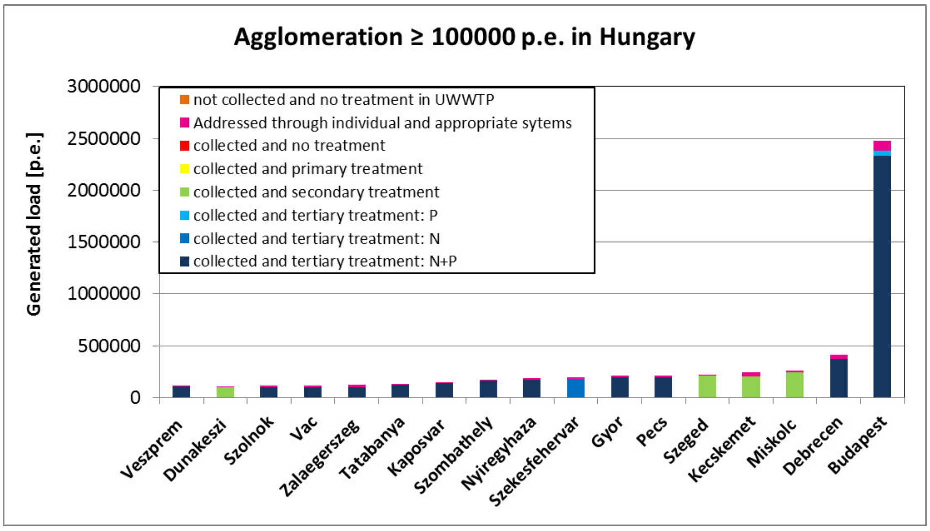

Figure 15: Wastewater treatment in agglomerations ≥100,000 PE in the Hungarian part of the DRB

6.5.4 Outlook for wastewater treatment in Hungary until 2021

As part of the EU, Hungary has to comply fully with the UWWT Directive by 31st December 2015. In the reference year 2005/2006, Hungary applied Art. 5(1) + 5(2,3) of the Directive, which meant that *sensitive areas* and *catchment areas of sensitive areas* had to be designated. In the framework of the ICPDR Municipal Emission Inventory 2015, three *sensitive areas* were reported and indicated with N and P sensitivity.

The *baseline scenario* was based on the assumption that all agglomerations ≥2000 PE–10,000 PE are served by at least secondary treatment, whereas agglomerations >10,000 PE are served by more stringent treatment with N and P removal. For agglomerations ≥10,000 PE that were already reported to be served by UWWTPs with more stringent than secondary treatment at the reference date 31/12/2012 (tertiary treatment with either N removal or P removal), this treatment type was considered to be upgraded to tertiary treatment with N removal and P removal for 2021. Consequently, the calculation of baseline scenario leads to a shift of 4 agglomerations ≥2000 PE–10,000 PE (12,439 PE) with primary treatment in place to secondary treatment. Further 4 agglomerations (56,412 PE) with primary treatment ≥10,000 PE are upgraded to tertiary treatment with N- and P removal. Secondary treatment in agglomerations ≥10,000 PE was reported in the reference scenario for 72 agglomerations (2,039,496 PE). These agglomerations are upgraded in the baseline scenario to tertiary treatment with N removal and P removal. Also 6 agglomerations ≥10,000 PE (321,608 PE) with N removal and 8 agglomerations ≥10,000 PE (119,428 PE) with P removal were upgraded to N- and P removal. For Hungary, the *midterm scenario* and the *vision scenario* are identical to the *baseline scenario*.

Table 15: Forecasted changes of generated loads (PE) for different treatment types and pathways in Hungary

Scenario	Not collected [p.e.]	IAS [p.e]	Collected-not treated [p.e.]	Primary treatment [p.e.]	Secondary treatment [p.e.]	Tertiary treatment: 3 N [p.e.]	Tertiary treatment: 3 P [p.e.]	Tertiary treatment: 3 NP [p.e.]	Total [p.e.]
Reference-scenario	0	1741253	0	68851	2441652	368935	152117	6925212	11698020
Baseline-scenario	0	1741253	0	0	414594	47327	32689	9462156	11698020
Midterm-scenario	0	1741253	0	0	414594	47327	32689	9462156	11698020
Vision-scenario	0	1741253	0	0	414594	47327	32689	9462156	11698020

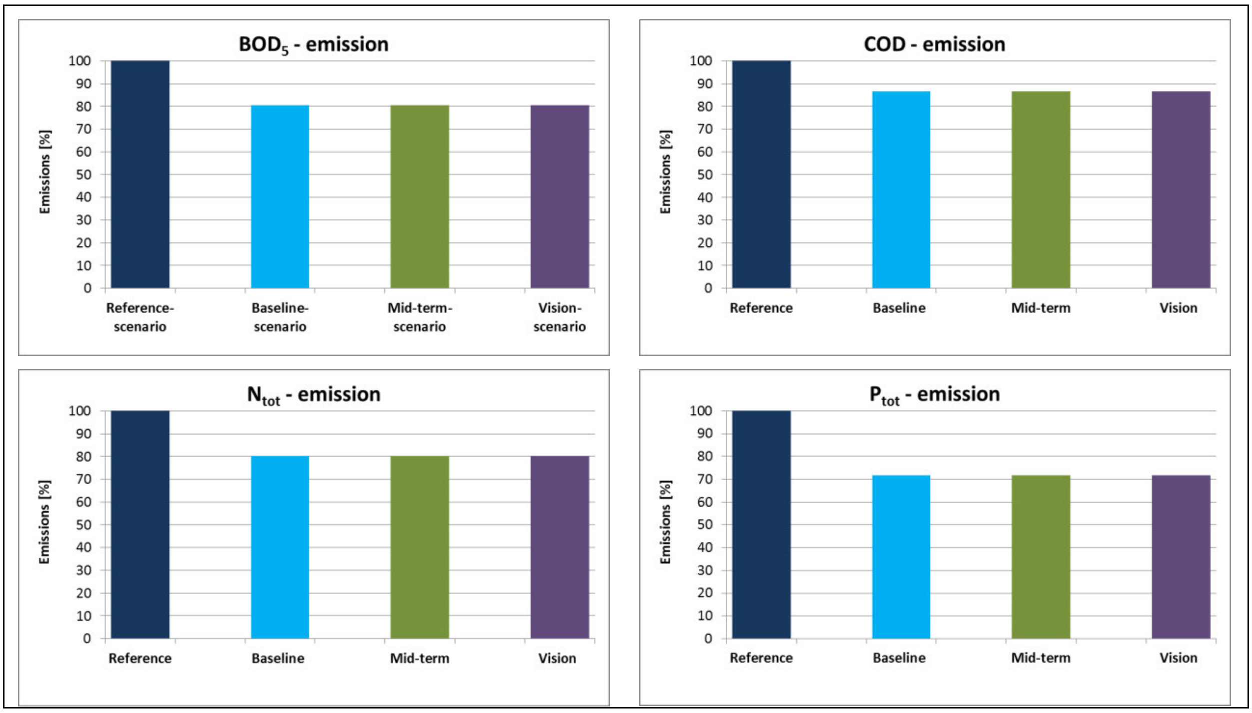

Figure 16: Emissions (%) of BOD_5, COD, N_{tot} and P_{tot} under the different scenarios

The scenarios underline the potential of further BOD_5- and COD- (20% and about 10%) as well as N_{tot}- (20%) and P_{tot} (30%) emissions from the urban wastewater sector.

Slovenia

6.5.5 General information about the data evaluation

- In 2014, Slovenia reported information on all agglomerations ≥2000 PE with the reference date 31/12/2012 for the ICPDR Emission Inventory 2015. These data could be harmonized with the dataset reported to the UWWT-Directive Questionnaire (Article 5).
- As an EU MS Slovenia applies Article 5(2,3) of the UWWT Directive (91/271/EEC) and reported 146 sensitive areas and their respective catchment areas of sensitive areas, which were designated on 9 June 2007 due to criterion a (nitrogen and/or phosphorus) and/or criterion c (Bathing Water Directive). Additionally, Slovenia reported 89 areas as part of the Danube river basin as of 11 November 2010, which are rated sensitive due to the Black sea eutrophication (criterion c), based on Article 9 of the Directive.
- In Slovenia, one agglomeration can be served by one or more UWWTP / collecting system without treatment while at the same time one UWWTP can serve more than one agglomeration. This means that the ratio [agglomeration : UWWTP] = [m : n] is used.

6.5.6 Country specific considerations for data evaluation

- No specific considerations for data evaluation in the datasets were made.

6.5.7 Results of data evaluation for the situation as of 31/12/2012

As can be seen from Table 16, the Slovenian authorities reported 138 agglomerations ≥2000 PE. Of these, 116 (461,614 PE) were classed as ≤10,000 PE and 22 agglomerations (851,732 PE) classed as >10,000 PE. 22 agglomerations (representing 27% of the total generated load) already had N- and P removal for (major) parts of their generated load and 73 agglomerations (around 52% of the total generated load) were (partly) served by secondary treatment. 17 agglomerations with a share of 13% of total generated loads are collected but not treated.

12 agglomerations are addressed by IAS. This is a share of total generated load of only 2%. In total 95,737 PE are addressed by IAS.

In 2012 nine agglomerations (12% of the total generated load) were not connected to a collecting system and/or wastewater treatment plant.

Between 2005/2006 and 2012 the number of agglomerations ≥2000 PE in the Danube River Basin of Slovenia increased by four, however the generated load reported decreased by only 50,000 PE and remains very constant.

BOD_5, COD, N_{tot} and P_{tot} loads reported in 2012 significantly decreased compared to the 2005/2006 data. For BOD_5 and COD a reduction of around 30% is observed, while N_{tot} loads are reduced by 17% and P_{tot} loads by 27%.

As for 2005/2006 two agglomerations ≥100,000 PE were reported in the 2012 dataset (Maribor and Ljubljana). In the bigger than 300,000 PE agglomeration of Ljubljana 60,000 PE not collected in data from 2005/2006 are treated by secondary treatment or addressed by IAS in 2012.

Table 16: Wastewater treatment in agglomerations ≥2000 PE and emissions of BOD, COD, N_{tot} and P_{tot} into the environment in the Slovenian part of the DRB

Slovenia	Number of agglomeration	Generated load (PE)	Emissions BOD_5 (t/a)	Emissions COD (t/a)	Emissions N_{tot} (t/a)	Emissions P_{tot} (t/a)
Collected plus tertiary treatment (3NP)	13	250101	163,349	1083,711	203,076	30,196
Collected plus tertiary treatment (3N)						
Collected plus tertiary treatment (3P)						
Collected plus partially tertiary treatment (3NP)	14	32301	876,391	1911,840	160,318	28,228
Collected plus partially tertiary treatment (3N)						

Slovenia	Number of agglomeration	Generated load (PE)	Emissions BOD_5 (t/a)	Emissions COD (t/a)	Emissions N_{tot} (t/a)	Emissions P_{tot} (t/a)
Collected plus partially tertiary treatment (3P)						
Collected plus secondary treatment	30	523612	764,819	2831,785	1015,467	207,223
Collected plus partial secondary treatment	43	154795	1367,825	2935,916	499,157	73,904
Collected plus primary treatment						
Collected plus partial primary treatment						
Collected and treatment - total	**100**	**960809**	**3172,384**	**8763,252**	**1878,018**	**339,551**
Collected and no treatment	17	174103	1949,28	3599,597	304,372	49,539
Adressed by IAS	12	21415				
Not collected and no treatment	9	157019	3438,717	6304,315	504,345	85,968
Total	**138**	**1313346**	**8560,381**	**18667,164**	**2686,735**	**475,058**

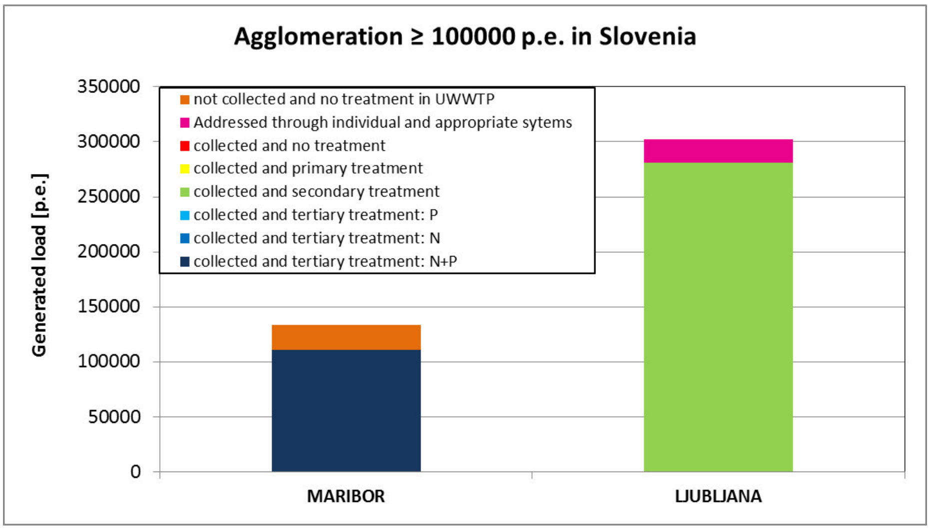

Figure 17: Wastewater treatment in agglomerations ≥100,000 PE in the DRB of Slovenia

6.5.8 Outlook for wastewater treatment in Slovenia until 2021

As part of the EU, Slovenia has to comply fully with the UWWT Directive by 31st December 2015. Slovenia applies Art. 5(2,3) which means that *sensitive areas* and *catchment areas of sensitive areas* have to be designated.

Slovenia reported 89 areas as part of the Danube river basin as of 11 November 2010, which are rated sensitive due to the Black sea eutrophication (criterion c), based on Article 9 of the Directive.

With the accession of Romania to the EU in January 2007, the necessity of designating *sensitive areas* and *catchments of sensitive areas* has changed. As the Black Sea has been characterised as a *sensitive area* due to eutrophication, the catchment area of the Danube (one of the main tributaries to the Black Sea) requires identification as a *catchment of a sensitive area* according to Article 5(5) of the UWWT Directive. As a result, more stringent treatment is required for all agglomerations with >10,000 PE or, alternatively, that a minimum reduction rate of 75% for total N and total P (application of Article 5(4) of the Directive) needs to be achieved for the entire generated load entering wastewater treatment plants.

For the elaboration of future scenarios, these requirements for the Slovenian part of the DRB were taken into account. The assumptions were made that in 2021 more stringent treatment with N and P removal will be established in all agglomerations >10,000 PE, and at least secondary treatment will be established for agglomerations ≥2000 PE and ≤ 10,000 PE.

The implementation of the *baseline scenario* is identical to the *midterm* and *vision scenarios*. It requires the shift of 223,606 PE from agglomerations ≥2000 PE and ≤10,000 PE with loads partly not collected or collected and not treated. Further 107,516 PE from agglomerations >10,000 PE (from the fractions not collected and not treated and collected but not treated) should be addressed by tertiary treatment with N removal and P removal in place. Further 507,605 PE from agglomerations with secondary or partial secondary treatment need to shift to tertiary treatment with N- and P removal.

Table 17: Forecasted changes of generated loads (PE) for different treatment types and pathways in Slovenia

Scenario	Not collected [p.e.]	IAS [p.e]	Collected-not treated [p.e.]	Primary treatment [p.e.]	Secondary treatment [p.e.]	Tertiary treatment: 3 N [p.e.]	Tertiary treatment: 3 P [p.e.]	Tertiary treatment: 3 NP [p.e.]	Total [p.e.]
Reference-scenario	157019	95737	174103	0	610232	0	0	276254	1313346
Baseline-scenario	0	95737	0	0	326234	0	0	891375	1313346
Midterm-scenario	0	95737	0	0	326234	0	0	891375	1313346
Vision-scenario	0	95737	0	0	326234	0	0	891375	1313346

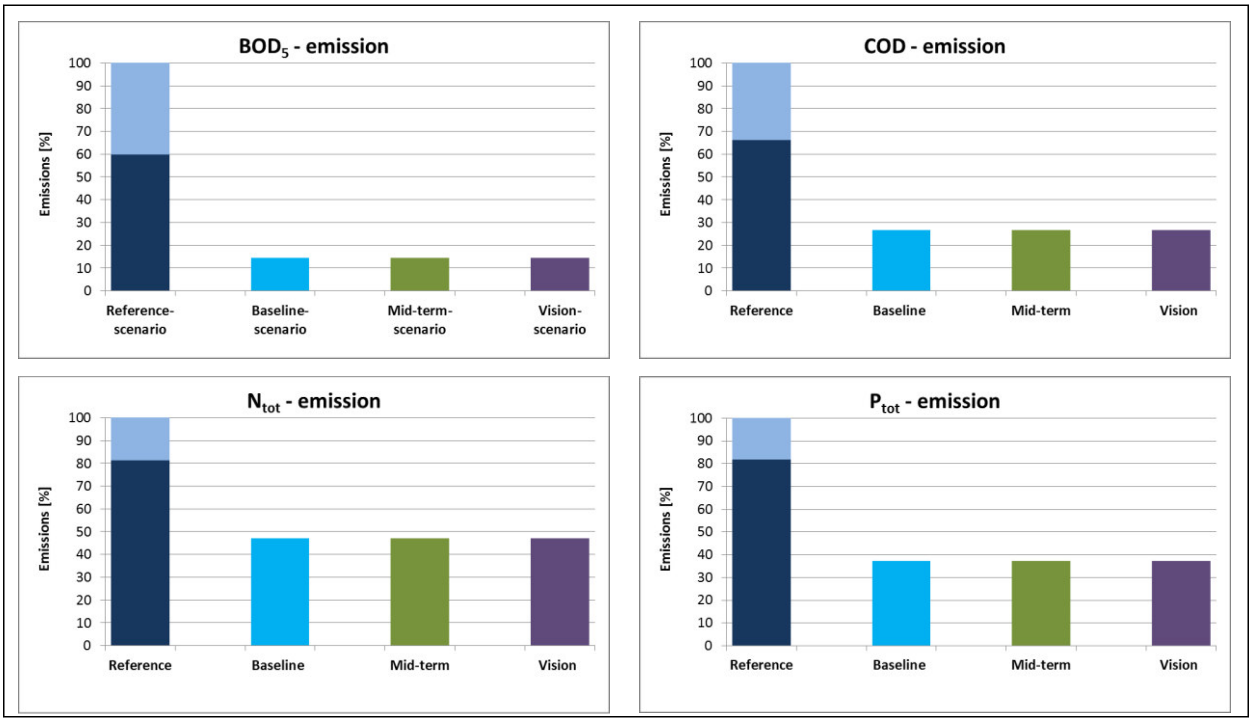

Figure 18: Emissions (%) of BOD_5, COD, N_{tot} and P_{tot} under the different scenarios

The scenarios underline a significant potential of further BOD_5- and COD- emission reduction with >80% for BOD_5 and around 70 % for COD. Even the possible reduction for N_{tot} and P_{tot} emissions from urban wastewater treatment are in a range of 50% to 60%.

The main potential for further emission reductions is represented by the 25% share of total generated loads either *not collected* or *collected but not treated*. While the emissions from *collected but not treated* sewer is directly linked to the surface water, the emissions calculated for the pathway *not collected* are addressed to the environment (soils; groundwater and surface water). The main part of this load will reach the surface water in a modified way, with loads reduced by several retention mechanisms.

Croatia

6.5.9 General information about the data evaluation

- In the framework of the ICPDR Emission Inventory 2015, Croatia reported information on all agglomerations ≥2000 PE with the reference date 31/12/2012.
- Croatia applies Article 5(2,3) of the Directive and has designated 54 sensitive areas and their related catchment of sensitive areas due to criterion a (nitrogen and phosphorus). Additionally, 27 sensitive areas with sensitivity due to criterion c were designated. One catchment of sensitive area – Dunavski sliv – was reported without a related sensitive area due to the fact that the sensitive area is the Delta of the Danube River to the Black Sea (i.e. geographically situated outside of Croatia). The designation date of all sensitive areas and catchment of sensitive areas is 1 January 2011.
- The following interim and final transitional periods and interim targets for the implementation of Articles 3, 4 and 5(2) of the Directive are stated in the Accession Treaty: 31 December 2018 for agglomerations > 15,000 p.e. except for 11 coastal agglomerations (Bibinje-Sukošan, Biograd, Jelsa-Vrboska, Makarska, Mali Lošinj, Malinska-Njivice, Nin, Pirovac-Tisno-Jezera, Pula-Sjever, Vela Luka, Vir). 31 December 2020 for agglomerations > 10,000 p.e. in sensitive areas and relevant catchments as well as for the 11 coastal agglomerations as described above. The final deadline to comply with the requirements of the Directive is 31 December 2023.
- In Croatia, one agglomeration is served by one UWWTP / collecting system without treatment, which means that the ratio [agglomeration : UWWTP] = [1 : 1] is used.

6.5.10 Country specific considerations for data evaluation

- No specific considerations for data evaluation in the datasets were made.

6.5.11 Results of data evaluation for the situation as of 31/12/2012

As can be seen from Table 18, Croatia reported 152 agglomerations ≥2000 PE for the reference year 2005. Of these, 111 agglomerations (450,855 PE) were of a size ≤10,000 PE and 41 agglomerations (2,465,684 PE) of a size >10,000 PE. For 64 agglomerations (covering 34% of the total generated load) no collecting system and no wastewater treatment plant was available, whereas for 61 agglomerations (or 17% of the total generated load) a collecting system but no wastewater treatment was in place for major parts of the agglomeration. 27 agglomerations were reported to deal with (parts of) their generated load by wastewater treatment plants providing various treatment levels. For three of these agglomerations (nearly 4% of the total load reported) tertiary treatment with N and P reduction is in place at least for parts of the agglomerations. For further thirteen of these agglomerations (42% of the total generated load), this treatment referred to secondary treatment.

Compared to data reported from 2005/2006 the number of agglomerations decreased by twenty in the reference year 2012, while the generated load decreases by more than 400,000 PE.

While the sum of generated load in agglomerations with collection, but without treatment and without collection and no treatment in 2005/2006 and 2012 remains rather stable, the distribution significantly shifted to generated loads not collected and not treated. This is also true for the calculated BOD_5, COD, N_{tot} and P_{tot} loads from these pathways.

A comparison of the total loads reported in 2012 with those from 2005/2006 underlines a significant reduction of the total emissions, with at least more than 30% for N_{tot}.

In 2012 three agglomerations ≥100,000 PE were reported. Compared to 2005/2006 data this is a decrease by two agglomerations (Zapresic and Karlovac-Duga Resa). A comparison between 2012 and 2005/2006 data expresses a significant improvement in the treatment of loads stemming from Zagreb. While in 2005/2006 rather 40% of the total generated load wasn`t collected, or collected and not treated and the other 60% were addressed by primary treatment in 2012 rather 85% was treated by secondary treatment, while 15% remain uncollected.

Table 18: Wastewater treatment in agglomerations ≥2000 PE and emissions of BOD, COD, N_{tot} and P_{tot} into the environment in the Croatian part of the DRB

Croatia	Number of agglomeration	Generated load (PE)	Emissions BOD_5 (t/a)	Emissions COD (t/a)	Emissions N_{tot} (t/a)	Emissions P_{tot} (t/a)
Collected plus tertiary treatment (3NP)						
Collected plus tertiary treatment (3N)						
Collected plus tertiary treatment (3P)						
Collected plus partially tertiary treatment (3NP)	3	101790	104,911	576,606	92,322	14,338
Collected plus partially tertiary treatment (3N)						
Collected plus partially tertiary treatment (3P)						
Collected plus secondary treatment	5	993521	6299,808	9597,961	2001,941	573,983
Collected plus partial secondary treatment	8	220670	1319,770	2010,239	419,393	120,246
Collected plus primary treatment	1	14937	256,772	440,201	42,838	9,870
Collected plus partial primary treatment	10	101669	1158,203	2022,531	201,657	45,68
Collected and treatment - total	**27**	**1432587**	**9139,464**	**14647,538**	**2758,151**	**764,117**
Collected and no treatment	61	485726	10500,717	19251,315	1540,105	358,775
Adressed by IAS						
Not collected and no treatment	64	998226	21861,140	40078,757	3206,301	746,922
Total	**152**	**2916539**	**41501,321**	**73977,610**	**7504,557**	**1869,814**

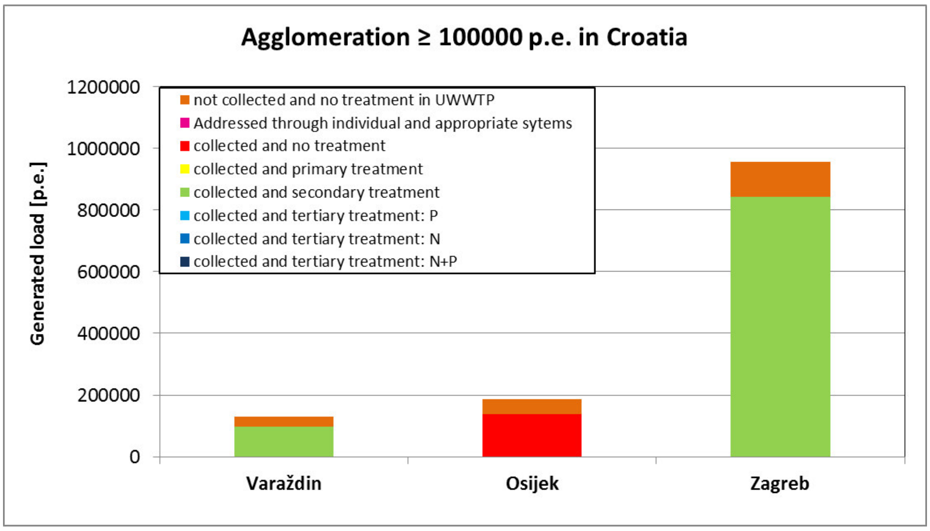

Figure 19: Wastewater treatment in agglomerations ≥100,000 PE in the Croatian part of the DRB

6.5.12 Outlook for wastewater treatment in Croatia until 2021

As regards the *baseline scenario*, it was assumed that agglomerations >10,000 PE will be addressed by tertiary treatment with N- and P removal in place. To achieve this, in 41 agglomerations (2,238,654 PE) different measures would be necessary. For these 41 agglomerations in the *reference scenario* a broad range of different treatment types and pathways are in place. In 22 agglomerations generated load is mainly collected but not treated, in one agglomeration there is no collection in place, 7 are addressed by primary or partial primary treatment, 9 by secondary or partial secondary treatment and 2 by partial tertiary treatment with N- and P removal. Generated load addressed is *not collected* (637,899 PE), *collected but not treated* (419,176 PE), primary or partial primary treatment (109,038 PE) and secondary or partial secondary treatment (1,202,542 PE).

The implementation of the *midterm scenario,* would require treatment of agglomerations ≥2000 - ≤10,000 PE at least with secondary treatment. This would address 111 agglomerations and a generated load of 432,306 PE. In the affected agglomerations in 63 cases there is no collection and treatment in place, while further 39 agglomerations are addressed by collection but without treatment. Only 1 agglomeration is addressed by primary treatment, while in 4 agglomerations secondary treatment is still in place. Further 2139 PE (not collected) from an agglomeration where N- and P removal is in place should be treated under tertiary treatment.

The implementation of the *vision scenario* is identical to the *midterm scenario*.

Table 19: Forecasted changes of generated loads (PE) for different treatment types and pathways in Croatia

Scenario	Not collected [p.e.]	IAS [p.e]	Collected-not treated [p.e.]	Primary treatment [p.e.]	Secondary treatment [p.e.]	Tertiary treatment: 3 N [p.e.]	Tertiary treatment: 3 P [p.e.]	Tertiary treatment: 3 NP [p.e.]	Total [p.e.]
Reference-scenario	998226	0	485726	116606	1214192	0	0	101790	2916539
Baseline-scenario	360327	0	66550	7568	11650	0	0	2470444	2916539
Midterm-scenario	0	0	0	0	443956	0	0	2472583	2916539
Vision-scenario	0	0	0	0	443956	0	0	2472583	2916539

The scenarios underline a significant potential of further BOD_5- and COD- emission reduction with >70% for BOD_5 and around 60 % for COD in the baseline scenario and 90% for BOD_5 and 80% for COD as compared to the reference scenario. Even the possible reduction for N_{tot} and P_{tot} emissions from urban wastewater treatment are in a range of 60% to 80% for the baseline scenario and around 70% and 85% for the midterm scenario, when compared to the reference scenario.

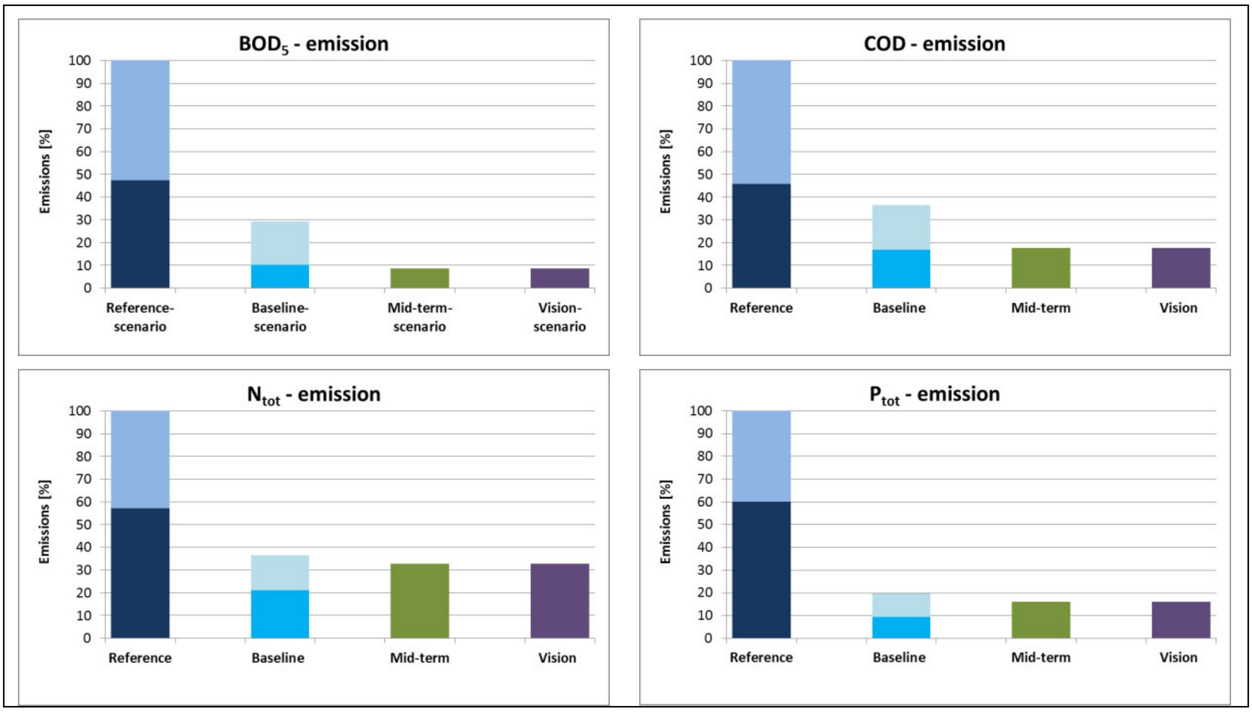

Figure 20: Emissions (%) of BOD_5, COD, N_{tot} and P_{tot} under the different scenarios

6.6 Bosnia and Herzegovina

6.6.1 General information about the data evaluation

- In the framework of the ICPDR Emission Inventory 2015, Bosnia and Herzegovina reported information on all agglomerations ≥2000 PE with the reference date 31/12/2012.
- In Bosnia and Herzegovina, one agglomeration is served by one UWWTP / collecting systems without treatment, which means that the ratio [agglomeration : UWWTP] = [1 : 1] is used.

6.6.2 Country specific considerations for data evaluation

- No specific considerations for data evaluation in the datasets were made.

6.6.3 Results of data evaluation for the situation as of 31/12/2012

As can be seen from Table 20, Bosnia and Herzegovina reported 241 agglomerations ≥2000 PE for the reference year 2005. Of these, 209 agglomerations (778,320 PE) were of a size ≤10,000 PE and 32 agglomerations (1,267,600 PE) of >10,000 PE. For 156 agglomerations (approx. 56% of the total generated load) no collecting system or wastewater treatment plant was available, whereas for 79 agglomerations (or 29% of the total generated load), a collecting system was in place for major parts of the agglomeration. Six agglomerations (around 15% of the total generated load) were reported to deal their generated load by secondary treatment.

Compared to 2005/2006 reporting, the amount of agglomerations reported for 2012 increased by two, followed by a very slight increase of generated loads of 15,000 PE.

Data reported for 2012 underline an improvement of secondary treatment with loads from agglomerations treated growing from 34,000 PE (2005/2006) to nearly 300,000 PE in 2012.
While the sum of generated load in agglomerations with collection, but without treatment and without collection and no treatment between 2005/2006 and 2012 decreases by rather 200,000 PE, the distribution significantly shifted to generated loads not collected and not treated. This is also true for the calculated BOD_5, COD, N_{tot} and P_{tot} loads from these pathways.

Total loads reported in 2012 decreased by more than 10% for BOD_5, COD and N_{tot} compared to 2005/2006 loads. P_{tot} decreased by 6%.

Agglomerations ≥100,000 PE reported remain the same in 2005/2006 and 2012. However in all of these agglomerations improvements in waste water treatment could be derived. While in Zenica, Tuzla and Banja Luka more of one third of the loads is addressed by tertiary treatment with N and P removal in place in Sarajevo the whole load is at least treated by secondary treatment. In 2005/2006 no treatment on treatment plants was in place for these agglomerations.

Table 20: Wastewater treatment in agglomerations ≥2000 PE and emissions of BOD, COD, N_{tot} and P_{tot} into the environment in the Bosnian part of the DRB

Bosnia and Herzegovina	Number of agglomeration	Generated load (PE)	Emissions BOD_5 (t/a)	Emissions COD (t/a)	Emissions N_{tot} (t/a)	Emissions P_{tot} (t/a)
Collected plus tertiary treatment (3NP)						
Collected plus tertiary treatment (3N)						
Collected plus tertiary treatment (3P)						
Collected plus partially tertiary treatment (3NP)						
Collected plus partially tertiary treatment (3N)						
Collected plus partially tertiary treatment (3P)						
Collected plus secondary treatment	6	299475	4187,882	7800,944	855,870	197,083
Collected plus partial secondary treatment						

Bosnia and Herzegovina	Number of agglomeration	Generated load (PE)	Emissions BOD_5 (t/a)	Emissions COD (t/a)	Emissions N_{tot} (t/a)	Emissions P_{tot} (t/a)
Collected plus primary treatment						
Collected plus partial primary treatment						
Collected plus tertiary treatment (3NP)	**6**	**299475**	**4187,882**	**7800,944**	**855,870**	**197,083**
Collected and no treatment	79	590254	12926,554	23698,682	1895,895	441,657
Adressed by IAS						
Not collected and no treatment	156	1156191	25320,592	46421,085	3713,687	865,120
Total	**241**	**2045920**	**42435,028**	**77920,711**	**6465,451**	**1503,861**

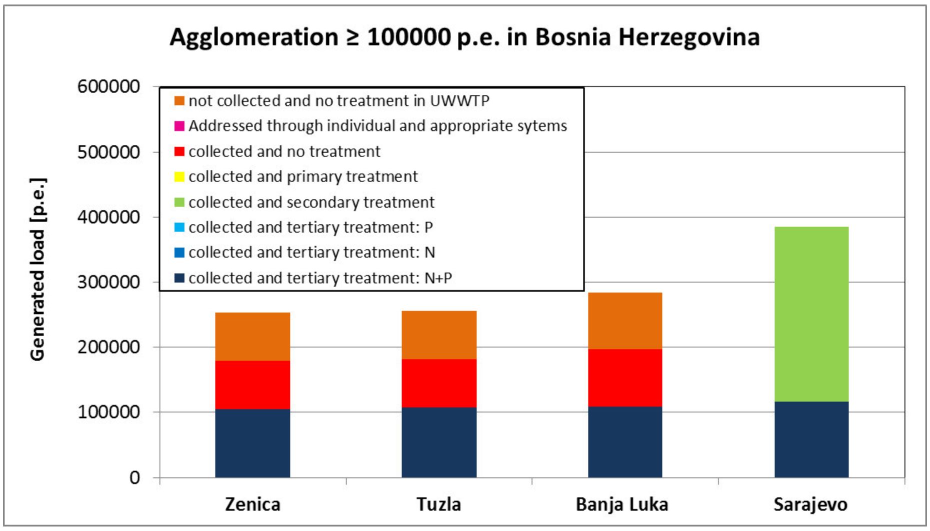

Figure 21: Wastewater treatment in agglomerations ≥100,000 PE in the Bosnian part of the DRB

6.6.4 Outlook for wastewater treatment in Bosnia and Herzegovina until 2021

Authorities from Bosnia Herzegovina provided detailed information of priority projects related to urban wastewater collection and treatment to be implemented in future. This information forms the basis for the conception of the scenarios.

As regards the *baseline scenario*, it was assumed that Sarajevo (with partial secondary treatment) is improved to tertiary treatment with N removal (358,400 PE). Further 47,000 PE from three agglomerations are improved to tertiary treatment (3N). This would require the construction of three treatment plants and an upgrade from secondary treatment to tertiary treatment with N removal in Sarajevo. Additionally in 20 agglomerations the construction of treatment plants is assumed to improve secondary treatment.

The implementation of the *midterm scenario* would require the establishment of P removal for 20 agglomerations > 10,000 PE, the upgrade of 10 further plants from secondary treatment to tertiary treatment with P removal (866,600 PE) and improvements of tertiary treatment with N removal to N removal and P removal in place. 50,000 PE from 5 agglomerations ≥2000 PE and ≤10,000 PE will be additionally addressed by tertiary treatment, with construction of treatment plants necessary in each agglomeration.

The *vision scenario* aims to have all agglomerations ≥2000 PE and ≤10,000 PE at least treated by secondary treatment and all agglomerations >10,000PE treated by tertiary treatment with N removal and P removal in place. This would require secondary treatment for further 187 agglomerations and an upgrade from P removal to N removal and P removal for 30 agglomerations.

Table 21: Forecasted changes of generated loads (PE) for different treatment types and pathways in Bosnia Herzegovina

Scenario	Not collected [p.e.]	IAS [p.e]	Collected-not treated [p.e.]	Primary treatment [p.e.]	Secondary treatment [p.e.]	Tertiary treatment: 3 N [p.e.]	Tertiary treatment: 3 P [p.e.]	Tertiary treatment: 3 NP [p.e.]	Total [p.e.]
Reference-scenario	1156191	0	590254	0	299475	0	0	0	2045920
Baseline-scenario	955070	0	514955	0	170495	405400	0	0	2045920
Midterm-scenario	605413	0	74527	0	43980	4400	916600	401000	2045920
Vision-scenario	0	0	0	0	723920	4400	0	1317600	2045920

Scenario results show a huge potential for further BOD_5, COD, N_{tot} and P_{tot} emission reduction from the urban wastewater sector in Bosnia Herzegovina.

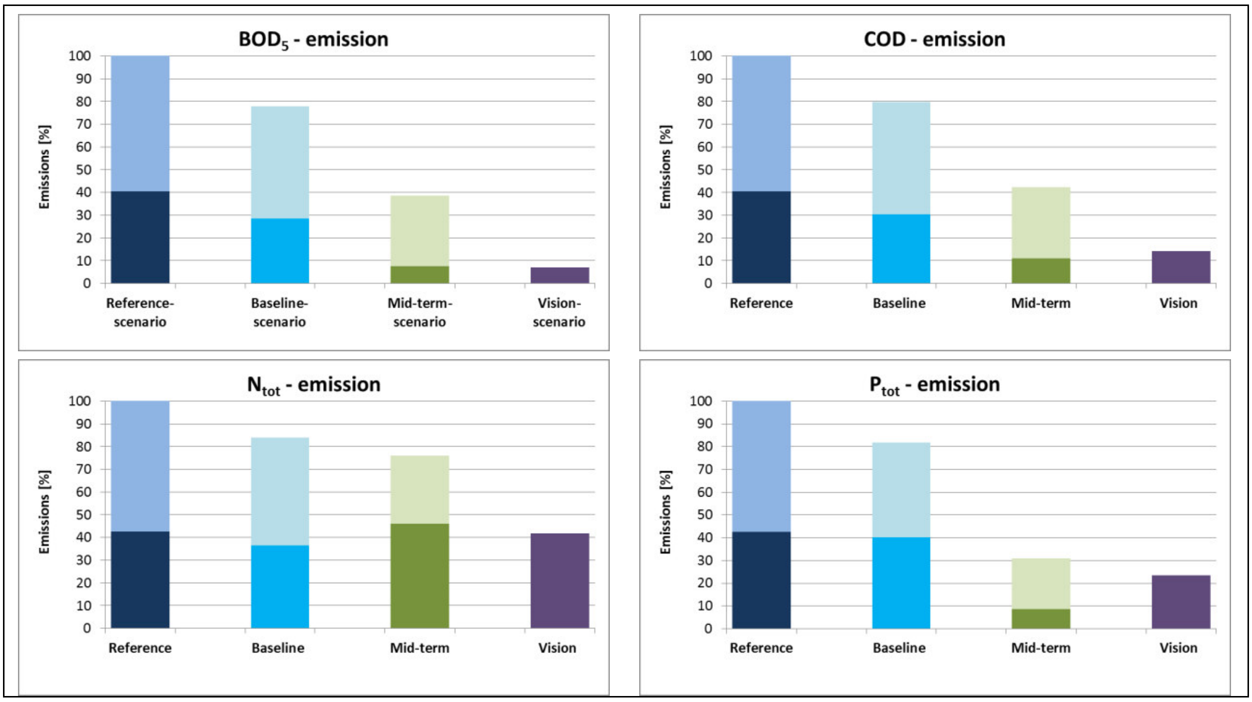

Figure 22: Emissions (%) of BOD_5, COD, N_{tot} and P_{tot} under the different scenarios

6.7 Serbia

6.7.1 General information about the data evaluation

- In the framework of the ICPDR Emission Inventory 2015, Serbia reported information on all agglomerations ≥2000 PE with the reference date 31/12/2012.
- An update of data was submitted by Serbia in 2015.
- In Serbia, one or more agglomeration is served by one UWWTP / collecting system without treatment which means that the ratio [agglomeration : UWWTP] = [m : 1] is used.

6.7.2 Country specific considerations for data evaluation

- No specific considerations for data evaluation in the datasets were made.

6.7.3 Results of data evaluation for the situation as of 31/12/2012

As can be seen from Table 22, Serbia reported 328 agglomerations ≥2000 PE for the reference year 2012. Of these, 214 agglomerations (990,156 PE) were of the size ≤10,000 PE and 114 agglomerations (6,593,602 PE) of the size >10,000 PE. One agglomeration (covering 1% of total load) is reported to have tertiary treatment with N- and P removal in place (for parts of the generated loads). 32 agglomerations (12% of total generated load) are addressed by secondary or partial secondary treatment. 150 agglomerations (covering 58% of the total generated load) were reported to have a collecting system (for parts of their generated load) but no wastewater treatment. 141 agglomerations (covering 29% of the total generated load) were reported as having no collecting system and no treatment in urban wastewater treatment plants.

Compared to data reported for 2005/2006 the number of agglomerations decreased by 107 in the reported year 2012. However, the generated load reported (for 2012) increased by 50% compared to the 2005/2006 data.

As a consequence of an increased generated load reported from Serbia (around 2,500,000 PE) the BOD_5, COD, N_{tot} and P_{tot} loads reported increased significantly compared to data from 2005/2006. For COD and N_{tot} loads increased by around 50%, while for BOD_5 and P_{tot} loads an increase of more than 60% can be stated.

Interpreting the significant increase in loads it can be stated, that it is not caused by a decline in Serbia`s urban wastewater treatment sector (data reported in 2012 show a slight improvement of generated loads treated in WWTPs compared to 2005/2006) but can be traced back on an essentially improved data reporting within the ICPDR Municipal Emission Inventory 2015.

The number of agglomerations ≥100,000 PE reported for 2012 increased to a total of thirteen (in 2005/2006 five agglomerations ≥100,000 PE were reported).

Table 22: Wastewater treatment in agglomerations ≥2000 PE and emissions of BOD, COD, N_{tot}, and P_{tot} into the environment in the Serbian part of the DRB

Serbia	Number of agglomeration	Generated load (PE)	Emissions BOD_5 (t/a)	Emissions COD (t/a)	Emissions N_{tot} (t/a)	Emissions P_{tot} (t/a)
Collected plus tertiary treatment (3NP)						
Collected plus tertiary treatment (3N)						
Collected plus tertiary treatment (3P)						
Collected plus partially tertiary treatment (3NP)	1	95015	2156,770	3954,077	316,326	64,703
Collected plus partially tertiary treatment (3N)						
Collected plus partially tertiary treatment (3P)						
Collected plus secondary treatment	14	545936	7013,775	12858,585	1536,837	327,598

Serbia	Number of agglomeration	Generated load (PE)	Emissions BOD_5 (t/a)	Emissions COD (t/a)	Emissions N_{tot} (t/a)	Emissions P_{tot} (t/a)
Collected plus partial secondary treatment	18	229685	3614,265	6626,152	616,967	141,690
Collected plus primary treatment	3	55042	475,309	871,400	135,713	31,853
Collected plus partial primary treatment	1	87239	980,116	1796,879	226,254	54,717
Collected and treatment - total	**37**	**1012917**	**14240,235**	**26107,093**	**2832,097**	**620,561**
Collected and no treatment	150	4398219	91971,004	168613,508	13534,978	2768,189
Adressed by IAS						
Not collected and no treatment	141	2172622	47580,425	87230,779	6978,462	1427,413
Total	**328**	**7583758**	**153791,664**	**281951,380**	**23345,537**	**4816,163**

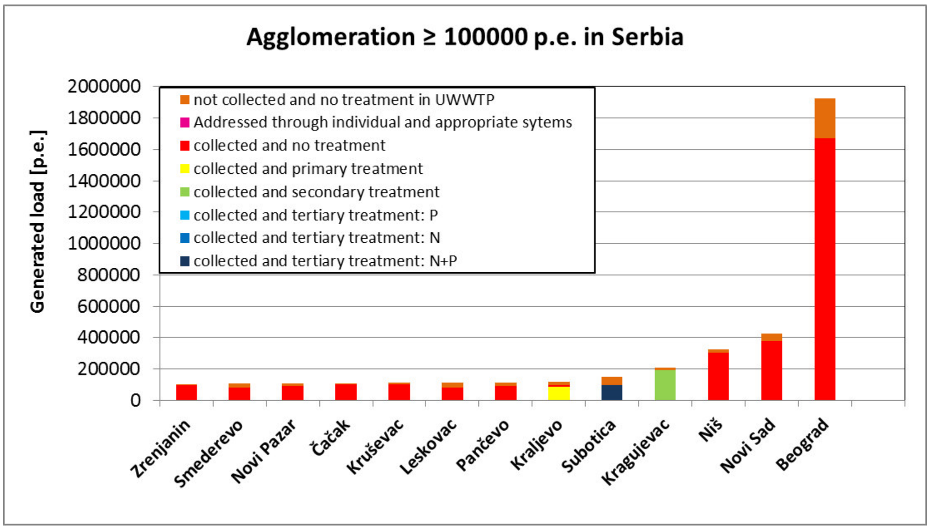

Figure 23: Wastewater treatment in agglomerations ≥100,000 PE in the Serbian part of the DRB

6.7.4 Outlook for wastewater treatment in Serbia until 2021

Authorities from Serbia provided detailed information of priority projects related to urban wastewater collection and treatment to be implemented in future. This information forms the basis for the conception of the scenarios.

In the *baseline scenario* 9 agglomerations >10,000 PE (771,566 PE) are improved by secondary treatment, with a necessary construction of 8 treatment plants and one upgraded plant. For 2 agglomerations >10,000 PE and a total generated load of 55,808 PE tertiary treatment with N removal and P removal will be implemented. Two new treatment plants are necessary to provide this service. Additionally in 2 agglomerations ≤10,000 PE (13,314 PE) treatment with N- and P removal will be provided.

In contrast to the *baseline scenario*, implementation of the *midterm scenario* with all agglomerations >10,000 PE being at least treated by P removal would require the additional upgrade of wastewater treatment for 35 agglomerations and a further construction of treatment plants for 76 agglomerations (6,385,776 PE) in order to provide P removal. 57,000 PE will be addressed to tertiary treatment with N and P removal in place.

The implementation of the *vision scenario* would require an upgrade in all agglomerations >10,000 PE from P removal to N removal and P removal. This would address 6,385,776 PE and an upgrade in 111 agglomerations. Further all agglomerations ≤10,000 PE would at least implement secondary treatment, with an upgrade of 947,863 PE and a necessary implementation of secondary treatment in 203 agglomerations.

Table 23: Forecasted changes of generated loads (PE) for different treatment types and pathways in Serbia

Scenario	Not collected [p.e.]	IAS [p.e]	Collected-not treated [p.e.]	Primary treatment [p.e.]	Secondary treatment [p.e.]	Tertiary treatment: 3 N [p.e.]	Tertiary treatment: 3 P [p.e.]	Tertiary treatment: 3 NP [p.e.]	Total [p.e.]
Reference-scenario	2172622	0	4398219	142281	775621	0	0	95015	7583758
Baseline-scenario	2014733	0	3802658	55042	1547187	0	0	164137	7583758
Midterm-scenario	770328	0	177535	0	28979	0	6385776	221140	7583758
Vision-scenario	0	0	0	0	976842	0	0	6606916	7583758

While the implementation of the baseline scenario can provide a further emission reduction (BOD_5, COD, N_{tot} and P_{tot}) in the range of 10%, the midterm scenario would lead to further significant reductions in the case of BOD_5, COD and P_{tot} emissions.

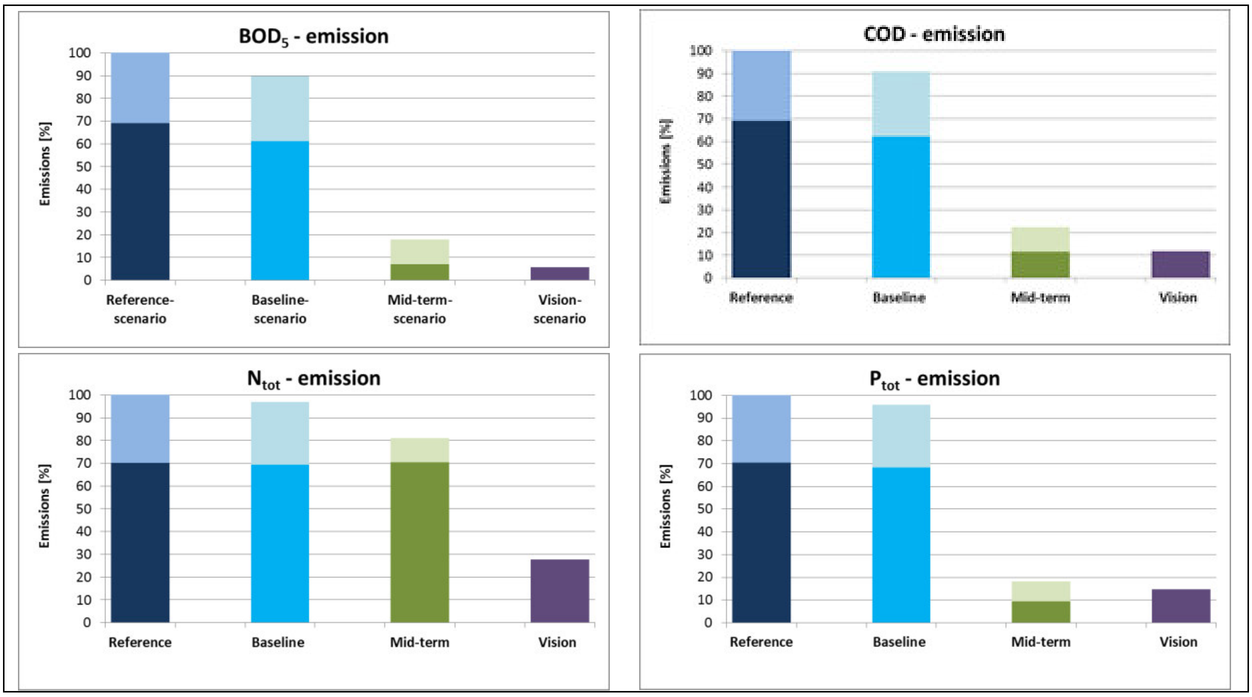

Figure 24: Emissions (%) of BOD_5, COD, N_{tot} and P_{tot} under the different scenarios

6.8 Romania

6.8.1 General information about the data evaluation

- In 2014, Romania reported information on all agglomerations ≥2000 PE with the reference date 31/12/2012 for the ICPDR Emission Inventory 2015. These data could be harmonized with the dataset reported to the UWWT-Directive Questionnaire (Article 5).
- As an EU MS, Romania has applied Article 5(8) of the UWWT Directive since May 2005. The parameters subject to more stringent treatment are N and P.
- In Romania, one agglomeration can be served by one or more UWWTP / collecting systems without treatment, while at the same time one UWWTP can serve more than one agglomeration. This means that the ratio [agglomeration : UWWTP] = [m : n] is used.

6.8.2 Country specific considerations for data evaluation

- No specific considerations for data evaluation in the datasets were made.

6.8.3 Results of data evaluation for the situation as of 31/12/2012

As can be seen from Table 24, Romania reported 1852 agglomerations ≥2000 PE for the reference year 2012. Of these, 1626 agglomerations (6,207,800 PE) were of the size ≤10,000 PE and 262 agglomerations (15,201,375 PE) of the size >10,000 PE. 32 agglomerations (24% of the total generated load) were reported to treat (parts of) their sewage by tertiary treatment techniques. Further 311 agglomerations (26% of the total generated load) were reported to treat (parts of) their sewage by secondary treatment. For 1206 agglomerations (40% of the total generated load), no collecting system or wastewater treatment plant was available in the reference year 2012, whereas for 147 agglomerations (9% of the total generated load) a collecting system was in place for the major part of the agglomeration.

In 98 agglomerations (only 0.2% of the total generated load or 40,178 PE) the treatment of loads is mainly addressed by IAS. In Romania in total 174,590 PE are addressed by IAS.

Compared to the reference year 2005/2006 the reported amount of agglomeration decreased significantly. Even the total generated loads reported in 2012 show a significant decrease by 19% or 5,000,000 PE with respect to the 2005/2006 data.

Romanian data submitted for 2012 underline a significant shift from mainly secondary treatment technologies to tertiary treatment technologies in the period 2005/2006 to 2012.

Improvements on the urban wastewater treatment sector combined with an improved dataset lead to a significant reduction of the loads reported for 2012 compared to these from 2005/2006. In numbers these are reductions for BOD_5, COD and P_{tot} in a range of 80%, while reported N_{tot} loads decreased by 70%.

For 2012 thirty-one agglomerations ≥100,000 PE were reported. Compared to the 2005/2006 dataset this is a decrease by two. While in 2005/2006 six agglomerations ≥100,000 PE were reported to have generated loads collected but not treated, in 2012 this is valid only for Tulcea and Tg-Jiu. In ten "big agglomerations" tertiary treatment is in place in 2012. One of these agglomerations is Bucuresti, where tertiary treatment with P removal is in place for nearly 50% of the load (PE).

Table 24: Wastewater treatment in agglomerations ≥2000 PE and emissions of BOD, COD, N_{tot} and P_{tot} from these agglomerations in Romania

Romania	Number of agglomeration	Generated load (PE)	Emissions BOD_5 (t/a)	Emissions COD (t/a)	Emissions N_{tot} (t/a)	Emissions P_{tot} (t/a)
Collected plus tertiary treatment (3NP)	11	1753741	2251,161	5100,937	1023,187	118,411
Collected plus tertiary treatment (3N)	3	1218361	3418,632	9011,692	2392,126	248,345
Collected plus tertiary treatment (3P)						
Collected plus partially tertiary treatment (3NP)	12	979943	1506,290	3752,168	851,230	128,046

Romania	Number of agglomeration	Generated load (PE)	Emissions BOD_5 (t/a)	Emissions COD (t/a)	Emissions N_{tot} (t/a)	Emissions P_{tot} (t/a)
Collected plus partially tertiary treatment (3N)	3	64936	26,594	89,733	28,404	2,725
Collected plus partially tertiary treatment (3P)	3	1034274	24942,216	53194,135	5591,320	742,243
Collected plus secondary treatment	60	2699771	5689,184	14007,279	3363,241	319,298
Collected plus partial secondary treatment	251	2779005	14190,707	34847,234	5079,678	550,982
Collected plus primary treatment	7	123121	290,728	877,831	155,857	23,692
Collected plus partial primary treatment	51	229429	1459,768	4272,528	414,242	89,901
Collected and treatment - total	**401**	**10882581**	**53775,28**	**125153,537**	**18899,285**	**2223,643**
Collected and no treatment	147	1973818	7867,915	15276,763	1543,621	234,002
Adressed by IAS	98	40178				
Not collected and no treatment	1206	8512598	186425,894	341780,805	27342,464	4660,647
Total	**1852**	**21409175**	**61643,195**	**140430,3**	**20442,906**	**2457,645**

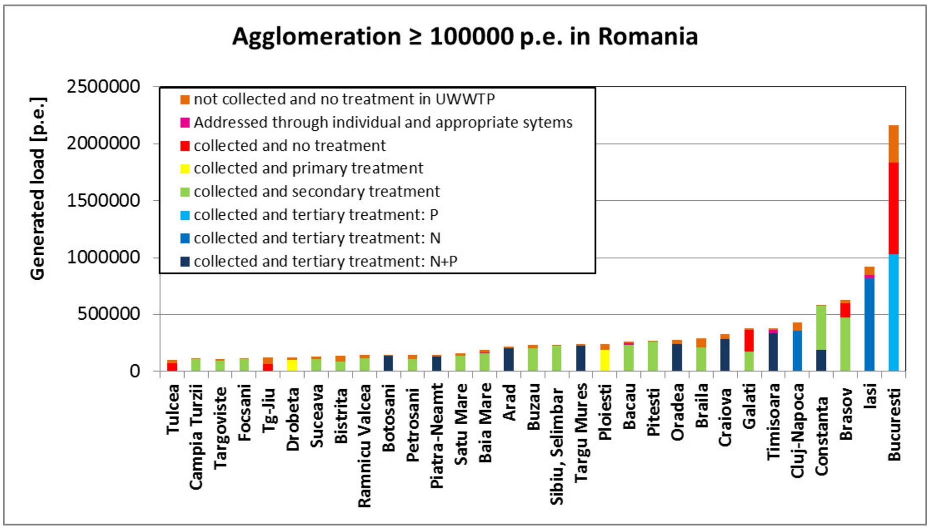

Figure 25: Wastewater treatment in agglomerations ≥100,000 PE in Romania

6.8.4 Outlook for wastewater treatment in Romania until 2021

As an EU MS, Romania has to comply fully with the UWWT Directive by 31st December 2018. Since 11 May 2005 Romania applies Article 5(8) and 5(2,3) of the Directive and therefore does not have to identify sensitive areas. The parameters subject to more stringent treatment are nitrogen and phosphorus.

While agglomerations with a size of >10,000 PE have to comply with Article 3, Article 4 and Article 5(2) by 31st December 2015 at the latest, agglomerations ≤10,000 PE are subject to a transitional period until 31st December 2018. The interim target date to comply with Article 3 (80% of the total biodegradable load of agglomerations ≤10,000 PE) and Article 4 (77% of the total biodegradable load of agglomerations ≤ 10,000 PE) is 31st December 2015.

It was assumed under the *baseline scenario* that all agglomerations ≤10,000 PE will be served by secondary treatment by 2021. In those cases where a higher treatment was in place for a part of the generated loads, it was assumed that additional loads from these agglomerations will be treated in the existing treatment plants. This appears in three agglomerations with partial N removal and P removal, addressing a further load of 11,217 PE (not collected) and in two agglomerations with partial P removal addressing further 6974 PE (not collected). A total of 6,177,316 PE from agglomerations ≤10,000 PE would be improved by secondary treatment, with the dominant share being addressed by generated loads not collected (5,608,544 PE).

Agglomerations with more than 10,000 PE were considered to be served by N and P removal under the *baseline scenario*. Thus an improvement within 226 agglomerations with a total load of 13,059,560 PE is addressed. 140 of them with 5,514,635 PE are addressed by at least partial secondary treatment. Further 2,904,054 PE addressed stem from agglomeration without collection and 1,796,618 PE were collected but not treated. The rest is addressed by different treatment types (primary treatment, secondary treatment, as well as tertiary treatment with N- and P removal).

For Romania, the *midterm scenario* and the *vision scenario* draws the same picture as the *baseline scenario*.

Table 25: Forecasted changes of generated loads (PE) for different treatment types and pathways in Serbia

Scenario	Not collected [p.e.]	IAS [p.e]	Collected-not treated [p.e.]	Primary treatment [p.e.]	Secondary treatment [p.e.]	Tertiary treatment: 3 N [p.e.]	Tertiary treatment: 3 P [p.e.]	Tertiary treatment: 3 NP [p.e.]	Total [p.e.]
Reference-scenario	8512598	174590	1973818	594348	5819599	1255243	1031977	2047002	21409175
Baseline-scenario	0	174590	0	0	6118093	0	9929	15106563	21409175
Midterm-scenario	0	174590	0	0	6118093	0	9929	15106563	21409175
Vision-scenario	0	174590	0	0	6118093	0	9929	15106563	21409175

The scenarios underline a significant potential for further emission reductions.

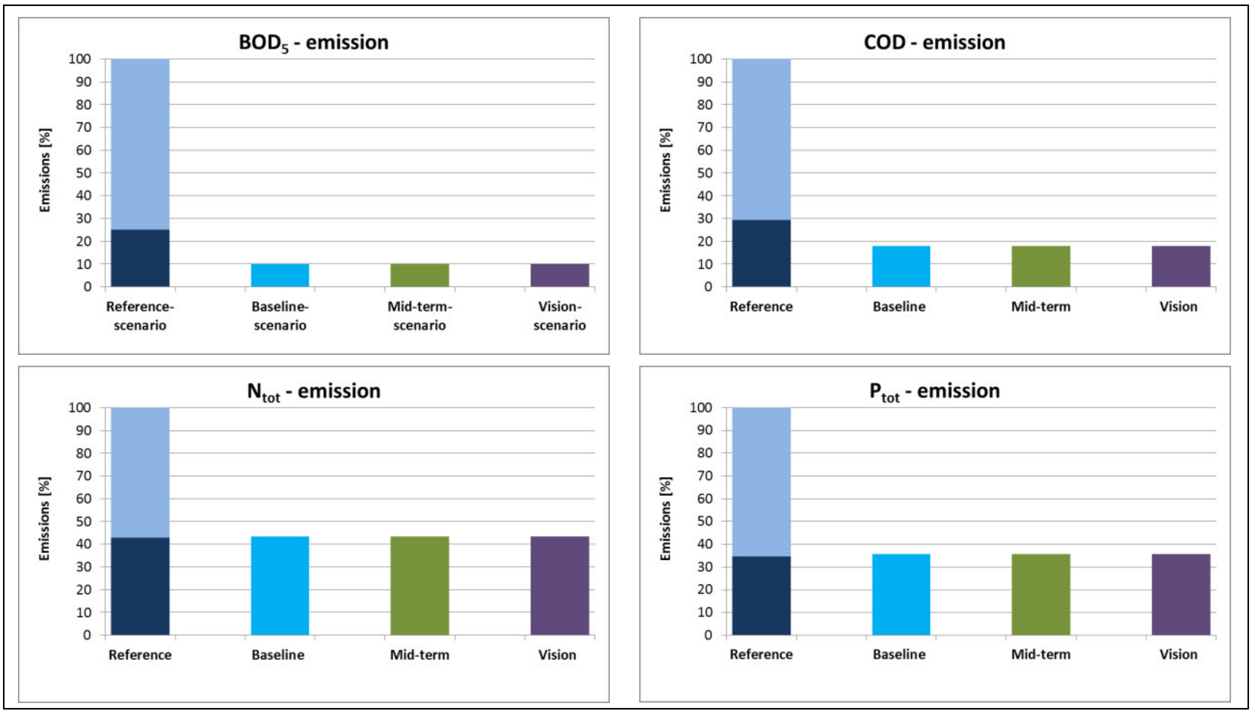

Figure 26: Emissions (%) of BOD_5, COD, N_{tot} and P_{tot} under the different scenarios

6.9 Bulgaria

6.9.1 General information about the data evaluation

- In 2014, Bulgaria reported information on all agglomerations ≥2000 PE with the reference date 31/12/2012 for the ICPDR Emission Inventory 2015. These data could be harmonized with the dataset reported to the UWWT-Directive Questionnaire (Article 5).
- As an EU MS, Bulgaria has applied Article 5(2,3) of the UWWT Directive (91/271/EEC) which means that *sensitive areas* and *catchment areas of sensitive areas* have been designated. 14 sensitive areas and 14 catchments of sensitive areas, with sensitivity to nitrogen and phosphorus had been reported.
- In Bulgaria, one agglomeration can be served by one or more UWWTP / collecting system without treatment while at the same time one UWWTP can serve more than one agglomeration. This means that the ratio [agglomeration : UWWTP] = [m : n] is used.

6.9.2 Country specific considerations for data evaluation

- No specific considerations for data evaluation in the datasets were made.

6.9.3 Results of data evaluation for the situation as of 31/12/2012

As can be seen from Table 26, Bulgaria reported 138 agglomerations ≥2000 PE for the reference year 2015. Of these, 96 agglomerations (357,944 PE) were classed as ≤10,000 PE and 42 agglomerations (3,691,753 PE) were classed as >10,000 PE. 10 agglomerations (with a share of total generated load of 47%) were reported to treat (at least parts of) their generated load using wastewater treatment plants providing tertiary treatment, with a dominant share having N- removal and P removal in place. Further 15% of generated loads are treated by secondary treatment. For 57 agglomerations (around 24% of the total generated load), no collecting system or wastewater treatment plant was available; whereas for 50 agglomerations (13% of the total generated load) a collecting system but no wastewater treatment was in place for major parts of the agglomeration.

For two agglomerations generated loads are addressed by IAS. In total 7630 PE are addressed by IAS in the Danube catchment of Bulgaria.

Compared to data reported for the years 2005/2006 the number of agglomerations decreased by 37, while generated loads reported decreased by 540,000 PE until 2012.

A comparison of 2005/2006 and 2012 data clearly expresses improvements in the urban wastewater treatment sector with a shift from secondary to tertiary treatment types. However, reported PE not collected for the year 2012 increased significantly compared to data reported for 2005/2006. On the other hand reported PE collected but not treated significantly decreased, so that the sum of both pathways remains more or less stable.

In consideration of decreasing generated loads and improvements in the wastewater sector the reported increase of PE not collected could be one reason for the increase of BOD_5 (22%), COD (15%) and N_{tot} (13%) emissions reported between 2005/2006 to 2012. For P_{tot} emissions a slight reduction of 6% is reported.

For 2012 the Bulgarian authorities reported five agglomerations ≥100,000 PE. Compared to 2005/2006 Ruse and Sofia are equipped with tertiary treatment with N and P removal in place in the reference year 2012.

Table 26: Wastewater treatment in agglomerations ≥2000 PE and emissions of BOD_5, COD, N_{tot} and P_{tot} into the environment in the Bulgarian part of the DRB

Bulgaria	Number of agglomeration	Generated load (PE)	Emissions BOD_5 (t/a)	Emissions COD (t/a)	Emissions N_{tot} (t/a)	Emissions P_{tot} (t/a)
Collected plus tertiary treatment (3NP)	2	62468	68,402	172,989	39,691	7,596
Collected plus tertiary treatment (3N)	2	132987	145,621	800,914	128,146	72,810
Collected plus tertiary treatment (3P)						

Bulgaria	Number of agglomeration	Generated load (PE)	Emissions BOD_5 (t/a)	Emissions COD (t/a)	Emissions N_{tot} (t/a)	Emissions P_{tot} (t/a)
Collected plus partially tertiary treatment (3NP)	5	1690716	3702,209	7998,006	1660,673	167,466
Collected plus partially tertiary treatment (3N)	1	13748	19,600	91,803	14,049	7,728
Collected plus partially tertiary treatment (3P)						
Collected plus secondary treatment	8	597962	2473,048	4730,331	884,099	160,541
Collected plus partial secondary treatment	4	10292	67,600	103,277	21,538	4,427
Collected plus primary treatment	3	14284	241,558	415,177	40,300	6,794
Collected plus partial primary treatment	4	25641	815,173	1448,859	127,589	21,624
Collected and treatment - total	**29**	**2548098**	**7533,211**	**15761,356**	**2916,085**	**448,986**
Collected and no treatment	50	522342	9151,562	16777,864	1342,229	228,789
Adressed by IAS	2	531				
Not collected and no treatment	57	978726	21434,090	39295,831	3143,667	535,852
Total	**138**	**4049697**	**38118,863**	**71835,051**	**7401,981**	**1213,627**

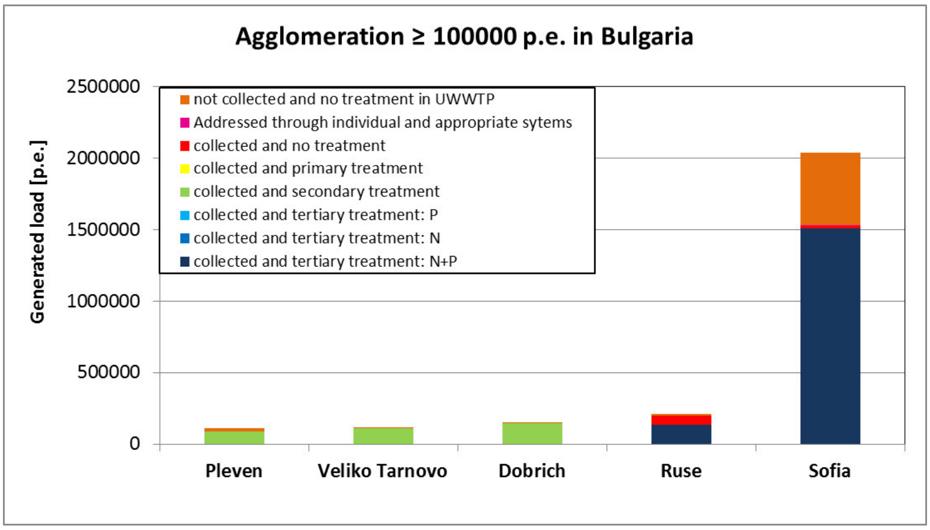

Figure 27: Wastewater treatment in agglomerations ≥100,000 PE in the Bulgarian part of the DRB

6.9.4 Outlook for wastewater treatment in Bulgaria until 2021

As an EU MS, Bulgaria has applied Article 5(4) of the UWWT Directive in the DRB which has been designated as a *catchment area of a sensitive area*. The final deadline to comply with the UWWT Directive in Bulgaria was 31st December 2014.

The *baseline scenario*, which is identical with the *midterm scenario* and the *vision scenario* for Bulgaria, was based on the assumption that at least 75% of the total P load and at least 75% of the total N load entering all UWWTPs of the *catchment of sensitive area* will be removed. As a prerequisite to achieve the reduction rates demanded under Article 5(4), secondary treatment was taken into account for all agglomerations ≥2000 PE–10,000 PE, while more stringent treatment with N- and P removal was taken into account for agglomerations >10,000 PE.

This approach would require the establishment of N- and P removal for the entire wastewater load of 33 agglomerations reported as having no wastewater treatment, primary or secondary treatment in 2012. In total 1,940,243 PE would be addressed by this improvement. It would also require the establishment of secondary treatment for 91 agglomerations reported as having no collecting system and/or no wastewater treatment or primary treatment in the reference year 2012. This would address a total generated load of 343,858 PE. For one agglomeration ≥2000 PE–10,000 PE with partial tertiary treatment reported it was assumed that further 1263 PE (not collected) will be treated on the existing treatment plant.

Table 27: Forecasted changes of generated loads (PE) for different treatment types and pathways in Bulgaria

Scenario	Not collected [p.e.]	IAS [p.e]	Collected-not treated [p.e.]	Primary treatment [p.e.]	Secondary treatment [p.e.]	Tertiary treatment: 3 N [p.e.]	Tertiary treatment: 3 P [p.e.]	Tertiary treatment: 3 NP [p.e.]	Total [p.e.]
Reference-scenario	978726	7630	522343	39924	607266	146735	0	1747073	4049697
Baseline-scenario	0	7630	0	0	353488	0	0	3688579	4049697
Midterm-scenario	0	7630	0	0	353488	0	0	3688579	4049697
Vision-scenario	0	7630	0	0	353488	0	0	3688579	4049697

On base of the actual numbers from Bulgaria the scenarios express a huge reduction potential for BOD_5, COD, N_{tot} and P_{tot} emissions from the urban wastewater sector in the range of 60% (N_{tot}) to almost 90% (BOD_5).

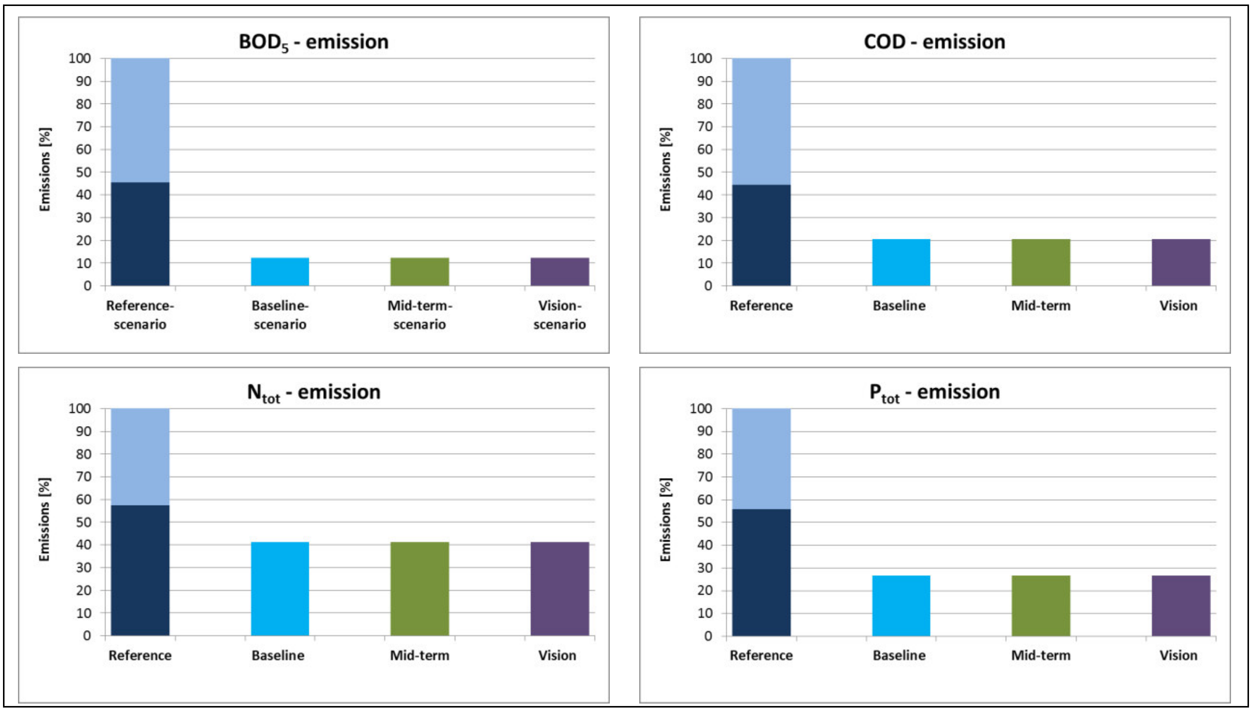

Figure 28: Emissions (%) of BOD_5, COD, N_{tot} and P_{tot} under the different scenarios

6.10 Moldova

6.10.1 General information about the data evaluation

- In the framework of the ICPDR Emission Inventory 2015, Moldova reported information on all agglomerations ≥2000 PE with the reference date 31/12/2012.
- In Moldova, one UWWTP / collecting system without treatment serve one agglomeration. This means that the ratio [agglomeration : UWWTP] = [1 : 1] is used.

6.10.2 Country specific considerations for data evaluation

- No specific considerations for data evaluation in the datasets were made.

6.10.3 Results of data evaluation for the situation as of 31/12/2012

As can be seen from Table 28, Moldova reported 168 agglomerations ≥2000 PE for the reference year 2012. Of these, 152 agglomerations (515,145 PE) were classed as ≤10,000 PE and 16 agglomerations (380,000 PE) were classed as >10,000 PE. 17 agglomerations (23% of the total generated load) were reported to treat (parts of) their generated load by primary or secondary treatment in the reference year 2012. For 126 agglomerations (73% of the total generated load), no collecting system or wastewater treatment plant was available, whereas for 22 agglomerations (3% of the total generated load) a collecting system was in place for major parts of the agglomeration.

Generated loads from three agglomerations are mainly addressed by IAS (5090 PE), while in total 38,075 PE were addressed in the Danube catchment of Moldova.

Compared to 2005/2006 data in 2012 an increase of 60 agglomerations with a surplus of around 340,000 PE is reported. The most significant difference in both datasets (2005/2006 and 2012) is the doubling of PE not collected and not treated until 2012.

The increase of PE of more than 30% and the doubling of PE without collection leads to an increase in the BOD_5, COD, N_{tot} and P_{tot} emissions reported in 2012 of more than 40% at least. The data reported for the year 2012 seem to provide an improved and detailed picture of the urban wastewater treatment sector in the Moldavian part of the Danube River basin.

There are no agglomerations ≥100,000 PE in the Moldavian part of the DRB.

Table 28: Wastewater treatment in agglomerations ≥2000 PE and emissions of BOD, COD, N_{tot} and P_{tot} into the environment in the DRB of Moldova

Moldova	Number of agglomeration	Generated load (PE)	Emissions BOD_5 (t/a)	Emissions COD (t/a)	Emissions N_{tot} (t/a)	Emissions P_{tot} (t/a)
Collected plus tertiary treatment (3NP)						
Collected plus tertiary treatment (3N)						
Collected plus tertiary treatment (3P)						
Collected plus partially tertiary treatment (3NP)						
Collected plus partially tertiary treatment (3N)						
Collected plus partially tertiary treatment (3P)						
Collected plus secondary treatment						
Collected plus partial secondary treatment	6	100530	689,000	1086,000	218,000	62,000
Collected plus primary treatment						

Moldova	Number of agglomeration	Generated load (PE)	Emissions BOD_5 (t/a)	Emissions COD (t/a)	Emissions N_{tot} (t/a)	Emissions P_{tot} (t/a)
Collected plus partial primary treatment	11	106419	2039,000	3508,000	339,000	79,000
Collected and treatment - total	**17**	**206949**	**2728,000**	**4594,000**	**557,000**	**141,000**
Collected and no treatment	22	29017	806,086	1477,825	118,226	27,541
Adressed by IAS	3	5090				
Not collected and no treatment	126	654089	14324,558	26261,689	2100,935	489,422
Total	**168**	**895145**	**17858,644**	**32333,514**	**2776,161**	**657,963**

6.10.4 Outlook for wastewater treatment in Moldova until 2021

Authorities from Moldova provided detailed information of priority projects related to urban wastewater collection and treatment to be implemented in future. This information forms the basis for the conception of the scenarios.

For the *baseline scenario*, it was assumed that agglomerations with existing collecting systems and primary treatment mainly in agglomerations >10,000 PE were upgraded to secondary treatment. 69,651 PE (from the pathways collected but not treated and primary treatment will be upgraded to secondary treatment; 49,156 PE stem from primary treatment and 17,365 PE from the pathway collected but not treated from agglomerations >10,000 PE. Further 3763 PE stem from one agglomeration ≥2000 PE ≤10,000 PE equipped with primary treatment.

Compared with the *baseline scenario*, the *midterm scenario* would require improved tertiary treatment with P removal in place in agglomerations >10,000 PE. To achieve this, improved connection rates to wastewater treatment plants (158,471 PE) and upgrades for P removal for 16 treatment plants would be necessary. A total load of 343,140 PE (mainly not collected and from secondary treatment) needs to be upgraded to tertiary treatment with P removal in place.

The *vision scenario* aims to treat the loads from agglomerations ≥2000 PE ≤10,000 PE with secondary treatment and loads from agglomerations >10,000 PE with tertiary treatment and N- and P removal in place. Accordingly, implementing the *vision scenario* would require an upgrade from tertiary treatment with P removal in place to N- and P removal (343,140 PE). Additionally 510,167 PE (with 482,267 PE not collected) has to be upgraded to provide secondary treatment. This would address 148 agglomerations where no treatment plant is in place.

Table 29: Forecasted changes of generated loads (PE) for different treatment types and pathways in Moldova

Scenario	Not collected [p.e.]	IAS [p.e]	Collected-not treated [p.e.]	Primary treatment [p.e.]	Secondary treatment [p.e.]	Tertiary treatment: 3 N [p.e.]	Tertiary treatment: 3 P [p.e.]	Tertiary treatment: 3 NP [p.e.]	Total [p.e.]
Reference-scenario	654089	38075	29017	89804	84160	0	0	0	895145
Baseline-scenario	654089	38075	12285	36885	153811	0	0	0	895145
Midterm-scenario	495618	38075	8578	5971	3763	0	343140	0	895145
Vision-scenario	0	38075	0	0	513930	0	0	343140	895145

Due to the assumptions made for the different scenarios, the possible reductions presented for BOD_5, COD, N_{tot}, P_{tot} emissions show different pictures. For BOD_5, COD and P_{tot} significant reductions appear by implementation of the *midterm scenario* and the *vision scenario.* For N_{tot} a significant reduction of emission will be finally achieved in the *vision scenario* where loads from agglomerations >10,000 PE will be treated also by N removal.

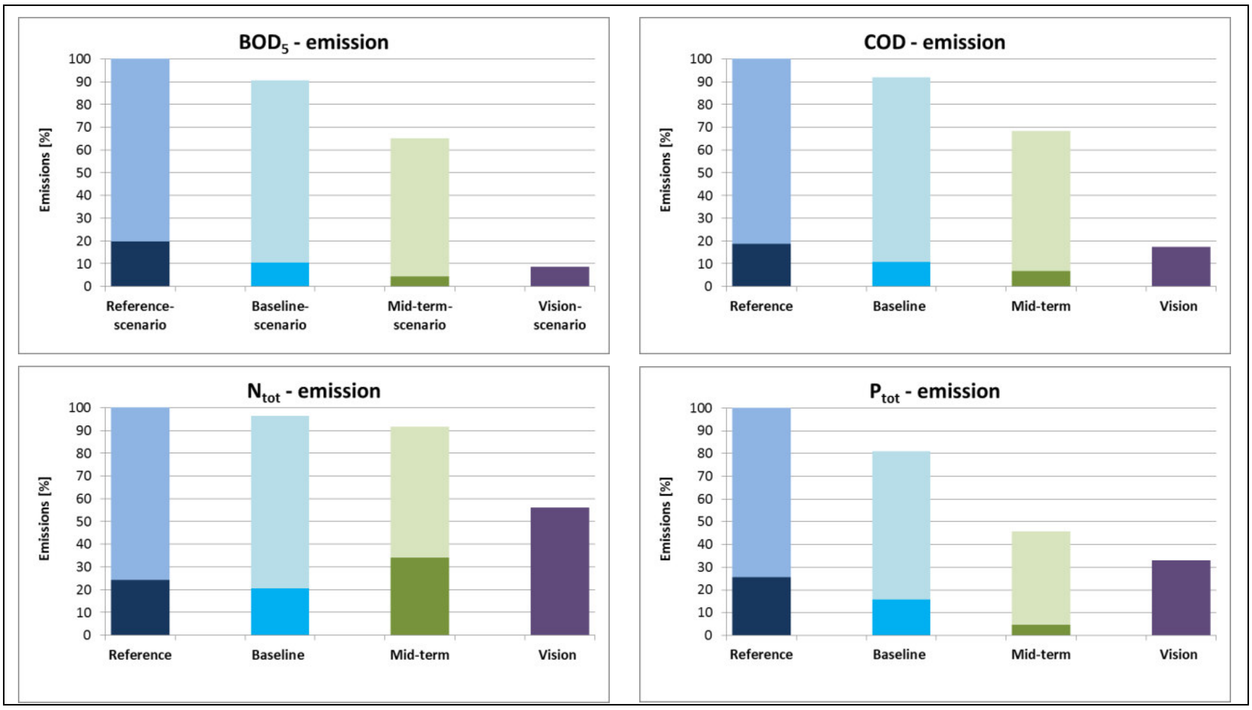

Figure 29: Emissions (%) of BOD_5, COD, N_{tot} and P_{tot} under the different scenarios

6.11 Ukraine

6.11.1 General information about the data evaluation

- In the framework of the ICPDR Emission Inventory 2015, Ukraine reported information on all agglomerations ≥2000 PE with the reference date 31/12/2012.
- In the Ukraine, one agglomeration is served by one or more UWWTP / collecting systems without treatment, which means that the ratio [agglomeration : UWWTP] = [1 : n] is used.

6.11.2 Country specific considerations for data evaluation

- In modification of the normal approach for Ukraine BOD_5 loads not reported were calculated using 50g/PE/day instead of 60g/PE/day.

6.11.3 Results of data evaluation for the situation as of 31/12/2012

As can be seen in Table 30, Ukraine reported 315 agglomerations ≥2000 PE for the reference year 2012. Of these, 299 agglomerations (1,154,733 PE) were classed as ≤10,000 PE and 16 agglomerations (797,566 PE) were classed as >10,000 PE. 28 agglomerations (covering around 34% of the total generated load) were reported as having secondary treatment for the major parts of their generated load. Only 10 agglomerations were indicated as being connected to collecting systems but not to any wastewater treatment.

Compared to data reported for 2005/2006 the amount of agglomerations increased by 265, while the reported total generated load nearly doubled.

Compared to the 2005/2006 dataset the quality of data reported for 2012 seems to be improved by far.

With respect to a doubling of generated load reported for 2012 the BOD_5, COD, N_{tot} and P_{tot} emissions increased significantly, at least twofold (P_{tot}).

As for 2005/2006 two agglomerations were reported to be ≥100,000 PE in 2012 (Uzhgorod and Chernivtsi).

Table 30: Wastewater treatment in agglomerations ≥2000 PE and emissions of BOD, COD, N_{tot} and P_{tot} into the environment in the Ukrainian part of the DRB

Ukraine	Number of agglomeration	Generated load (PE)	Emissions BOD_5 (t/a)	Emissions COD (t/a)	Emissions N_{tot} (t/a)	Emissions P_{tot} (t/a)
Collected plus tertiary treatment (3NP)						
Collected plus tertiary treatment (3N)						
Collected plus tertiary treatment (3P)						
Collected plus partially tertiary treatment (3NP)						
Collected plus partially tertiary treatment (3N)						
Collected plus partially tertiary treatment (3P)						
Collected plus secondary treatment	7	552325	2737,727	4359,356	1041,979	315,583
Collected plus partial secondary treatment	21	107559	576,543	822,205	179,200	57,622
Collected plus primary treatment						
Collected plus partial primary treatment	4	48860	676,666	1078,429	161,152	31,215
Collected and treatment - total	**32**	**708744**	**3990,936**	**6259,99**	**1382,331**	**404,42**

Ukraine	Number of agglomeration	Generated load (PE)	Emissions BOD_5 (t/a)	Emissions COD (t/a)	Emissions N_{tot} (t/a)	Emissions P_{tot} (t/a)
Collected and no treatment	7	28346	517,322	1138,108	91,048	21,210
Adressed by IAS						
Not collected and no treatment	276	1215209	22177,567	48790,647	3903,252	909,280
Total	**315**	**1952299**	**26685,825**	**56188,745**	**5376,631**	**1334,910**

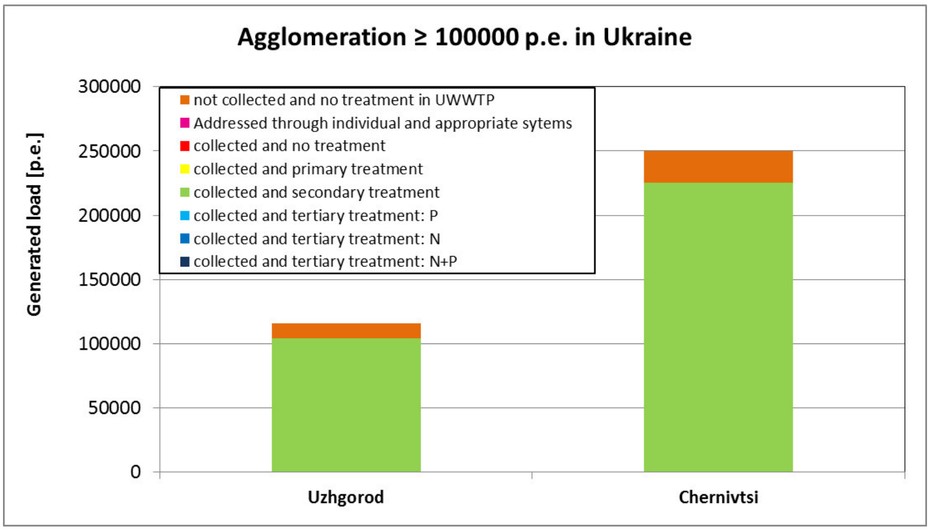

Figure 30: Wastewater treatment in agglomerations ≥100,000 PE in the Ukrainian part of the DRB

6.11.4 Outlook for wastewater treatment in Ukraine until 2021

Authorities from Ukraine provided detailed information of priority projects related to urban wastewater collection and treatment to be implemented in future. This information forms the basis for the conception of the scenarios.

For the *baseline scenario*, it was assumed that secondary treatment is improved, where it is still in place and primary treatment is improved to secondary treatment for agglomerations >10,000 PE. In agglomerations ≥2000 PE ≤10,000 PE primary and secondary treatment is improved. In agglomerations >10,000 PE this would lead to a shift of 31,863 PE (not collected) to secondary treatment, while further 36,616 PE from primary treatment were upgraded to secondary treatment. 9,495 PE (not collected) were upgraded to primary treatment. In agglomerations ≥2000 to ≤10,000 PE a total of 20,432 PE (not collected) and 20,039 PE (collected but not treated) are upgraded to primary or secondary treatment. In 2 agglomerations the upgrade would require a construction of a new secondary wastewater treatment plant, while in 12 agglomerations new treatment plants with primary treatment need to be constructed.

Compared with the *baseline scenario*, the *midterm scenario* would require improved tertiary treatment with P removal in place in agglomerations >10,000 PE. In total this requires a shift of 797,566 PE from not collected sewer (126,912 PE) but mainly from secondary treatment (648,616 PE) to tertiary treatment with P removal in place. To achieve this, two new treatment plants need to be constructed, while 14 existing plants had to be upgraded. Furthermore 15,525 PE (not collected) from agglomerations ≥2000 to ≤10,000 PE shift to secondary treatment.

The *vision scenario* aims to treat the loads from agglomerations ≥2000 PE - ≤10,000 PE with secondary treatment and loads from agglomerations >10,000 PE with tertiary treatment and N- and P removal. Accordingly, implementing the *vision scenario* would require an upgrade from tertiary treatment with P removal in place to N- and P removal (797,566 PE). Additionally 1,059,460 PE (with 1,026,207 PE not collected) has to be upgraded to provide secondary treatment. This would address

266 agglomerations where no treatment plant is in place as well as a construction would be necessary and an upgrade of former 12 existing treatment plants.

Table 31: Forecasted changes of generated loads (PE) for different treatment types and pathways in Moldova

Scenario	Not collected [p.e.]	IAS [p.e]	Collected-not treated [p.e.]	Primary treatment [p.e.]	Secondary treatment [p.e.]	Tertiary treatment: 3 N [p.e.]	Tertiary treatment: 3 P [p.e.]	Tertiary treatment: 3 NP [p.e.]	Total [p.e.]
Reference-scenario	1215209	0	28346	48859	659884	0	0	0	1952299
Baseline-scenario	1153119	0	8307	46985	743888	0	0	0	1952299
Midterm-scenario	1026207	0	8307	24947	95273	0	797566	0	1952299
Vision-scenario	0	0	0	0	1154733	0	0	797566	1952299

Due to the assumptions made for the different scenarios, the possible reductions presented for BOD_5, COD, N_{tot}, P_{tot} emissions show different pictures. For BOD_5, COD significant reductions appear by implementation of the *midterm scenario* and especially after implementation of the *vision scenario.* For N_{tot} a significant reduction of emission will be finally achieved in the *vision scenario* where loads from agglomerations >10,000 PE will be treated also by N removal. A reduction of about 50% of the P_{tot} emissions could be achieved by the implementation of the *midterm scenario*.

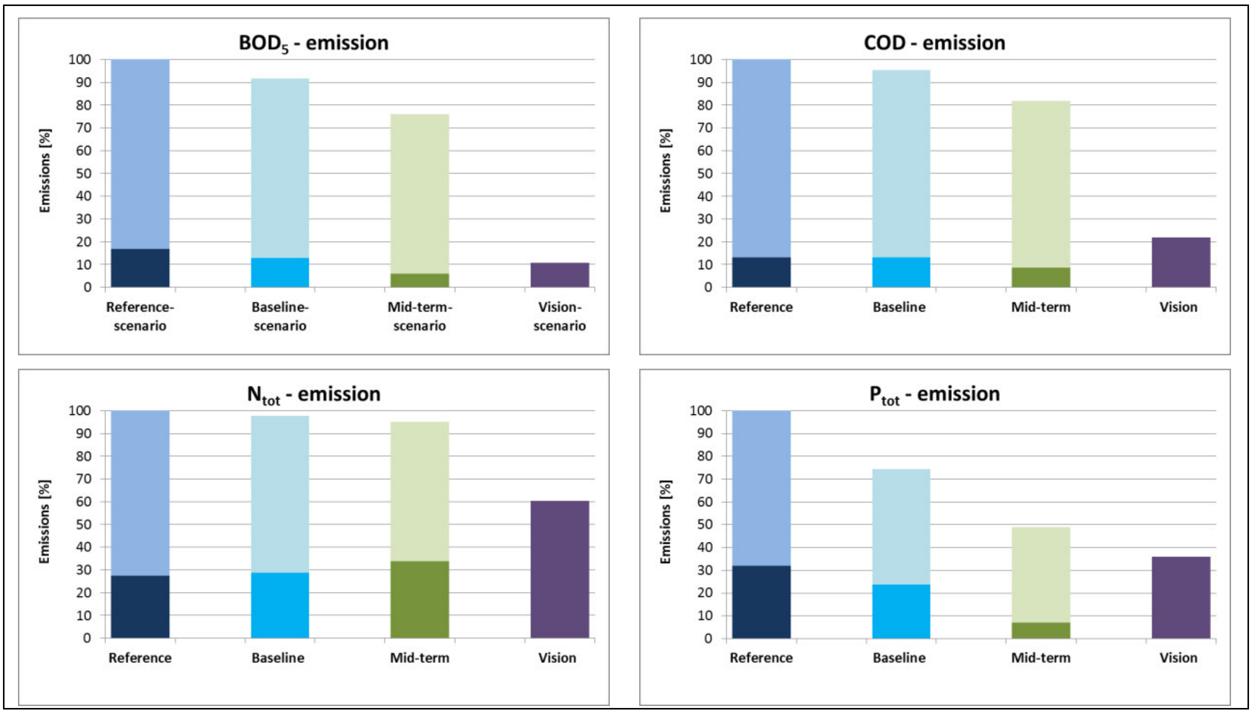

Figure 31: Emissions (%) of BOD_5, COD, N_{tot} and P_{tot} under the different scenarios

6.12 Montenegro

6.12.1 General information about data evaluation

Data from the authorities of Montenegro were submitted in November 2015 and present an actual state of seven agglomerations within the Danube River Basin. Data reported summarize the generated load of the agglomerations, the status of treatment and collection and the resulting emissions of BOD_5, COD, N_{tot} and P_{tot}.

6.12.2 Country specific considerations for data evaluation

There are no specific considerations for data evaluation. However, no agglomeration ≥100,000 PE is addressed in the dataset and no assumptions to setup scenarios were made.

6.12.3 Results of data evaluation for the situation as of 31/12/2012

As can be seen in Table 31, Montenegro reported 7 agglomerations ≥2000 PE. Of these, 4 agglomerations (16,750 PE) were classed as ≤10,000 PE and 3 agglomerations (60,000 PE) were classed as >10,000 PE. 1 agglomeration was reported as having partial secondary treatment and one with partial primary treatment (together covering 6% of the total generated load). 5 agglomerations were indicated as being connected to collecting systems but not to any wastewater treatment (covering 55% of the total generated load). In total 38% (29,660 PE) of the generated load was neither collected nor treated.

Table 32: Wastewater treatment in agglomerations ≥2000 PE and emissions of BOD, COD, N_{tot} and P_{tot} into the environment in the Montenegrin part of the DRB

Montenegro	Number of agglomeration	Generated load (PE)	Emissions BOD_5 (t/a)	Emissions COD (t/a)	Emissions N_{tot} (t/a)	Emissions P_{tot} (t/a)
Collected plus tertiary treatment (3NP)						
Collected plus tertiary treatment (3N)						
Collected plus tertiary treatment (3P)						
Collected plus partially tertiary treatment (3NP)						
Collected plus partially tertiary treatment (3N)						
Collected plus partially tertiary treatment (3P)						
Collected plus secondary treatment						
Collected plus partial secondary treatment	1	3750,000	24,638	41,063	7,829	1,971
Collected plus primary treatment						
Collected plus partial primary treatment	1	935,000	20,477	40,953	3,003	0,614
Collected and treatment - total	**2**	**4685,000**	**45,115**	**82,016**	**10,832**	**2,585**
Collected and no treatment	5	42405,000	928,670	1857,339	136,205	27,860
Adressed by IAS						
Not collected and no treatment		29660,000	649,554	1299,108	95,268	19,487
Total	7	**76750,000**	**1623,339**	**3238,463**	**242,305**	**49,932**

Emissions from sewer collected but not treated represent the dominant pathway of BOD_5, COD, N_{tot} and P_{tot} in the Montenegrin part of the DRB.

Industrial emission inventory

icpdr iksd
International Commission for the Protection of the Danube River
Internationale Kommission zum Schutz der Donau

ANNEX 4

DRBM Plan – Update 2015

Deutschland //// Österreich //// Česká republika //// Slovensko //// Magyarország //// Slovenija //// Hrvatska //// Bosna i Hercegovina //// Србија //// Crna Gora //// România //// България //// Moldova //// Україна

Industrial pollutant release data were collected from the E-PRTR database (from the version available at the end of 2014, some data might have been updated since then) and directly from the countries which do not report under the E-PRTR system. The data served the assessments of the point source organic substances, nutrient and hazardous substances emissions via direct industrial discharges for the reference year 2012. Summarizing tables of the data submitted are presented in the followings.

Table 1: Chemical oxygen demand (COD) discharges according to several industrial sectors (t/year)

Activity category	DE	AT	CZ	SK	HU	SI	HR	BA	RS	ME	RO	BG	MD	UA	Basin
Energy sector	-	1,167	-	729	2,268	-	-	-	173	-	1,962	232	68	-	6,599
Production and processing of metals	-	411	-	363	-	-	-	-	-	-	-	-	-	-	774
Chemical industry	1,521	-	-	1,974	999	-	-	-	-	-	6,120	-	-	-	10,615
Waste and wastewater management	-	20,454	-	-	-	-	-	-	-	-	-	-	135	-	20,589
Paper and wood production and processing	8,080	1,638	-	5,343	-	577	-	-	-	-	-	2,157	-	758	18,552
Intensive livestock production and aquaculture	-	-	-	-	-	-	-	-	164	-	-	-	-	-	164
Animal and vegetable products from the food and beverage sector	-	720	-	-	-	-	-	-	636	-	-	-	0.2	-	1,356
	9,601	**24,390**	**-**	**8,409**	**3,267**	**577**	**-**	**-**	**972**	**-**	**8,082**	**2,389**	**204**	**758**	**58,649**

Table 2: Total nitrogen (TN) discharges according to several industrial sectors (t/year)

Activity category	DE	AT	CZ	SK	HU	SI	HR	BA	RS	ME	RO	BG	MD	UA	Basin
Energy sector	62	-	-	126	-	-	-	-	2,768	-	-	-	-	-	2,956
Production and processing of metals	-	52	-	154	-	-	-	-	-	-	-	-	-	-	206
Chemical industry	250	86	-	706	276	-	132	-	1,290	-	576	-	-	-	3,316
Waste and wastewater management	-	64	-	-	-	-	-	-	-	-	-	-	-	-	64
Paper and wood production and processing	-	-	-	126	-	-	-	-	-	-	-	-	-	141	267
Intensive livestock production and aquaculture	-	-	-	-	-	-	-	-	50	-	89	-	-	-	140
Animal and vegetable products from the food and beverage sector	-	144	-	-	-	-	-	-	231	-	-	-	-	-	375
	312	**346**	**-**	**1,112**	**276**	**-**	**132**	**-**	**4,340**	**-**	**665**	**-**	**-**	**141**	**7,324**

Table 3: Total phosphorus (TP) discharges according to several industrial sectors (t/year)

Activity category	DE	AT	CZ	SK	HU	SI	HR	BA	RS	ME	RO	BG	MD	UA	Basin
Energy sector	-	-	-	-	31	-	-	-	24	-	-	-	-	-	55
Production and processing of metals	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Chemical industry	5	-	-	22	-	-	-	-	-	-	-	-	-	-	27
Waste and w astew ater management	-	29	-	-	-	-	-	-	-	-	-	-	-	-	29
Paper and w ood production and processing	-	-	-	18	-	-	-	-	-	-	-	-	-	-	18
Intensive livestock production and aquaculture	-	-	-	-	-	-	-	-	-	-	7	-	-	-	7
Animal and vegetable products from the food and beverage sector	-	-	-	-	13	-	64	-	11	-	-	-	-	-	88
	5	**29**	**-**	**40**	**44**	**-**	**64**	**-**	**35**	**-**	**7**	**-**	**-**	**-**	**224**

Table 4: Hazardous substances discharges according to countries (kg/year)

Substance	Pollutant group	DE	AT	CZ	SK	HU	SI	HR	BA	RS	RO	BG	MD	UA	Basin
1,2-dichloroethane (DCE)	Chlorinated organic substances	-	-	-	243	-	-	-	-	-	220	-	-	-	463
Chloro-alkanes, C10-C13	Chlorinated organic substances	-	5	-	-	-	-	-	-	-	-	-	-	-	5
Dichloromethane (DCM)	Chlorinated organic substances	44	-	-	-	-	25	-	-	-	-	-	-	-	69
Halogenated organic compounds (as AOX)	Chlorinated organic substances	9,530	49,190	6,400	35,070	5,120	1,540	-	-	67,900	-	-	-	-	174,750
PCDD + PCDF (dioxins+furans) (as Teq)	Chlorinated organic substances	-	0.012	-	-	-	-	-	-	-	-	-	-	-	0.012
Pentachlorophenol (PCP)	Chlorinated organic substances	-	5	-	-	-	-	-	-	-	-	-	-	-	5
Polychlorinated biphenyls (PCBs)	Chlorinated organic substances	-	-	-	1	-	-	-	-	-	-	-	-	-	1
Tetrachloroethylene (PER)	Chlorinated organic substances	-	-	12	34	-	-	-	-	-	-	-	-	-	46
Trichlorobenzenes (TCBs) (all isomers)	Chlorinated organic substances	-	-	-	64	-	-	-	-	-	-	-	-	-	64
Trichloroethylene	Chlorinated organic substances	-	14	-	166	-	-	-	-	-	-	-	-	-	181
Trichloromethane	Chlorinated organic substances	125	27	-	216	-	-	-	-	-	-	-	-	-	368
Arsenic and compounds (as As)	Heavy metals	38	22	45	148	67	-	-	-	35,106	-	1,511	-	-	36,936
Cadmium and compounds (as Cd)	Heavy metals	15	50	13	133	235	-	-	-	689	1,605	756	-	-	3,496
Chromium and compounds (as Cr)	Heavy metals	373	1,507	402	329	5,924	129	-	-	64,923	7,007	2,025	-	-	82,618
Copper and compounds (as Cu)	Heavy metals	4,779	5,534	1,602	77	6,278	229	-	-	78,555	20,960	24,783	-	-	142,796
Lead and compounds (as Pb)	Heavy metals	458	1,474	1,040	-	4,711	67	-	-	4,433	7,477	3,306	-	-	22,966
Mercury and compounds (as Hg)	Heavy metals	24	12	3	282	100	-	-	-	1,284	116	15	-	-	1,837
Nickel and compounds (as Ni)	Heavy metals	2,034	4,131	1,293	44	8,757	251	-	-	1,317	7,605	3,010	-	-	28,440
Zinc and compounds (as Zn)	Heavy metals	39,084	68,172	6,157	1,394	22,317	1,717	-	-	26,499	46,908	21,396	-	-	233,644
Chlorides (as total Cl)	Inorganic substances	90,430,000	-	4,950,000	19,560,000	10,200,000	3,010,000	-	-	75,000,000	167,160,000	10,700,000	-	-	381,010,000
Cyanides (as total CN)	Inorganic substances	-	6,139	667	905	106	260	-	-	1,030	1,780	-	-	-	10,887
Fluorides (as total F)	Inorganic substances	31,340	127,200	18,610	243,960	-	2,070	2,280	-	1,212,170	-	-	-	-	1,637,630
Anthracene	Other organic substances	-	1	-	7	-	-	-	-	-	-	-	-	-	8
Benzo(g,h,i)perylene	Other organic substances	-	-	-	7	-	-	-	-	-	-	-	-	-	7
Di-(2-ethyl hexyl) phthalate (DEHP)	Other organic substances	19	67	161	99	-	9	-	-	-	-	-	-	-	356
Fluoranthene	Other organic substances	-	2	-	8	-	-	-	-	-	-	-	-	-	9
Nonylphenol and Nonylphenol ethoxylates (NP/NPEs)	Other organic substances	54	148	6	6	-	10	-	-	-	-	-	-	-	224
Octylphenols and Octylphenol ethoxylates	Other organic substances	5	-	3	-	-	1	-	-	-	-	-	-	-	9
Phenols (as total C)	Other organic substances	-	419	807	1,134	3,080	-	1,090	-	11,661	7,765	671	-	-	26,627
Polycyclic aromatic hydrocarbons (PAHs)	Other organic substances	-	-	-	44	-	-	-	-	-	104	-	-	-	148
Diuron	Pesticides	-	52	-	-	-	-	-	-	-	-	-	-	-	52
Isoproturon	Pesticides	11	-	-	-	-	-	-	-	-	-	-	-	-	11
Tributyltin and compounds	Pesticides	-	2	-	-	-	-	-	-	-	-	-	-	-	2

Table 5: Hazardous substances discharges according to several industrial sectors (kg/year)

Substance	Pollutant group	Energy sector	Production and processing of metals	Mineral industry	Chemical indutry	Waste and wastewater management	Paper and wood production and processing	Intensive livestock production and aquaculture	Animal and vegetable products from the food and beverage sector	Other activities	Basin
1,2-dichloroethane (DCE)	Chlorinated organic substances	-	-	-	463	-	-	-	-	-	463
Chloro-alkanes, C10-C13	Chlorinated organic substances	-	-	-	-	-	5	-	-	-	5
Dichloromethane (DCM)	Chlorinated organic substances	-	-	-	69	-	-	-	-	-	69
Halogenated organic compounds (as AOX)	Chlorinated organic substances	7,730	2,490		12,760	57,590	94,180	-	-	-	174,750
PCDD + PCDF (dioxins+furans) (as Teq)	Chlorinated organic substances	-	-	-	-	-	0.012	-	-	-	0.012
Pentachlorophenol (PCP)	Chlorinated organic substances	-	-	-	-	5	-	-	-	-	5
Polychlorinated biphenyls (PCBs)	Chlorinated organic substances	1	-	-	-	-	-	-	-	-	1
Tetrachloroethylene (PER)	Chlorinated organic substances	21	25	-	-	-	-	-	-	-	46
Trichlorobenzenes (TCBs) (all isomers)	Chlorinated organic substances	2	-	-	62	-	-	-	-	-	64
Trichloroethylene	Chlorinated organic substances	-	12	-	154	14	-	-	-	-	181
Trichloromethane	Chlorinated organic substances	22	-	-	319	27	-	-	-	-	368
Arsenic and compounds (as As)	Heavy metals	35,194	99	49	23	1,552	-	8	11	-	36,936
Cadmium and compounds (as Cd)	Heavy metals	835	1,034	6	-	1,533	88	-	-	-	3,496
Chromium and compounds (as Cr)	Heavy metals	65,082	5,347	-	-	11,856	333	-	-	-	82,618
Copper and compounds (as Cu)	Heavy metals	68,088	4,136	48,692	141	21,404	284	51	-	-	142,796
Lead and compounds (as Pb)	Heavy metals	3,545	8,668	78	76	9,723	876	-	-	-	22,966
Mercury and compounds (as Hg)	Heavy metals	1,346	27	5	319	125	8	-	7	-	1,837
Nickel and compounds (as Ni)	Heavy metals	1,626	5,452	964	116	20,023	44	-	171	44	28,440
Zinc and compounds (as Zn)	Heavy metals	25,040	40,321	11,604	14,740	138,706	1,573	601	1,059	-	233,644
Chlorides (as total Cl)	Inorganic substances	75,000,000	13,740,000	13,610,000	198,230,000	80,430,000	-	-		-	381,010,000
Cyanides (as total CN)	Inorganic substances	497	2,906	324	514	2,511	175	-	3,960	-	10,887
Fluorides (as total F)	Inorganic substances	1,233,900	136,670	3,430	162,680	100,950	-	-	-	-	1,637,630
Anthracene	Other organic substances	7	1	-	-	-	-	-	-	-	8
Benzo(g,h,i)perylene	Other organic substances	7	-	-	-	-	-	-	-	-	7
Di-(2-ethyl hexyl) phthalate (DEHP)	Other organic substances	-	198		6	87	52	-	-	13	356
Fluoranthene	Other organic substances	6	3	-	-	-	-	-	-	-	9
Nonylphenol and Nonylphenol ethoxylates (NP/NPEs)	Other organic substances	-	11		29	181	3	-	-	-	224
Octylphenols and Octylphenol ethoxylates	Other organic substances	-	3	-	-	6	-	-	-	-	9
Phenols (as total C)	Other organic substances	4,600	2,356	-	572	8,563	154	452	9,930	-	26,627
Polycyclic aromatic hydrocarbons (PAHs)	Other organic substances	19	26	-	-	103	-	-	-	-	148
Diuron	Pesticides	-	-	-	-	52	-	-	-	-	52
Isoproturon	Pesticides	-	-	-	-	11	-	-	-	-	11
Tributyltin and compounds	Pesticides	-	-	-	-	2	-	-	-	-	2

Assessment of Nutrient Emissions with the MONERIS Model

International Commission for the Protection of the Danube River

Internationale Kommission zum Schutz der Donau

ANNEX 5

DRBM Plan – Update 2015

Concluding report

Further Development of the MONERIS Model with Particular Focus on the Application in the Danube Basin

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Contents

1. Rationale

The purpose of this report to present the analysis of nutrient emissions for the 2nd DRBM plan. It has been agreed to use the MONERIS model with the latest developments and revised modelling approaches. Furthermore, the model input data should be updated in a comprehensive and transparent way, in constant exchange with ICPDR PM EG and with as much national data as possible.

In spring 2014, ICPDR PM EG and IGB agreed on a list of required updates and the responsibility for data delivery. Since autumn 2014, datasets as well as monitoring data have been processed. Some modelling approaches have also been developed and revised to better estimate monthly average water temperature, to improve the regional distribution of the population, and most important, to better reflect in-stream processes. The update of input data for the MONERIS model could recently be finished. The project progress was delayed due to various problems in data delivery and data harmonization among countries.

This concluding report highlights the input data used for the assessments, the current model improvements and the main outcomes of the modelling. More detailed information can be found in a final technical report on the modelling work submitted to the ICPDR.

2. Input data

In the following the main used data sources and eventual pre-processing are described. A full description of all input data and detailed descriptions of country specific adaptations can be found in the final technical report.

Climate data

Daily information on precipitation were taken from the E-OBS gridded dataset, provided by European Climate Assessment and Dataset (http://www.ecad.eu/download/ensembles/download.php) with a spatial resolution 0.25°. The coarse spatial resolution of the ECAD dataset in combination with the high variability of precipitation led to discrepancies between the European and national precipitation data. In consequence, DE, AT, HU and SI provided national precipitation data.

Monthly actual evapotranspiration was used for the runoff calibration. We used the global MODIS 16 product (download at http://www.ntsg.umt.edu/project/mod16). The global dataset on monthly solar radiation was provided by EUMETSAT's Satellite Application Facility on Climate Monitoring (CM SAF, download at http://www.cmsaf.eu). Monthly air temperature was used to estimate the water temperature. For this purpose we applied regional linear regression models. In accordance to precipitation, the E-OBS dataset was used except for Hungary. National expertise from SI was later used to refine the regionalization.

Observed runoff and quality data

Runoff and quality data from the TNMN was originally provided by ICPDR. Runoff and quality data was received via the TNMN and partly updated upon request by the countries through the project. In particular for the alpine regions (AT, DE, SI), additional non-TNMN stations were considered for the runoff calibration and calculation of observed loads. Only stations with daily observed runoff and at least 23 concentration observations per year were considered. The TNMN database was revised to fill gaps and remove implausible values.

Soil type

Information on soil type (sand, silt, loam, clay, fen and bog) were taken from the Digital Soil Map of the World (FAO, http://www.fao.org/geonetwork/srv/en/metadata.show?id=14116). This map was selected as it covers the entire Danube catchment, despite its rather coarse spatial resolution.

Tile drained agricultural land

Feick[1] derived a global dataset on tile-drained agricultural areas, which was used as base information. Where available this data was substituted by information provided by the countries (DE, AT, SK, HR, SI, RS, HU and RO). For countries like BA, we used the low values from neighbouring countries.

Atmospheric deposition (nitrogen)

Atmospheric deposition was taken from the European Monitoring and Evaluation Programme (EMEP, http://webdab.emep.int/Unified_Model_Results/) with a spatial resolution of 50 km. Unfortunately, no information was available for atmospheric TP deposition. Therefore, we used the data from the previous MONERIS application for the DRB.

Land-use data

Preliminary Corine Land Cover 2012 (CLC12) datasets were available at the EIONET Central Data Repository (http://cdr.eionet.europa.eu) for some countries (AT, BG, CH, CZ, HR, HU, PL, RS, SI and SK).

Hydro-geological map

Hydro-geological information (consolidated/unconsolidated rock with deep or shallow groundwater table) where approximated from the recently published International Hydrogeological Map of Europe[2]. For AT, DE, SI and HR national data was used.

Nutrient balances

National data for the 1-2 decades is available at OECD (https://data.oecd.org/) and Eurostat (http://ec.europa.eu/eurostat) for most countries. Earlier values were taken from former MONERIS applications (calculated at IGB from FAO data). Seemingly artificial changes were smoothed by applying the relative changes in the former time-series to first value of the new time-series. Missing values were approximated from neighbouring countries. Nutrient balances at NUTS2 level were also provided by JRC (CAPRI model[3]). A comparison with N-surplus data reported and discussed with the member countries revealed partly high differences to the CAPRI results. Consequently, we considered the CAPRI data to be less suitable for our calculations and considered the data published by national authorities, Eurostat or OECD (NUTS0 – NUTS3 level).

The data situation and data processing was very similar to the nitrogen balance. In contrast to the latter, MONERIS only uses time-series at country level and accumulated annual values. If national data was unavailable, I either used the OECD or Eurostat data depending on the choice for N surplus.

[1] S. Feick, S. Seibert, P. Döll et al. 2005. A Digital Global Map of Artificially Drained Agricultural Areas, Frankfurt Hydrology Paper 4

[2] BGR, UNESCO (eds.) 2014. International Hydrogeological Map of Europe 1:1,500,000 (IHME1500). Digital map data v1.1. Hannover/Paris

[3] Leip, A., Britz, W., Weiss, F., de Vries, W. (2011). Farm, land, and soil nitrogen budgets for agriculture in Europe calculated with CAPRI. Environ. Pollut. 159, 3243–53.

Data was unavailable for a few countries, so we kept the existing values in the MONERIS database for the DRB. Like the nitrogen balance, the results of the CAPRI model provided by JRC were not used.

Nitrate Vulnerable Zones (NVZ)

The implementation of the Nitrate Directive was considered in the modelling. First, we intersected the boundaries of NVZ[4] with the analytical units to get the area covered by NVZs. For each NVZ and AU it was assumed that a small grass strip currently covers 60% of the area with a retention efficiency of 20%. For the baseline scenario, we increased the coverage to 70%

Inventory of waste-water treatment plants (WWTP)

The WWTP inventory was pre-processed and provided by the ICPDR on basis of the data submitted by the countries via urban waste water templates. For EU MS these data are in line with the officially reported information to the EU under the UWWTD.

Total population

The total population for analytical units in EU member states was derived from a recent high-resolution grid and statistics at NUTS3 level available from Eurostat. For the non-EU member states BA, MD, ME, RS, and UA, we relied on recent census data for administrative units (i.e. municipalities, cantons, and districts). Settlement data was used to improve the spatial distribution

Connection rates of population

Connection rates to sewer systems and (centralized) waste-water treatment plants at national level are often available from Eurostat or OECD. For EU and EFTA countries, regional statistics from various sources were used to assign average connection rates in analytical units. In most countries, the information was unfortunately not fully available (for the whole reference). Depending on the statistical data, country-specific approximations were applied. For non-EU member states regional statistics on connection rates were unavailable. Additionally, the connection rates at national level were comparatively low and highly variable, especially for waste-water treatment. We estimated the spatial variability of connection rates with the WWTP inventory despite its limitations.

Decentralized collection and treatment

MONERIS considers decentralised treatment plants (DCTP) and septic tanks with transport to WWTP. The first are distinguished by the emission of treated waste-water: either directly to surface waters via pipes and ditches or indirectly via a soil infiltration. Apart from Germany, no regional statistics on connection rates of the population to independent waste-water treatment was available. No official information on DCTP types was available. A survey among PM EG members was thus combined with an existing GWP questionnaire study[5] to identify appropriate rules for each country. Connection rates to septic tanks were eventually revised with the ICPDR questionnaire about current measures. We assumed that inhabitants not connected to sewer systems are either connected to DCTP or septic tanks. If information was unavailable for a country, connection rates to the different DCTP types were set to zero and derived during runtime from the hydro-geological map.

[4] Provided by ICPDR on 7.10.15, SI, DE, AT, and RO are single NVZs
[5] GWP (Global Water Partnership) 2012. GWP CEE Regional Study, Natural processes of wastewater treatment – actual status in CEE countries, Questionnaire study, Bratislava

3 Model modifications

Surface runoff

Information on phosphorus content is hardly available and is often given as plant available phosphorus. As plants are able to extract adsorbed phosphorus from soils by emitting acids, the plant available phosphorus is usually much higher than the water soluble phosphorus. In MONERIS P content in soils is used for calculating P emitted via surface run-off and basis on information on phosphorus accumulation in soils. For the Danube basin, P accumulation was formerly calculated at country-level according to figures from EEA and FAO and updated during this project with statistical data from Eurostat or the countries. The water extractable phosphorus is not directly dependent on P accumulation, but is altered by soil types and their adsorption capacity. An approach to model the soil type dependent P saturation and resulting P concentrations in surface run-off was applied to the Danube catchment.

Groundwater

From the root zone, through the groundwater to the surface waters, nutrients, in particular nitrogen underlies various retention processes. The new developed approach considers fixation of nitrogen under grassland as well as denitrification in unsaturated soils and in groundwater. The retention in groundwater various according to the oxygen content in the aquifer. In, often well aerated, consolidated rocks denitrification is generally much lower than in larger, slowly flowing aquifers of unconsolidated undergrounds. These conditions have been considered by a modification of our calculation approaches and a new parametrisation.

Water temperature

Regional regression models have been derived from TNMN data to predict monthly water temperature from air temperature. This better reflects the monthly variability of water temperature compared to the former approach of constant annual values.

Emissions via erosion

Erosion is modelled for arable land, grassland, forest and open areas according to the general soil loss equation. Here, beyond, the gross soil loss from bar soil, the resulting soil loss is strongly determined by the land cover parameter. In MONERIS open areas are considered as snow and ice covered areas or as extensively used (non-fertilized) areas, e.g. beached or scrubland. In former model versions, open areas above 3000 m were categorized as snow and ice covered areas. We reduced this value to 1650 m to better represent the sediment production in Alpine catchments.

Erosion from open areas has additionally been modified. Consequently, soil loss from snow covered areas was increased from 13.66 t/(ha·yr) to 35 t/(ha·yr). The P content in eroded material from snow-covered areas remained at 150 mg/kg.

Instream phosphorus retention

The phosphor retention approach in MONERIS was originally developed to describe mean annual net retention in surface waters. However, we applied MONERIS on a monthly basis for this model run. So, sedimentation and a partly subsequent remobilisation were considered. Additionally, the former approach was not able to differentiate between retention conditions in mountainous and lowland rivers, which were also adjusted in the new approach.

4 Scenarios

Based on the reference conditions, the ICPDR questionnaire, and the discussion with ICPDR, four scenarios were derived: baseline, CAPRI, intensification and vision (two versions). These scenarios were not calculated for individual years but for average hydrological conditions in 2009 to 2012. For the reference conditions, beside hydrological parameters, all other input data refer to the year 2012.

The scenarios are strongly influenced by the year it is targeting for. Due to the residence time in groundwater, nutrient emissions originating from nutrient surplus on agricultural areas enter surface waters with a considerable delay. Consequently, the scenarios were also calculated for the year 2061, when most of the nutrients from past fertilizes applications are removed from the system.

Baseline Scenario (BS)

The BS was calculated for the year 2021, assuming a changed collection and treatment rate of waste water, land-use changes, improved crop rotation practices, and changed inhabitant specific P-emissions. The scenario parametrization bases on the result of a questionnaire initiated by the ICPDR and answered by the countries. Changes therefore basically perform on a country level (Table 1).

Table 1. Answers to ICPDR questionnaire for 2015-21, Note: missing countries without any data.

Measure / tendency	Unit	DE	AT	CZ	SK	HU	HR	RO	MD	UA
Arable to grassland[*]	%	0.5	2.5	1.44	0.5	3	0	1	3	0.05
Forest to grassland[*]	%	0	(0)	-0.6	0	0	0	-1	0	-0.09
N-surplus[*]	%	0	0	5	5	0	0	0	0	0
Modified crop rotation	%	13	75	5	5	2	0	0	9	0
No-tillage farming	%	9	10	12	0	2	0	3	16	1
Riparian buffers	%	13	1	10	38[#]	5	100[**]	5	15.5	26
Tile drained areas[*]	%	0	0	-1.5	0	2	0	0	14[+]	5.5
Retention ponds in tile drained areas	%	0	0	0	0	0	0	0	1.5	5
Unpaved to paved[*]	%	1	3.5	0.6	0.5	1	0	0.5	2	0.2
Additional storage volume combined sewers	%	0	90	85	0	0		5	45	0
Inhabitants with transport from septic tanks to WWTPs	%	0	100	0	15	5		15	20	0

[*] change / tendency, [**] 100% values is unrealistic, [#] including buffer strips NVZ, [+] absolute value

Changes in N-surplus were assumed to operate by 2015. Accordingly, an annual increase of 1.64% in in SK and CZ was applied to extrapolate the time-series from 2012 to 2015. For subsequent years, N-surplus remained on the level of 2015. A complete ban of phosphates in detergents was assumed, reflected in the person-specific P emissions.

Changes in connection and treatment rates were applied as relative changes between reference status and baseline scenario according the current WWTP inventory and connection rates. The country-based changes were applied to the connection rates at AU level allowing a range from 0 to 90% (or the higher value in 2012). To avoid implausibly high connection rates to WWTP via sewers, we used the relative change of WWTPs to sewers (WWTP/sewer in Table 2).

Table 2. Average percentage change of connection rates to sewers and WWTPs via sewers according to the WWTP inventory for reference status and baseline scenario.

Country	sewers	WWTP	WWTP/sewer	Country	Sewers	WWTP	WWTP/sewer
AT, HU	0.0	0.0	0.0	MD	0.0	9.6	9.6
BA	22.6	92.3	56.8	RO	66.0	97.6	19.0
BG	31.9	59.1	20.6	RS	2.9	74.4	69.4
CZ	0.0	0.8	0.8	SI	13.6	37.4	20.9
DE	0.0	0.0	0.0	SK	0.5	1.8	1.4
HR	33.3	73.8	30.4	UA	8.4	11.6	2.9

Intensification scenario and CAPRI scenario

Both scenarios were derived from the baseline scenario. For the intensification scenario it was assumed the N surplus amount at least 55 kg/ha/year and the P surplus at least 5 kg/ha/year. The time-series on country-wide long-term surpluses was extended from 2012 to 2062 to exclude the effect of past fertilizer applications (see above).

The CAPRI scenario is based on modelled surplus data provided by JRC[6]. Here, the relative change of CAPRI data on N and P balances at national level between 2010 and 2030 was applied to the N and P balances as used in this project. Additionally land-use changes between 2010 and 2050 according to CAPRI were applied to the current land-use. A constant annual factor was derived from the CAPRI data to estimate the annual N surplus between 2012 (reference year) and 2030. In case of negative values, the mean annual change was used alternatively. For UA and MD, the Romanian values were applied. Like the intensification scenario, the time-series was extended from 2030 to 2062.

Vision scenarios

The Vision and the Vison2 scenarios base on the baseline scenario, and consider following assumptions:

- WWTP inventory and inhabitant-specific TP emissions as descried in the baseline scenario
- LUISA land-use map according to CAPRI scenario
- Vision: Annual N surplus: 50 kg/ha (DE) and 25 kg/ha (other)
- Vision2: Annual N surplus: 50 kg/ha (DE) and 25 kg/ha (other)
- Annual P balance: 1 kg/ha
- Soil loss protection for arable land on slopes >8% (100% coverage, 80% efficiency), on NVZ: 100% area coverage (current NVZs), 60% of total area elsewhere
- 100% buffer strips for slopes >8% (width 5-10m, efficiency 50 %)
- Connection rates: 100% to sewers and WWTPs in agglomerations >2000 p.e.

The latter assumption could not directly implemented because of the unknown population in agglomerations >2000 p.e. Therefore, it was assumed that at max. 10% of the total population remained not connected.

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[6] Projected land-use/cover maps, 2010–2050, LUISA
Baranzelli et al. 2014, The Reference scenario in the LUISA platform – Updated configuration 2014 Towards a Common Baseline Scenario for EC Impact Assessment procedures, DOI: 10.2788/85104
Baranzelli et al. 2015. Evaluation of the land demands for the production of food, feed and energy in the updated Reference Configuration 2014 of the LUISA modelling platform. Methodological framework and preliminary considerations, DOI: 10.2788/99908

5 Main results

Runoff

The calibrated monthly runoff showed an excellent agreement with the observed values. The mean deviation of monitoring stations was only 1%. As expected, runoff exhibited a pronounced inter- and intra-annual variability according to the environmental setting. While the highest specific values occurred in mountainous areas, low values predominated in the Central DRB and along the lower Danube (Figure 1).

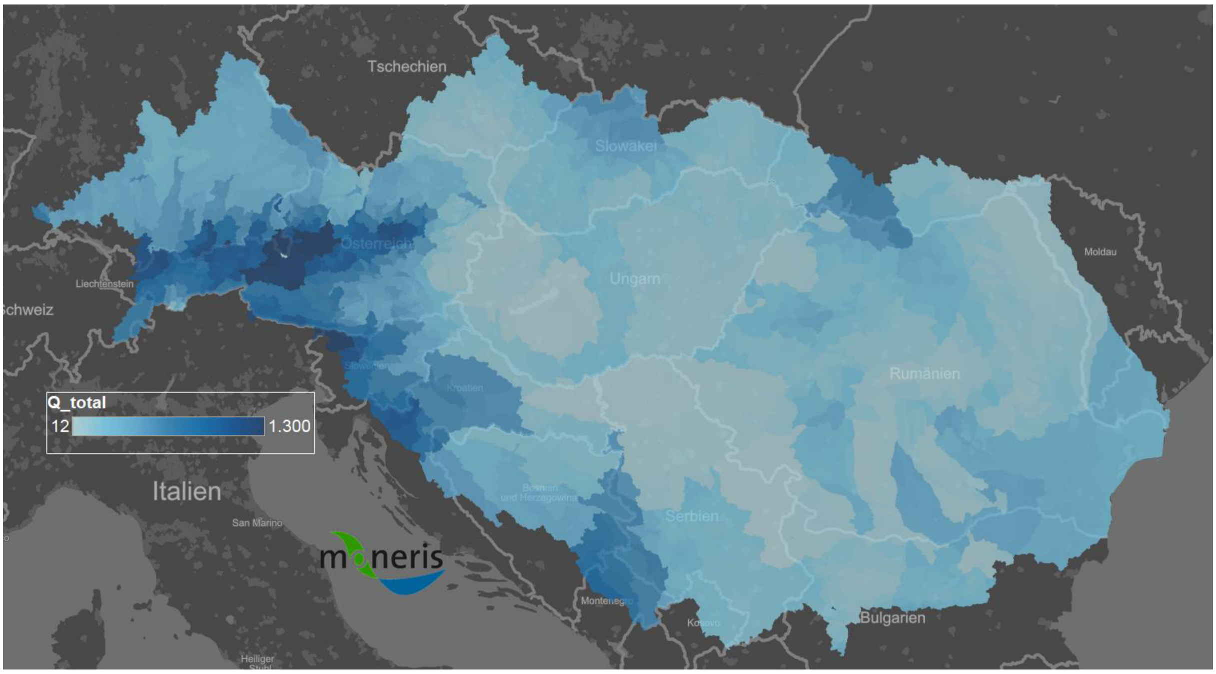


Figure 1. Mean specific runoff for the years 2009-2012 in mm/yr.

Total emissions and long-term changes

Mean total emissions in 2009-2012 in the DRB sum up to ca. 610 kt N/yr and ca. 39 kt P/yr, equalling mean specific emissions of 76 kg N/ha/yr and 48 kg P/km²/yr. Figure 2 shows the share of the different pathways. Groundwater and interflow have a clear dominance in the total nitrogen emissions. For phosphorus point sources, soil erosion and urban systems have the highest contribution to the overall emissions. On a country basis in 2009 to 2012 mean specific nitrogen emissions range from 32 kg N /ha/yr and 196 kg N/ha/yr. For phosphorus, emissions show considerable spatial differences among countries. The specific emissions among countries vary between 15 kg/km²/yr and 283 kg/km²/yr.

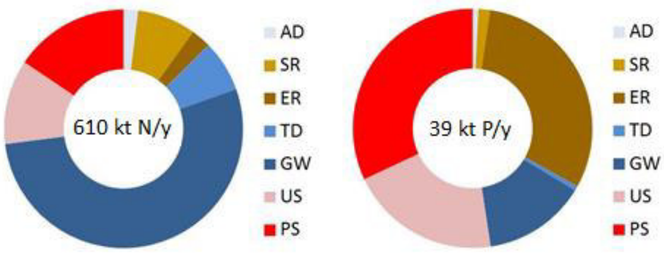


Figure 2. Mean share of the pathways on the total nutrient emissions in the DRB during 2009-2012.

A detailed analysis of the sources, pathways, their connections and transport is presented for nitrogen as an example to demonstrate how the model calculates the total emissions and river loads (Figure 3). It clearly shows the nitrogen emissions at the sources, the main transporting pathways but also the nitrogen losses along the pathways and in the stream network resulting in lower river load values in comparison to the emissions. Further details on the pathways can be found in the final technical report.

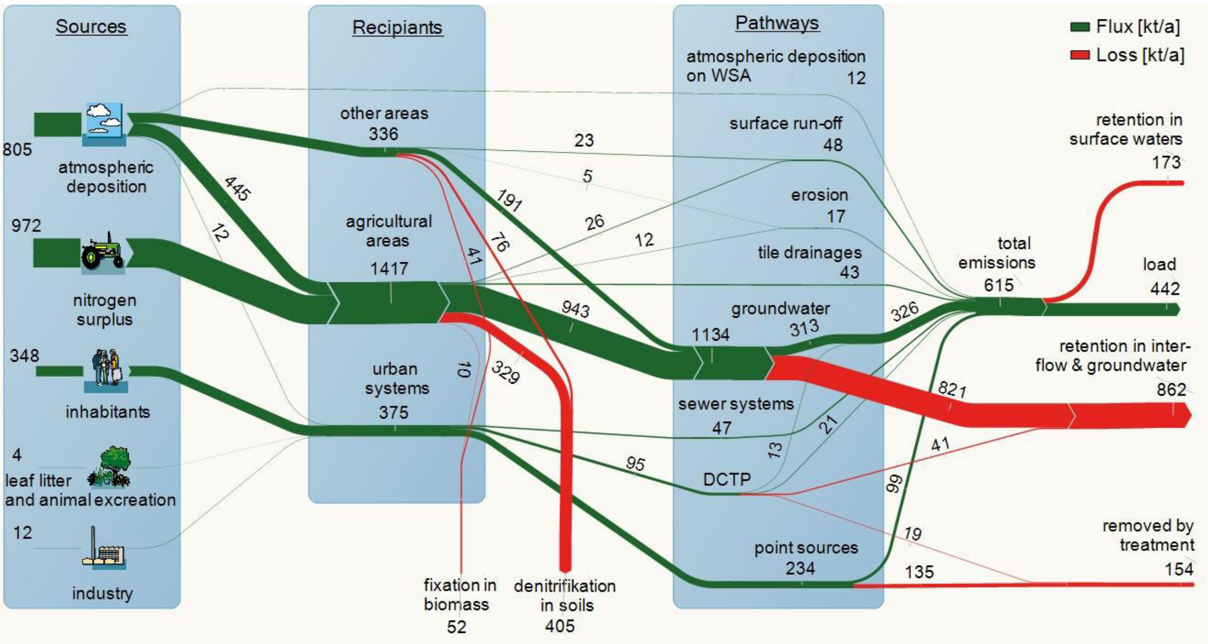


Figure 3. Detailed analysis of nitrogen fluxes and loss process in the Danube as mean of the years 2009-2012.

The spatial distribution of the emissions and the contribution of the different pathways on the total nitrogen emissions in the countries (Figure 4 and Figure 5) varies according to the geo-climatic conditions, but also in dependence of the intensity of agricultural land-use (i.e. fertilizer surplus, tile drained areas, agricultural areas). Whereas in DE or SI nutrient emissions via groundwater and tile drainages are dominating, in countries like RS and BA urban areas and point source contribute around the half to the total emissions.

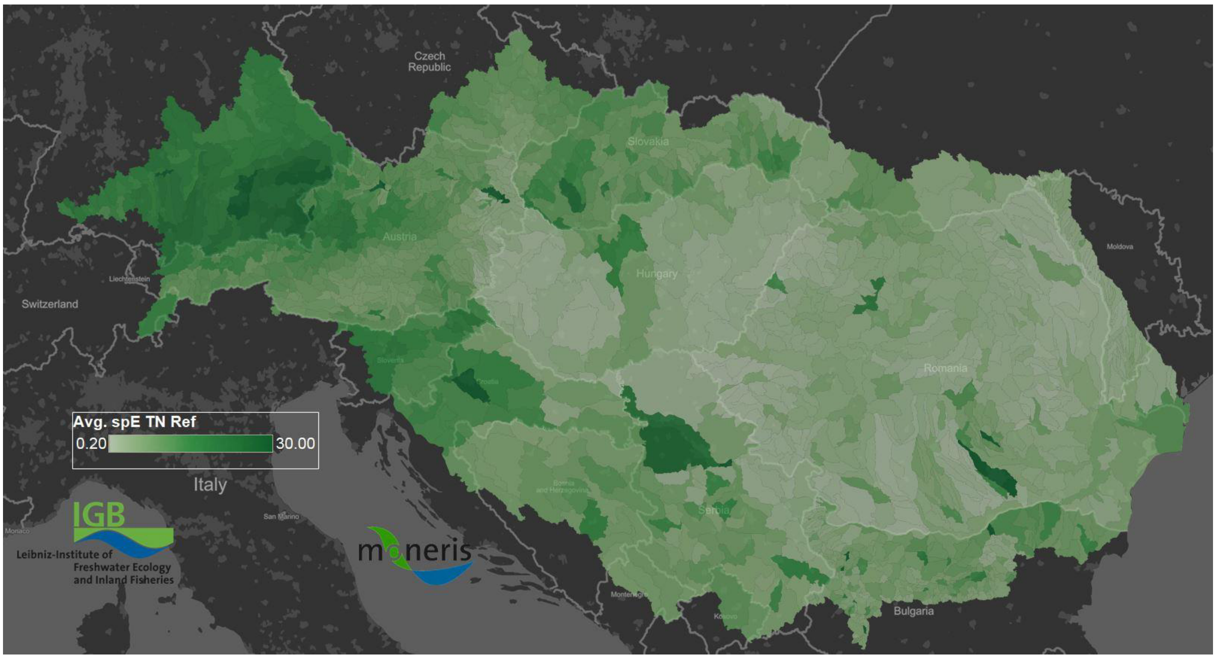


Figure 4. Mean specific nitrogen emissions for the years 2009-2012.

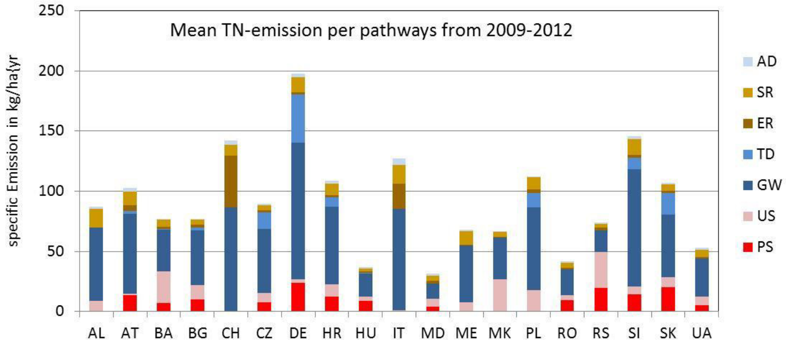


Figure 5. Mean share of the pathways on the total nitrogen emissions per country during 2009-2012.

For phosphorus, the spatial distribution is presented in Figure 6. In almost all countries urban areas and point source are the dominating emissions pathways (Figure 7). According to the new approach for erosion from snow/ice covered areas the absolute peak specific emissions are calculated for CH and IT. However, it has to be considered that these countries take only a very small share on the total catchment, so that emissions via erosion from these countries only contribute 5 % to the total emission via erosion in the DRB.

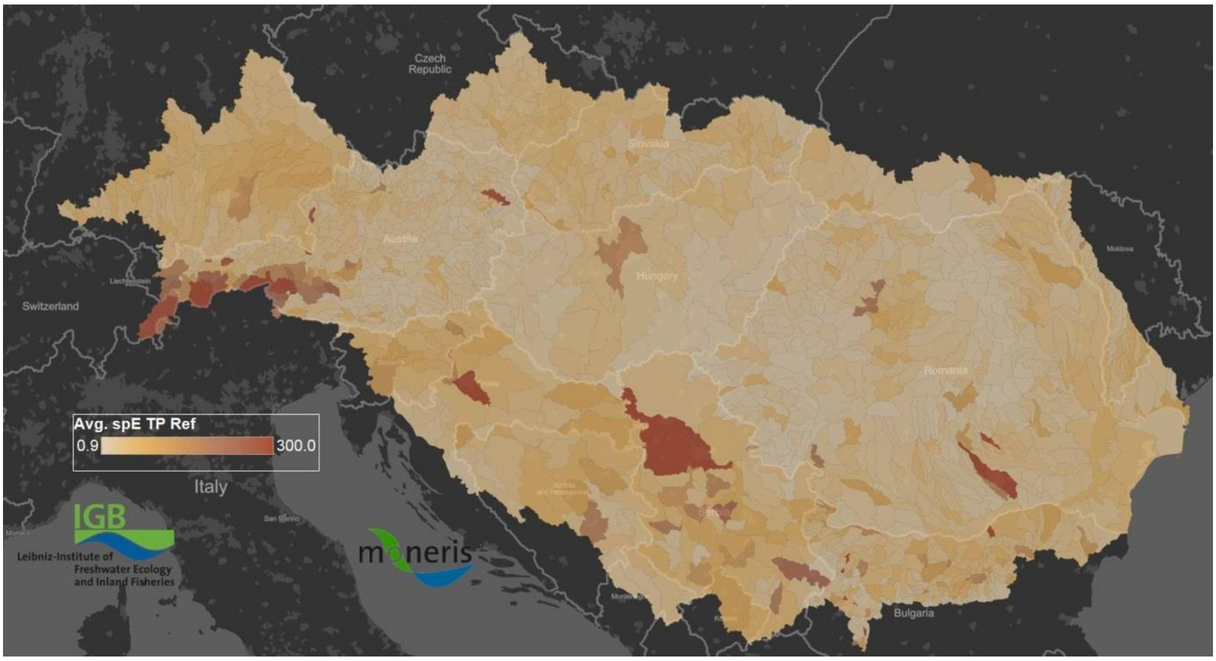


Figure 6. Mean specific phosphorus emissions for the years 2009-2012.

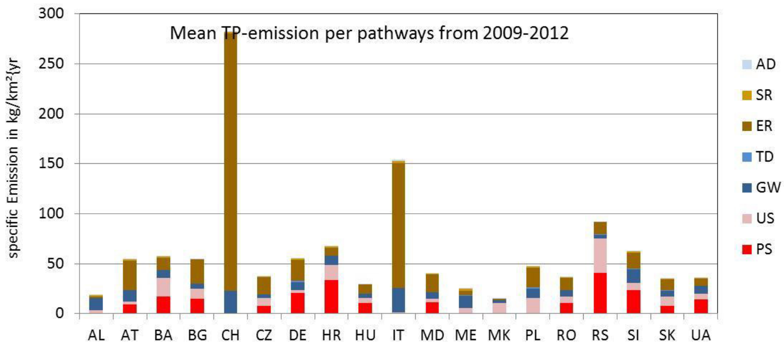


Figure 7. Mean share of the pathways on the total phosphorus emissions per country during 2009-2012.

The nutrient emission calculation with MONERIS from the last RBMP have been revised and re-calculated on a monthly basis for the period of 2000-2012. The long-term development of the nutrient emissions, for both nitrogen and phosphorus show a declining trend (Figure 8). For nitrogen a reduction of emission via point sources, tile drainages and groundwater was found. For phosphorus, additionally, a reduction of emissions from urban areas was modelled. The reduction of emissions via groundwater and urban areas can be explained by decreasing N-surpluses and a progressing ban of phosphates in detergents. The reduction of N emissions via point sources could possibly also be explained by differences or inconsistencies between the WWTP inventory used in the former and the current model run. However, compared to the decrease of TN emissions via groundwater, the change in emissions via point sources remains relatively small and has consequently limited effect on the total trend.

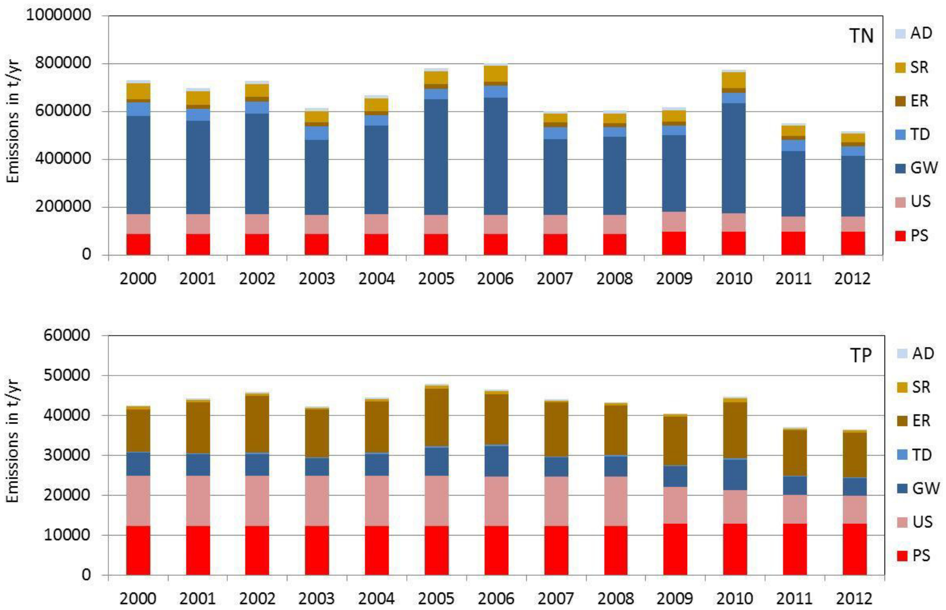


Figure 8. Mean share of the pathways on the total nitrogen (upper) and phosphorus (lower) emissions in the period of 2000-2012.

Load comparison

Loads were calculated using the disaggregated monthly emissions and the individually calculated monthly retention and transport in surface waters. Comparisons between modelled and observed monthly loads revealed a generally good agreement and no significant bias (Figure 9). Though, monthly peak loads, in particular for TP, could partly not be described by the modelled loads. However, annual loads are in very good agreement (Table 3). Deviations are in the assumed range of uncertainty in the observed data and of other model applications to small-scale catchments with excellent data availability.

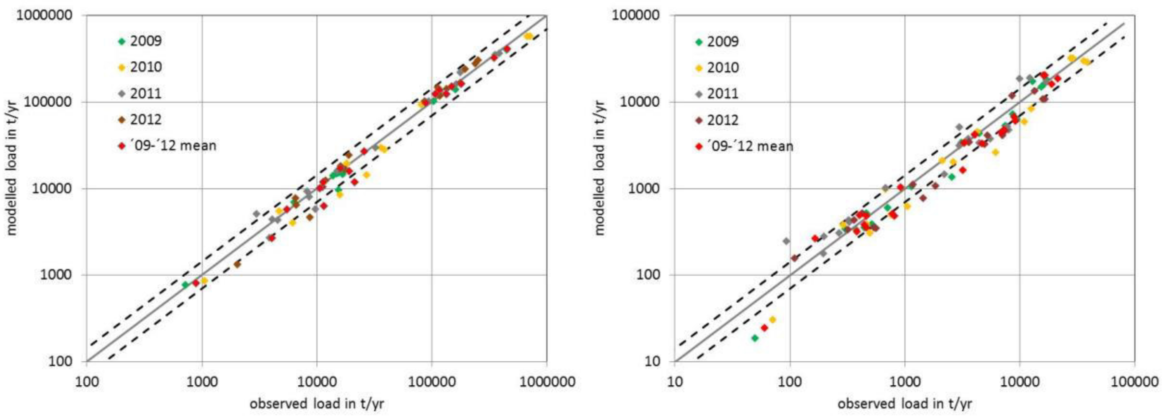


Figure 9. Comparison of observed and modelled loads for TN (left) and TP (right) at TNMN stations for the years 2009-2012.

Table 3. Model performance for TN and TP.

Nutrient		Mean absolute deviation in %	R^2	Nash-Sutcliffe coefficient	Number of considered stations
TN	Mean ’09-‘12	16.4	0.99	0.99	19
	Annual	15.7	0.97	0.99	58
TP	Mean ’09-‘12	28.3	0.93	0.99	23
	Annual	27.1	0.90	0.99	78

Changes at scenario conditions

Significant changes in nutrient emissions and loads were only observed with the Intensification and Vision(2) scenarios while the baseline and CAPRI scenarios are less effective (Figure 10).

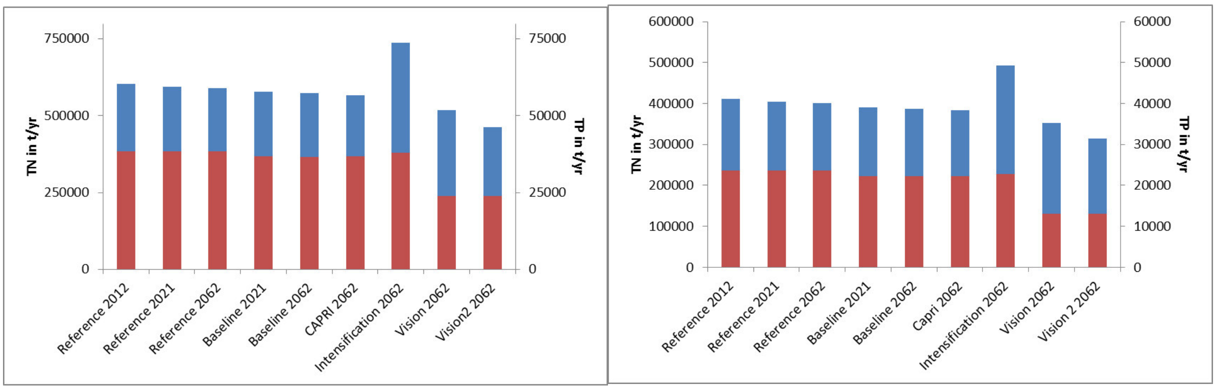


Figure 10. Modelled nutrient emissions in the DRB (left) and loads at TNMN station RO5 (right) for different scenarios and reference years (blue: TN, red: TP).

As expected, the effects on emissions vary considerably among countries as well as among TN and TP (Tables 4 and 5). At basin-level, the Intensification scenario will cause a strong increase in TN emissions via groundwater (+130 kt/yr) in 5 decades while TP emissions hardly change. The Vision scenario will not help to decrease TN emissions via groundwater because the basin-wide average N surplus is higher than in 2012. Only with the stricter Vision2 scenario, a decrease will be achieved (-50 kt/yr). Similar effects are expected for emissions from urban sources (-50 kt TN/yr, -6 kt TP/yr).

In the Intensification scenario TN loads in lower Danube will be 20% above current loads (+80 kt/yr) with negligible changes in TP loads. In the Vision scenario, the effects are stronger. TP loads will drop by 40% (-10 kt/yr) at TNMN station RO5 and TN loads by more than 10% (-50 kt/yr, whilst 25% in Vision2).

Table 4. Summary of the country specific changes on nitrogen emissions according to the described scenarios.

TN	Baseline	Intensification	CAPRI	Vision	Vision2
AT	-0.3	-0.3	4.3	-7.8	-14
BA	-1.7	52	-0.75	-8.8	-21
BG	-7.5	53	-6.4	-3.8	-20
CZ	0.7	6.7	-3.6	-31	-42
DE	-0.2	-0.2	-13	-20	-26
HR	-6.6	8.6	-14	-38	-43
HU	-4.8	1.15	5.3	-24	-33
MD	-2.7	147	1.4	75	46
RO	-2.8	79	-0.4	29	12
RS	0.1	28	1.2	-40	-46
SI	-4.8	4.0	-2.4	-25	-32
SK	-9.3	14	-11	-23	-34
UA	0.1	60.6	1.7	19	6.4

Table 5. Summary of the country specific changes on phosphorus emissions according to the described scenarios.

TP	Baseline	Intensification	CAPRI	Vision	Vision2
AT	2.1	3.0	-0.6	-3.1	-3.2
BA	-2.1	1.0	-2.8	-61	-61
BG	-13	1.1	-9.3	-42	-42
CZ	-4.3	1.0	-5.0	-38	-37
DE	1.2	3.6	-0.8	-15	-15
HR	-39	-39	-39	-59	-59
HU	-8.7	-4.8	-8.1	-23	-23
MD	-14	-6.4	-13	-17	-17
RO	4.3	10.4	5.6	-20	-20
RS	-0.4	1.4	-0.6	-79	-79
SI	-17	-17	-19	-48	-48
SK	-17	-13	-16	-43	-42
UA	-8.3	-7.6	-8.3	-16	-17

6 Conclusions

1) Agricultural land and urban areas contribute about 1/3 of the total emissions each and are the dominating sources for nitrogen emissions.
2) For Phosphorus about 60% of the total emissions originate from urban areas (including emissions via groundwater).
3) Current developments suggest that emissions from agriculture will increase, but are currently, compared to other European catchments, on a still medium to low level.
4) These results are in principal in agreement with earlier MONERIS applications to the Danube. Some pathways and source, however, show noticeable deviations. For instance, the lower share of point sources for TN and TP likely reflects the efforts for improving wastewater treatment. In contrast, the changes in emissions via tile-drainage show the impact of revised input data on model outcomes. Further analyses are thus required to ensure the comparability and consistency of model results.
5) The scenarios in general only lead to minor changes of the emissions and loads on a basin level. This is mainly caused be opposed developments in the countries. Concluding, a reduction of N surplus in the upper part and an improved collection an treatment of waste water are still the most effective measures to reduce nitrogen and phosphorus emissions, respectively.
6) Other measures like buffer strips in NVZ are important due to their multiple positive effects (sediment/nutrient emissions reduction, shading, habitat, etc.).
7) It is important to note the inherent uncertainty of TP observations and load estimations because the bi-weekly sampling might miss precipitation events (e.g. soil erosion) and high flow (transport, remobilization). This uncertainty is hard to be quantified, thus a brief analysis was started to qualitatively assess the plausibility and suitability of TNMN data for the model evaluation, after the revision and correction of extraordinary high TP and TN values in the TNMN database.
8) Monthly calculation could be shown to deliver reasonable results and to improve the description and understanding of contributing processes and sources.

9) The new developed retention approach is able to describe sedimentation and remobilisation of phosphorus and also distinguished between retention in rivers of different slope. A cross validation with modelled suspended solids should be conducted to increase the model significance.
10) The new developed approach to estimate P emissions via surface runoff was successfully applied and helped to improve the spatial resolution of the emission modelling via surface runoff. According to the present results soils in DE, CZ, SK and partly in AT and SI exceed P saturations of 80 %.
11) According to the soil map by FAO, hardly any sandy soils occur in the Danube catchment. Country specific soil maps could be used to prove or disprove this aspect. A larger amount of sandy soils could lead to considerably higher phosphor saturations.
12) Further efforts should be made to increase the spatial distribution of the N-surplus, which is one of the most important input data.
13) Strong uncertainties can still be expected in the connection rates of households – in particular for rural areas and smaller agglomerations.

Summary on elaboration of inventories on priority substances emission, discharges and losses

icpdr iksd
International Commission for the Protection of the Danube River
Internationale Kommission zum Schutz der Donau

ANNEX 6

DRBM Plan – Update 2015

Deutschland //// Österreich //// Česká republika //// Slovensko //// Magyarország //// Slovenija //// Hrvatska //// Bosna i Hercegovina //// Србија //// Crna Gora //// România //// България //// Moldova //// Україна

Country	Q1 EU MS: what is the current status of the elaboration of the PS EDL inventory and when will the assessments be available? Non-EU MS: is there any similar activity on-going or planned?	Q2 Which point sources are involved into the assessments? How are the emissions quantified?	Q3 Do you address PS diffuse pollution? How do you assess the diffuse emissions?	Q4 Which pollutants/pollutant groups have been involved to the emission assessments?
AT	Status PS EDL: For point sources the Austrian Emission Register EMREG is the basis for the PS EDL supplemented by data from the PRTR for data concerning operational emission. For diffuse emissions investigations for fundamental issues were made within the project "Emissionsabschätzung prioritäre Stoffe" (available on the BMLFUW homepage). Detailed evaluations on emission modelling concerning priority substances are planned for Austria for the next years ("STOBIMO Spurenstoffe"). Results should be available in the next national water management plan.	UWWTPs, industrial facilities, combined sewer overflows (SCHTURM). Based on monitoring programs emission factors are calculated (e.g. „Kläranlagenprojekt" - discharges from different typed WWTPs or „SCHTURM", with discharges from the sewer system). When no measures or emission factors are available for point sources emissions are calculated on base of maximum allowable concentrations (legislation).	Up to now diffuse emissions were assessed following the CIS guideline with: Difference of surface water load and point source emissions = emissions from diffuse sources. In future emission modelling for priority substances should be available (see above) characterising main sources and pathways. For load calculations concentrations from different pathways are needed. A first improvement of the necessary database is planned within the project (see above). Components of water balance are calculated at the outlet of the catchments and are calibrated (as far as data available) with discharge measurements. In a first pilot project "Emissionsabschätzungen prioritäre Stoffe" even diffuse emissions were roughly estimated. Within this project aim was to address data gaps and methodological problems more, than modelling of PS pathways and sources.	For UWWTPs and for emission from sewer overflows all PS are available. For emission from operational WWTPs only branch-specific data reported to EMREG or PRTR.
BA				
BG	In Bulgaria the development of methodology for inventories of emissions, discharges and losses of priority and other specific pollutants assigned an external contractor in 2015. The results are expected to be available in 2016.			
CZ	In the Czech Republic it was carried out assessment of chemical and ecological status of surface water bodies in 2014. Evaluation was based on monitoring results from 2010 -2012.	All known sources of pollution were incorporated into the assessment (municipal, industrial, combined sources of pollution).	If the source of pollution is not point source type then is attributed into nonpoint source of pollution.	Chemical status assessment was done for the following groups of indicators: 1. Heavy metals 2. Synthetic substances A) pesticides B) industrial pollutants C) other pollutants

Country	Q1 EU MS: what is the current status of the elaboration of the PS EDL inventory and when will the assessments be available? Non-EU MS: is there any similar activity on-going or planned?	Q2 Which point sources are involved into the assessments? How are the emissions quantified?	Q3 Do you address PS diffuse pollution? How do you assess the diffuse emissions?	Q4 Which pollutants/pollutant groups have been involved to the emission assessments?
DE	The first PS EDL inventory for Germany was finished in April 2015. It comprises methodological aspects as well as values and assessments for all PS. The findings will be published soon in a contribution which will be included in all River Basin Management plans.	Point sources considered were industrial discharges, municipal discharges and in the case of RPA-data emissions from historic mining sites. Source were: a) PRTR-reports from industrial and municipal point sources (> 100,000 p.e.) b) For urban discharges alternatively data using emission factors based on data from a research project were used for WWTPs > 50 EW. PRTR-data: measurements or estimates of waste water concentrations Municipal WWTPs: emission factors if available	Depending on data availability either the riverine load or the regional path analysis approach of CIS Guidance No 28 were used to estimate diffuse emissions.	All PS were taken into account using the 2-step approach described in CIS Guidance 28.
HR	In view of the presently available quantity and reliability of input data, it can be concluded that this is a framework inventory which provides an initial, basic insight into the sources and pathways of pollutant transfer which enter or may enter water. The work on the establishment of the relevant PS EDL Register in Croatia is still ongoing.	During the development of the national RBMP II, discharges of urban wastewater and discharges of technological and similar wastewater from individual users – IED plants and other facilities were analysed as point sources of pollution. For the evaluation of the pollutant load, emission factors were used.	Diffuse pollution was addressed, taking into account sources like pollution emission from population without a connection to the public wastewater system, from agricultural activities, from traffic outside settlements and pollution from vessels. For estimation of loads emission factors were used.	
HU	The compilation of the inventory is still ongoing. Final results will be available by December of 2015.	UWWTPs, Industrial facilities. Industrial facilities - every facility with above 15 m3 waste water discharge/operative days, not just E-PRTR UWWTP -- > influent-effluent measures, industrial facilities effluent measures.	Hungary takes into consideration loads from air deposition, groundwater and transportation. By air deposition we used data from European Monitoring and Evaluation Programme (EMEP) and Corine Land Cover. To assess loads from groundwater we took the estimated interflow and ps. concentrations of the infiltration area. By loads of transportation we used the number of motor vehicles and emission factors of toxic metal loads from break wear, tire wear and exhaust gases.	Due to the results of the chemical status assessment we tried to consider all the relevant substances. Depending on the substance it resulted in different detailed inventories.
MD	Following the definition of national PRTR objectives in the Aarhus Convention Plan of Actions, Parliament of Moldova ratified the PRTR Protocol on 24 April 2013. Since then, series of actions were implemented with the purpose to promote the implementation of the PRTR, particularly by setting up the National PRTR	In the Feasibility Study, UWWTPs and industrial facilities were assessed. In currently reported waste water statistics, the emissions are counted on the basis of influent-effluent measures.	Not yet, but shall be addressed in those areas where the data are already being collected by relevant authorities and can be practicably included in inventory	-

Country	Q1 EU MS: what is the current status of the elaboration of the PS EDL inventory and when will the assessments be available? Non-EU MS: is there any similar activity on-going or planned?	Q2 Which point sources are involved into the assessments? How are the emissions quantified?	Q3 Do you address PS diffuse pollution? How do you assess the diffuse emissions?	Q4 Which pollutants/pollutant groups have been involved to the emission assessments?
	System by the end of 2015. However, due to institutional constrains and lack of funds, PRTR System was not developed, and term for implementation was postponed by 2019-2020. By the time being, under the Ministry of Environment, there was conducted Feasibility Study for developing a Pollutant Release and Transfer Register (PRTR) in MD (2013), and are implemented 2 (two) projects aimed at developing of PRTR system based on EU experience, and particularly, German one. By the time being, in the Moldovan legislation in force, the following provisions are missing: § general and specific obligations for the competent authority responsible for collecting, validating and managing the register, as well as dealing with accessibility of the data and confidentiality issues; this includes also the reporting requirements on releases and transfers. • obligations for operators of facilities to collect and report data according to the PRTR Protocol's reporting requirements. To summarize, current status of the elaboration of the PS EDL is at the initial stage. Only some preparatory work was done.			
ME				
RO	Romania has established the EDL inventory based on the EU Guidance no. 28 "Technical Guidance on the Preparation of an Inventory of Emissions, Discharges and Losses of Priority and Priority Hazardous Substances". The assessment/result of the inventory is part of the National Management Plan and of the River Basin Management Plans (at sub-unit level).	In Romania all the point sources which are subject of water management license have been analysed in the inventory (i.e. urban waste waters and industrial waters) if priority substances were discharged. The concentrations in effluent have been measured and the PS load has been calculated.	The estimation of diffuse sources contribution was calculated (as difference between the total annual riverine load and the point source load).	Emission assessments were made only for relevant PS at the basin/sub-basin unit (for Romania these are mainly heavy metals and seldom PAHs).
RS				

Country	Q1 EU MS: what is the current status of the elaboration of the PS EDL inventory and when will the assessments be available? Non-EU MS: is there any similar activity on-going or planned?	Q2 Which point sources are involved into the assessments? How are the emissions quantified?	Q3 Do you address PS diffuse pollution? How do you assess the diffuse emissions?	Q4 Which pollutants/pollutant groups have been involved to the emission assessments?
SI	Summary of the PS EDL inventory is included in the Draft of national RBMP, which is currently available for public discussion.	UWWTPs: for the UWWTP > 100.000 PE the emissions were quantified using values reported in E-PRTR system. For the UWWTP < 100.000 PE emissions were quantified applying emission factors. For the industrial facilities (IPPC facilities and others) data from the annual reports of emission monitoring performed were used.	Diffuse pollution from road transport, atmospheric deposition and diffuse pollution from individual households not connected to the UWWTP was evaluated applying emission factors.	PS, PHS and pollutants relevant on the national level were involved.
SK	Elaboration of the PS EDL inventory is available.	Into assessment industrial facilities, E-PRTR were involved. (UWWTD data lack information on pollution by PS). Point sources emissions were quantified on the base of effluent measurements.	PS diffuse pollution was addressed. Diffuse loads were calculated by formula: Ldif = Ly (total riverine load) – Dp (total point source discharge) – Lb (natural background load) The quantification of emissions, discharges and losses was carried out by calculating of the riverine load (by OSPAR, 2004 equation - recommended by technical guidance) and then by linking results with existing information on the pollution sources or eventually with natural background. For metals the natural background concentrations - developed for each of the WB, were taken into account. In case of synthetic substances - for level of background concentration, half of the limit of quantification (0,5LOQ) have been used.	Relevance substances for RBD and sub-basins. They were identified on the base of following criteria: i.) the substance causing the failure state of at least one water bodies ii.) the average concentration of the substance is over half EQS in more than one waterbody iii.) Data from E-PRTR and national Central water database (SEV) confirm the release, which could lead to a concentration corresponding to the above criteria, iv.) there are known sources and activities causing inputs to the basin that could lead to a concentration corresponding to the above criteria.
UA	The only National Inventory of Pollutant Emissions operates by the time being. This inventory has been updated in the beginning of 2015. It has a list of 50 pollutants including PS.	Point sources facilities (UWWTP and industry) are considered. Emissions are quantified on the base of measurements.	Diffuse pollution is calculated as Total river load – Point sources emissions.	All relevant substances from the list of 50 pollutants.

Country	Q5 Which pollutants/pollutant groups have been measured in the water bodies? What kind of monitoring is used? Is the data frequency appropriate for load calculations?	Q6 What particular substances have been found of national importance?	Q7 What are the most important problems/gaps identified related to the inventory compilation?	Q8 Have specific measures been recommended to control PS emissions?
AT	Different pollutant groups are monitored regular or in specific campaigns. For Heavy metals the data frequency is appropriate for load calculations (12 per year) in single years. However, data above the detection limit are sparse within different substances. Other pollutants (e.g. pesticides or PAHs) are measured only in specific campaigns.	Some ubiquity substances are in the focus: Tributylzin; PAHs; mercury; PBDE (NGP Draft 2015)	The availability of resilient data for PS in different diffuse pathways (e.g. deposition, groundwater; erosion) are the most important gaps in Austria related to the inventory compilation.	In the draft version of the NGP (National water management plan) no specific measures are foreseen for the actual regulated substances. If the additional monitoring programs will address the necessity to implement measures, they will be implemented in an adapted measurement program until 22.12.2018 (Draft NGP 2015).
BA				
BG				
CZ	Monitored indicators are derived according to the requirements of the national Monitoring Programme, to be approved by the Ministry of Environment and Ministry of Agriculture. In the monitored water bodies where there is sufficient frequency of measurement you can calculate the load. According to the assessment results in 53% of the water bodies was not achieved good water status.	Problematic is mainly the content of some heavy metals and PAHs components especially after the adoption of Directive n. 2013/39/EU.	Knowledge about the loads of waters by priority substances coming from different diffuse pathways.	
DE	Most of the PS were measured at surveillance monitoring sites (mostly in water samples, sometimes also in suspended solid material). For a few substances like C10-C13-chloroalkanes no method was available. Most measurements were done at regular stations, for pesticides additional campaigns were started (“PSM-Regio” following the handbook “tGewA”)	The main results can be seen in the chart 70 in chapter 4 of the attached report.	Several analytical problems have been encountered. So, e.g. the normal sampling time for emission monitoring programs are too short to provide a robust long-time average signal required for load calculations. Sometimes the limit of quantification was not low enough to create data for the inventory. The data base for the derivation of emission factors was not sufficient for some PS; for this reason another research project is planned (find more details in chapter 5). For certain substances, the requirements of the WFD monitoring are insufficient for the	The requirements of the Abwasserverordnung have to be fulfilled as before. Within a new research project better emission factors should be derived which allow for a better differentiation for regional situations (treatment technology, sewer systems, indirect discharges..).

Country	Q5 Which pollutants/pollutant groups have been measured in the water bodies? What kind of monitoring is used? Is the data frequency appropriate for load calculations?	Q6 What particular substances have been found of national importance?	Q7 What are the most important problems/gaps identified related to the inventory compilation?	Q8 Have specific measures been recommended to control PS emissions?
			inventory calculation. The most important points are heavy metals, as the filtered samples used in the status assessment, for inventory calculation whole water samples are required. Similar problems are with respect to substances where only biota standards are prescribed.	
HR	Regarding monitoring of water status, monitoring programmes include substances from the Annex X of WFD, with the exception of C10-13 chloroalcanes, trifluraline, PBDE and tributyltin compounds. Sampling and analysis is usually conducted with frequencies of 12 times per year.		When it comes to the establishing an inventory, one of more significant problems recognized is the inconsistency between substances and/or groups of substances which are included in water (recipient) monitoring and wastewater which is discharged from the polluter's location.	Specific measures recommended to control PS emissions include administrative measures such as revision and harmonisation of water rights documents for point sources of pollution, comprehensive supervision of trade in hazardous substances (i.e. hazardous chemicals which contain them), systematic monitoring of the status of agricultural land, continued harmonisation of the Emission register as a part of the Water protection register in line with the recommendations from the Technical Guidance document, etc.

Country	Q5 Which pollutants/pollutant groups have been measured in the water bodies? What kind of monitoring is used? Is the data frequency appropriate for load calculations?	Q6 What particular substances have been found of national importance?	Q7 What are the most important problems/gaps identified related to the inventory compilation?	Q8 Have specific measures been recommended to control PS emissions?
HU	We used data of surveillance monitoring stations for catchments of Danube, Tisza and Drava (12 samples/year). Quantity and quality of monitoring data was often not sufficient. It means problem that national laboratories do not use the same method therefore results do not have the same confidence.	Cd, Hg, Pb, Zn, Cu, Cr, diuron, endosulfan, anthracene, fluoranthene, nonylphenols, trichloromethane.	Estimations on diffuse loads have significant uncertainty. E.g. by loads from transportations age, vehicle types and related emissions are had to be known for a precise calculation. Other problem is heterogenic monitoring data and information gap on p.s emission coming from UWWT. Emission and immission data cannot be compared because the measured parameters are different. By metals the emission site measures the total amount yet the immission only the dissolved. Pesticides and organic compounds are measured as components, but by emissions we have got only parameter group data: halogenated organic compounds, or PAHs etc. By riverine load approach the difference between loads of lower and upper river section gives negative values (accumulation of a major amount of heavy metal from abroad) but loads have low reliability due to data under LOQ.	Between measures provided for river basin management plan there are many which consider supplementary monitoring (UWWTPs, industrial facilities). We have just finished a supplementary monitoring project which contains biota monitoring, UWWTP and chemical industry discharge monitoring to get more information on PS discharges.
MD	In the frameworks of Feasibility Study, there were preliminary identified HS relevant for entire Moldova, as well as facilities emitting HS. Thus, on the nation-wide level, there were identified next relevant to PRTR industrial sectors fall under the Protocol's requirements according to capacity thresholds: - energy (3 facilities), production and processing of metals (1 facility), mineral industry (ac. 19 facilities) , chemical industry/ pharmaceutical (1 facility) , waste and waste water management (4-5 facilities, from which 1 landfill, and 3-4 UWWTPs), paper production and processing (2 facilities), intensive livestock production, etc. However, it shall be mentioned that not even one UWWTP or industrial facility with	Particular HS of national importance were not identified yet.	Institutional constrains & lack of funds.	None

Country	Q5 Which pollutants/pollutant groups have been measured in the water bodies? What kind of monitoring is used? Is the data frequency appropriate for load calculations?	Q6 What particular substances have been found of national importance?	Q7 What are the most important problems/gaps identified related to the inventory compilation?	Q8 Have specific measures been recommended to control PS emissions?
	exceeding threshold values was identified in the Moldovan part of the Danube basin Besides, there were identified the following officially reported to national statistics HS: - N tot., P tot., As, Cd, Cr, Cu, Pb, Ni, Hg, Zn, DDT, Benzene, Phenols, PAH, chlorides, and cyanides. For the monitoring are used both regular stations and specific campaigns. In fact, Hydrometeo Service regularly monitors in rivers 73 chemical parameters, including heavy metals, organic substances, organichlorine pesticides and PAH. Data frequency is appropriate for load calculation.			
ME				
RO	In Romania all 33 priority substances + 8 other pollutants have been measured in the water bodies exempting four of them. In the meantime for analytical methods for 2 out 4 compounds have been established and starting from the next year will be monitored in surface waters as well. Monitoring data are coming from regular monitoring according to the WFD requirements. The frequency of monitoring data is appropriate for annual riverine load calculation.	Heavy metals and PAHs are found as being relevant at the basin/sub-basin unit. The relevance step was based on the criteria EU Guidance no. 28.	The main gaps are the followings: lack of tool to estimate the diffuse emissions, lack in certain cases of point sources and frequent of diffuse sources, there was not possible the assign a certain substance found in the aquatic environment to an appropriate source, lack of data related to the production, use, forbidden or restriction of use of priority substances.	The measures proposed are designed for reduction of a number of substances (e.g. heavy metals).
RS				
SI	One year during the RBMP period the surveillance monitoring on surveillance monitoring stations is being performed. In this surveillance monitoring mostly/mainly the whole set of priority substances is included. On the other (regular) monitoring stations or during the other 5 years of the RBMP period the priority substances are being measured as circumstances require with regard to emissions,	None of them.	The national PS EDL inventory should be upgraded with data/evaluations on emissions from diffuse sources of pollution (such as pesticides/biocides from agricultural activities, illegal landfills, pollution from urban areas, storm overflows,..).	No specific measures have been recommended.

Country	Q5 Which pollutants/pollutant groups have been measured in the water bodies? What kind of monitoring is used? Is the data frequency appropriate for load calculations?	Q6 What particular substances have been found of national importance?	Q7 What are the most important problems/gaps identified related to the inventory compilation?	Q8 Have specific measures been recommended to control PS emissions?
	discharges and findings of the previous monitoring (if any excess over the quality standard is being measured, we confirm it or annul it in the next years with proceeded monitoring). On principle specific campaigns are not performed, exceptionally for the purpose of the investigative monitoring. The frequency of priority substances measurement is in line with the WFD (12 times/year).			
SK	Priority substances and substances relevant for SK. Mostly surveillance and operational monitoring. For assessment of chemical status are measured all priority substances, frequency is one in month, 12 per year. River basin specific pollutants are measured in the relevant water bodies, where are discharged.	Following the requirements of the European Water Framework Directive (WFD), a process of selecting relevant dangerous substances and developing a related Pollution Reduction Programme (PRP) has started in the Slovak Republic in 2001. Based on the results of a three years investigative screening campaign, 59 chemical substances were identified as relevant dangerous substances in 2004 and included in the national PRP. From this list of 59 chemical substances, 33 priority substances were already included in the EQS Directive (2008/105/EC). The remaining 26 relevant dangerous substances were assigned as river basin specific pollutants (Annex VIII substances of the WFD) for the Slovak Republic. Priority substances relevant for Danube RBD belongs 21 substances: 1. Alachlór 2. Atrazín 3. Kadmium a jeho zlúčeniny 4. Cyklodiénové pesticídy 5. para-para-DDT 6. Bis(2-etylhexyl)-ftalát (DEHP) 7. Endosulfán 8. Fluorantén 9. Hexachlórbenzén	• insufficiently precise analytical methods for determining some substances as required by Directive 2009/90 / EC laying down further to Directive 2000/60 /EC of the EP and a number of technical requirements for chemical analysis and monitoring of water status • absence of data on the concentrations of PS and SK relevant substances (identified in 2008) in sediment and biota, • insufficient scope of monitoring quality of discharged waste water in relation to PS and SK relevant substances (legislation lacks a tool for compulsory periodic updating of indicators of the pollution - monitoring the full range of PS and SK RS as part of the renewal of the authorization for the discharge of wastewater) • lack of data on air pollution, specific organic substances (PS, SK RS) • comparability of water contamination by heavy metals in the stream, and the waste water discharges. Issued permits for waste water discharge prescribe- the limit values for total form (bound, not only to water but also of suspended solids), in contrast to the requirements for the chemical status of water bodies - where EQS apply to the filtered water. Therefore, it is presently difficult to estimate the contribution from	For identified sources of pollution (point and diffuse) measures were proposed. In addition to improve future PS EDL inventory following measures were proposed: • reducing the limits LOQ laid down in the case of methods which do not meet the LOQ required by Directive 2010/108 / EC, respectively a switch to other matrix setting of relevant indicators, • introduce monitoring of the organic matter in the monitoring of emissions to air, • creating tools to increase the level of future emissions inventories (e.g. Models, data on the production and use of substances – e.g. Of REACH, from the analysis of substance cycles, production and emission factors).

Country	Q5 Which pollutants/pollutant groups have been measured in the water bodies? What kind of monitoring is used? Is the data frequency appropriate for load calculations?	Q6 What particular substances have been found of national importance?	Q7 What are the most important problems/gaps identified related to the inventory compilation?	Q8 Have specific measures been recommended to control PS emissions?
		10. Hexachlórbutadién 11. Hexachlórcyklohexán 12. Olovo a jeho zlúčeniny 13. Ortuť a jej zlúčeniny* 14. Naftalén 15. Nonylfenol (4-nonylfenol) 16. Oktylfenol ((4-(1,1',3,3'-tetrametylbutyl)fenol)) 17. Pentachlórbenzén 18. Pentachlórfenol 19. Polyaromatické uhľovodíky (PAU) * 20. Tetrachlóretylén 21. Trichlórmetán (chloroform) From SK relevant substances (identified in 2008) 10 substances are relevant for Danube RBD: 1. 2-metyl-4-chlórfenoxyoctová kyselina (MCPA), 2. 4-metyl-2,6-di-terc butylfenol , 3. arzenic and its compounds, 4. dibutylftalát, 5. fenantrén , 6. Chromium and its compounds 7. cyanides, 8. copper and its compounds, 9. PCB a jeho kongenéry (28, 52, 101, 118, 138, 153,180), 10. zinc a its compounds.	point and diffuse source in the total riverine load. • insufficient information about the content of PL and RL pollution in municipal waste water.	
UA	Regarding WFD implementation plan monitoring points and frequency will be substantially revised in the nearest future. Data frequency differs for main sub-basins. For Lower Danube monitoring frequency is 12 per	Only heavy metals among that few groups of components what are measured at the time being.	Institutional constrains & lack of funds.	No specific measures have been recommended.

Country	Q5	Q6	Q7	Q8
	Which pollutants/pollutant groups have been measured in the water bodies? What kind of monitoring is used? Is the data frequency appropriate for load calculations?	What particular substances have been found of national importance?	What are the most important problems/gaps identified related to the inventory compilation?	Have specific measures been recommended to control PS emissions?
	year, for Tisza and Prut basins – main hydrology phases (4-8 per year). Pollutant groups are: trace metals, DDT, DDE, aldrine and some other pesticides.			

List of Future Infrastructure Projects

icpdr iksd
International Commission for the Protection of the Danube River
Internationale Kommission zum Schutz der Donau

ANNEX 7

DRBM Plan – Update 2015

Explanations

SEA = Strategic Environmental Assessment

EIA = Environmental Impact Assessment

Criteria for the collection of future infrastructure projects for the Danube River and other DRBD rivers with catchment areas >4,000 km²

	Danube River	Other DRBD rivers with catchment areas >4,000 km²
Criteria	Strategic Environmental Assessment (SEA) and/or Environmental Impact Assessments (EIA) are performed for the project	Strategic Environmental Assessment (SEA) and/or Environmental Impact Assessments (EIA) are performed for the project
	or	**and**
	project is expected to provoke transboundary effects	project is expected to provoke transboundary effects

Country	River	Water body	Project title	Main purpose	Description	Project status	Start imple-mentation	Expected deterioration of water body status	Trans-boundary impact	SEA	EIA	Exemption WFD Art. 4(7)
AT	Donau	Donau_02, KW Freudenau bis Devin, EP groß	Flussbauliches Gesamtprojekt-Freudenau - Austrian border	Navigation	Flussbauliches Gesamtprojekt-Freudenau - Austrian border	Officially planned	2014	No	No	No	Intended	No
BG	Dunav	DUNAV RWB01	Improving the navigation of the Bulgarian-Romanian section of the Danube River	Navigation	Improving the navigation of BG-RO Danube sectors from km 520 to km 530 - Batin	Planning under preparation	2012	No	Yes	No	Already done	No
BG	Dunav	DUNAV RWB01	Improving the navigation of the Bulgarian-Romanian section of the Danube River	Navigation	Improving the navigation of BG - RO Danube sectors from km 576 to km 560 - Belene	Planning under preparation	2012	No	Yes	No	Already done	No
DE	Donau	Donau von Einmündung Große Laber bis Einmündung Isar	Ausbau der Wasserstraße und Verbesserung des Hochwasserschutzes zwischen Straubing und Vilshofen, Teilabschnitt 1: Straubing–Deggendorf	Flood protection	Reduction flood risks, improvement for navigation (Ongoing approval procedure under public law and current measures improving flood protection)	Planning under preparation	Not yet determined	No	No	No	Intended	No
DE	Donau	Donau von Einmündung Isar bis Einmündung Vils	Ausbau der Wasserstraße und Verbesserung des Hochwasserschutzes zwischen Straubing und Vilshofen, Teilabschnitt 2: Deggendorf – Vilshofen	Flood protection	Reduction flood risks, improvement for navigation (Ongoing approval procedure under public law and current measures improving flood protection)	Planning under preparation	Not yet determined	No	No	No	Intended	No
DE	Donau	Donau von Einmündung Lech bis Einmündung Paar	Polder Bertoldsheim	Flood protection	Polder	Planning under preparation	Not yet determined	No	No	Intended	Intended	No

Country	River	Water body	Project title	Main purpose	Description	Project status	Start imple-mentation	Expected deterioration of water body status	Trans-boundary impact	SEA	EIA	Exemption WFD Art. 4(7)
DE	Donau	Donau von Einmündung Landgraben bei Offingen bis Staustufe Donauwörth	Polder Dillingen	Flood protection	Polder	Planning under preparation	Not yet determined	No	No	Intended	Intended	No
DE	Donau	Donau von Einmündung Naab bis Einmündung Große Laber	Polder Eltheim	Flood protection	Polder	Planning under preparation	Not yet determined	No	No	Intended	Intended	No
DE	Donau	Donau von Einmündung Lech bis Einmündung Paar	Polder Großmehring	Flood protection	Polder	Planning under preparation	Not yet determined	No	No	Intended	Intended	No
DE	Donau	Donau von Einmündung Landgraben bei Offingen bis Staustufe Donauwörth	Polder Höchstädt	Flood protection	Polder	Planning under preparation	Not yet determined	No	No	Intended	Intended	No
DE	Donau	Donau von Einmündung Paar bis Staubing (Fkm 165)	Polder Katzau	Flood protection	Polder	Planning under preparation	Not yet determined	No	No	Intended	Intended	No
DE	Donau	Donau von Einmündung Iller bis Einmündung Landgraben bei Offingen	Polder Leipheim	Flood protection	Polder	Planning under preparation	Not yet determined	No	No	Intended	Intended	No
DE	Donau	Donau von Einmündung Naab bis Einmündung Große Laber	Polder Öberauer Schleife	Flood protection	Polder	Planning under preparation	Not yet determined	No	No	Intended	Intended	No
DE	Donau	Donau von Einmündung Lech bis	Polder Riedensheim	Flood protection	Polder	Implementation of project	2015	No	No	Already done	Already done	No

Country	River	Water body	Project title	Main purpose	Description	Project status	Start imple-mentation	Expected deterioration of water body status	Trans-boundary impact	SEA	EIA	Exemption WFD Art. 4(7)
		Einmündung Paar										
DE	Donau	Donau von Einmündung Landgraben bei Offingen bis Staustufe Donauwörth	Polder Schwenningen	Flood protection	Polder	Planning under preparation	Not yet determined	No	No	Intended	Intended	No
DE	Donau	Donau von Einmündung Landgraben bei Offingen bis Staustufe Donauwörth	Polder Steinheim	Flood protection	Polder	Planning under preparation	Not yet determined	No	No	Intended	Intended	No
DE	Donau	Donau von Einmündung Naab bis Einmündung Große Laber	Polder Wörthhof	Flood protection	Polder	Planning under preparation	Not yet determined	No	No	Intended	Intended	No
HR	-		Danube-Sava Canal	Navigation	Construction of 61,4 km artificial canal (category Vb) from Vukovar to Samac on the Sava River; will shorten the waterway	Planning under preparation	2006	No	Yes	No	Intended	No
HR	Sava	DSRI010001, DSRI010002, DSRI010003, DSRI010004, DSRN010005, DSRN010006	Reconstruction and Improvement of the Sava waterway in Croatia	Navigation	Reconstruction of the waterway, and upgrading it to Category IV	Implementation of project	2003	No	Yes	No	Already done	No
HU	Duna	Duna Szigetköznél	Water supply and flood protection on the Upper Hungarian Danube I. phase	Water supply	The side arm system of the Danube in the Szigetköz has a special ecological value. It has to be maintain. The water levels in the main Danube and the side arm connections possibilities to it are	Officially planned	2017	No	No	No	Intended	No

Country	River	Water body	Project title	Main purpose	Description	Project status	Start imple-mentation	Expected deterioration of water body status	Trans-boundary impact	SEA	EIA	Exemption WFD Art. 4(7)
					of high importance.							
RO	Dunarea	Dunarea Portile de Fier II - Chiciu	Imbunatatirea coditiilor de navigatie pe sectorul comun romano-bulgar - Popina - km 403-km 408	Navigation	Imb.cond. de navig. pe Dunare intre km 824-km403,prin redistrib.debit. intre Dunare si bratele secundare, redirijarea curentilor de apa si calibrarea albiei.12 puncte critice. EIA este in curs de revizuire.	Planning under preparation	2011	No	Yes	No	Already done	No
RO	Dunarea	Dunarea Portile de Fier II - Chiciu	Imbunatatirea coditiilor de navigatie pe sectorul comun romano-bulgar - Corabia - km 626-km 632	Navigation	Imb.cond. de navig. pe Dunare intre km 824-km403,prin redistrib.debit. intre Dunare si bratele secundare, redirijarea curentilor de apa si calibrarea albiei.12 puncte critice. EIA este in curs de revizuire.	Planning under preparation	2011	No	Yes	No	Already done	No
RO	Dunarea	Dunarea Portile de Fier II - Chiciu	Imbunatatirea coditiilor de navigatie pe sectorul comun romano-bulgar - Bechet - km 675-km 678	Navigation	Imb.cond. de navig. pe Dunare intre km 824-km403,prin redistrib.debit. intre Dunare si bratele secundare, redirijarea curentilor de apa si calibrarea albiei.12 puncte critice. EIA este in curs de revizuire.	Planning under preparation	2011	No	Yes	No	Already done	No
RO	Dunarea	Dunarea Portile de Fier II - Chiciu	Imbunatatirea coditiilor de navigatie pe sectorul comun romano-bulgar - Dobrina - km 758-km 760	Navigation	Imb.cond. de navig. pe Dunare intre km 824-km403,prin redistrib.debit. intre Dunare si bratele secundare, redirijarea curentilor de apa si	Planning under preparation	2011	No	Yes	No	Already done	No

Country	River	Water body	Project title	Main purpose	Description	Project status	Start imple-mentation	Expected deterioration of water body status	Trans-boundary impact	SEA	EIA	Exemption WFD Art. 4(7)
					calibrarea albiei.12 puncte critice. EIA este in curs de revizuire.							
RO	Dunarea	Dunarea Portile de Fier II - Chiciu	Imbunatatirea coditiilor de navigatie pe sectorul comun romano-bulgar - B.Secia - km 783-km 786	Navigation	Imb.cond. de navig. pe Dunare intre km 824-km403,prin redistrib.debit. intre Dunare si bratele secundare, redirijarea curentilor de apa si calibrarea albiei.12 puncte critice. EIA este in curs de revizuire.	Planning under preparation	2011	No	Yes	No	Already done	No
RO	Dunarea	Dunarea Portile de Fier II - Chiciu	Imbunatatirea coditiilor de navigatie pe sectorul comun romano-bulgar - Salcia - km 820-km 824	Navigation	Imb.cond. de navig. pe Dunare intre km 824-km403,prin redistrib.debit. intre Dunare si bratele secundare, redirijarea curentilor de apa si calibrarea albiei.12 puncte critice. EIA este in curs de revizuire.	Planning under preparation	2011	No	Yes	No	Already done	No
RO	Dunarea	Dunarea Chiciu-Isaccea	Imbunatatirea conditiilor de navigatie pe Dunare intre Calarasi si Braila km 375-km175 - etapa I	Navigation	Executie lucrari hidrotehnice: km 196-km 197 (bifurcatia bratului Caleea)	Implementation of project	2011	No	No	No	Already done	No
RO	Dunarea	Dunarea Chiciu-Isaccea	Imbunatatirea conditiilor de navigatie pe Dunare intre Calarasi si Braila km 375-km175 - etapa I	Navigation	Executie lucrari hidrotehnice: km 196-km 197 (bifurcatia bratului Caleea)	Implementation of project	2011	No	No	No	Already done	No

Country	River	Water body	Project title	Main purpose	Description	Project status	Start imple-mentation	Expected deterioration of water body status	Trans-boundary impact	SEA	EIA	Exemption WFD Art. 4(7)
RO	Dunarea	Dunarea Chiciu-Isaccea	Imbunatatirea conditiilor de navigatie pe Dunare intre Calarasi si Braila km 375-km175 - etapa I	Navigation	Executie lucrari hidrotehnice: km 341-km 342 (bifurcatia bratului Epurasu)	Implementation of project	2011	No	No	No	Already done	No
RO	Dunarea	Dunarea Chiciu-Isaccea	Imbunatatirea conditiilor de navigatie pe Dunare intre Calarasi si Braila km 375-km175 - etapa I	Navigation	Executie lucrari hidrotehnice: km 341-km 342 (bifurcatia bratului Epurasu)	Implementation of project	2011	No	No	No	Already done	No
RO	Dunarea	Dunarea Chiciu-Isaccea	Imbunatatirea conditiilor de navigatie pe Dunare intre Calarasi si Braila km 375-km175 - etapa I	Navigation	Executie lucrari hidrotehnice: km 345-km 346 (bifurcatia bratului Bala din Dunare)	Implementation of project	2011	No	No	No	Already done	No
RO	Dunarea	Dunarea Chiciu-Isaccea	Imbunatatirea conditiilor de navigatie pe Dunare intre Calarasi si Braila km 375-km175 - etapa I	Navigation	Executie lucrari hidrotehnice: km 345-km 346 (bifurcatia bratului Bala din Dunare)	Implementation of project	2011	No	No	No	Already done	No
RS	Dunav	Akumulacija HE Đerdap I od ušća Save do ušća Tise, Akumulacija HE Đerdap I od ušća Tise do Novog Sada, Dunav od Novog Sada do RS-HR granice	Documentation for River Training and Dredging Works on Selected Locations along the Danube River	Navigation	The Project aim is to improve navigability of the international waterway on Danube River, between Belgrade and Backa Palanka (RS-HR state border). Documentation is prepared in line with Joint statement	Implementation of project	2015	No	No	Already done	Already done	No
RS	Dunav	Dunav od RH-HR granice do ušća Drave, Dunav uzvodno od ušća Drave	River training and dredging works on critical sectors on the RS-HR joint stretch of the Danube River	Navigation	The Project aim is to improve navigability of the international waterway on Danube River,on the common RS-HR sector.	Planning under preparation	2018	No	Yes	Already done	No	No

Country	River	Water body	Project title	Main purpose	Description	Project status	Start imple-mentation	Expected deterioratio n of water body status	Trans-boundary impact	SEA	EIA	Exemptio n WFD Art. 4(7)
RS	Sava	Sava uzvodno od ušća Drine do RS-HR granice	Sava Waterway Rehabilitation Project	Navigation	The Project is part of a Program to improve navigability in the Sava River between Belgrade, Serbia and Sisak, Croatia.	Officially planned	2016	No	Yes	Already done	Intended	No
RS	Lim	Lim uzvodno od akumulacije HE Potpeć do RS-ME granice	Projekat izgradnje HE Brodarevo 1 i HE Brodarevo 2	Hydropower	Hydropower plant 26 MW	Officially planned	Not yet determined	Yes	Yes	Already done	Already done	Yes
RS	Lim	Lim uzvodno od akumulacije HE Potpeć do RS-ME granice	Projekat izgradnje HE Brodarevo 1 i HE Brodarevo 2	Hydropower	Hydropower plant 32,4 MW	Officially planned	Not yet determined	Yes	Yes	Already done	Already done	Yes
SI	Sava	VT Sava Krško - Vrbina	Hidroelektrarna Brežice	Hydropower	Hydropower plant	Implementation of project	2014	Yes	No	Already done	Already done	No
SI	Sava	VT Sava Krško - Vrbina	Hidroelektrarna Mokrice	Hydropower	Hydropower plant	Officially planned	2016	Yes	No	Already done	Intended	Yes

Groundwater in the DRBD

icpdr iksd
International Commission for the Protection of the Danube River
Internationale Kommission zum Schutz der Donau

ANNEX 8

DRBM Plan – Update 2015

Deutschland //// Österreich //// Česká republika //// Slovensko //// Magyarország //// Slovenija //// Hrvatska //// Bosna i Hercegovina //// Србија //// Crna Gora //// România //// България //// Moldova //// Україна

Nominated transboundary GWBs of Danube basin wide importance

GWB	Nat. part	Area [km²]	Aquifer characteristics		Main use	Overlying strata [m]	Criteria for importance
			Aquifer Type	Confined			
1	AT-1	1,650	K	Yes	SPA, CAL	100-1000	Intensive use
	DE-1	4,250					
2	BG-2	12,844	F, K	Yes	DRW, AGR, IND	0-600	> 4000 km²
	RO-2	11,340					
3	MD-3	9,662	P	Yes	DRW, AGR, IND	0-150	> 4000 km²
	RO-3	12,646					
4	BG-4	3,225	K, F-P	Yes	DRW, AGR, IND	0-10	> 4000 km²
	RO-4	2,187					
5	HU-5	4,989	P	No	DRW, IRR, IND	2-30	> 4000 km², GW resource, DRW protection
	RO-5	2,227		Yes			
6	HU-6	1,034	P	No	DRW, AGR, IRR	5-30	GW resource, DRW protection
	RO-6	1,459		Yes			
7	HU-7	7,098	P	No	DRW, AGR, IND, IRR	0-125	> 4000 km², GW use, GW resource, DRW protection
	RO-7	11,355		Yes			
	RS-7	10,506		Yes			
8	HU-8	1,152	P	No	DRW, IRR, AGR, IND	2-5	GW resource, DRW protection
	SK-8	2,211					
9	HU-9	750	P	Yes	DRW,IRR	2-10	GW resource
	SK-9	1,466					
10	HU-10	493	K	No	DRW, OTH	0-500	DRW protection, dependent ecosystem
	SK-10	598	K, F	Yes			
11	HU-11	3,178	K	No	DRW, SPA, CAL	0-2500	Thermal water resource
	SK-11	563	F, K	Yes			

Nominated transboundary GWBs of Danube basin wide importance

Transboundary GWB	Nat. part	National GWB Codes	Area [km²]	Area [km²]	Aquifer characteri-sation		Main use	Overlying strata	Criteria for importance
					Aquifer Type	Confined			
1: Deep Thermal	AT-1	ATGK100158	5,900	1,650	K	Yes	SPA, CAL	100–1000	Intensive use
	DE-1	DEGK1110		4,250					
2: Upper Jurassic – Lower Cretaceous	BG-2	BG1G0000J3K051	24,184	12,844	F, K	Yes	DRW, AGR, IND	0–600	>4000 km²
	RO-2	RODL06		11,340					
3: Middle Sarmatian - Pontian	MD-3	MDPR01	22,308	9,662	P	Yes	DRW, AGR, IND	0–150	>4000 km2
	RO-3	ROPR05		12,646					
4: Sarmatian	BG-4	BG1G000000N049	5,412	3,225	K, F-P	No	DRW, AGR, IND	0–10	>4000 km2
	RO-4	RODL04		2,187					
5: Mures / Maros	HU-5	HU_AIQ605 HU_AIQ604 HU_AIQ594 HU_AIQ593	7,216	4,989	P	No	DRW, IRR, IND	2-30	GW resource, DRW protection
	RO-5*	ROMU20 ROMU22		2,227 1,774					
6: Somes / Szamos	HU-6	HU_AIQ649 HU_AIQ648 HU_AIQ600 HU_AIQ601	2,493	1,034	P	No	DRW,AGR, IRR	5–30	GW resource, DRW protection
	RO-6*	ROSO01 ROSO13		1,459 1,392					
7: Upper Pannonian-Lower Pleistocene / Vojvodina / Duna-Tisza köze déli r.	HU-7	HU_AIQ528 HU_AIQ523 HU_AIQ532 HU_AIQ487 HU_AIQ590 HU_AIQ529 HU_AIQ522 HU_AIQ533 HU_AIQ486 HU_AIQ591	28,959	7,098	P	No / Yes / No	DRW, AGR, IND, IRR	0–125	> 4000 km², GW use, GW resource, DRW protection
	RO-7	ROBA18		11,355					
	RS-7	RS_TIS_GW_I_1 RS_TIS_GW_SI_1 RS_TIS_GW_I_2 RS_TIS_GW_SI_2 RS_TIS_GW_I_3 RS_TIS_GW_SI_3 RS_TIS_GW_I_4 RS_TIS_GW_SI_4 RS_TIS_GW_I_7 RS_TIS_GW_SI_7 RS_D_GW_I_1 RS_D_GW_SI_1		10,506					
8: Podunajska Basin, Zitny Ostrov / Szigetköz, Hanság-Rábca	HU-8	HU_AIQ654 HU_AIQ572 HU_AIQ653 HU_AIQ573	3,363	1,152	P	No	DRW, IRR, AGR, IND	2–5	GW resource, DRW protection
	SK-8	SK1000300P SK1000200P		2,211					

Transboundary GWB	Nat. part	National GWB Codes	Area [km^2]	Area [km^2]	Aquifer characterisation		Main use	Overlying strata	Criteria for importance
					Aquifer Type	Confined			
9: Bodrog	HU-9	HU_AIQ495 HU_AIQ496	2,216	750	P	No / Yes	DRW,IRR	2–10	GW resource
	SK-9	SK1001500P		1,466					
10: Slovensky kras / Aggtelek-hgs.	HU-10	HU_AIQ485	1,091	493	K	No	DRW, OTH	0–500	DRW protection, depend. ecosystems
	SK-10	SK200480KF		598	K, F				
11: Komarnanska Vysoka Kryha / Dunántúli-khgs. északi r.	HU-11	HU_AIQ558 HU_AIQ552 HU_AIQ564	3,741	3,178	K	Yes / No	DRW, SPA, CAL	0–2,500	Thermal water resource
	SK-11	SK300010FK SK300020FK		563	F, K				

*...GWBs overlying

Explanation to Table 1 and 2

Transboundary GWB	ICPDR GWB code which is a unique identifier and the name
Nat. part	Code of national shares of ICPDR GWB
National GWB Codes	National codes of the individual GWBs forming the national part of a transboundary GWB of basin wide importance.
Area	Whole area of the transboundary GWB covering all countries concerned / Area of national shares in km^2
Aquifer characterisation	Aquifer Type: Predom. **P** = porous/ **K** = karst/ **F** = fissured. Multiple selections possible: Predominantly porous, karst, fissured and combinations are possible. Main type should be listed first. Confined: **Yes / No**
Main use	**DRW** = drinking water / **AGR** = agriculture / **IRR** = irrigation / **IND** = Industry / **SPA** = balneology / **CAL** = caloric energy / **OTH** = other. Multiple selections possible.
Overlying strata	Indicates a range of thickness (minimum and maximum in metres)
Criteria for importance	If size < 4 000 km^2 criteria for importance of the GW body have to be named, they have to be bilaterally agreed upon.

Number of monitoring stations and density per GWB

Transboundary GWB	Nat. part	Area [km²]	QUALITY			Associated to		QUANTITY			Associated to	
			Sites	km²/ site	Sites bilaterally agreed for data exchange	Drinking water protected areas	Eco-systems	Sites	km²/ site	Sites bilaterally agreed for data exchange	Drinking water protected areas	Eco-systems
1 Deep Thermal	AT-1	1,650	4	413	-[2]	-	-	3	550	-[2]	-	-
	DE-1	4,250	4	1063	-[2]	-	-	4	1063	-[2]	-	-
	Σ	**5,900**	**8**	**738**				**7**	**843**			
2 Upper Jurassic – Lower Cretaceous	BG-2	12,844	6	2,141	6	yes	-	6	2,141	6	yes	-
	RO-2	11,340	26	436	-+	5	-	1	11,318	-+	0	-
	Σ	**24,184**	**32**	**756**				**7**	**3,479**			
3 Sarmatian – Pontian	MD-3	9,662	6	1,610				23	420			
	RO-3	12,646	14	903	0	6	-	10	1,253	0	0	-
	Σ	**22,308**	**20**	**1,115**				**33**	**673**			
4 Sarmatian	BG-4	3,225	5	645	5	yes	-	4	806	4	yes	-
	RO-4	2,187	21	104	-+	2	-	13	167		0	-
	Σ	**5,412**	**26**	**208**				**17**	**318**			
5 Mures/Maros	HU-5	4,989	136	37	6	88	6	111	45	5	37	16
		2,227	15	148				78	29			
	RO-5*	1,774	4	443	5	0	-	3	561	5	0	-
	Σ	**7,216**	**155**	**47**				**192**	**38**			
6 Somes/Szamos	HU-6	1,034	27	38	5	23	4	19	54	1	6	2
		1,459	32	46				115	13			
	RO-6*	1,392	9	155	3			8	173	3		
	Σ	**2,491**	**68**	**37**				**142**	**18**			
7 Upper Pannonian – Lower Pleisto-cene / Vojvodina / Duna-Tisza köze deli r.	HU-7	7,098	149	48	0	102	10	147	48	0	43	13
	RO-7	11,355	25	454		23	-	16	712		18	-
	RS-7	10,506	16	657	0	**	**	39	269	0	**	**
	Σ	**28,959**	**190**	**152**				**202**	**144**			
8 Podunajska Basin, Zitny Ostrov / Szigetköz, Hanság-Rábca	HU-8	1,152	54	21	0	35	18	106	11	24	55	31
	SK-8	2,211	51	43	0	**	**	277	8	136	**	**
	Σ	**3,363**	**105**	**32**				**383**	**9**			
9 Bodrog	HU-9	750	10	75	0	5	1	17	44	12	3	3
	SK-9	1,466	17	86	0	**	**	101	15	8	**	**
	Σ	**2,216**	**27**	**82**				**118**	**19**			
10 Slovensky kras /Aggtelek-hsg.	HU-10	493	13	38	0	11	6	16	31	9	9	9
	SK-10	598	5	120	0	**	**	28	21	3	**	**
	Σ	**1,091**	**18**	**6**				**44**	**2**			
11 Komarnanska Vysoka Kryha / Dunántúli-khgs. Északi r.	HU-11	3,178	23	138	0	22	8	46	69	14	20	18
	SK-11	563	-	-	0	**	**	-	-	-	**	**
	Σ	**3,741**	**24**	159				**45**	**85**			

*...GWBs overlying; ** no information; [2] unrestricted data exchange on demand; + will be updated

Explanation to Table 3

Transboundary GWB	ICPDR GWB code which is a unique identifier and the name
Nat. part	Code of national shares of ICPDR GWB
Area	Area of the whole transboundary ICPDR GWB covering all countries concerned and of the national shares of the ICPDR GWB in km².
QUALITY / QUANTITY	
Sites	Number of monitoring sites – Reference year 2012/2013
km²/site	Area in km² represented by each site – Reference year 2012/2013
Number of sites bilaterally agreed for data exchange	Number of monitoring sites for which transboundary data exchange is bilaterally agreed.
Associated to	
Drinking water protected areas	Number of monitoring sites associated to drinking water protected areas
Ecosystems	Number of monitoring sites associated to ecosystems

Parameters and frequency for the surveillance monitoring program

	AT/DE	BG	RS	HU	MD	RO	SK
Transboundary GWB	1	2, 4	7	5, 6, 7, 8, 9, 10, 11	3	2, 3, 4, 5, 6, 7	8, 9, 10, 11
QUALITY (with estimation of frequency)							
Oxygen	1/a	>1/a	1/a	1/6; <1/a		1/a	>1/a
pH-value	1/a	>1/a	1/a	>1/a*		1/a	>1/a
Electrical conductivity	1/a (cont. DE)	>1/a	1/a	>1/a*		1/a	>1/a
Nitrate	1/a	>1/a	1/a	>1/a*		1/a	>1/a
Ammonium	1/a	>1/a	1/a	>1/a*		1/a	>1/a
Temperature	cont.	>1/a	1/a	>1/a*		1/a	>1/a
Further parameters, e.g. major ions	x**	x	x	x		x	x
operational		x		x		x	x
QUANTITY (with estimation of frequency)							
GW levels/well head pressure	x	x	x	x		x	x
spring flows		x		x		x	x
Flow characteristics							x
Extraction (not obligatory)	x						
Reinjection (not obligatory)	x						

Remarks:

Transboundary GWB: Code of transboundary GWB of Danube basin wide importance
>1/a: More than 1 per year
x: Parameter is measured
*… In the starting year
**… A yearly program and a five year monitoring program were established. Further parameters in DE are chloride, sulfate and total hardness

Summary table: Risk and Status Information of the ICPDR GW-bodies over a period of 2009 to 2021

QUALITY

GWB	Nat. part	Status 2009	Status Pressure Types 2009	Risk 2004 →2015	Exemp-tions from 2015	Status 2015	Status Pressure Types 2015	Significant upward trend (parameter)	Trend reversal (parameter)	Risk 2013 →2021	Risk Pressure Types →2021	Exemptions from 2021 (Date of achievement)
1	AT-1 DE-1	Good	-	-	-	Good	-	-	-	-	-	-
2	BG-2 RO-2	Good	-	-	-	Good	-	-	-	-	-	-
3	MD-3	Good	-	Risk	-	Good	-			Risk	PS, DS, WA	-
	RO-3			-						-	-	
4	BG-4 RO-4	Good	-	-	-	Good	-	-	-	-	-	-
5	HU-5	Poor	DS	Risk	Yes	Poor	DS	SO_4	-	Risk	DS	2027
	RO-5							NH_4				2027
6	HU-6	Good	-	Risk	-	Good	-	-	-	-	-	-
	RO-6			-								
7	HU-7	Poor	DS	Risk	Yes	Poor	DS	NO_3	-	Risk	DS	2027
	RO-7	Good	-	-	-	Good	-	-	-	-	-	-
	RS-7	Good*	-	Risk	Yes	Good*	-			-	-	-
8	HU-8	Poor	DS	Risk	Yes	Good	-	-	-	-	-	-
	SK-8	Good		Risk	-	Good		NH_4, NO_3, Cl, As, SO_4			PS, DS	
9	HU-9	Good	-	Risk	-	Good	-	-	-	-	-	-
	SK-9			-								
10	HU-10 SK-10	Good	-	-	-	Good	-	-	-	-	-	-
11	HU-11	Good	-	Risk	-	Good	-	-	-	-	-	-
	SK-11					Unknown		Unknown*				

QUANTITY

GWB	Nat. part	Status 2009	Status Pressure Types 2009	Risk 2004 →2015	Exemp-tions from 2015	Status 2015	Status Pressure Types 2015	Risk 2013 →2021	Risk Pressure Types →2021	Exemptions from 2021 (Date of achievement)
1	AT-1 DE-1	Good	-	-	-	Good	-	-	-	-
2	BG-2 RO-2	Good	-	-	-	Good	-	-	-	-
3	MD-3 RO-3	Good	-	-	-	Good	-	-	-	-
4	BG-4 RO-4	Good	-	-	-	Good	-	-	-	-
5	HU-5	Good	-	Risk	-	Poor	WA	Risk	WA	2027
	RO-5			-		Good	-	-	-	-
6	HU-6 RO-6	Good	-	-	-	Good	-	-	-	-
7	HU-7	Poor	WA	Risk	Yes	Poor	WA	Risk	WA	2027
	RO-7	Good	-	-	-	Good	-	-	-	-
	RS-7	Poor*	WA	Risk	Yes	Poor*	WA	Risk	WA	-**
8	HU-8	Poor	WA	Risk	Yes	Poor	WA	Risk	WA	2027
	SK-8	Good	-	-	-	Good	-	-	-	-
9	HU-9 SK-9	Good	-	-	-	Good	-	-	-	-
10	HU-10 SK-10	Good	-	-	-	Good	-	-	-	-
11	HU-11	Poor	WA	Risk	Yes	Good	-	-	-	-
	SK-11	Good			-	Unknown				

'-' means 'No'; * The status information is of low confidence as it is based on risk assessment; ** Not yet discussed

Explanation: see next page

Explanation to Table 4

GWB	ICPDR GWB code which is a unique identifier.
Nat. part	Code of national shares of ICPDR GWBs
QUALITY / QUANTITY	
Status 2009	**Good / Poor**
Status Pressure Types 2009	Indicates the significant pressures causing poor status in 2009. **AR =** artificial recharge**, DS** = diffuse sources**, PS** = point sources**, OP** = other significant pressures**, WA** = water abstractions
Risk 2004→2015	**Risk /** - (which means 'no risk')
Exemptions from 2015	Indicates whether there are exemptions for the GWB from achieving good status by 2015 at the latest.
Status 2015	**Good / Poor**
Status Pressure Types 2015	Indicates the significant pressures causing poor status in 2015. **AR =** artificial recharge**, DS** = diffuse sources**, PS** = point sources**, OP** = other significant pressures**, WA** = water abstractions
Significant upward trend (parameter)	Indicates for which parameter a significant sustained upward trend has been identified.
Trend reversal (parameter)	Indicates for which parameter a trend reversal could have been achieved.
Risk 2013→2021	**Risk /** - (which means 'no risk')
Risk Pressure Types →2021	Indicates the significant pressures causing risk of failing to achieve good status in 2021. **AR =** artificial recharge**, DS** = diffuse sources**, PS** = point sources**, OP** = other significant pressures**, WA** = water abstractions
Exemptions from 2021	Indicates the year by when good status is expected to be achieved.

Summary table: Reasons for failing good groundwater CHEMICAL status in 2015 for the ICPDR GW-bodies.

GWB	Name	National part	Year of status assessment	Chemical Status	Which parameters cause poor status	Failed general assessment of GWB as a whole	Saline or other intrusions	Failed achievement of WFD Article 4 objectives for associated surface waters	Significant damage to GW dependent terrestrial ecosystem	WFD Art 7 drinking water protected area affected	Increasing trend exceeding starting points of trend reversal
				good / poor	*parameter*	*Yes / No / Unknown (parameter)*	*Yes / No / Unknown (parameter)*	*Yes / No / Unknown (parameter)*	*Yes / No / Unknown (parameter)*	*Yes / No / Unknown (parameter)*	*Yes / No / Unknown (parameter)*
GWB-1	Deep GWB – Thermal Water	AT-1	2014	Good	-	-	-	-	-	-	-
		DE-1	2014	Good	-	-	-	-	-	-	-
GWB-2	Upper Jurassic – Lower Cretaceous GWB	BG-2	2014	Good	-	-	-	-	-	-	-
		RO-2	2014	Good	-	-	-	-	-	-	-
GWB-3	Middle Sarmatian - Pontian GWB	MD-3	2014	Good	-	-	-	-	-	-	-
		RO-3	2014	Good	-	-	-	-	-	-	-
GWB-4	Sarmatian GWB	BG-4	2014	Good	-	-	-	-	-	-	-
		RO-4	2014	Good	-	-	-	-	-	-	-
GWB-5	Mures / Maros	HU-5	2014	Poor	ammonium	Yes	-	-	-	-	sulphates
		RO-5	2014	Poor	nitrates	Yes	-	-	-	-	-
GWB-6	Somes / Szamos	HU-6	2014	Good	-	-	-	-	-	-	-
		RO-6	2014	Good	-	-	-	-	-	-	-
GWB-7	Upper Pannonian – Lower Pleistocene / Vojvodina / Duna-Tisza köze deli r.	HU-7	2014	Poor	nitrates	Yes	-	-	-	-	nitrates
		RO-7	2014	Good	-	-	-	-	-	-	-
		RS-7	2013	Good*	-	-	-	-	-	-	-
GWB-8	Podunajska Basin, Zitny Ostrov / Szigetköz, Hanság-Rábca	HU-8	2014	Good		-	-	-	-	-	-
		SK-8	2014	Good		-	-	Unknown	Unknown	-	(NH_4,NO_3 – agri) (Cl, As, SO_4, TOC – industry)
GWB-9	Bodrog	HU-9	2014	Good	-	-	-	-	-	-	-
		SK-9	2014	Good	-	-	-	Unknown	Unknown	-	-
GWB-10	Slovensky kras / Aggtelek-hgs.	HU-10	2014	Good	-	-	-	-	-	-	-
		SK-10	2014	Good	-	-	-	Unknown	Unknown	-	-
GWB-11	Komarnanska Vysoka Kryha / Dunántúli-khgs. északi r.	HU-11	2014	Good	-	-	-	-	-	-	-
		SK-11	2014	Unknown	-	-	-	-	-	-	Unknown

'-' means 'No'; * The status information is of low confidence as it is based on risk assessment;

Summary table: Reasons of failing good groundwater QUANTITATIVE status in 2015 for the ICPDR GW-bodies.

GWB	Name	National part	Year of status assessment	Quantitative status	Exceedance of available GW resource	Failed achievement of WFD Article 4 objectives for associated surface waters	Significant damage to GW dependent terrestrial ecosystem	Uses affected (drinking water use, irrigation etc.)	Intrusions detected or likely to happen due to alterations of flow directions resulting from level changes
				good / poor	*Yes / No / Unknown*	*Yes / No / Unknown*	*Yes / No / Unknown*	*Yes / No / Unknown If yes, which?*	*Yes / No / Unknown*
GWB-1	Deep GWB – Thermal Water	AT-1	2014	Good	-	-	-	-	-
		DE-1	2014	Good	-	-	-	-	-
GWB-2	Upper Jurassic – Lower Cretaceous GWB	BG-2	2014	Good	-	-	-	-	-
		RO-2	2014	Good	-	-	-	-	-
GWB-3	Middle Sarmatian - Pontian GWB	MD-3	2014	Good	-	-	-	-	-
		RO-3	2014	Good	-	-	-	-	-
GWB-4	Sarmatian GWB	BG-4	2014	Good	-	-	-	-	-
		RO-4	2014	Good	-	-	-	-	-
GWB-5	Mures / Maros	HU-5	2014	Poor	-	-	Yes	-	-
		RO-5	2014	Good	-	-	-	-	-
GWB-6	Somes / Szamos	HU-6	2014	Good	-	-	-	-	-
		RO-6	2014	Good	-	-	-	-	-
GWB-7	Upper Pannonian – Lower Pleistocene / Vojvodina / Duna-Tisza köze deli r.	HU-7	2014	Poor	Yes	-	Yes	-	-
		RO-7	2014	Good	-	-	-	-	-
		RS-7	2013	Poor*	Yes	Unknown	Unknown	Unknown	Unknown
GWB-8	Podunajska Basin, Zitny Ostrov / Szigetköz, Hanság-Rábca	HU-8	2014	Poor	-	-	Yes	-	-
		SK-8	2014	Good	-	-	-	-	-
GWB-9	Bodrog	HU-9	2014	Good	-	-	-		-
		SK-9	2014	Good	-	-	-	-	-
GWB-10	Slovensky kras / Aggtelek-hgs.	HU-10	2014	Good	-	-	-		-
		SK-10	2014	Good	-	-	-	-	-
GWB-11	Komarnanska Vysoka Kryha / Dunántúli-khgs. északi r.	HU-11	2014	Good	-	-	-		-
		SK-11	2014	Unknown	-	-	-	-	-

- means 'No'; * The status information is of low confidence as it is based on risk assessment;

Summary table: Groundwater threshold values

		GWB-2	GWB-3	GWB-4	GWB-5		GWB-6		GWB-7		GWB-8		GWB-9		GWB-10	GWB-11
Parameter	**unit**	**RO-2**	**RO-3**	**RO-4**	**RO-5**	**HU-5**	**HU-6**	**RO-6**	**HU-7**	**RO-7**	**HU-8**	**SK-8**	**HU-9**	**SK-9**	**HU-10**	**HU-11**
Ammonium	mg/l	0.5	6.4	0.7	0.5–1.9	2–5	2–5	0.5–1.3	2–5	6.4	1–2	0.255–0.26	2–5	0.295	0 .5	0 .5
AOX	µg/l					20	20		20		20		20		20	20
Arsenic	µg/l	10	10–40	10	40		-	10				6				
Benzene	µg/l	10	10	10	10			10		10						
Cadmium	µg/l	5	5	5	5	5	5	5	5	5	5		5		5	5
Chloride	mg/l	250	250	250	250	250-500	250	250	250	250	250	60.75–62.3	250		250	250
Chromium	µg/l		500		50			500		50						
Conductivity	µS/cm					2500-4000	2500		2500-4000		2500		2500		2500	2500
Copper	µg/l		100		100			100		100						
Lead	µg/l	10	10–70	10	10–20	10	10	30–70	10	10	10		10		10	10
Mercury	µg/l	1	1	1		1	1	1	1	1	1		1		1	1
Nickel	µg/l		200	20	20			20		20						
Nitrates	mg/l					50	50		50		50		50		50	50
Nitrites	mg/l	0.5	0.5	0.5	0.5			0.5		0.5						
Phenols	µg/l				2			2		4						
Phosphates	mg/l	0.5–1.4	1.4	0.5	0.5–0.6			0.5		1						
Sulphates	mg/l	250	250	250	250	250–500	250	250	250–500	250	250	148.9–157.6	250		250	250
Tetrachloroethylen	µg/l	10	10	10	10	10	10	10	10	10	10		10		10	10
Trichlorethylene	µg/l	10	10	10	10	10	10	10	10	10	10		10		10	10
Zinc	µg/l		5	5	5			5		5						

Methodologies of status and trend assessment of the ICPDR GW-bodies

GWB-1: Deep Groundwater Body – Thermal Water

GWB-1	National share	**AT-1** **DE-1**	Status 2015 for each national GWB?	
			Quality (substance)	Quantity
List of individual GW-bodies forming the whole national share (national code incl. country code)	AT	ATGK100158	Good	Good
	DE	DEGK1110	Good	Good

Description/Characterisation of the ICPDR GW-body	*The thermal groundwater of the Malm karst (Upper Jurassic) in the Lower Bavarian and Upper Austrian Molasse Basin is of transboundary importance. It is used for spa purposes and to gain geothermal energy. The geothermal used water is totally re-injected in the same aquifer.* *The transboundary GW-body covers a total area of 5,900 km²; the length is 155 km and the width is up to 55 km. The aquifer is Malm (karstic limestone); the top of the Malm reaches a depth of more than 1,000 m below sea level in the Bavarian part and 2,000 m in the Upper Austrian part. The groundwater recharge is mainly composed of subterranean inflow of the adjacent Bohemian Massif and infiltration of precipitation in the northern part of the GWB area. The total groundwater recharge was determined to 820 l/s. The GW-body is selected as of basin-wide importance because of its intensive use. An expert group takes care for the permanent bilateral exchange of information and a sustainable transboundary use.*
Description of **status** assessment methodology.	***Chemical Status*** *The chemical status of the deep GWB will be described on the basis of measurement and analysis data according to a procedure agreed between the two states. The decisive parameters for the evaluation of the qualitative status of near-surface GWBs (such as nitrate and pesticides) are not relevant for deep GWBs.* *As expected, the parameters measured in the GWB extending over 5900 km² differ (in some cases considerably) from site to site. This is due to regionally different geo-hydraulic conditions. Therefore the description of the qualitative status cannot be made in the same way as that for near-surface GWBs (on the basis of aggregated data), but made on the basis of measurement and analysis data available at every individual measuring site. Contrary to near-surface GWBs, it should be considered that, due to the utilization of the waters (balneological and thermal uses), good status is not only not achieved if the concentration of certain contents rises above a certain level, but also if it falls below it.* *The available data is presently not sufficient to identify precisely enough the scope of fluctuations relevant for individual parameters at the individual measuring sites.* *Good chemical status is considered to be reached if the threshold value (TV) of the decisive parameters neither exceed nor fall below the scope of fluctuations determined for every measuring site. It is planned to examine the current selected scope of fluctuations on the basis of many years of monitoring, (at least over a period of 10 years) and to adapt them, where required.* *In any case, the GWB is considered to be in a good chemical status if at least 75% of the measuring sites meet good status.* *The following parameters are used as a basis for the determination of the qualitative status of the deep GWB: temperature, electrical conductivity, total hardness, sulphate and chloride.* ***Quantitative Status*** *No Changes since 2009* *There is no interaction between deep groundwater and surface waters and/or terrestrial ecosystems.* *The quantitative status of the deep GWB can be described by means of:* - *the identification of trends over a period of many years monitoring of the level of hydraulic pressure at groundwater measuring sites and wells;*

	- *a balancing calculation: a comparison between the thermal water supply and thermal water abstractions.* *Apart from Bad Füssing (records since 1948), no long-term monitoring of pressure potentials that would be significant for a trend analysis is available.* *As early as in 1998, detailed thermal water balancing was carried out for the deep GWB. In the course of this balancing an exploitation of the available thermal water resources by thermal water abstractions of about 25% was recorded, which corresponds to a good quantitative status (at least 30% of the quantity available).* *In the meantime, the extent of utilisation has been considerably reduced due to successfully implemented management measures (among other things the obligation to reinject the used thermal water exclusively). Good quantitative status could be even further improved on the basis of the level of hydraulic pressure in the thermal waters of Bad Füssing which has risen again since then.* *With a view to the regionally uneven distribution of the available quantity, water abstraction points and abstracted water quantities, a sub-division of the balance area into sub-areas can be made. For these areas the decisive balance parameters can be determined separately*
Groundwater threshold value relationships	*No changes since 2009*
Verbal description of the **trend** assessment methodology	*No changes since 2009*
Verbal description of the **trend reversal** assessment methodology	*No changes since 2009*

Threshold values per GWB

	Pollutant / Indicator	*TV (or range) [unit]*	*NBL (or range) [unit]*	*Level of TV establishment (national, RBD, GWB)*	*Related to risk in this GWB [yes/-]*

GWB-2: Upper Jurassic – Lower Cretaceous GWB

GWB-2	National share	**BG-2, RO-2**	Status 2015 for each national GWB?	
			Quality (substance)	Quantity
List of individual GW-bodies forming the whole national share (national code incl. country code)	BG-2	BG1G0000J3K051	Good	Good
	RO-2	RODL06	Good	Good

Description/Characterisation of the ICPDR GW-body	***Bulgaria:*** *The starting point for identifying the geographical boundaries of the GWB BG1G0000J3K051 (Upper Jurassic-Lower Cretaceous) is the geological boundaries. After that additional sub-division on the basis of groundwater flow lines and piezometric heads.The lithological composition of GWB is: limestones, dolomitic limestones and dolomites. Overlying strata consists of marls, clays, sands, limestones, pebbles and loess. The age of the above mentioned deposits is Hauterivian, Sarmatian, Pliocene and Quaternary. With the exception of small cropped out areas the GWB is very well protected. There is no significant impact on the GWB. The main use of groundwater is for drinking water, agriculture and industry supply.* *There is no significant impact on the GWB in either Bulgaria (BG) or Romania (RO).* *In Romania the GWB has an interaction with Lake Sintghiol situated near the Black Sea.* *The criterion for selection as 'important' is for both GWBs the size which exceeds 4,000 km².*
Description of **status** assessment methodology.	Chemical Status ***Bulgaria:*** *Assessment of the chemical status of groundwater has been done by: Analysing of the results in individual monitoring points within each of the GWBs; Consideration of degree of water exchange between groundwater and surface waters; Identifying of the pressures - sources of pollution; The background levels have been used for threshold values determinations. Threshold values have been determined according to CIS Guidance No. 18. Contamination limits have been determined for all indicators listed in Annex II Part B of Directive 2006/118/EC and indicators of the report under Art. 5 of Directive 2006/118/EC* *a) nitrate , manganese , iron* *b) for all pollutants and indicators of pollution have considered during the characterization of groundwater bodies for risk assessment to not achieve good chemical status.* ***Romania:*** *The criteria for the quality status assessment were: overlying strata for natural protection, present groundwater quality, pressures and their impacts.* • *for each monitoring point the annual average concentrations for each indicators was calculated; for the metals the concentration of the dissolved form was considered;* • *For each monitoring point the annual average concentration of the each parameters was compared with the thresholds values (determined for each GWB) or standards value (nitrates and pesticides).* • *The GWB is of good chemical status when no EQS or TV is exceeded in any monitoring point.* • *The GWB is of poor chemical status when EQS or TV are exceeded at monitoring points representing more than 20% of the GWB surface.* Quantitative Status ***Bulgaria:*** *applied that considers the impacts of anthropogenically induced long-term alterations in groundwater level and/or flow in accordance with the "CIS Guidance № 18". Each test will assess whether the GWB is meeting the relevant environmental objectives. Not all environmental objectives will apply to every GWB. Therefore only the relevant tests will need to be applied as necessary.* ***Romania:*** *The criterion for risk assessment of the quantity status is based on trend assessment evolution of the groundwater levels. The quantitative status has been assessed taking into account the CIS Guidance no.18. The following criteria have been used:* • *water balance* • *the connection with surface waters* • *the influence on the terrestrial ecosystems which depend directly on the GWB*

	• *the effects of saline or other intrusions* *The quantitative status analysis has been done for the GWB level by comparing the average of the hydrostatic level from 2011 (reference year) with the multiannual average levels (30–40 years)*
Groundwater threshold value relationships	<u>Receptors considered:</u> ***Romania:*** *Drinking Water standards* <u>Consideration of NBL and EQS (environmental quality standards, drinking water standards) in the TV establishment:</u> ***Romania:*** *The methodology for TV establishment in Romania has been developed according to CIS Guidance No. 18. NBL are the key elements in the process of TV setting. As described above, during the TV establishment, the NBL have been compared with the drinking water standards. The maximum allowable concentrations (MAC) provided by the Law no.458/2002 as amended, were chosen as TV where NBL are smaller than MAC. Where NBL are higher than MAC, a small addition of 0.2 NBL was used, in order to avoid misclassification of the respective GWB (TV = NBL + 0.2 NBL = 1.2 NBL).* *The updated list of TVs established for each GWB was published in the new Order of the Minster no. 621/2014 approving TV for GWBs from Romania.* ***Bulgaria:*** *The methodology for TV determination in Bulgaria has been developed according to CIS Guidance No. 18. TVs are determined by comparing NBLs with criterial values (CVs). CVs is the concentration of a pollutant (without taking into account the NBLs), which, if exceeded, could lead to a distortion of the criteria for good status. CVs should take into account the risk assessment and receptors of groundwater. The NBLs were determined for each hydrogeological classes (5 classes) in the 90th percentile and 50th percentile (median) of the statistical sample.* *As a so called criterial values (CVs) have been used drinking water standards according to the Bulgarian Regulation N-9* *When we compare BLs and CVs may be two situations :* *When BL is higher than CVi. In this case, TV is equal to BL.* *When CV is higher than BL then TV = BL + Ktv* (CV-BL).* ***0 < Ktv < 1*** *As recommended and provides reasonable assurance can be assumed value of Ktv in the range from 0.5 to 0.75.* *Lower value (0.5) has a large certainty and should be used for GWBs, which have important economic significance and are the sole source of drinking water supply of settlements. This value should be used for such GWB to which they are attached particularly valuable wetlands presence of dependent PA terrestrial ecosystems.* *The higher value (0.75) should be used in all other cases or GWBs already classified bodies at risk.*
Verbal description of the **trend** assessment methodology	***Bulgaria:*** *The trend analysis is based on recognized statistical methods such as regression method. Required information - period with average annual values, semi-annual or quarterly values of the corresponding chemical component – for the first RBMP – period was 1995–2008; for the second RBMP, the period is 2006–2013. The lengths of the rows of chemical components depend on the frequency of sampling and should be:* *- In case of 1 value year: not less than 8 years with 8 values;* *- In case of 2 values per year: at least 5 years with 10 values;* *- In case of 4 values per year: not less than 3 years with 12–15 values.* *Based on regression analysis is assessed whether there is a break in the trend i.e. after sustained upward trend follows sustained downward trend or the opposite case the sustained downward trend is followed by sustained upward trend.* ➢ *Initially , the entire curve of the experimental data is approximated by a polynomial curve of degree 2 (quadratic regression curve).* ➢ *If there is detected a maximum in the polynomial curve it means that a change of the direction of the trend is available - from ascending to descending.* ➢ *If there is detected a minimum in the polynomial curve it means that a change of the direction of the trend is available - from descending to ascending.* ➢ *Then, (in case of available maximum) the entire curve is divided into two branches : 1st branch – till the date of the maximum and the second branch - after the peak.*

	➢ *In case with available minimum: 1st branch – till the date of the minimum and the second branch - after the minimum.* ➢ *Data from the first and second branch are considered separately and are approximated by linear trends (straight lines) . The date at which it crossed the two approximating straight lines corresponds to the date at which it changes the direction of the linear trend - from ascending to descending or from descending to ascending* *By extrapolation of the second (falling) trend can be predicted date at which the starting concentration (75% GWQS in our case 60% TV) will be reached* ***Romania:** In order to assess the trend in pollutant concentrations, the results of the chemical analysis from the monitoring points have been used. Minimum period of analysis was at least 10 years (2000–2011).* *The methodology for identifying significant upper trends consists in adjustment and aggregation of the data from each monitoring points on groundwater bodies. The trend analysis was done using the Gwstat program.* *The steps used for trend assessment were:* • *Identifying the monitoring points and the associated results of chemical analysis, assessment of data series, for each year of reference period (2000–2011)* • *Establishment of baseline concentration for each parameter as the average concentration registered during the year 2000* • *Calculation of annual average for the available data in each monitoring point* • *Significant upward trends were identified by Gwstat software, based on Anova Test*
Verbal description of the **trend reversal** assessment methodology	***Bulgaria:** The starting point for trend reversal should be placed where the concentration of the pollutant reaches 75% of the groundwater quality standard or 75% of the threshold value of the relevant pollutant. Selected starting points should be possible to reverse trends in the most effective way before pollutant concentrations can cause irreversible changes in groundwater quality. When we have GWB who responds too slowly to changes, there may be a need for an early starting point and vice versa - for responsive GWB should be chosen starting point at a later moment.* *Initially, the entire curve of the experimental data is approximated by a polynomial curve of degree 2 (quadratic regression curve).* *If there is detected a maximum in the polynomial curve it means that a change of the direction of the trend is available - from ascending to descending.* *If there is detected a minimum in the polynomial curve it means that a change of the direction of the trend is available - from descending to ascending.* *Then, (in case of available maximum) the entire curve is divided into two branches: 1st branch – till the date of the maximum and the second branch - after the peak* *In case with available minimum: 1st branch – till the date of the minimum and the second branch - after the minimum.* *Data from the first and second branch are considered separately and are approximated by linear trends (straight lines). The date at which it crossed the two approximating straight lines corresponds to the date at which it changes the direction of the linear trend - from ascending to descending or from descending to ascending* *By extrapolation of the second (falling) trend can be predicted date at which the starting concentration (75% GWQS in our case 60% TV) will be reached .Practically for the second RBMP we have used 60 % from the TV.* ***Romania:** Trend reversal assessment methodology consists also in the use of Gwstat software, which, based on the 2 sections model, and processing the introduced data series, can indicate an inversion in the trend slope, thus a trend reversal.*

Threshold values per GWB

	Pollutant / Indicator	*TV (or range) [unit]*	*NBL (or range) [unit]*	*Level of TV establishment (national, RBD, GWB)*	*Related to risk in this GWB [yes/-]*
RO	*Nitrates*	*50 mg/l*		*National*	-

RO	*Benzen*	*10 µg/l*		*National*	*-*
RO	*Tricloretilena*	*10 µg/l*		*National*	*-*
RO	*Tetracloretilena*	*10 µg/l*		*National*	*-*
RO	*Ammonium*	*0.5 mg/l*	*0.31mg/l*	*GWB*	*-*
RO	*Chlorides*	*250 mg/l*	*73,87 mg/l*	*GWB*	*-*
RO	*Sulphates*	*250 mg/l*	*71,44 mg/l*	*GWB*	*-*
RO	*Nitrites*	*0.5 mg/l*	*0.039 mg/l*	*GWB*	*-*
RO	*Phosphates*	*0.5-1.4 mg/l*	*0.08 mg/l*	*GWB*	*-*
RO	*Cadmium*	*0.005 mg/l*	*0.0001mg/l*	*GWB*	*-*
RO	*Mercury*	*0.001 mg/l*	*0.000042 mg/l*	*GWB*	*-*
RO	*Lead*	*0.01 mg/l*	*0.0011 mg/l*	*GWB*	*-*
RO	*Arsenic*	*0.01 mg/l*	*0.00075 mg/l*	*GWB*	*-*

GWB-3: Middle Sarmatian - Pontian GWB

GWB-3	National share	**MD-3** **RO-3**	Status 2015 for each national GWB?	
			Quality (substance)	Quantity
List of individual GW-bodies forming the whole national share (national code incl. country code)		MDPR01	Good	Good
		ROPR05	Good	Good

Description/Characterisation of the ICPDR GW-body	***Romania:*** *Geologically, the wells have pierced the following sub-stages of the Sarmatian: Buglovian, Volhynian, Basarabian and Chersonian. The wells data have indicated that the Sarmatian deposits thickness is highly variable, going from 295 m (Iaşi) to 886 m (Bârlad). It is considered that the Sarmatian deposits unconformably overlay the Late Badenian ones, because the Early Buglovian is lacking. The upper boundary of Sarmatian, respectively the Sarmatian-Meotian boundary, is difficult to assign due to the lack of sure paleontological elements.* *Lithologically, the water-bearing deposits are constituted of thin layers with fine towards medium grain-size (sands, rarely gravels), sometimes with lens aspect, situated at depth of 30–350 meters.* *Hydrogeologically and hydrochemically, the investigation of wells data has revealed important areal differences, of quantitative and qualitative order, both horizontally and vertically. The differences of quantitative order are especially due to the Sarmatian deposits grain size.* *The overlaying strata are predominantly represented by detritic Quaternary deposits.* *The groundwater is mainly used for drinking water supply, agricultural and industrial supplies. The criterion for selection as "important" consists in its size that exceeds 4,000 km^2.* ***Moldova:*** *Criteria for delineation are: geological boundaries; groundwater flow lines; chemical and one quantitative status; GWB vulnerability; surface–groundwater interaction. The MD GWB consists of four aquifers. First is the Baden-Sarmatian aquifer, which is the most productive and most important for centralized water supply. Water-bearing layers are represented by limestone with interlayers of fine grained sand, sometimes clays, marls and gypsum. Thickness of the aquifer reaches 50 m, in some places up to 90 m, with average thickness of about 25 m. In the northern part of the basin water bearing sediments outcrop to the pre-Quaternary surface and these areas coincide with the recharge zones of the aquifer. Groundwater is discharging into the valley of Prut river. Southwards Baden-Sarmatian aquifer occurs deeper and near the village Gotesti it was detected by drilling at the depth of 572 m.* *Hydraulic properties of the aquifer are rather poor. Hydraulic conductivity reaches 1–12 m/day, with mean values of 5 m/day, transmissivity is also low – only 5–20 m^2/day. Capacity of wells varies in a range of 0.09–8l/s.* *When water bearing rocks are composed of limestones they contain fresh or slightly mineralised hydrocarbonate-calcium-sodium water with mineralization below 1 g/l. Such areas, however, are rather scarce and groundwaters with mineralization above 1 g/l are prevailing in the basin.*

	<u>Upper Sarmatian Meotic</u> aquifer system (N1S3-m), which can be included in this GWB is only partially exploited for groundwater abstraction in the southern part of the river basin. Sarmat-Meotis deposits in the area are represented by fine-grained sands and clay with the lenses of quartz sand with total thickness of the aquifer 60–70 m. This sand is water-bearing and contains good quality water. The thickness of water bearing layers is 4–5 m. Yields of exploitation wells vary between 3 and 7 m³/h. Waters from the aquifer system are supplying the needs of several enterprises. Near the Prut river valley yields of the wells increase to 10 m³/h with the drawdown of up to 30 m. This aquifer contains hydrocarbonate-sodium waters with total mineralization of 1–1.5 g/l. In some areas chemical composition changes to sulphate-hydrocarbonate-sodium and mineralization increases to 2 g/l. Hydraulic parameters of the aquifer are rather poor: hydraulic conductivity varies between 0.8–5 m/day with mean values of 2.3 m/day and transmissivity changes in a range of 10–25 m²/day, mean being 5 m²/day. *Groundwater monitoring results over three wells for the period from 2005 to 2009 indicate a decrease in the level of groundwater. The rate of decrease is 0.5–1.4 meter per year. This can be attributed to an increase in the water abstraction from the operating wells located in the vicinity.* *<u>Middle Sarmatian (Congeriev) aquifer</u> is used for a centralised water supply in the southern part of Republic of Moldova. Groundwater is contained in fine-grained sands with interlayers of clays, sandstones and limestones. Thickness of water bearing sediments varies from 5–15 m to 40–50 m with mean values of 20–30 m. Hydraulic properties of water bearing sands are quite poor. Hydraulic conductivity changes from 0.6 to 1.9 m/day average being 1.3 m/day. Transmissivity values are also very low and do not exceed 20–50 m²/day. Depth to groundwater aquifer depends on the landscape and varies from 1.5 to 100 m. Yields of wells vary from 5 to 75 l/s. When hydrocarbonate-sulphate-chloride anions dominate in groundwater its mineralisation is below 1.5 g/l. When chloride–hydrocarbonate and sodium ions prevail total mineralization increases up to 2 g/l.* *Groundwater from this aquifer is used for drinking and agricultural water supply in the southern part of the basin, although its chemical quality is not very favourable for consumption. Monitoring of the aquifer indicates a slight decrease in groundwater level with the rate of 0.4–0.65 m/a.* *Pontian aquifer is spread in the southern part of Republic of Moldova. Water bearing sediments are composed of sandy clays with interlayers of sand and shell limestone with the total thickness of 70–80 m.* *Prevailing hydraulic properties of water bearing sands are rather poor. Hydraulic conductivity changes from 3.5–3.7 with mean values of 3 m/day. Transmissivity coefficient varies between 18–45 m²/day in some places (e.g. Giurgiulesti village) increasing to 250–260 m²/day. Depth to groundwater aquifer depends on the landscape and varies from 2 to 125 m. Yields of wells vary from 1.1–2.3 l/s, increasing southwards to 3.7–7.6 l/s. Near the village of Taraklia few springs are discharging into Prut river valley with the capacity of 8–9 l/sec. Aquifer contains fresh groundwater with mineralisation <1 g/l (figure 2.6) and prevailing ions of hydrocarbonate -sulphate-chloride-sodium, sometimes sulphate –hydrocarbonate-sodium.* *Groundwater from this aquifer is used for drinking and agricultural water supply in the southern part of the basin.*
Description of **status** assessment methodology.	<u>Chemical Status</u> ***Romania:*** *The criteria for the quality status assessment were: overlying strata for natural protection, present groundwater quality, pressures and their impacts.* • *for each monitoring point the annual average concentrations for each indicator was calculated; for the metals the concentration of the dissolved form was considered;* • *For each monitoring point the annual average concentration of the each parameters was compared with the thresholds values (determined for each GWB) or standards value (nitrates and pesticides).* • *The GWB is of good chemical status when no EQS or TV is exceeded in any monitoring point.* • *The GWB is of poor chemical status when EQS or TV are exceeded at monitoring points representing more than 20% of the GWB surface.* <u>Quantitative Status:</u> ***Romania:*** *The criterion for risk assessment of the quantity status is based on trend assessment evolution of the groundwater levels. The quantitative status has been assessed taking into*

	account the CIS Guidance № 18. The following criteria have been used: • *water balance* • *the connection with surface waters* • *the influence on the terrestrial ecosystems which depend directly on the GWB* • *the effects of saline or other intrusions* *The quantitative status analysis has been done for the GWB level by comparing the average of the hydrostatic level from 2011 (reference year) with the multiannual average levels (30–40 years)*
Groundwater threshold value relationships	Receptors considered: ***Romania:*** *Drinking Water standards* Consideration of NBL and EQS (environmental quality standards, drinking water standards) in the TV establishment: ***Romania:*** *The methodology for TV establishment in Romania has been developed according to CIS Guidance No. 18. NBL are the key elements in the process of TV setting. As described previously, during the TV establishment, the NBL have been compared with the drinking water standards. The maximum allowable concentrations (MAC) provided by the Law no.458/2002 as amended, were chosen as TV where natural background levels (NBL) are smaller than MAC. Where background levels are higher than MAC, a small addition of 0.2 NBL was used, in order to avoid misclassification of the respective GWB (TV = NBL + 0.2 NBL = 1.2 NBL).* *The updated list of TVs established for each GWB was published in the new Order of the Minster no. 621/2014 approving TV for groundwater bodies from Romania.*
Verbal description of the **trend** assessment methodology	***Romania:*** *In order to assess the trend in pollutant concentrations, the results of the chemical analysis from the monitoring points have been used. Minimum period of analysis was at least 10 years (2000-2011).* *The methodology for identifying significant upper trends consists in adjustment and aggregation of the data from each monitoring points on groundwater bodies. The trend analysis was done using the Gwstat program.* *The steps used for trend assessment were:* • *Identifying the monitoring points and the associated results of chemical analysis, assessment of data series, for each year of reference period (2000–2011)* • *Establishment of baseline concentration for each parameter as the average concentration registered during the year 2000* • *Calculation of annual average for the available data in each monitoring point* • *Significant upward trends were identified by Gwstat software, based on Anova Test*
Verbal description of the **trend reversal** assessment methodology	***RO:*** *Trend reversal assessment methodology consists also in the use of Gwstat software, which, based on the 2 sections model, and processing the introduced data series, can indicate an inversion in the trend slope, thus a trend reversal.*

Threshold values per GWB

	Pollutant / Indicator	*TV (or range) [unit]*	*NBL (or range) [unit]*	*Level of TV establishment (national, RBD, GWB)*	*Related to risk in this GWB [yes/-]*
RO	*Nitrates*	*50 mg/l*		*National*	-
RO	*Benzen*	*10 µg/l*		*National*	-
RO	*Tricloretilena*	*10 µg/l*		*National*	-
RO	*Tetracloretilena*	*10 µg/l*		*National*	-
RO	*Ammonium*	*6.4 mg/l*	*5,34 mg/l*	*GWB*	-
RO	*Chlorides*	*250 mg/l*	*78,87 mg/l*	*GWB*	-
RO	*Sulphates*	*250 mg/l*	*192 mg/l*	*GWB*	-

RO	*Nitrites*	*0,5 mg/l*	*0.34 mg/l*	*GWB*	*-*
RO	*Phosphates*	*1,4 mg/l*	*1,13 mg/l*	*GWB*	*-*
RO	*Chromium*	*0,5 mg/l*	*0.0003033 mg/l*	*GWB*	*-*
RO	*Nickel*	*0,2 mg/l*	*0.00053 mg/l*	*GWB*	*-*
RO	*Copper*	*0,1 mg/l*	*0.00307 mg/l*	*GWB*	*-*
RO	*Zinc*	*5 mg/l*	*0.02425 mg/l*	*GWB*	*-*
RO	*Cadmium*	*0,005 mg/l*	*0.0000455 mg/l*	*GWB*	*-*
RO	*Mercury*	*0,001 mg/l*	*0.000003385 mg/l*	*GWB*	*-*
RO	*Lead*	*0,01-0,07 mg/l*	*0.0001825 mg/l*	*GWB*	*-*
RO	*Arsenic*	*0,01-0,04 mg/l*	*0.003175 mg/l*	*GWB*	*-*

GWB-4: Sarmatian GWB

GWB-4	National share	**BG-4, RO-4**	Status 2015 for each national GWB?	
			Quality (substance)	Quantity
List of individual GW-bodies forming the whole national share (national code incl. country code)	BG-4	BG1G000000N049	Good	Good
	RO-4	RODL04	Good	Good

Description/Characterisation of the ICPDR GW-body	*The starting point for identifying the boundaries of the GWB BG1G000000N049 Sarmatian is the geological boundaries. The lithological composition of water-bearing deposits is as follows:* - *in Bulgaria: limestones, sands;* - *in Romania: oollitic limestones and organogenic limestones* *Overlying strata consists of loess and loesses clays and clays. The age of the above mentioned deposits is Quaternary. The GWB is vulnerable with cropped out regions of limestones and sandstones or covered wit loess. GWB main use is for drinking water supply, agriculture and industry supply.* *The criterion for selection as 'important' is for both GWBs the size which exceeds 4,000 km².*
Description of **status** assessment methodology.	Chemical Status ***Bulgaria:*** *Assessment of the chemical status of groundwater has been done by: Analysing of the results in individual monitoring points within each of the GWBs; Consideration of degree of water exchange between groundwater and surface waters; Identifying of the pressures - sources of pollution; The background levels have been used for threshold values determinations. Threshold values have been determined according to CIS Guidance No. 18. Contamination limits have been determined for all indicators listed in Annex II Part B of Directive 2006/118/EC and indicators of the report under Art. 5 of Directive 2006/118/EC* *a) nitrate , manganese , iron* *b) for all pollutants and indicators of pollution have considered during the characterization of groundwater bodies for risk assessment to not achieve good chemical status.* ***Romania:*** *The criteria for the quality status assessment were: overlying strata for natural protection, present groundwater quality, pressures and their impacts.* • *for each monitoring point the annual average concentrations for each indicator was calculated; for the metals the concentration of the dissolved form was considered;* • *For each monitoring point the annual average concentration of the each parameters was compared with the thresholds values (determined for each GWB) or standards value (nitrates and pesticides).* • *The GWB is of good chemical status when no EQS or TV is exceeded in any monitoring point.* • *The GWB is of poor chemical status when EQS or TV are exceeded at monitoring points representing more than 20% of the GWB surface.*

	<u>Quantitative Status</u> ***Bulgaria:*** *applied that considers the impacts of anthropogenically induced long-term alterations in groundwater level and/or flow in accordance with the "CIS Guidance № 18". Each test will assess whether the GWB is meeting the relevant environmental objectives. Not all environmental objectives will apply to every GWB. Therefore only the relevant tests will need to be applied as necessary.* ***Romania:*** *The criterion for risk assessment of the quantity status is based on trend assessment evolution of the groundwater levels. The quantitative status has been assessed taking into account the CIS Guidance no.18. The following criteria have been used:* • *water balance* • *the connection with surface waters* • *the influence on the terrestrial ecosystems which depend directly on the GWB* • *the effects of saline or other intrusions* *The quantitative status analysis has been done for the GWB level by comparing the average of the hydrostatic level from 2011 (reference year) with the multiannual average levels (30–40 years)*
Groundwater threshold value relationships	<u>Receptors considered:</u> ***Romania:*** *Drinking Water standards* <u>Consideration of NBL and EQS (environmental quality standards, drinking water standards) in the TV establishment:</u> ***Romania:*** *The methodology for TV establishment in Romania has been developed according to CIS Guidance No. 18. NBL are the key elements in the process of TV setting. As described above, during the TV establishment, the NBL have been compared with the drinking water standards. The maximum allowable concentrations (MAC) provided by the Law no.458/2002 as amended, were chosen as TV where NBL are smaller than MAC. Where NBL are higher than MAC, a small addition of 0.2 NBL was used, in order to avoid misclassification of the respective GWB (TV = NBL + 0.2 NBL = 1.2 NBL).* *The updated list of TVs established for each GWB was published in the new Order of the Minster no. 621/2014 approving TV for GWBs from Romania.* ***Bulgaria:*** *The methodology for TV determination in Bulgaria has been developed according to CIS Guidance No. 18. The NBLs were determined for each hydrogeological classes (5 classes) in the 90th percentile and 50th percentile (median) of the statistical sample.* *As a so called criterial values (CVs) have been used drinking water standards according to the Bulgarian Regulation N-9* *When we compare BLs and CVs may be two situations :* *When BL is higher than CVi. In this case, TV is equal to BL.* *When CV is higher than BL then TV = BL + Ktv* (CV-BL).* ***0 < Ktv < 1*** *As recommended and provides reasonable assurance can be assumed value of Ktv in the range from 0.5 to 0.75.* *Lower value (0.5) has a large certainty and should be used for GWBs, which have important economic significance and are the sole source of drinking water supply of settlements. This value should be used for such GWB to which they are attached particularly valuable wetlands presence of dependent PA terrestrial ecosystems.* *The higher value (0.75) should be used in all other cases or GWBs already classified bodies at risk.*
Verbal description of the **trend** assessment methodology	***Bulgaria:*** *The trend analysis is based on recognized statistical methods such as regression method. Required information - period with average annual values, semi-annual or quarterly values of the corresponding chemical component – for the first RBMP – period was 1995–2008; for the second RBMP, the period is 2006–2013. The lengths of the rows of chemical components depend on the frequency of sampling and should be:* *- In case of 1 value year: not less than 8 years with 8 values;* *- In case of 2 values per year: at least 5 years with 10 values* *- In case of 4 values per year: not less than 3 years with 12–15 values* *Based on regression analysis is assessed whether there is a break in the trend i.e. after sustained upward trend follows sustained downward trend or the opposite case the sustained*

	downward trend is followed by sustained upward trend. ➢ *Initially , the entire curve of the experimental data is approximated by a polynomial curve of degree 2 (quadratic regression curve).* ➢ *If there is detected a maximum in the polynomial curve it means that a change of the direction of the trend is available - from ascending to descending.* ➢ *If there is detected a minimum in the polynomial curve it means that a change of the direction of the trend is available - from descending to ascending.* ➢ *Then, (in case of available maximum) the entire curve is divided into two branches : 1st branch – till the date of the maximum and the second branch - after the peak.* ➢ *In case with available minimum: 1st branch – till the date of the minimum and the second branch - after the minimum.* ➢ *Data from the first and second branch are considered separately and are approximated by linear trends (straight lines) . The date at which it crossed the two approximating straight lines corresponds to the date at which it changes the direction of the linear trend - from ascending to descending or from descending to ascending* *By extrapolation of the second (falling) trend can be predicted date at which the starting concentration (75% GWQS in our case 60% TV) will be reached* ***Romania:*** *In order to assess the trend in pollutant concentrations, the results of the chemical analysis from the monitoring points have been used. Minimum period of analysis was at least 10 years (2000–2011).* *The methodology for identifying significant upper trends consists in adjustment and aggregation of the data from each monitoring points on groundwater bodies. The trend analysis was done using the Gwstat program.* *The steps used for trend assessment were:* • *Identifying the monitoring points and the associated results of chemical analysis, assessment of data series, for each year of reference period (2000–2011)* • *Establishment of baseline concentration for each parameter as the average concentration registered during the year 2000* • *Calculation of annual average for the available data in each monitoring point* • *Significant upward trends were identified by Gwstat software, based on Anova Test*
Verbal description of the **trend reversal** assessment methodology	***Bulgaria:*** *The starting point for trend reversal should be placed where the concentration of the pollutant reaches 75% of the groundwater quality standard or 75% of the threshold value of the relevant pollutant. Selected starting points should be possible to reverse trends in the most effective way before pollutant concentrations can cause irreversible changes in groundwater quality. When we have GWB who responds too slowly to changes, there may be a need for an early starting point and vice versa - for responsive GWB should be chosen starting point at a later moment.* *Initially, the entire curve of the experimental data is approximated by a polynomial curve of degree 2 (quadratic regression curve).* *If there is detected a maximum in the polynomial curve it means that a change of the direction of the trend is available - from ascending to descending.* *If there is detected a minimum in the polynomial curve it means that a change of the direction of the trend is available - from descending to ascending.* *Then, (in case of available maximum) the entire curve is divided into two branches: 1st branch – till the date of the maximum and the second branch - after the peak* *In case with available minimum: 1st branch – till the date of the minimum and the second branch - after the minimum.* *Data from the first and second branch are considered separately and are approximated by linear trends (straight lines). The date at which it crossed the two approximating straight lines corresponds to the date at which it changes the direction of the linear trend - from ascending to descending or from descending to ascending* *By extrapolation of the second (falling) trend can be predicted date at which the starting concentration (75% GWQS in our case 60% TV) will be reached .Practically for the second RBMP we have used 60 % from the TV.* ***Romania:*** *Trend reversal assessment methodology consists also in the use of Gwstat software,*

	which, based on the 2 sections model, and processing the introduced data series, can indicate an inversion in the trend slope, thus a trend reversal.

Threshold values per GWB

	Pollutant / Indicator	*TV (or range) [unit]*	*NBL (or range) [unit]*	*Level of TV establishment (national, RBD, GWB)*	*Related to risk in this GWB [yes/-]*
RO	*Nitrates*	*50 mg/l*		*National*	*-*
RO	*Benzen*	*10 µg/l*		*National*	*-*
RO	*Tricloretilena*	*10 µg/l*		*National*	*-*
RO	*Tetracloretilena*	*10 µg/l*		*National*	*-*
RO	*Ammonium*	*0.7 mg/l*	*0.504 mg/l*	*GWB*	*-*
RO	*Chlorides*	*250 mg/l*	*189 mg/l*	*GWB*	*-*
RO	*Sulphates*	*250 mg/l*	*120.5 mg/l*	*GWB*	*-*
RO	*Nitrites*	*0,5 mg/l*	*0.069 mg/l*	*GWB*	*-*
RO	*Phosphates*	*0,5 mg/l*	*0.21 mg/l*	*GWB*	*-*
RO	*Nickel*	*0,02 mg/l*	*0.035 mg/l*	*GWB*	*-*
RO	*Zinc*	*5 mg/l*	*0.355 mg/l*	*GWB*	*-*
RO	*Cadmium*	*0.005 mg/l*	*0.000202 mg/l*	*GWB*	*-*
RO	*Mercury*	*0.001 mg/l*	*0.00012 mg/l*	*GWB*	*-*
RO	*Lead*	*0.01mg/l*	*0.001 mg/l*	*GWB*	*-*
RO	*Arsenic*	*0.01 mg/l*	*0.0013 mg/l*	*GWB*	*-*

GWB-5: Mures / Maros

GWB-5	National share	**HU-5** **RO-5**	Status 2015 for each national GWB?	
			Quality (substance)	Quantity
List of individual GW-bodies forming the whole national share (national code incl. country code)	HU	HU_AIQ605	Good	Good
	HU	HU_AIQ604	Good	Good
	HU	HU_AIQ594	Poor (ammonium)	Poor
	HU	HU_AIQ593	Good	Good
	RO	ROMU20	Poor	Good
	RO	ROMU22	Good	Good

Description/Characterisation of the ICPDR GW-body	*The alluvial deposit of the Maros/Mures River lies along both sides of the southern Hungarian – Romanian border, to the north of the actual river bed of the Maros/Mures. In particular, it is an important water resource for drinking water purposes for both countries and water abstraction in one country influences the water availability in the other.* *The basin of the SE part of the Great Hungarian Plain is filled up with more than 2000 m thick deposits of different ages, which are progressively thinning in Romania. The alluvial fan of the Maros/Mures River forms the Pleistocene part of the strata. The aquifer is divided into several GWBs in both countries. Despite the differences in the delineation method of the two countries, it was possible to select the relevant water bodies from the transboundary point of view. Of the four water bodies containing cold water in Hungary (HU), two contain Quaternary strata from the surface to a depth of 30 m, namely the shallow GWBs (HU_AIQ605, HU_AIQ594). Underneath them are two porous GWBs (GWB HU_AIQ604, HU_AIQ593), which, besides Quaternary strata, include some parts of the Upper- Pannonian deposits as well (to a depth of 400–500 m corresponding to the surface separating cold and thermal waters). Two Quaternary water bodies have been selected in Romania.* *On the Romanian side, two water bodies are included in the transboundary evaluation because*

	in the Romanian method there is a separating horizon at the limit of the Upper (GWB ROMU20) and Lower Pleistocene (GWB ROMU22) age of the strata. Both water bodies can be lithologically characterised by pebbles, sands and clayey inter-layers, but the upper part is significantly coarser with better permeability. Virtually following the same separation line on the Hungarian side, the lower 100 m of the 250–300 m thick Pleistocene strata is silty-sand, sandy-silt, sand and clay, and the upper part is mainly sand with gravel, so that permeability improves towards the surface (the hydraulic conductivity of the aquifers ranges between 5–30 m/day). The covering layer is mainly sandy silt and clay of 3-13 m thickness. *On the Romanian side, the upper water body is unconfined and the lower is confined.* *In Hungary both confined and unconfined conditions occur in the southern water bodies (HU_AIQ604, HU_AIQ605) and mainly confined conditions are characteristic for the water bodies of the upward flow system (HU_AIQ593, HU_AIQ594). The groundwater table is 2–4 m below the surface in Hungary. Recharge in sandy areas has only local importance (15 Mm3/year). At present, because of the considerable amount of water abstracted from the deep layers, there is a permanent recharge from shallow groundwater to the deep groundwater system (app. 15 Mm³/year) and large areas with sandy-silty covered layers also contribute to the recharge of the abstracted amount in Hungary. Another important element of the global recharge of the Hungarian part is the lateral flow across the border, estimated at 15–20 Mm³/d (uncertain value based on limited available knowledge). The direction of the groundwater flow is from the recharge area to the discharge areas (main river valleys and zones with groundwater level close to the surface) i.e. from SE to N and NW*
Description of **status** assessment methodology.	<u>Chemical status</u> ***Romania:*** *The criteria for the chemical status assessment were: overlying strata for natural protection, present groundwater quality, pressures and their impacts.* • *for each monitoring point the annual average concentrations for each indicator was calculated; for the metals the concentration of the dissolved form was considered;* • *For each monitoring point the annual average concentration of the each parameters was compared with the thresholds values (determined for each GWB) or standards value (nitrates and pesticides).* • *The GWB is of good chemical status when no EQS or TV is exceeded in any monitoring point.* • *The GWB is of poor chemical status when EQS or TV are exceeded at monitoring points representing more than 20% of the GWB surface.* ***Hungary:*** *Assessment of the chemical status of GWBs was conducted: Analysing of the chemical data of individual monitoring points within each of the GWBs; Identifying of the pressures - sources of pollution; The NBLs were calculated and used to determine TVs. TVs have been determined according to CIS Guidance No. 18. Contamination limits have been determined for all indicators listed in Annex II Part B of Directive 2006/118/EC and indicators of the report under Art. 5 of Directive 2006/118/EC.* *The following parameters were investigated:* *a) NBL was determined for the following components: nitrate, ammonium, specific conductivity, sulphate, chloride, arsenic, cadmium, lead, mercury,* *b) For each monitoring point the median concentration of each parameters of the studied period was compared to the TVs (determined for each GWB) or standards values (in the case of nitrates, metals and pesticides).* *c) Different tests were conducted to assess GWB status: Diffuse pollution test (nitrate, ammonium), Drinking water supply tests for numerous elements or components in both drinking water wells and monitoring wells and trend analysis based on the data of the surveillance monitoring system. Studied components of these tests are: nitrate, ammonium, chloride, sulphate, specific conductivity, mercury, lead, cadmium, pesticides and organics, furthermore in the trend analysis pH and dissolved oxygen.* *d) Based on these tests, GWB was evaluated.* <u>Quantitative Status</u> ***Romania*****:** *The criterion for risk assessment of the quantity status is based on trend assessment evolution of the groundwater levels. The quantitative status has been assessed taking into account CIS Guidance No.18. The following criteria have been used:*

	• *water balance* • *the connection with surface waters* • *the influence on the terrestrial ecosystems which depend directly on the GWB* • *the effects of saline or other intrusions* *The quantitative status analysis has been done for the GWB level by comparing the average of the hydrostatic level from 2011 (reference year) with the multiannual average levels (30–40 years).* *Hungary: To determine the overall quantitative status for a GWB, a series of tests should be applied that considers the impacts of anthropogenically induced long-term alterations in groundwater level and/or flow. Each test will assess whether the GWB is meeting the relevant environmental objectives. The quantitative status has been assessed taking into account CIS Guidance No.18. The following criteria have been used:* - *GW alteration (Drawdown) test* - *Water Balance test* - *Surface Water Flow test* - *Groundwater Dependent Terrestrial Ecosystems (GWDTE)* - *Saline or other Intrusion test*
Groundwater threshold value relationships	Receptors considered ***Romania:*** *Drinking Water standards* Consideration of NBL and EQS (environmental quality standards, drinking water standards) in the TV establishment: ***Romania:*** *The methodology for TV establishment in Romania has been developed according to CIS Guidance No. 18. NBL are the key elements in the process of TV setting.* *As described previously, during the TV establishment, the NBL have been compared with the drinking water standards. The maximum allowable concentrations (MAC) provided by the Law no.458/2002 as amended, were chosen as TV where NBL are smaller than MAC. Where background levels are higher than MAC, a small addition of 0.2 NBL was used, in order to avoid misclassification of the respective GWB (TV = NBL + 0.2 NBL = 1.2 NBL).* *The updated list of TVs established for each GWB was published in the new Order of the Minster no. 621/2014 approving TV for groundwater bodies from Romania.* Receptors considered ***Hungary:*** *Drinking Water standards* *EQS for herbicides and total pesticides, tri-, tetrachloroethylenes based on 201/2001. (X.25.) Gov. decree and the 6/2009. (IV.14.) KvVM-EüM-FVM common ministerial decree in correspondence to I. Annex of the 2006/118/EC directive.* *In Hungary, more than 95% of drinking water ensured from subsurface waters, so the DWS is applicable. Exempt those cases, when the karstic and shallow GWBs are in direct relation to aquatic ecosystems (GWAAE), so here the EQS nitrate is applicable (25 mg/l) instead of 50 mg/l of DWS.* *For other components the DWS is applicable.* *For those GWBs where the NBL was higher than the DWS due to natural hydro-geological reasons, the TVs for ammonium, SO4 and EC were defined by taking into account these higher values, as described in Guidance Document No. 18.*
Verbal description of the **trend** assessment methodology	***Romania:*** *In order to assess the trend in pollutant concentrations, the results of the chemical analysis from the monitoring points have been used. Minimum period of analysis was at least 10 years (2000-2011).* *The methodology for identifying significant upper trends consists in adjustment and aggregation of the data from each monitoring points on groundwater bodies. The trend analysis was done using the Gwstat program. The steps used for trend assessment were:* • *Identifying the monitoring points and the associated results of chemical analysis, assessment of data series, for each year of reference period (2000–2011)* • *Establishment of baseline concentration for each parameter as the average*

	concentration registered during the year 2000 • *Calculation of annual average for the available data in each monitoring point* • *Significant upward trends were identified by Gwstat software, based on Anova Test* ***Hungary**: To assess the trend of pollutant concentrations, chemical data of the surveillance monitoring systems were used for the period of 2000 to 2012. The trend analysis was done using Matlab program package of Man-Kendall method with fitted Sen slope. The steps used for trend assessment were:* • *During the assessment trend of all components for all monitoring objects were created using yearly average data and excluding time series with less than 4 datapoints.* • *The trend of groundwater body level aggregates of yearly annual data were assessed as well.* • *Significant upward or downward trends were identified on 95 and 90% significance level using Man-Kendall method with Sen's slope.* •
Verbal description of the **trend reversal** assessment methodology	***Romania:** Trend reversal assessment methodology consists also in the use of Gwstat software, which, based on the 2 sections model, and processing the introduced data series, can indicate an inversion in the trend slope, thus a trend reversal.*

Threshold values per GWB

	Pollutant / Indicator	*TV (or range) [unit]*	*NBL (or range) [unit]*	*Level of TV establishment (national, RBD, GWB)*	*Related to risk in this GWB [yes/-]*
HU	*Nitrates*	*50 mg/l*	*0,5-12,1 mg/l*	*GWB*	*-*
HU	*Ammonium*	*2-5 mg/l*	*1,97-4,54 mg/l*	*GWB*	*Yes*
HU	*Conductivity*	*2500-4000 µS/cm*	*1210-2500 µS/cm*	*GWB*	*-*
HU	*Sulfate*	*250-500 mg/l*	*20-481 mg/l*	*GWB*	*-*
HU	*Chloride*	*250-500 mg/l*	*32,5-300 mg/l*	*GWB*	*-*
HU	*Arsenic*	*µg/l*	*31,8-120 µg/l*	*national*	*-*
HU	*Cadmium*	*5 µg/l*	*0,16-0,83 µg/l*	*national*	*-*
HU	*Lead*	*10 µg/l*	*2,7-5 µg/l*	*national*	*-*
HU	*Mercury*	*1 µg/l*	*0,39-0,49 µg/l*	*national*	*-*
HU	*Trichlorethylene*	*10 µg/l*		*national*	*-*
HU	*Tetrachloroethylene*	*10 µg/l*		*national*	*-*
HU	*Absorbed organic halogens AOX*	*20 µg/l*		*national*	*-*
HU	*Pesticides by components*	*0,1 µg/l*		*national*	*-*
HU	*Pesticides all*	*0,5 µg/l*		*national*	*-*
RO	*Nitrates*	*50 mg/l*		*National*	*Yes*
RO	*Benzen*	*10 µg/l*		*National*	*-*
RO	*Tricloretilena*	*10 µg/l*		*National*	*-*
RO	*Tetracloretilena*	*10 µg/l*		*National*	*-*
RO	*Ammonium*	*0.5–1.9 mg/l*	*0.216–1.56 mg/l*	*GWB*	*-*
RO	*Chlorides*	*250 mg/l*	*66.755–179.57 mg/l*	*GWB*	*-*
RO	*Sulphates*	*250 mg/l*	*102.04–193.99 mg/l*	*GWB*	*-*
RO	*Nitrites*	*0,5 mg/l*	*0.046–0.2 mg/l*	*GWB*	*-*
RO	*Phosphates*	*0,5–0.6 mg/l*	*0.134–0.5 mg/l*	*GWB*	*-*
RO	*Chromium*	*0,05 mg/l*	*0.006296–0.00811mg/l*	*GWB*	*-*
RO	*Nickel*	*0,02 mg/l*	*0.009–0.00836 mg/l*	*GWB*	*-*
RO	*Copper*	*0.1 mg/l*	*0.0113–0.0117 mg/l*	*GWB*	*-*
RO	*Zinc*	*5 mg/l*	*0.125–0.0274 mg/l*	*GWB*	*-*
RO	*Cadmium*	*0.005 mg/l*	*0.0035 mg/l*	*GWB*	*-*
RO	*Lead*	*0.01-0.02 mg/l*	*0.0075–0.01316 mg/l*	*GWB*	*-*
RO	*Arsenic*	*0.04 mg/l*	*0.0289 mg/l*	*GWB*	*-*

RO	*Phenols*	*0.002mg/l*	*0.0015 mg/l*	*GWB*	*-*

GWB-6: Somes / Szamos

GWB-6	National share	**HU-6** **RO-6**	Status 2015 for each national GWB?	
			Quality (substance)	Quantity
List of individual GW-bodies forming the whole national share (national code incl. country code)	HU	HU_AIQ649	Good	Good
	HU	HU_AIQ648	Good	Good
	HU	HU_AIQ600	Good	Good
	HU	HU_AIQ601	Good	Good
	RO	ROSO01	Good	Good
	RO	ROSO13	Good	Good

Description/Characterisation of the ICPDR GW-body	
	Reasons for selection as an important transboundary GWB *The alluvial deposit of the Somes/Szamos River extends on both sides of the northern part of the Hungarian-Romanian border. It is also connected to the aquifer system lying in Ukraine close to the borders. The aquifer system supplies drinking water to a population of approx. 170,000 inhabitants in Romania and 50,000 inhabitants in Hungary. On the Hungarian side, due to the lowland character and upward flow system, the terrestrial ecosystems require surplus transpiration from groundwater; 7% of the area of the water body is under nature conservation. The recharge zone is in Romania and Ukraine, thus the available groundwater resource and the status of the terrestrial ecosystems on the Hungarian side depend on the lateral flow from the neighbouring countries. The Romanian and Hungarian parts of the water body complex are described below.* ***General description*** *The Somes/Szamos River has formed a 30–250 m thick alluvial deposit* *The aquifer is divided into several GWBs in both countries. Despite the differences in the delineation method of the two countries, it was possible to select the relevant water bodies from the transboundary point of view.* *Four water bodies containing cold water occur in Hungary. Two of them contain Quaternary strata from the surface to a depth of 30 m, namely the shallow GWBs (HU_AIQ649, HU_AIQ600). Underneath are the porous GWBs (HU_AIQ648, HU_AIQ601), which beside Quaternary strata include some parts of the Upper- Pannonian deposits as well, to a depth of 400–500 m corresponding to the surface separating cold and thermal waters.* *This Holocene-Pleistocene formation is divided vertically in Romania by the horizon separating the Upper- and Lower-Pleistocene strata. In Romania two water bodies are considered, overlapping each other, covering a surface of 1,440 km^2. According to the Hungarian approach of delineation, the cold part of the Upper-Pannonian and the Pleistocene and Holocene layers are vertically unified. The Hungarian part can be characterised only by an upward flow system, thus no further horizontal separation is applied. The area covered by the water body is 1,035 km2.* *In Romania, the shallow (Holocene-Upper-Pleistocene) aquifer is unconfined, consisting of sands, argillaceous sands, gravels and even boulders in the eastern part, and has a depth of 25–35 m. The silty-clayey covering layer is 5–15 m thick.* *The deeper (Lower-Pleistocene) aquifer is confined (it is separated from the Upper-Pleistocene part by a clay layer); its bottom is declining from 30 m to 130 m below the surface from East to West. The gravely and sandy strata (characteristic to westwards from Satu-Mare town) represent the main aquifer for water supply in the region.* *In Hungary (as part of the cold water body), the Quaternary (Pleistocene) and Holocene strata are 50 m thick at the Ukrainian border and its continuously declining bottom is around 200 m below the surface at the western boundary. Mainly confined conditions characterise the Hungarian part, with a silty clayey covering layer of 1–6 m (increasing from the NE to the SW). The Quaternary aquifer is sand or gravelly sand, and the hydraulic conductivity ranges between 10- 30 m/d. It should be noted that the Hungarian water body includes the cold water bearing part of the Upper-Pannonian formation as well, to a depth of 400–500 m (under this*

<table>
<tr><td></td><td>level, thermal water of a temperature greater than 30 ºC can be found).
Depth of the groundwater level (mainly pressure in confined area) below the surface ranges between 2 and 5 m in Hungary. The flow direction is from the ENE to the WSW in both countries, corresponding to the recharge and main discharge zones (rivers and area with groundwater level close to the surface).
The recharge area is in the Romanian part of the water body (and in Ukraine). In Hungary the infiltrated amount from local recharge zones supplies neighbouring discharge zones and cannot be considered as part of the available groundwater resources.</td></tr>
<tr><td>Description of status assessment methodology.</td><td><u>Chemical status</u>
Romania: The criteria for the chemical status assessment were: overlying strata for natural protection, present groundwater quality, pressures and their impacts.
• for each monitoring point the annual average concentrations for each indicatoris was calculated; for the metals the concentration of the dissolved form was considered;
• For each monitoring point the annual average concentration of the each parameters was compared with the TVs (determined for each GWB) or standards value (nitrates and pesticides).
• The GWB is of good chemical status when no EQS or TV is exceeded in any monitoring point.
• The GWB is of poor chemical status when EQS or TV are exceeded at monitoring points representing more than 20% of the GWB surface.
Hungary: Assessment of the chemical status of groundwater was conducted: Analysing of the chemical data of individual monitoring points within each of the GWBs; Identifying of the pressures - sources of pollution; The background levels were calculated and used to determine threshold value. Threshold values have been determined according to CIS Guidance No. 18. Contamination limits have been determined for all indicators listed in Annex II Part B of Directive 2006/118/EC and indicators of the report under Art. 5 of Directive 2006/118/EC.
The following parameters were investigated:
a) Natural Background Level was determined for the following components: nitrate, ammonium, specific conductivity, sulphate, chloride, arsenic, cadmium, lead, mercury,
b) For each monitoring point the median concentration of each parameters of the studied period was compared to the thresholds values (determined for each GWB) or standards values (in the case of nitrates, metals and pesticides).
c) Different tests were conducted to assess groundwater body status: Diffuse pollution test (nitrate, ammonium), Drinking water supply tests for numerous elements or components in both drinking water wells and monitoring wells and trend analysis based on the data of the surveillance monitoring system. Studied components of these tests are: nitrate, ammonium, chloride, sulphate, specific conductivity, mercury, lead, cadmium, pesticides and organics, furthermore in the trend analysis pH and dissolved oxygen.
d) Based on these tests, groundwater body was evaluated.

<u>Quantitative Status</u>
Romania: The criterion for risk assessment of the quantity status is based on trend assessment evolution of the groundwater levels. The quantitative status has been assessed taking into account the CIS Guidance No.18. The following criteria have been used:
• water balance
• the connection with surface waters
• the influence on the terrestrial ecosystems which depend directly on the GWB
• the effects of saline or other intrusions
The quantitative status analysis has been done for the GWB level by comparing the average of the hydrostatic level from 2011 (reference year) with the multiannual average levels (30–40 years)
Hungary: To determine the overall quantitative status for a GWB, a series of tests should be applied that considers the impacts of anthropogenically induced long-term alterations in groundwater level and/or flow. Each test will assess whether the GWB is meeting the relevant</td></tr>
</table>

	environmental objectives. The quantitative status has been assessed taking into account CIS Guidance No.18. The following criteria have been used: - *GW alteration (Drawdown) test* - *Water Balance test* - *Surface Water Flow test* - *Groundwater Dependent Terrestrial Ecosystems (GWDTE)* - *Saline or other Intrusion test*
Groundwater threshold value relationships	Receptors considered ***Romania:*** *Drinking Water standards* Consideration of NBL and EQS (environmental quality standards, drinking water standards) in the TV establishment: ***Romania:*** *The methodology for TV establishment in Romania has been developed according to CIS Guidance No. 18. NBL are the key elements in the process of TV setting.* *As described previously, during the TV establishment, the NBL have been compared with the drinking water standards. The maximum allowable concentrations (MAC) provided by the Law no.458/2002 as amended, were chosen as TV where natural background levels (NBL) are smaller than MAC. Where background levels are higher than MAC, a small addition of 0.2 NBL was used, in order to avoid misclassification of the respective GWB (TV = NBL + 0.2 NBL = 1.2 NBL).* *The updated list of TVs established for each GWB was published in the new Order of the Minster no. 621/2014 approving TV for groundwater bodies from Romania.* ***Hungary:*** *Drinking Water standards* *EQS for herbicides and total pesticides, tri-, tetrachloroethylenes based on 201/2001. (X.25.) Gov. decree and the 6/2009. (IV.14.) KvVM-EüM-FVM common ministerial decree in correspondence to I. Annex of the 2006/118/EC directive.* *In Hungary, more than 95% of drinking water ensured from subsurface waters, so the DWS is applicable. Exempt those cases, when the karstic and shallow GWBs are in direct relation to aquatic ecosystems (GWAAE), so here the EQS nitrate is applicable (25 mg/l) instead of 50 mg/l of DWS.* *For other components the DWS is applicable.* *For those GWBs where the NBL was higher than the DWS due to natural hydro-geological reasons, the TVs for ammonium, SO4 and EC were defined by taking into account these higher values, as described in Guidance Document No. 18.*
Verbal description of the **trend** assessment methodology	***Romania:*** *In order to assess the trend in pollutant concentrations, the results of the chemical analysis from the monitoring points have been used. Minimum period of analysis was at least 10 years (2000-2011).* *The methodology for identifying significant upper trends consists in adjustment and aggregation of the data from each monitoring points on groundwater bodies. The trend analysis was done using the Gwstat program.* *The steps used for trend assessment were:* • *Identifying the monitoring points and the associated results of chemical analysis, assessment of data series, for each year of reference period (2000–2011)* • *Establishment of baseline concentration for each parameter as the average concentration registered during the year 2000* • *Calculation of annual average for the available data in each monitoring point* • *Significant upward trends were identified by Gwstat software, based on Anova Test* ***Hungary****: To assess the trend of pollutant concentrations, chemical data of the surveillance monitoring systems were used for the period of 2000 to 2012. The trend analysis was done using Matlab program package of Man-Kendall method with fitted Sen slope. The steps used for trend assessment were:* • *During the assessment trend of all components for all monitoring objects were created using yearly average data and excluding time series with less than 4 datapoints.* • *The trend of groundwater body level aggregates of yearly annual data were assessed*

	as well. • *Significant upward or downward trends were identified on 95 and 90% significance level using Man-Kendall method with Sen's slope.*
Verbal description of the **trend reversal** assessment methodology	***Romania:*** *Trend reversal assessment methodology consists also in the use of Gwstat software, which, based on the 2 sections model, and processing the introduced data series, can indicate an inversion in the trend slope, thus a trend reversal.*

Threshold values per GWB

	Pollutant / Indicator	*TV (or range) [unit]*	*NBL (or range) [unit]*	*Level of TV establishment (national, RBD, GWB)*	*Related to risk in this GWB [yes/-]*
HU	*Nitrates*	*50 mg/l*	*1-11,5 mg/l*	*GWB*	-
HU	*Ammonium*	*2-5 mg/l*	*1,5-3,3 mg/l*	*GWB*	-
HU	*Conductivity*	*2500 µS/cm*	*649-1787 µS/cm*	*GWB*	-
HU	*Sulfate*	*250 mg/l*	*17,8-184 mg/l*	*GWB*	-
HU	*Chloride*	*250 mg/l*	*21,4-138 mg/l*	*GWB*	-
HU	*Arsenic*	*µg/l*	*8,57-56,8 µg/l*	*national*	-
HU	*Cadmium*	*5 µg/l*	*0,04-0,16 µg/l*	*national*	-
HU	*Lead*	*10 µg/l*	*0,38-4,7 µg/l*	*national*	-
HU	*Mercury*	*1 µg/l*	*0,005-0,27 µg/l*	*national*	-
HU	*Trichlorethylene*	*10 µg/l*		*national*	-
HU	*Tetrachloro ethylene*	*10 µg/l*		*national*	-
HU	*Absorbed organic halogens AOX*	*20 µg/l*		*national*	-
HU	*Pesticides by components*	*0,1 µg/l*		*national*	-
HU	*Pesticides all*	*0,5 µg/l*		*national*	-
RO	*Nitrates*	*50 mg/l*		*National*	-
RO	*Benzen*	*10 µg/l*		*National*	-
RO	*Tricloretilena*	*10 µg/l*		*National*	-
RO	*Tetracloretilena*	*10 µg/l*		*National*	-
RO	*Ammonium*	*0.5-1.3 mg/l*	*0.22-1.05 mg/l*	*GWB*	-
RO	*Chlorides*	*250 mg/l*	*19.46- 51.5 mg/l*	*GWB*	-
RO	*Sulphates*	*250 mg/l*	*19,01- 91.78 mg/l*	*GWB*	-
RO	*Nitrites*	*0.5 mg/l*	*0.08- 0.15 mg/l*	*GWB*	-
RO	*Phosphates*	*0.5 mg/l*	*0.16-0.41 mg/l*	*GWB*	-
RO	*Chromium*	*0.5 mg/l*	*0.0071-0.010 mg/l*	*GWB*	-
RO	*Nickel*	*0.02 mg/l*	*0.011-0.005 mg/l*	*GWB*	-
RO	*Copper*	*0.1 mg/l*	*0.0153-0.024 mg/l*	*GWB*	-
RO	*Zinc*	*5 mg/l*	*0.26-0.262 mg/l*	*GWB*	-
RO	*Cadmium*	*0,005 mg/l*	*0.00085-0.0023 mg/l*	*GWB*	-
RO	*Mercury*	*0,001 mg/l*	*0.000035-0.00002 mg/l*	*GWB*	-
RO	*Lead*	*0.03-0.07 mg/l*	*0.022-0.055 mg/l*	*GWB*	-
RO	*Arsenic*	*0.01mg/l*	*0.0021- 0.006 mg/l*	*GWB*	-
RO	*Phenols*	*0.002mg/l*	*0.001- 0.0013 mg/l*	*GWB*	-

GWB-7: Upper Pannonian – Lower Pleistocene / Vojvodina / Duna-Tisza köze deli r.

GWB-7	National share	**HU-7** **RO-7** **RS-7**	Status 2015 for each national GWB?	
			Quality (substance)	Quantity
List of individual GW-bodies forming the whole national share (national code incl. country code)	HU	HU_AIQ528	good	good
	HU	HU_AIQ523	good	poor
	HU	HU_AIQ532	good	good
	HU	HU_AIQ487	good	poor
	HU	HU_AIQ590	good	good
	HU	HU_AIQ529	poor (nitrate)	poor
	HU	HU_AIQ522	good	poor
	HU	HU_AIQ533	good	poor
	HU	HU_AIQ486	good	poor
	HU	HU_AIQ591	poor (nitrate)	good
	RO	ROBA18	good	good
	RS	RS_TIS_GW_I_1	good	poor
	RS	RS_TIS_GW_SI_1	good	good
	RS	RS_TIS_GW_I_2	good	poor
	RS	RS_TIS_GW_SI_2	good	good
	RS	RS_TIS_GW_I_3	good	poor
	RS	RS_TIS_GW_SI_3	good	good
	RS	RS_TIS_GW_I_4	good	poor
	RS	RS_TIS_GW_SI_4	good	good
	RS	RS_TIS_GW_I_7	good	poor
	RS	RS_TIS_GW_SI_7	good	good
	RS	RS_D_GW_I_1	good	poor
	RS	RS_D_GW_SI_1	good	good

Description/Characterisation of the ICPDR GW-body	*The GWB is mainly used for drinking water supply, agricultural and industrial supplies. The criterion for selection as "important" consists in its size that exceeds 4,000 km².* *The whole aquifer system of the Danube-Tisza region stretches from the foothills of the northern mountainous region of Hungary to the Danube in Serbia, where the river flows to the south-east. The western boundary is the Danube itself downstream of Budapest in Hungary but after crossing the Hungarian border it enlarges towards Slavonia (western part of Backa in Croatia). The eastern boundary is somewhat east from the Tisza River in Hungary and in Serbia it includes the Banat as well, whose eastern part is in Romania. The Danube, Tisza and Timis Rivers are important discharge-lines but cannot be considered as pure hydrodynamic boundaries, since there is some flow under the river in the deeper aquifer that is not discharged into the river.* *The porous aquifer system between the Danube and Tisza Rivers is the biggest geological unit of the Pannonian Basin. It lies mainly in Hungary and Serbia, with a smaller part in Croatia and Romania. Serbia and Hungary have selected it as an important transboundary GWB complex because: (i) size, (ii) importance in supplying drinking water for the population and (iii) the need to satisfy the water demand of agriculture and industry, (iv) protected areas cover a large part of the GWB complex (protection zones for vulnerable drinking water resources, nature conservation areas and nitrate-sensitive areas).* *In Serbia, the area of the whole Dunav aquifer system is 17,435 km² (the areas of Backa and Banat). However, the transboundary importance is related only to the GWBs adjacent to the state borders with Hungary (a total of 6 GWBs: 3 shallow (RS_TIS_GW_SI_1; RS_TIS_GW_SI_2; RS_TIS_GW_SI_3) and 3 deep (RS_TIS_GW_I_1; RS_TIS_GW_I_2; RS_TIS_GW_I_3)) and with Romania (a total of 6 GWBs: 3 shallow (RS_TIS_GW_SI_4; RS_TIS_GW_SI_7; RS_D_GW_SI_1) and 3 deep (RS_TIS_GW_I_4; RS_TIS_GW_I_7; RS_D_GW_I_1). The area of water bodies situated towards Hungary is 5,647 km2 and towards Romania 4,859 km2, with a total aggregated area of 10,506 km2 for the Vojvodina GWB.* *In Hungary, the aquifer system is divided into several water bodies according to major subsurface catchment areas and downward-upward flow systems. For the transboundary conciliation, only the southern part of the aquifer system is considered, which includes 10 cold*

	water bodies. Five of them contain Quaternary strata from the surface to a depth of 23–30 m. Beneath these are five porous GWBs. Besides Quaternary strata, these include part of the Upper-Pannonian deposits as well, to a depth of 400–500 m corresponding to the surface and separating cold and thermal water bodies. The Hungarian part can be characterised by both upward and downward flow systems that are the basis for the horizontal separation of the GWBs. The area covered by these water bodies is 7,098 km2. The aquifer can be considered unconfined in the shallow GWBs, despite a considerable area where the water level is in the semi-permeable covering layer, and confined in the deeper ones. *The depth of the groundwater level below the surface ranges between 3 and 5 m in Hungary, with a maximum depth of 7–12 m in the main recharge zones (HU_AIQ529, HU_AIQ591 and HU_AIQ533).* *In Romania, the aquifer system covers around 11,408 km2 and is adjacent to the state border with Serbia. The GWB is generally confined, its covering strata being of Quaternary age. The depth of the groundwater level below surface ranges from 3–20 m. The protection degree of the GWB is very good. The main aquifer is the Quaternary alluvial deposit of the Danube lying on the Pannonian strata. Its thickness is a few tens of meters at the northern, western and southern boundary and increases up to 700 m in the middle of the basin (in the lower Tisza-valley). At the eastern boundary, the thick Quaternary deposit is a mixture of the alluvial deposits of the Danube and the Carpathian rivers. In respect to lithology, the aquifer consists of medium and coarse sands and gravely sands with inter-layers and lenses of silty sands and silty clays. Average hydraulic conductivity ranges between 5–30 m/d. The topographically elevated ridge between the Danube and the Tisza is formed of eolian sand with relatively good recharge conditions and phreatic groundwater. In the river valleys and east of the Tisza, mainly confined conditions appear. The depth of the fluvial-swamp silty clays and swamp clays overlying strata varies from 10-20 m in the western and southern part, and up to 100–125 m in the north-eastern part of Backa and in Banat. Here, prior to intensive groundwater abstraction, an artesian type of groundwater occurred.* *The main recharge area is in Hungary, in the eolian sand ridge, and in Romania. In Hungary, the estimated value of the recharge is approx. 220 Mm3/year. In Serbia, only local recharge areas exist (areas of the Deliblat Sands and the Subotica/Horgos Sands), thus the lateral flow crossing the border from the neighbouring country - as a component of the overall recharge - is very important.* *The groundwater is mainly discharged by the rivers (and drainage canals) and by the surplus of evapotranspiration from vegetation in the areas characterised by groundwater levels close to the surface. Small lakes and marshes in locally deeper areas (i.e. in topographic depressions) must be considered as local discharge areas – they are important from the nature conservation point of view. Besides natural discharge, there is also significant groundwater tapping for various uses (drinking water, agriculture, industry, irrigation etc.). In Vojvodina, the entire public water supply relies exclusively on groundwater from aquifers formed at different depths, from 20 m to more than 200 m.* *The direction of the groundwater flow in the upper part of the aquifer-system follows the topography and recharge-discharge conditions. At the Hungarian-Serbian border, the flow direction is almost parallel to the border (flowing slightly from Hungary towards Serbia). In the deeper part, the general flow direction is NW to SE i.e. from the Danube to the Tisza in Hungary and in Backa, while in northern Banat, the piezometric surface subsides from the frontier zone towards the Tisza and the Timis, and in southern Banat, from the Deliblat Sands, it dips to the south and towards the Danube.*
Description of **status** assessment methodology.	<u>Chemical status</u> ***Romania:*** *The criteria for the quality status assessment were: overlying strata for natural protection, present groundwater quality, pressures and their impacts.* • *for each monitoring point the annual average concentrations for each indicator was calculated; for the metals the concentration of the dissolved form was considered;* • *For each monitoring point the annual average concentration of the each parameters was compared with the TVs (determined for each GWB) or standards value (nitrates and pesticides).* • *The GWB is of good chemical status when no EQS or TV is exceeded in any monitoring point.* • *The GWB is of poor chemical status when EQS or TV are exceeded at monitoring*

	points representing more than 20% of the GWB surface. ***Hungary:*** *Assessment of the chemical status of groundwater was conducted: Analysing of the chemical data of individual monitoring points within each of the GWBs; Identifying of the pressures - sources of pollution; The background levels were calculated and used to determine threshold value. Threshold values have been determined according to CIS Guidance No. 18. Contamination limits have been determined for all indicators listed in Annex II Part B of Directive 2006/118/EC and indicators of the report under Art. 5 of Directive 2006/118/EC.* *The following parameters were investigated:* *a) Natural Background Level was determined for the following components: nitrate, ammonium, specific conductivity, sulphate, chloride, arsenic, cadmium, lead, mercury,* *b) For each monitoring point the median concentration of each parameters of the studied period was compared to the thresholds values (determined for each GWB) or standards values (in the case of nitrates, metals and pesticides).* *c) Different tests were conducted to assess groundwater body status: Diffuse pollution test (nitrate, ammonium), Drinking water supply tests for numerous elements or components in both drinking water wells and monitoring wells and trend analysis based on the data of the surveillance monitoring system. Studied components of these tests are: nitrate, ammonium, chloride, sulphate, specific conductivity, mercury, lead, cadmium, pesticides and organics, furthermore in the trend analysis pH and dissolved oxygen.* *d) Based on these tests, groundwater body was evaluated.* ***Serbia:*** *Depending on the available information for different GWBs, chemical status was assessed using chemical monitoring data or (where no monitoring data was available) by using risk assessment. To assess the risk of failure to achieve good chemical status due to diffuse sources of pollution, a risk map was compiled based on natural characteristics and pollution susceptibility (GW Vulnerability Map), and on local facilities and activities which might contribute to pollution (CLC2000 map).* Quantitative Status ***Romania*****:** *The criterion for risk assessment of the quantity status is based on trend assessment evolution of the groundwater levels. The quantitative status has been assessed taking into account CIS Guidance No.18. The following criteria have been used:* • *water balance* • *the connection with surface waters* • *the influence on the terrestrial ecosystems which depend directly on the GWB* • *the effects of saline or other intrusions* *The quantitative status analysis has been done for the GWB level by comparing the average of the hydrostatic level from 2011 (reference year) with the multiannual average levels (30–40 years)* ***Hungary:*** *To determine the overall quantitative status for a GWB, a series of tests should be applied that considers the impacts of anthropogenically induced long-term alterations in groundwater level and/or flow. Each test will assess whether the GWB is meeting the relevant environmental objectives. The quantitative status has been assessed taking into account CIS Guidance No.18. The following criteria have been used:* - *GW alteration (Drawdown) test* - *Water Balance test* - *Surface Water Flow test* - *Groundwater Dependent Terrestrial Ecosystems (GWDTE)* - *Saline or other Intrusion test* ***Serbia:*** *Considering the risk of not achieving good quantitative status, groundwater bodies within which there is a registered trend of groundwater level decrease as a consequence of abstraction are considered to be at risk. For this purpose, data time series of registered groundwater levels were used only for shallow GWBs, since no organized monitoring of deep aquifers exists.* *For groundwater bodies where no quantitative monitoring exists, the estimate of groundwater balance is calculated, using available data on precipitation, abstraction etc. Assessment of risk*

	from non-achievement of the good quantitative status until 2015 was carried out based on the criteria that average GW abstraction over several years < 50% of groundwater recharge, no substance intrusion into the body caused by the change of GW streaming direction and associated surface ecosystems are not endangered by GW abstraction.
Groundwater threshold value relationships	Receptors considered: ***Romania:*** *Drinking Water standards* Consideration of NBL and EQS (environmental quality standards, drinking water standards) in the TV establishment: ***Romania:*** *The methodology for TV establishment in Romania has been developed according to CIS Guidance No. 18. NBL are the key elements in the process of TV setting.* *As described previously, during the TV establishment, the NBL have been compared with the drinking water standards. The maximum allowable concentrations (MAC) provided by the Law no.458/2002 as amended, were chosen as TV where natural background levels (NBL) are smaller than MAC. Where background levels are higher than MAC, a small addition of 0.2 NBL was used, in order to avoid misclassification of the respective GWB (TV = NBL + 0.2 NBL = 1.2 NBL).* *The updated list of TVs established for each GWB was published in the new Order of the Minster no. 621/2014 approving TV for groundwater bodies from Romania.* ***Hungary:*** *Drinking Water standards* *EQS for herbicides and total pesticides, tri-, tetrachloroethylenes based on 201/2001. (X.25.) Gov. decree and the 6/2009. (IV.14.) KvVM-EüM-FVM common ministerial decree in correspondence to I. Annex of the 2006/118/EC directive.* *In Hungary, more than 95% of drinking water ensured from subsurface waters, so the DWS is applicable. Exempt those cases, when the karstic and shallow GWBs are in direct relation to aquatic ecosystems (GWAAE), so here the EQS nitrate is applicable (25 mg/l) instead of 50 mg/l of DWS.* *For other components the DWS is applicable.* *For those GWBs where the NBL was higher than the DWS due to natural hydro-geological reasons, the TVs for ammonium, SO4 and EC were defined by taking into account these higher values, as described in Guidance Document No. 18.*
Verbal description of the **trend** assessment methodology	***Romania:*** *In order to assess the trend in pollutant concentrations, the results of the chemical analysis from the monitoring points have been used. Minimum period of analysis was at least 10 years (2000-2011).* *The methodology for identifying significant upper trends consists in adjustment and aggregation of the data from each monitoring points on groundwater bodies. The trend analysis was done using the Gwstat program. The steps used for trend assessment were:* • *Identifying the monitoring points and the associated results of chemical analysis, assessment of data series, for each year of reference period (2000–2011)* • *Establishment of baseline concentration for each parameter as the average concentration registered during the year 2000* • *Calculation of annual average for the available data in each monitoring point* • *Significant upward trends were identified by Gwstat software, based on Anova Test* ***Hungary****: To assess the trend of pollutant concentrations, chemical data of the surveillance monitoring systems were used for the period of 2000 to 2012. The trend analysis was done using Matlab program package of Man-Kendall method with fitted Sen slope. The steps used for trend assessment were:* • *During the assessment trend of all components for all monitoring objects were created using yearly average data and excluding time series with less than 4 datapoints.* • *The trend of groundwater body level aggregates of yearly annual data were assessed as well.* *Significant upward or downward trends were identified on 95 and 90% significance level using Man-Kendall method with Sen's slope.* ***Serbia:*** *No methodology for trend assessment has been developed.*
Verbal	***Romania:*** *Trend reversal assessment methodology consists also in the use of Gwstat software,*

description of the **trend reversal** assessment methodology	*which, based on the 2 sections model, and processing the introduced data series, can indicate an inversion in the trend slope, thus a trend reversal.* ***Serbia:*** *No methodology for trend reversal assessment has been developed*

Threshold values per GWB

	Pollutant / Indicator	*TV (or range) [unit]*	*NBL (or range) [unit]*	*Level of TV establishment (national, RBD, GWB)*	*Related to risk in this GWB [yes/-]*
HU	*Nitrates*	*50 mg/l*	*0,5-9,6 mg/l*	*GWB*	*yes*
HU	*Ammonium*	*2-5 mg/l*	*1,3-4,54 mg/l*	*GWB*	-
HU	*Conductivity*	*2500-4000 µS/cm*	*565-2004 µS/cm*	*GWB*	-
HU	*Sulfate*	*250-500 mg/l*	*5,6-373 mg/l*	*GWB*	-
HU	*Chloride*	*250 mg/l*	*8-183 mg/l*	*GWB*	-
HU	*Arsenic*	*µg/l*	*10-106 µg/l*	*national*	-
HU	*Cadmium*	*5 µg/l*	*0,01-0,52µg/l*	*national*	-
HU	*Lead*	*10 µg/l*	*1-6 µg/l*	*national*	-
HU	*Mercury*	*1 µg/l*	*0,06-0,52 µg/l*	*national*	-
HU	*Trichlorethylene*	*10 µg/l*		*national*	-
HU	*Tetrachloro ethylene*	*10 µg/l*		*national*	-
HU	*Absorbed organic halogens AOX*	*20 µg/l*		*national*	-
HU	*Pesticides by components*	*0,1 µg/l*		*national*	-
HU	*Pesticides all*	*0,5 µg/l*		*national*	-
RO	*Nitrates*	*50 mg/l*		*National*	-
RO	*Benzen*	*10 µg/l*		*National*	-
RO	*Tricloretilena*	*10 µg/l*		*National*	-
RO	*Tetracloretilena*	*10 µg/l*		*National*	-
RO	*Ammonium*	*6.4 mg/l*	*5.33 mg/l*	*GWB*	-
RO	*Chlorides*	*250 mg/l*	*51.66 mg/l*	*GWB*	-
RO	*Sulphates*	*250 mg/l*	*69.47 mg/l*	*GWB*	-
RO	*Nitrites*	*0.5 mg/l*	*0.137 mg/l*	*GWB*	-
RO	*Phosphates*	*1 mg/l*	*0.774 mg/l*	*GWB*	-
RO	*Chromium*	*0.05 mg/l*	*0.00505 mg/l*	*GWB*	-
RO	*Nickel*	*0.02 mg/l*	*0.009573 mg/l*	*GWB*	-
RO	*Copper*	*0,1 mg/l*	*0.017913 mg/l*	*GWB*	-
RO	*Zinc*	*5 mg/l*	*0.350642 mg/l*	*GWB*	-
RO	*Cadmium*	*0.005 mg/l*	*0.000333 mg/l*	*GWB*	-
RO	*Mercury*	*0.001 mg/l*	*0.0004 mg/l*	*GWB*	-
RO	*Lead*	*0.01-mg/l*	*0.00744 mg/l*	*GWB*	-
RO	*Phenols*	*0.004 mg/l*	*0.003 mg/l*	*GWB*	-

GWB-8: Podunajska Basin, Zitny Ostrov / Szigetköz, Hanság-Rábca

GWB-8	National share	**HU-8** **SK-8**	Status 2015 for each national GWB?	
			Quality (substance)	Quantity
List of individual GW-bodies forming the whole national share (national code incl. country code)	HU	HU_AIQ654	good	good
	HU	HU_AIQ572	good	good
	HU	HU_AIQ653	good	good
	HU	HU_AIQ573	good	poor
	SK	SK1000300P	good	good
	SK	SK1000200P	good	good

Description/Characterisation of the ICPDR GW-body

Slovak Republic: *The delineation consists of the following steps:*

1. *The aquifers are vertically divided in three floors: Quaternary sediments, Pre-quaternary strata containing cold waters, thermal aquifers (temperature > 25°C or it is considered as thermal by classification).*
2. *The pre-quaternary strata are further divided horizontally by geological types of the aquifer: volcanic rocks, other fissured rocks, karstic rocks, porous sediments.*
3. *Further separation is due to the borders of the surface catchment areas considered as river basin management units.*

Hungary: *The delineation of groundwater bodies in Hungary has been carried out by:*

1. *Separation of the main geological features: porous aquifers in the basins, karstic aquifers, mixed formations of the mountainous regions, other than karstic aquifers.*
2. *Thermal water bodies are separated according to the temperature greater than 30 °C. In the case of porous aquifers it is done vertically, while in karstic aquifers horizontally. There are no thermal aquifers in the mountainous regions other than karstic.*
3. *Further division is related to the subsurface catchment areas and vertical flow system (in the case of porous aquifers) and to the structural and hydrological units (in the case of karstic aquifers and mountainous regions).*

For transboundary water bodies the more detailed further characterisation is carried out (n.b. because of the numerous transboundary water bodies and the expected further 20–30 % due to the risk of failing good status, Hungary decided to apply the methodology of further characterisation for all water bodies).

Reasons for selecting as important transboundary GWB

The large alluvial deposit of the River Danube downstream Bratislava lies in three countries: Slovakia (Podunajská lowland and its part: Žitný ostrov), Hungary (Northern part of Kisalföld including the Szigetköz) and in Austria. The aquifer system has been considered by Slovakia and Hungary as an important transboundary aquifer because of (i) its size, (ii) the unique amount of available groundwater resource and the important actual use for drinking water and other purposes as well (iii) the groundwater dependent terrestrial ecosystem of the floodplain, (iv) majority of the area is protected (protection zones of drinking water abstraction sites, nitrate sensitive areas, nature conservation areas), (v) the existence of the Gabcikovo Hydropower System.

General description

The Danube has been playing the decisive role in the formation of the aquifer system. The main aquifer is made up of 15–500 m thick Quaternary alluvia: hydraulically connected mixture of sands, gravels, intercalated with numerous clay and silt lenses. The average hydraulic conductivity is in the range of 100–500 m/day providing extremely high transmissivity, especially in the centre of the basin. Here, the bottom of the underlying Pannonian deposits is at a depth of 3,500 m.

The aquifer is divided into several groundwater bodies in both countries. Despite the differences in the delineation method of the two countries, it was possible to select the relevant water bodies from transboundary point of view: two water bodies containing cold water in Hungary, which beside the Quaternary strata include some part of the Upper-Pannonian deposits as well, to the depth of 400–500 m corresponding to the surface separating cold and thermal waters (1,152 km2) and two Quaternary water bodies in Slovakia (2,211 km2) have

	been selected, i.e. 3,363 km2 in total (see the summary table above). *The aquifer can be considered as unconfined, despite the considerable area where the water level is in the semi-permeable covering layer.* *Due to the high transmissivity of the aquifer, the groundwater regime and groundwater quality mainly depend on the surface water. The flow system and the type of covering layer provide surplus recharge condition in the majority of the area, but the main source of groundwater recharge is the Danube. Before the construction of the hydropower system (1992), the riverbed had been the infiltration surface, and the Danube's line had been the hydraulic boundary between the countries as well (in upper parts of Danube stream between Devín and Hrušov, approximately since 1970's, river bed started to drain groundwater). In the actual situation, the artificial recharge system is the main source for the vicinity of the Danube, but a remaining part of the aquifers in the Hungarian territory is recharged by the Čunovo reservoir. Where the reservoir is in the neighbourhood of the main channel (between Rajka and Dunakiliti) considerable transboundary groundwater flow appears under the Danube. The Danube's river bed downstream the reservoir – due to the derived flow and the consequently decreased average water level - drains the neighbouring groundwater, causing considerable drop of groundwater level in the imminent vicinity of the river bed. Both the quantity and the quality of the recharge from the reservoir highly depend on the continuously increasing deposit in the reservoir and the developing physico-chemical processes. Deposits in the reservoir are extracted. Signs of long-term changes of quantity and quality of recharge caused by continuously increasing deposit in the reservoir were not observed in the Slovak part of the aquifer yet.* *The depth of the groundwater table varies between 2 and 5 m. The wetting conditions of the covering layer has substantially changed along the Danube and in the lower Szigetköz, where prior to the derivation of the Danube the groundwater has fluctuated in the covering layer and the existing artificial recharge system does not compensate sufficiently the former influence of the Danube. On the Slovak territory, annual artificial flooding of the river system in the high water periods seems to efficiently supply groundwater as well as the soil moisture resources.*
Description of **status** assessment methodology.	<u>Chemical Status</u> ***Slovak Republic:*** *No changes since 2009* ***Hungary:*** *Assessment of the chemical status of groundwater was conducted: Analysing of the chemical data of individual monitoring points within each of the GWBs; Identifying of the pressures - sources of pollution; The background levels were calculated and used to determine threshold value. Threshold values have been determined according to CIS Guidance No. 18. Contamination limits have been determined for all indicators listed in Annex II Part B of Directive 2006/118/EC and indicators of the report under Art. 5 of Directive 2006/118/EC.* *The following parameters were investigated:* *a) Natural Background Level was determined for the following components: nitrate, ammonium, specific conductivity, sulphate, chloride, arsenic, cadmium, lead, mercury,* *b) For each monitoring point the median concentration of each parameters of the studied period was compared to the thresholds values (determined for each GWB) or standards values (in the case of nitrates, metals and pesticides).* *c) Different tests were conducted to assess groundwater body status: Diffuse pollution test (nitrate, ammonium), Drinking water supply tests for numerous elements or components in both drinking water wells and monitoring wells and trend analysis based on the data of the surveillance monitoring system. Studied components of these tests are: nitrate, ammonium, chloride, sulphate, specific conductivity, mercury, lead, cadmium, pesticides and organics, furthermore in the trend analysis pH and dissolved oxygen.* *d) Based on these tests, groundwater body was evaluated.* <u>Quantitative Status</u> ***Hungary:*** *To determine the overall quantitative status for a GWB, a series of tests should be applied that considers the impacts of anthropogenically induced long-term alterations in groundwater level and/or flow. Each test will assess whether the GWB is meeting the relevant environmental objectives. The quantitative status has been assessed taking into account CIS Guidance No.18. The following criteria have been used:*

	- <u>*GW alteration (Drawdown) test*</u> - *Water Balance test* - *Surface Water Flow test* - *Groundwater Dependent Terrestrial Ecosystems (GWDTE)* - *Saline or other Intrusion test* ***Slovak Republic:*** *Assessment of groundwater quantitative status consists:* 1. *determination of usable amounts of groundwater and transformed usable amounts of groundwater to quaternary and prequaternary groundwater bodies, determine the size of groundwater abstractions for quaternary and prequaternary groundwater bodies, calculate the change trends of groundwater abstractions and balance assessment (share of groundwater use) of groundwater bodies by 2012 (set of evaluation periods 2004 - 2012 and 2009–2012)* 2. *evaluation of significant subsidence trends of groundwater regime, processed at all monitoring objects SK hydrological network of groundwater (wells and springs). Object selection, input analysis of the representativeness of the data and measurements, data verification by 2011, verification the criteria for checking the length and representativeness of monitoring the statistical test, comprehensive evaluation of the Mann-Kendall method (95% significance level) and the output circuitry results in the quaternary and prequaternary groundwater bodies* 3. *assessment of the impacts of groundwater abstractions (determination of water management problem sites) from the perspective of quantitative status of groundwater bodies (based on the results of the assessment points 1 and 2) and in the view of the results provided on the evaluation of flows on the surface streams* 4. *linking the results of points 1 to 3 in the quaternary and prequaternary groundwater bodies, identification causes and possible areas causing poor quantitative status (in 2015). Basis for analysis of water use management of groundwater resources and water planning, taking into account geology and hydrogeology territory in connection to groundwater abstractions causing possible poor quantitative status.*
Groundwater threshold value relationships	<u>Receptors considered</u> ***Slovak Republic:*** *Drinking water* ***Hungary:*** *Drinking Water standards* *EQS for herbicides and total pesticides, tri-, tetrachloroethylenes based on 201/2001. (X.25.) Gov. decree and the 6/2009. (IV.14.) KvVM-EüM-FVM common ministerial decree in correspondence to I. Annex of the 2006/118/EC directive.* *In Hungary, more than 95% of drinking water ensured from subsurface waters, so the DWS is applicable. Exempt those cases, when the karstic and shallow GWBs are in direct relation to aquatic ecosystems (GWAAE), so here the EQS nitrate is applicable (25 mg/l) instead of 50 mg/l of DWS.* *For other components the DWS is applicable.* *For those GWBs where the NBL was higher than the DWS due to natural hydro-geological reasons, the TVs for ammonium, SO4 and EC were defined by taking into account these higher values, as described in Guidance Document No. 18.* <u>Consideration of NBL and EQS (environmental quality standards, drinking water standards) in the TV establishment:</u> ***Slovak Republic:*** *Threshold value= (NBL + drinking water standards)/2*
Verbal description of the **trend** assessment methodology	***Slovak Republic:*** *Trend is assessed separately for groundwater quality and quantity at which for trends in quantity the procedure applies for all GW quantity monitoring sites. The assessment follows a stepwise procedure. Consisting of the evaluation of the data sets and the monitoring points (no gaps in time series are allowed and data from 1992–2011 were used), consisting of the performance of the non-parametric Mann-Kendall trend test (95% confidence level) and comprising the parametric SLOPE test (critical value 2%). At the end monitoring points with decreasing trends are checked for significant groundwater abstractions in the area around the well by using GIS. GWBs with decreasing trends but with no evidence of abstraction are excluded from assessment in the 2nd RBMP. For assessing trends in concentrations of pollutants in groundwater the evaluation period was 2000–2011. The results of surveillance and operational monitoring were applied for the assessment. Monitoring frequency depends on*

	the GWB type. In the analysis the values <LOQ are replaced by LOQmax/2. Trend assessment is only performed if the number of values <LOQ is less than 50%. Non-parametric Mann-Kendall test with 5% significance level was applied for trend evaluation. ***Hungary**: To assess the trend of pollutant concentrations, chemical data of the surveillance monitoring systems were used for the period of 2000 to 2012. The trend analysis was done using Matlab program package of Man-Kendall method with fitted Sen slope. The steps used for trend assessment were:* • *During the assessment trend of all components for all monitoring objects were created using yearly average data and excluding time series with less than 4 datapoints.* • *The trend of groundwater body level aggregates of yearly annual data were assessed as well.* *Significant upward or downward trends were identified on 95 and 90% significance level using Man-Kendall method with Sen's slope.*
Verbal description of the **trend reversal** assessment methodology	***Slovak Republic:*** *Not evaluated*

Threshold values per GWB

	Pollutant / Indicator	*TV (or range) [unit]*	*NBL (or range) [unit]*	*Level of TV establishment (national, RBD, GWB)*	*Related to risk in this GWB [yes/-]*
HU	*Nitrates*	*50 mg/l*	*2,9-12 mg/l*	*GWB*	-
HU	*Ammonium*	*1-2 mg/l*	*0,4-0,86 mg/l*	*GWB*	-
HU	*Conductivity*	*2500 µS/cm*	*657-1030 µS/cm*	*GWB*	-
HU	*Sulfate*	*250 mg/l*	*88,8-220 mg/l*	*GWB*	-
HU	*Chloride*	*250 mg/l*	*30-49,7 mg/l*	*GWB*	-
HU	*Arsenic*	*µg/l*	*2,14-3,9 µg/l*	*national*	-
HU	*Cadmium*	*5 µg/l*	*0,17-1,1 µg/l*	*national*	-
HU	*Lead*	*10 µg/l*	*1,9-3,1 µg/l*	*national*	-
HU	*Mercury*	*1 µg/l*	*0,07-0,2 µg/l*	*national*	-
HU	*Trichlorethylene*	*10 µg/l*		*national*	-
HU	*Tetrachloro ethylene*	*10 µg/l*		*national*	-
HU	*AOX*	*20 µg/l*		*national*	-
HU	*Pesticides by components*	*0,1 µg/l*		*national*	-
HU	*Pesticides all*	*0,5 µg/l*		*national*	-
SK1000300P	NH_4	*0,26 mg/l*		*GWB*	*yes*
	NO_3	*28,3 mg/l*		*GWB*	-
	Cl	*62,3 mg/l*		*GWB*	-
	As	*0,006 µg/l*		*GWB*	-
	SO_4	*157,6 mg/l*		*GWB*	-
SK1000200P	NH_4	*0,255 mg/l*		*GWB*	-
	NO_3	*32,1 mg/l*		*GWB*	-
	Cl	*60,75 mg/l*		*GWB*	-
	As	*0,006 µg/l*		*GWB*	-
	SO_4	*148,9 mg/l*		*GWB*	-

GWB-9: Bodrog

GWB-9	National share	**HU-9** **SK-9**	Status 2015 for each national GWB?	
			Quality (substance)	Quantity
List of individual GW-bodies forming the whole national share (national code incl. country code)	HU	HU_AIQ495	good	good
	HU	HU_AIQ496	good	good
	SK	SK1001500P	good	good

Description/Characterisation of the ICPDR GW-body	***Delineation: see GWB-8*** *At the common eastern border of Slovakia and Hungary, the alluvial aquifer system corresponding to the Bodrog River catchment area in Slovakia and the Tisza-valley between Záhony and Tokaj (confluence with the Bodrog River) has been selected as important due to (i) its significance in meeting the water demand of the region, (ii) contamination threat of the groundwater in the vicinity of state border between Slovakia and Hungary. Some part of the water aquifer system is in Ukraine.* ***General description*** *The aquifer is the alluvial deposit of the Bodrog River and its tributaries. The Tisza divides the lowland area in Hungary into Bodrogköz (northern part) and Rétköz (Southern part). Holocene silty-clayey layers cover the surface with peaty areas. The Quaternary aquifer is around 60 m thick in the Slovakian side and its thickness gradually increases in Hungary towards the South (50-200 m). The fluvial sediments (from sandy gravels in the North to sands is the South with intercalated silt and clay lenses) can be characterized by 5 – 30 m/d hydraulic conductivity.* *In the Slovakian part only the Quaternary aquifer system is part of the transboundary water body-complex while in Hungary the Upper part of the Pannonian formation is also attached (depth is app. 500 m, corresponding to water temperature less than 30°C).* *The main recharge area is in the Slovakian territory. The rain waters infiltrate at the marginal mountains and penetrate into permeable deep aquifers. In the upstream part of the catchment area surface waters also contribute to the recharge. In the Slovakian side the water bodies are mainly unconfined or in some places partly confined. In Hungary both water bodies are in discharge position and the main aquifers can be considered as confined. Here the groundwater level lies close to (between 2 and 4 m below) the surface. Where it is around 2 m below the surface, the groundwater can considerably contribute to the transpiration need of the vegetation, which are adapted to that condition, and consequently they are very sensitive to the status of the groundwater. The surplus of evapotranspiration and the artificial drainage system (canals) collect the upward groundwater flow. From South, the sandy hills of Nyírség contribute to the discharged groundwater as well, but the boundary of the waters of different origin is not exactly known (that is why both discharge areas in Hungary have been attached to the transboundary aquifer). The general direction of the groundwater flow is N-S (NE-SW) to the North of the Tisza River and SE-NW in the Rétköz and uncertain below the Tisza.* *The regional hydro-geochemical picture follows the flow system. Close to the river bed sections recharging groundwater, the water quality is almost the same as in surface streams. Generally low TDS, Ca-Mg-HCO3 type waters occur in the recharge areas, Na-HCO3 waters dominate in the middle and western part of Rétköz, and mixture of these two types in the western part of Bodrogköz region. At the centre of the Bodrogköz, elevated Cl-content indicates strong upward migration from the deeper zones.* *The major water quality problem of natural origin in the Bodrogköz Quaternary aquifer complex is the high iron and manganese content (reducing conditions). In the Rétköz elevated (10–30 μ/l) arsenic-content occurs.* *The estimated amount of available groundwater resources is almost 50 Mm3/year in the Slovakian part, out of that 10–15 Mm3/year should be maintained as lateral flow towards the Hungarian part. It is to be mentioned, that the southern part of the Hungarian discharge area receives water from the southern recharge areas as well, but no local recharge can be considered available for abstraction in the Bodrogköz and Rétköz.* ***Major pressures and impacts*** *The groundwater is mainly used for drinking water supply, but partially for industrial and agricultural purposes (inc. irrigation) as well. The use ratio is quite low in Slovakia: only 10*

	%. The development is limited by occurrence of technologically inappropriate substances in water (Mn, Fe) and sometimes also by groundwater pollution from surface waters, industry, agriculture and transport infrastructure (Strážske, Hencovce, Michalovce, Čierna nad Tisou). *In Hungary the available groundwater resources of the two water bodies are quite different. In the northern part, which is in close relation to the Slovakian part, the water demand of the groundwater dependent aquatic and terrestrial ecosystems can be estimated at 5–8 Mm3/d, thus the available groundwater resources is in the range of 5–7 Mm3/year. The abstracted amount of groundwater is 3 Mm3/year, so the ratio is around 50 %, but the majority is concentrated to Ronyva/Roňava river valley. In the southern part, the lateral flow from the recharge zone of Nyírség (app. 30 Mm3/year) provides sufficient water for the minimum water demand of ecosystems (8-12 Mm3/year) and for 8 Mm3/year of abstraction.* *In Hungary 10 significant point sources of pollution have been registered. The shallow groundwater has usually high nitrate under the settlements, because of the inappropriate handling of manure and the totally or partially missing sewer systems. The agriculture contributes to the pollution as well, through use of chemicals. The estimated amunt of surplus Nitrogen is 15 kgN/ha/year originated from the use of 88 kgN/ha/year fertilizer and 13 kgN/year manure.* *The groundwater quality in Slovakia is monitored in 17 sampling sites, groundwater samples are taken from the first aquifer 2 times per year). The Hungarian water quality monitoring is concentrating in the surrounding of waterworks. The quality of the Ronyva/Roňava aquifer close to the waterworks of Sátoraljaújhely shows increasing tendency of Nitrate pollution: the average concentration is around 30 mg/l, and in one production well the Nitrate-concentration exceeds the limit value of 50 mg/l. Information on pollution in arable lands is practically missing in this region.* *The high vulnerability of groundwater and the expected future development in water demand requires high level of protection in the Slovakian part of the region mainly oriented to measures focused on industrial pollution sources. In Hungary the protection zones of the waterworks (5 %) need special attention.*
Description of **status** assessment methodology.	<u>Chemical Status</u> ***Slovak Republic:*** *No changes since 2009* ***Hungary:*** *Assessment of the chemical status of groundwater was conducted: Analysing of the chemical data of individual monitoring points within each of the GWBs; Identifying of the pressures - sources of pollution; The background levels were calculated and used to determine threshold value. Threshold values have been determined according to CIS Guidance No. 18. Contamination limits have been determined for all indicators listed in Annex II Part B of Directive 2006/118/EC and indicators of the report under Art. 5 of Directive 2006/118/EC.* *The following parameters were investigated:* *a) Natural Background Level was determined for the following components: nitrate, ammonium, specific conductivity, sulphate, chloride, arsenic, cadmium, lead, mercury,* *b) For each monitoring point the median concentration of each parameters of the studied period was compared to the thresholds values (determined for each GWB) or standards values (in the case of nitrates, metals and pesticides).* *c) Different tests were conducted to assess groundwater body status: Diffuse pollution test (nitrate, ammonium), Drinking water supply tests for numerous elements or components in both drinking water wells and monitoring wells and trend analysis based on the data of the surveillance monitoring system. Studied components of these tests are: nitrate, ammonium, chloride, sulphate, specific conductivity, mercury, lead, cadmium, pesticides and organics, furthermore in the trend analysis pH and dissolved oxygen.* *d) Based on these tests, groundwater body was evaluated.* <u>Quantitative Status</u> ***Hungary:*** *To determine the overall quantitative status for a GWB, a series of tests should be applied that considers the impacts of anthropogenically induced long-term alterations in groundwater level and/or flow. Each test will assess whether the GWB is meeting the relevant environmental objectives. The quantitative status has been assessed taking into account CIS Guidance No.18. The following criteria have been used:* - *<u>GW alteration (Drawdown) test</u>*

	- *Water Balance test* - *Surface Water Flow test* - *Groundwater Dependent Terrestrial Ecosystems (GWDTE)* - *Saline or other Intrusion test* ***Slovak Republic:*** *Assessment of groundwater quantitative status consists:* 1. *determination of usable amounts of groundwater and transformed usable amounts of groundwater to quaternary and prequaternary groundwater bodies, determine the size of groundwater abstractions for quaternary and prequaternary groundwater bodies, calculate the change trends of groundwater abstractions and balance assessment (share of groundwater use) of groundwater bodies by 2012 (set of evaluation periods 2004–2012 and 2009–2012)* 2. *evaluation of significant subsidence trends of groundwater regime, processed at all monitoring objects SK hydrological network of groundwater (wells and springs). Object selection, input analysis of the representativeness of the data and measurements, data verification by 2011, verification the criteria for checking the length and representativeness of monitoring the statistical test, comprehensive evaluation of the Mann-Kendall method (95% significance level) and the output circuitry results in the quaternary and prequaternary groundwater bodies* 3. *assessment of the impacts of groundwater abstractions (determination of water management problem sites) from the perspective of quantitative status of groundwater bodies (based on the results of the assessment points 1 and 2) and in the view of the results provided on the evaluation of flows on the surface streams* 4. *linking the results of points 1 to 3 in the quaternary and prequaternary groundwater bodies, identification causes and possible areas causing poor quantitative status (in 2015). Basis for analysis of water use management of groundwater resources and water planning, taking into account geology and hydrogeology territory in connection to groundwater abstractions causing possible poor quantitative status.*
Groundwater threshold value relationships	<u>Receptors considered</u> ***Slovak Republic:*** *Drinking water* ***Hungary:*** *Drinking Water standards* *EQS for herbicides and total pesticides, tri-, tetrachloroethylenes based on 201/2001. (X.25.) Gov. decree and the 6/2009. (IV.14.) KvVM-EüM-FVM common ministerial decree in correspondence to I. Annex of the 2006/118/EC directive.* *In Hungary, more than 95% of drinking water ensured from subsurface waters, so the DWS is applicable. Exempt those cases, when the karstic and shallow GWBs are in direct relation to aquatic ecosystems (GWAAE), so here the EQS nitrate is applicable (25 mg/l) instead of 50 mg/l of DWS.* *For other components the DWS is applicable.* *For those GWBs where the NBL was higher than the DWS due to natural hydro-geological reasons, the TVs for ammonium, SO4 and EC were defined by taking into account these higher values, as described in Guidance Document No. 18.* <u>Consideration of NBL and EQS (environmental quality standards, drinking water standards) in the TV establishment:</u> ***Slovak Republic:*** *Threshold value= (NBL + drinking water standards)/2*
Verbal description of the **trend** assessment methodology	***Slovak Republic:*** *Trend is assessed separately for groundwater quality and quantity at which for trends in quantity the procedure applies for all GW quantity monitoring sites. The assessment follows a stepwise procedure. Consisting of the evaluation of the data sets and the monitoring points (no gaps in time series are allowed and data from 1992–2011 were used), consisting of the performance of the non-parametric Mann-Kendall trend test (95% confidence level) and comprising the parametric SLOPE test (critical value 2%). At the end monitoring points with decreasing trends are checked for significant groundwater abstractions in the area around the well by using GIS. GWBs with decreasing trends but with no evidence of abstraction are excluded from assessment in the 2nd RBMP. For assessing trends in concentrations of pollutants in groundwater the evaluation period was 2000–2011. The results of surveillance and operational monitoring were applied for the assessment. Monitoring frequency depends on the GWB type. In the analysis the values <LOQ are replaced by LOQmax/2. Trend assessment*

	is only performed if the number of values <LOQ is less than 50%. Non-parametric Mann-Kendall test with 5% significance level was applied for trend evaluation. ***Hungary****: To assess the trend of pollutant concentrations, chemical data of the surveillance monitoring systems were used for the period of 2000 to 2012. The trend analysis was done using Matlab program package of Man-Kendall method with fitted Sen slope. The steps used for trend assessment were:* • *During the assessment trend of all components for all monitoring objects were created using yearly average data and excluding time series with less than 4 datapoints.* • *The trend of groundwater body level aggregates of yearly annual data were assessed as well.* *Significant upward or downward trends were identified on 95 and 90% significance level using Man-Kendall method with Sen's slope.*
Verbal description of the **trend reversal** assessment methodology	***Slovak Republic:*** *Not evaluated*

Threshold values per GWB

	Pollutant / Indicator	*TV (or range) [unit]*	*NBL (or range) [unit]*	*Level of TV establishment (national, RBD, GWB)*	*Related to risk in this GWB [yes/-]*
HU	*Nitrates*	*50 mg/l*	*1,2-12,8 mg/l*	*GWB*	-
HU	*Ammonium*	*2-5 mg/l*	*1,79-3,6 mg/l*	*GWB*	-
HU	*Conductivity*	*2500 µS/cm*	*1370-1483 µS/cm*	*GWB*	-
HU	*Sulfate*	*250 mg/l*	*42,2-191 mg/l*	*GWB*	-
HU	*Chloride*	*250 mg/l*	*135-214 mg/l*	*GWB*	-
HU	*Arsenic*	*µg/l*	*6,1-8,1 µg/l*	*national*	-
HU	*Cadmium*	*5 µg/l*	*0,03-1 µg/l*	*national*	-
HU	*Lead*	*10 µg/l*	*3,5-4,36µg/l*	*national*	-
HU	*Mercury*	*1 µg/l*	*0,1-0,19 µg/l*	*national*	-
HU	*Trichlorethylene*	*10 µg/l*		*national*	-
HU	*Tetrachloro ethylene*	*10 µg/l*		*national*	-
HU	*Absorbed organic halogens AOX*	*20 µg/l*		*national*	-
HU	*Pesticides by components*	*0,1 µg/l*		*national*	-
HU	*Pesticides all*	*0,5 µg/l*		*national*	-
SK	NH_4	*0,295 mg/l*		*GWB*	-

GWB-10: Slovensky kras / Aggtelek-hgs.

<table>
<tr><td rowspan="2">GWB-10</td><td colspan="2" rowspan="2">National share</td><td rowspan="2">HU-10
SK-10</td><td colspan="2">Status 2015 for each national GWB?</td></tr>
<tr><td>Quality (substance)</td><td>Quantity</td></tr>
<tr><td rowspan="3">List of individual GW-bodies forming the whole national share (national code incl. country code)</td><td colspan="2">HU</td><td>HU_AIQ485</td><td>good</td><td>good</td></tr>
<tr><td colspan="2">SK</td><td>SK200480KF</td><td>good</td><td>good</td></tr>
<tr><td colspan="5"></td></tr>
<tr><td colspan="2">Description/Characterisation of the ICPDR GW-body</td><td colspan="4">Delineation: see GWB-8
The Aggtelek Mountain and the Slovensky kras form a large common karstic aquifer system in the Eastern part of the counrtries. It is selected for presenting in the Danube-basin report as important transboundary water body: (i) National Park covers the majority of its surface, where the role of the groundwater is presented by springs and stalactite caves, (ii) significant drinking water resource in Slovakia, regionally important in Hungary (iii) vulnerable area requiring protection.
General description
The GWB is in a Mesozoic complex with morphologically visible karstic plateau and canyon-like valleys of water courses, separating different units. Hydrogeological units are very different according to the character of permeability, character of groundwater circulation, type of groundwater regime, and also in the resulting yield of groundwater springs. From hydro-geological point of view, the most important tectonic unit in the area is the Silicicum unit, mainly its Middle Triassic and Upper Triassic part. The most important aquifer here is the Middle and Upper Triassic limestone and dolomites with karst-fissure type of permeability. Similarly important hydrogeological units in the Hungarian side are Alsóhegy, Nagyoldal, Hasagistya and Galyaság, which contain the Aggtelek-Domica cave system. Tertiary basins act as a regional impermeable barrier for the groundwater accumulated in Triassic limestone.
Groundwater circulation in these rocks is controlled by extreme heterogeneity of carbonate rocks, following the tectonic development. These tectonically pre-destinated drainage structures show the major influence on the directions of groundwater flow. Majority of groundwater is drained towards big karstic springs. Areas between such tectonic faults are less karstified and also less permeable. If not drained by cave systems or permeable tectonic faults, groundwater usually feeds the Quaternary coverage. Specific hydraulic feature of the karstified carbonate complex with preferred drainage structures is that no continuous groundwater table ca be defined within the rock mass. Groundwater in many cases only fills up karstic openings – conduits, sometimes enlarged into the cave systems, while segments between the preferred groundwater routes are unsaturated. On the other hand, groundwater level changes in these zones are sharp and show quick response to the meteorological situation. Typical amplitude of groundwater level change is from 5 to 15 m. In such levels above the erosion base perennial springs occur after an intensive rainfall events or sudden snowmelts. Hidden outflow to the deeper structures within and outside of the area the territory (generally of westward direction under the Tertiary sediments of the Rimavská kotlina Basin) is considered to be quite important from the water management point of view. Groundwater abstraction for various purposes is concentrated at the natural outflows of springs – relatively small portion is abstracted by pumping from boreholes and wells.
Major pressures and impacts
The estimated amount of available resources in Slovenský kras is 40.4 Mm3/year, the actual use is 21 % of available resources, mainly for drinking water purposes.
In the Hungarian side only the amount of karstic water is utilized, which flows out naturally from karstic springs in Jósvafő, Szögliget, Komjáti, Égerszög and Aggtelek. There are enough data about karst spring discharge. Observed discharge data are available for a period of nearly 30 years. Because of the National Park no important karstic water abstraction will be planned on the area.
National Parks cover the majority of the area. In addition, in Hungary the total area of the GWB is considered as Nitrate-sensitive. .</td></tr>
<tr><td colspan="2">Description of status</td><td colspan="4"><u>Chemical Status:</u>
Slovak Republic: No changes since 2009</td></tr>
</table>

assessment methodology.	***Hungary:*** *Assessment of the chemical status of groundwater was conducted: Analysing of the chemical data of individual monitoring points within each of the GWBs; Identifying of the pressures - sources of pollution; The background levels were calculated and used to determine threshold value. Threshold values have been determined according to CIS Guidance No. 18. Contamination limits have been determined for all indicators listed in Annex II Part B of Directive 2006/118/EC and indicators of the report under Art. 5 of Directive 2006/118/EC.* *The following parameters were investigated:* *a) Natural Background Level was determined for the following components: nitrate, ammonium, specific conductivity, sulphate, chloride, arsenic, cadmium, lead, mercury,* *b) For each monitoring point the median concentration of each parameters of the studied period was compared to the thresholds values (determined for each GWB) or standards values (in the case of nitrates, metals and pesticides).* *c) Different tests were conducted to assess groundwater body status: Diffuse pollution test (nitrate, ammonium), Drinking water supply tests for numerous elements or components in both drinking water wells and monitoring wells and trend analysis based on the data of the surveillance monitoring system. Studied components of these tests are: nitrate, ammonium, chloride, sulphate, specific conductivity, mercury, lead, cadmium, pesticides and organics, furthermore in the trend analysis pH and dissolved oxygen.* *d) Based on these tests, groundwater body was evaluated.* Quantitative Status: ***Hungary:*** *To determine the overall quantitative status for a GWB, a series of tests should be applied that considers the impacts of anthropogenically induced long-term alterations in groundwater level and/or flow. Each test will assess whether the GWB is meeting the relevant environmental objectives. The quantitative status has been assessed taking into account CIS Guidance No.18. The following criteria have been used:* - *GW alteration (Drawdown) test* - *Water Balance test* - *Surface Water Flow test* - *Groundwater Dependent Terrestrial Ecosystems (GWDTE)* - *Saline or other Intrusion test* ***Slovak Republic:*** *Assessment of groundwater quantitative status consists:* *1. determination of usable amounts of groundwater and transformed usable amounts of groundwater to quaternary and prequaternary groundwater bodies, determine the size of groundwater abstractions for quaternary and prequaternary groundwater bodies, calculate the change trends of groundwater abstractions and balance assessment (share of groundwater use) of groundwater bodies by 2012 (set of evaluation periods 2004 - 2012 and 2009 - 2012)* *2. evaluation of significant subsidence trends of groundwater regime, processed at all monitoring objects SK hydrological network of groundwater (wells and springs). Object selection, input analysis of the representativeness of the data and measurements, data verification by 2011, verification the criteria for checking the length and representativeness of monitoring the statistical test, comprehensive evaluation of the Mann-Kendall method (95% significance level) and the output circuitry results in the quaternary and prequaternary groundwater bodies* *3. assessment of the impacts of groundwater abstractions (determination of water management problem sites) from the perspective of quantitative status of groundwater bodies (based on the results of the assessment points 1 and 2) and in the view of the results provided on the evaluation of flows on the surface streams* *4. linking the results of points 1 to 3 in the quaternary and prequaternary groundwater bodies, identification causes and possible areas causing poor quantitative status (in 2015). Basis for analysis of water use management of groundwater resources and water planning, taking into account geology and hydrogeology territory in connection to groundwater abstractions causing possible poor quantitative status.*
Groundwater threshold	Receptors considered ***Slovak Republic:*** *Drinking water*

value relationships	***Hungary:*** *Drinking Water standards* *EQS for herbicides and total pesticides, tri-, tetrachloroethylenes based on 201/2001. (X.25.) Gov. decree and the 6/2009. (IV.14.) KvVM-EüM-FVM common ministerial decree in correspondence to I. Annex of the 2006/118/EC directive.* *In Hungary, more than 95% of drinking water ensured from subsurface waters, so the DWS is applicable. Exempt those cases, when the karstic and shallow GWBs are in direct relation to aquatic ecosystems (GWAAE), so here the EQS nitrate is applicable (25 mg/l) instead of 50 mg/l of DWS.* *For other components the DWS is applicable.* *For those GWBs where the NBL was higher than the DWS due to natural hydro-geological reasons, the TVs for ammonium, SO4 and EC were defined by taking into account these higher values, as described in Guidance Document No. 18.* Consideration of NBL and EQS (environmental quality standards, drinking water standards) in the TV establishment: ***Slovak Republic:*** *Threshold value= (NBL + drinking water standards)/2*
Verbal description of the **trend** assessment methodology	***Slovak Republic:*** *Trend is assessed separately for groundwater quality and quantity at which for trends in quantity the procedure applies for all GW quantity monitoring sites. The assessment follows a stepwise procedure. Consisting of the evaluation of the data sets and the monitoring points (no gaps in time series are allowed and data from 1992–2011 were used), consisting of the performance of the non-parametric Mann-Kendall trend test (95% confidence level) and comprising the parametric SLOPE test (critical value 2%). At the end monitoring points with decreasing trends are checked for significant groundwater abstractions in the area around the well by using GIS. GWBs with decreasing trends but with no evidence of abstraction are excluded from assessment in the 2nd RBMP. For assessing trends in concentrations of pollutants in groundwater the evaluation period was 2000–2011. The results of surveillance and operational monitoring were applied for the assessment. Monitoring frequency depends on the GWB type. In the analysis the values <LOQ are replaced by LOQmax/2. Trend assessment is only performed if the number of values <LOQ is less than 50%. Non-parametric Mann-Kendall test with 5% significance level was applied for trend evaluation.* ***Hungary****: To assess the trend of pollutant concentrations, chemical data of the surveillance monitoring systems were used for the period of 2000 to 2012. The trend analysis was done using Matlab program package of Man-Kendall method with fitted Sen slope. The steps used for trend assessment were:* • *During the assessment trend of all components for all monitoring objects were created using yearly average data and excluding time series with less than 4 datapoints.* • *The trend of groundwater body level aggregates of yearly annual data were assessed as well.* *Significant upward or downward trends were identified on 95 and 90% significance level using Man-Kendall method with Sen's slope.*
Verbal description of the **trend reversal** assessment methodology	***Slovak Republic:*** *Not evaluated*

Threshold values per GWB

	Pollutant / Indicator	*TV (or range) [unit]*	*NBL (or range) [unit]*	*Level of TV establishment (national, RBD, GWB)*	*Related to risk in this GWB [yes/-]*
HU	*Nitrates*	*50 mg/l*	*8,6 mg/l*	*GWB*	-
HU	*Ammonium*	*0,5 mg/l*	*0,26 mg/l*	*GWB*	-
HU	*Conductivity*	*2500 µS/cm*	*732 µS/cm*	*GWB*	-
HU	*Sulfate*	*250 mg/l*	*123 mg/l*	*GWB*	-
HU	*Chloride*	*250 mg/l*	*88 mg/l*	*GWB*	-
HU	*Arsenic*	*µg/l*	*1,04 µg/l*	*national*	-
HU	*Cadmium*	*5 µg/l*	*0,02 µg/l*	*national*	-
HU	*Lead*	*10 µg/l*	*0,7 µg/l*	*national*	-
HU	*Mercury*	*1 µg/l*	*0,49 µg/l*	*national*	-

HU	*Trichlorethylene*	*10 µg/l*		*national*	*-*
HU	*Tetrachloro ethylene*	*10 µg/l*		*national*	*-*
HU	*Absorbed organic halogens AOX*	*20 µg/l*		*national*	*-*
HU	*Pesticides by components*	*0,1 µg/l*		*national*	*-*
HU	*Pesticides all*	*0,5 µg/l*		*national*	*-*

GWB-11: Komarnanska Vysoka Kryha / Dunántúli-khgs. északi r.

GWB-11	National share	**HU-11** **SK-11**	Status 2015 for each national GWB?	
			Quality (substance)	Quantity
List of individual GW-bodies forming the whole national share (national code incl. country code)	HU	HU_AIQ558	good	good
	HU	HU_AIQ552	good	good
	HU	HU_AIQ564	good	good
	SK	SK300010FK	Unknown	Unknown
	SK	SK300020FK	Unknown	Unknown

Description/Characterisation of the ICPDR GW-body	***Delineation**: see GWB-8* ***Reasons for selecting as important transboundary GWB*** *The Middle and Upper-Triassic karstic dolomite and limestone formation of the northern part of the Transdanubian Mountain (Hungary) and the Komarnanská Výsoká Kryha (Slovakia) belong to one of the largest karstic aquifer systems in Central Europe. It provides good quality drinking water for the population of the region in Hungary; it contributes to the characteristic landscape by supplying springs and the deeper part of the aquifer system is very important thermal water resources in both countries.* ***General description*** *The karstic formation of the northern part of the Transdanubian Mountains is composed mainly of Upper-Triassic dolomite and limestone. The considerable matrix porosity of the dolomite is due to the dense fissure-system, while in the limestone large fractures are characteristic along the faults. The elevated open karstic zones are separated by sunken basins, where the thickness of the covering layer is several hundred meters. Above the thermal part it exceeds 500 m of thickness (in some places it reaches even 2,500 m) consisting of different types of sediments: sand, clay, marl, sandstone, Eocene karstic formation with brown coal.* *The Slovakian part (the Komarno block) extends between Komarno and Sturovo. It is fringed by the Danube River in the South and by the E-W Hurbanovo fault in the North. The southern limit along the Danube is tectonic as well and therefore the Komarno block is a sunken tract of the northern slope of the Gerecse and Pilis Mountains. The Komarno block consists largely of Triassic dolomites and limestones up to 1,000 m in thickness. The surface of the pre-Tertiary substratum plunges towards the north from a depth of approximately 100 m near the River Danube to as much as 3,000 m near the Hurbanovo fault.* *The karstic aquifer is divided into six water bodies. In Hungary, where the recharge area appears, two water bodies bearing cold waters have been delineated according to the flow system. The thermal water bodies (in Hungary waters with temperature more than 30 ^{o}C is considered as thermal, while in Slovakia the limit is 25 ^{o}C: HU_K.1.3.2, HU_K1.5.2, SK_300010FK and SK_300020FK are in close hydraulic connection with the cold ones. To be noted, that the missing continuation of the cold water bodies in the Slovakian part is mainly due to the different consideration of the limit of temperature. Taking into account hydro-geothermal aspects, the deep Slovakian karstic aquifer is divided into the Komarno high block (SK 300010FK) and the Komarno marginal block (SK300020FK).* *The Danube River is the regional erosion base of the water bodies. The water level fluctuation is in strong relation with the water level changes in the river. The water bodies are hydraulically connected. It is valid at the border of the countries as well, i.e. under the Danube*

	and the Ipoly/Ipel Rivers, making the abstractions of water in both countries highly interrelated. *The recharge area is in the Hungarian side and the total recharge is estimated at 60 Mm^3/y. Without abstraction this amount of water is discharged by the springs and by the upward flow towards the covering layer, and some part is infiltrating to the deeper, thermal part.* *The temperature of the water abstracted (captured) from the Hungarian thermal water bodies does not exceed 50 ^oC. Heat-flow densities suggest that the Komarno high block can be characterised by a fairly low (thermal spring at Sturovo and Patince are 39 and 26 ^oC warm) and the marginal block by a medium geothermal activity (40–68 ^oC). Heat flow given in mW/m^2 is 50- 60 in Komárno high block and 60–70 mW/m^2 in Komárno marginal block, both considered as low values.* *Coefficient of transmissivity in the high block varies from 13 to 100 m^2/d, while in the marginal block between 4 to 20 m^2/d. Prognostic recoverable amount of thermal water in the high block is estimated at 12,000 m^3/d water of 20 to 40°C warm. In the marginal block the abstracted thermal water should be re-injected after use.* ***Major pressures and impacts*** *In Hungary the actual abstractions are apr. 30 M m^3/y from the cold part and 2 M m^3/y from the thermal part. In Slovakia the thermal water abstraction is 0.6 M m^3/y mainly in area Komárno-Patince-Štúrovo. The cold karstic water is used for drinking water, the thermal water for balneology (in Hungary and in Slovakia) and for energy production (in Slovakia). Disposal of used geothermal water is solved in Slovakia by discharge into surface water (River Danube and Váh) after dilution with groundwater on acceptable qualitative parameters.* *Due to the mining activities in the 20th century, the actual water levels - especially in the cold water bodies in the Hungarian side - are significantly lower than the long-term natural averages and as a consequence all cold and lukewarm karstic springs dried out. In the Slovak side the regime of geothermal water (decreasing discharges of wells) was also affected by the extensive pumping of karstic water from coal mines in Tatabánya and Dorog (Hungary). After the mining was stopped (in 1993), the water levels have been showing increasing trend and the gradual reappearance of the springs is forecasted in the coming 5–15 years.* *The abandoned cuts and fields of mine submerged by the rising karstic water represent a potential pollution source. Water quality monitoring has been installed, but data are not sufficient for estimating future impacts.* *In extremely vulnerable open karstic area a few settlements should be considered as potential source of pollution. Relatively a high number of significant pollution exists in the area (40). The majority is lying above the not vulnerable covered part. The average amount of Nitrogen fertilizer is 86 kgN/ha/year, the use of manure is insignificant (3 kgN/ha/year). The surplus Nitrogen from agriculture is 17 kgN/ha/year, but in the majority of the area the thick covering layers provide natural protection. (Localities in real danger should be assessed at smaller scale, focusing on open karstic zones).*
Description of **status** assessment methodology.	<u>Chemical Status</u> ***Hungary:*** *Assessment of the chemical status of groundwater was conducted: Analysing of the chemical data of individual monitoring points within each of the GWBs; Identifying of the pressures - sources of pollution; The background levels were calculated and used to determine threshold value. Threshold values have been determined according to CIS Guidance No. 18. Contamination limits have been determined for all indicators listed in Annex II Part B of Directive 2006/118/EC and indicators of the report under Art. 5 of Directive 2006/118/EC.* *The following parameters were investigated:* *a) Natural Background Level was determined for the following components: nitrate, ammonium, specific conductivity, sulphate, chloride, arsenic, cadmium, lead, mercury,* *b) For each monitoring point the median concentration of each parameters of the studied period was compared to the thresholds values (determined for each GWB) or standards values (in the case of nitrates, metals and pesticides).* *c) Different tests were conducted to assess groundwater body status:*

	Diffuse pollution test (nitrate, ammonium), Drinking water supply tests for numerous elements or components in both drinking water wells and monitoring wells and trend analysis based on the data of the surveillance monitoring system. Studied components of these tests are: nitrate, ammonium, chloride, sulphate, specific conductivity, mercury, lead, cadmium, pesticides and organics, furthermore in the trend analysis pH and dissolved oxygen. *d) Based on these tests, groundwater body was evaluated.* Quantitative Status Hungary: To determine the overall quantitative status for a GWB, a series of tests should be applied that considers the impacts of anthropogenically induced long-term alterations in groundwater level and/or flow. Each test will assess whether the GWB is meeting the relevant environmental objectives. The quantitative status has been assessed taking into account CIS Guidance No.18. The following criteria have been used: - GW alteration (Drawdown) test - Water Balance test - Surface Water Flow test - Groundwater Dependent Terrestrial Ecosystems (GWDTE) - Saline or other Intrusion test
Groundwater threshold value relationships	Receptors considered ***Hungary:*** *Drinking Water standards* *EQS for herbicides and total pesticides, tri-, tetrachloroethylenes based on 201/2001. (X.25.) Gov. decree and the 6/2009. (IV.14.) KvVM-EüM-FVM common ministerial decree in correspondence to I. Annex of the 2006/118/EC directive.* *In Hungary, more than 95% of drinking water ensured from subsurface waters, so the DWS is applicable. Exempt those cases, when the karstic and shallow GWBs are in direct relation to aquatic ecosystems (GWAAE), so here the EQS nitrate is applicable (25 mg/l) instead of 50 mg/l of DWS.* *For other components the DWS is applicable.* *For those GWBs where the NBL was higher than the DWS due to natural hydro-geological reasons, the TVs for ammonium, SO4 and EC were defined by taking into account these higher values, as described in Guidance Document No. 18.* Consideration of NBL and EQS (environmental quality standards, drinking water standards) in the TV establishment:
Verbal description of the **trend** assessment methodology	***Hungary****: To assess the trend of pollutant concentrations, chemical data of the surveillance monitoring systems were used for the period of 2000 to 2012. The trend analysis was done using Matlab program package of Man-Kendall method with fitted Sen slope. The steps used for trend assessment were:* • *During the assessment trend of all components for all monitoring objects were created using yearly average data and excluding time series with less than 4 datapoints.* • *The trend of groundwater body level aggregates of yearly annual data were assessed as well.* *Significant upward or downward trends were identified on 95 and 90% significance level using Man-Kendall method with Sen's slope.*
Verbal description of the **trend reversal** assessment methodology	

Threshold values per GWB

	Pollutant / Indicator	*TV (or range) [unit]*	*NBL (or range) [unit]*	*Level of TV establishment*	*Related to risk in this GWB*

				(national, RBD, GWB)	*[yes/-]*
HU	*Nitrates*	*50-no TV mg/l*	*<1-9,8 mg/l*	*GWB*	-
HU	*Ammonium*	*0,5-no TV mg/l*	*0,26-16,7 mg/l*	*GWB*	-
HU	*Conductivity*	*2500-no TV µS/cm*	*996-5097 µS/cm*	*GWB*	-
HU	*Sulfate*	*250-no TV mg/l*	*124-266 mg/l*	*GWB*	-
HU	*Chloride*	*250-no TV mg/l*	*35-627 mg/l*	*GWB*	-
HU	*Arsenic*	*no TV µg/l*	*4,79-32,4 µg/l*	*national*	-
HU	*Cadmium*	*5-no TV µg/l*	*0,08-0,2 µg/l*	*national*	-
HU	*Lead*	*10-no TV µg/l*	*2-3,42 µg/l*	*national*	-
HU	*Mercury*	*1-no TV µg/l*	*0,21-0,5 µg/l*	*national*	-
HU	*Trichlorethylene*	*10-no TV µg/l*		*national*	-
HU	*Tetrachloro ethylene*	*10-no TV µg/l*		*national*	-
HU	*Absorbed organic halogens AOX*	*20-no TV µg/l*		*national*	-
HU	*Pesticides by components*	*0,1-no TV µg/l*		*national*	-
HU	*Pesticides all*	*0,5-no TV µg/l*		*national*	-

*: no TV for karst termal GWB

Significant pressures on the ICPDR GW-bodies

Code of ICPDR GW-body		*GWB-1*
National share of ICPDR GW-body (nationally aggregated part)		*AT-1, DE-1*

Significant Pressures for Groundwater	**Status pressure types 2015**				**Risk pressure types 2013→2021**			
	Chemical Yes/-		**Quantity** Yes/-		**Chemical** Yes/-		**Quantity** Yes/-	
	AT	DE	AT	DE	AT	DE	AT	DE
Point sources	-				-			
Leakages from contaminated sites								
Leakages from waste disposal sites (landfill and agricultural waste disposal)								
Leakages associated with oil industry infrastructure								
Mine water discharges								
Discharges to ground such as disposal of contaminated water to soak ways								
Other relevant point sources (specify below)								
Diffuse Sources	-				-			
due to agricultural activities								
due to non-sewered population								
Urban land use								
Other significant diffuse pressures (specify below)								
Water abstractions			-				-	
Abstractions for agriculture								
Abstractions for public water supply								
Abstractions by industry								
IPPC activities								
Non-IPPC activities								
Abstractions by quarries/open cast coal sites								
Other major abstractions (specify below)								
Artificial recharge			-				-	
Discharges to groundwater for artificial recharge purposes								
Returns of groundwater to GWB from which it was abstracted (e.g. for sand and gravel washing)								
Mine water rebound								
Other major recharges (specify below)								
Other significant pressures	-		-		-		-	
Saltwater intrusion								
Other intrusion (specify below)								
Description of other significant pressures than those selected above.								

Code of ICPDR GW-body		*GWB-2*
National share of ICPDR GW-body (nationally aggregated part)		*BG-2, RO-2*

	Status pressure types 2015				**Risk pressure types 2013→2021**			
Significant Pressures for Groundwater	**Chemical** Yes/-		**Quantity** Yes/-		**Chemical** Yes/-		**Quantity** Yes/-	
	BG	RO	BG	RO	BG	RO	BG	RO
Point sources	-				-			
Leakages from contaminated sites								
Leakages from waste disposal sites (landfill and agricultural waste disposal)								
Leakages associated with oil industry infrastructure								
Mine water discharges								
Discharges to ground such as disposal of contaminated water to soak ways								
Other relevant point sources (specify below)								
Diffuse Sources	-				-			
due to agricultural activities								
due to non-sewered population								
Urban land use								
Other significant diffuse pressures (specify below)								
Water abstractions			-				-	
Abstractions for agriculture								
Abstractions for public water supply								
Abstractions by industry								
IPPC activities								
Non-IPPC activities								
Abstractions by quarries/open cast coal sites								
Other major abstractions (specify below)								
Artificial recharge			-				-	
Discharges to groundwater for artificial recharge purposes								
Returns of groundwater to GWB from which it was abstracted (e.g. for sand and gravel washing)								
Mine water rebound								
Other major recharges (specify below)								
Other significant pressures	-		-		-		-	
Saltwater intrusion								
Other intrusion (specify below)								

Description of other significant pressures than those selected above.	

Code of ICPDR GW-body		*GWB-3*
National share of ICPDR GW-body (nationally aggregated part)		*MD-3, RO-3*

	Status pressure types 2015				**Risk pressure types 2013→2021**			
Significant Pressures for Groundwater	**Chemical** Yes/-		**Quantity** Yes/-		**Chemical** Yes/-		**Quantity** Yes/-	
	MD	RO	MD	RO	MD risk	RO	MD	RO
Point sources	**-**				**Yes**	**-**		
Leakages from contaminated sites								
Leakages from waste disposal sites (landfill and agricultural waste disposal)					x			
Leakages associated with oil industry infrastructure					x			
Mine water discharges								
Discharges to ground such as disposal of contaminated water to soak ways								
Other relevant point sources (specify below)								
Diffuse Sources	**-**				**Yes**	**-**		
due to agricultural activities					x			
due to non-sewered population					x			
Urban land use								
Other significant diffuse pressures (specify below)								
Water abstractions			**-**		**Yes**	**-**	**-**	
Abstractions for agriculture								
Abstractions for public water supply								
Abstractions by industry					x			
IPPC activities								
Non-IPPC activities								
Abstractions by quarries/open cast coal sites								
Other major abstractions (specify below)								
Artificial recharge			**-**				**-**	
Discharges to groundwater for artificial recharge purposes								
Returns of groundwater to GWB from which it was abstracted (e.g. for sand and gravel washing)								
Mine water rebound								
Other major recharges (specify below)								
Other significant pressures	**-**		**-**		**-**		**-**	
Saltwater intrusion								
Other intrusion (specify below)								

Description of other significant pressures than those selected above.	

Code of ICPDR GW-body		*GWB-4*
National share of ICPDR GW-body (nationally aggregated part)		*BG-4, RO-4*

Significant Pressures for Groundwater	**Status pressure types 2015**				**Risk pressure types 2013→2021**			
	Chemical Yes/-		**Quantity** Yes/-		**Chemical** Yes/-		**Quantity** Yes/-	
	BG	RO	BG	RO	BG	RO	BG	RO
Point sources	-				-			
Leakages from contaminated sites								
Leakages from waste disposal sites (landfill and agricultural waste disposal)								
Leakages associated with oil industry infrastructure								
Mine water discharges								
Discharges to ground such as disposal of contaminated water to soak ways								
Other relevant point sources (specify below)								
Diffuse Sources	-				-			
due to agricultural activities								
due to non-sewered population								
Urban land use								
Other significant diffuse pressures (specify below)								
Water abstractions			-				-	
Abstractions for agriculture								
Abstractions for public water supply								
Abstractions by industry								
IPPC activities								
Non-IPPC activities								
Abstractions by quarries/open cast coal sites								
Other major abstractions (specify below)								
Artificial recharge			-				-	
Discharges to groundwater for artificial recharge purposes								
Returns of groundwater to GWB from which it was abstracted (e.g. for sand and gravel washing)								
Mine water rebound								
Other major recharges (specify below)								
Other significant pressures	-		-		-		-	
Saltwater intrusion								
Other intrusion (specify below)								

Description of other significant pressures than those selected above.	

Code of ICPDR GW-body		*GWB-5*
National share of ICPDR GW-body (nationally aggregated part)		*HU-5, RO-5*

Significant Pressures for Groundwater	**Status pressure types 2015**				**Risk pressure types 2013→2021**			
	Chemical Yes/-		**Quantity** Yes/-		**Chemical** Yes/-		**Quantity** Yes/-	
	HU poor	RO poor	HU poor	RO	HU risk	RO risk	HU	RO
Point sources	-				-			
Leakages from contaminated sites								
Leakages from waste disposal sites (landfill and agricultural waste disposal)								
Leakages associated with oil industry infrastructure								
Mine water discharges								
Discharges to ground such as disposal of contaminated water to soak ways								
Other relevant point sources (specify below)								
Diffuse Sources	**Yes**				**Yes**			
due to agricultural activities	x	x				x		
due to non-sewered population	x	x				x		
Urban land use	x							
Other significant diffuse pressures (specify below)								
Water abstractions			**Yes**				-	
Abstractions for agriculture								
Abstractions for public water supply								
Abstractions by industry								
IPPC activities								
Non-IPPC activities								
Abstractions by quarries/open cast coal sites								
Other major abstractions (specify below)			X					
Artificial recharge			-				-	
Discharges to groundwater for artificial recharge purposes								
Returns of groundwater to GWB from which it was abstracted (e.g. for sand and gravel washing)								
Mine water rebound								
Other major recharges (specify below)								
Other significant pressures	-		-		-		-	
Saltwater intrusion								
Other intrusion (specify below)								

Description of other significant pressures than those selected above.	HU: indirect water abstraction: inland excess water drainage

Code of ICPDR GW-body		*GWB-6*
National share of ICPDR GW-body (nationally aggregated part)		*HU-6, RO-6*

Significant Pressures for Groundwater	**Status pressure types 2015**				**Risk pressure types 2013→2021**			
	Chemical Yes/-		**Quantity** Yes/-		**Chemical** Yes/-		**Quantity** Yes/-	
	HU	RO	HU	RO	HU	RO	HU	RO
Point sources	-				-			
Leakages from contaminated sites								
Leakages from waste disposal sites (landfill and agricultural waste disposal)								
Leakages associated with oil industry infrastructure								
Mine water discharges								
Discharges to ground such as disposal of contaminated water to soak ways								
Other relevant point sources (specify below)								
Diffuse Sources	-				-			
due to agricultural activities								
due to non-sewered population								
Urban land use								
Other significant diffuse pressures (specify below)								
Water abstractions			-				-	
Abstractions for agriculture								
Abstractions for public water supply								
Abstractions by industry								
IPPC activities								
Non-IPPC activities								
Abstractions by quarries/open cast coal sites								
Other major abstractions (specify below)								
Artificial recharge			-				-	
Discharges to groundwater for artificial recharge purposes								
Returns of groundwater to GWB from which it was abstracted (e.g. for sand and gravel washing)								
Mine water rebound								
Other major recharges (specify below)								
Other significant pressures	-		-		-		-	
Saltwater intrusion								
Other intrusion (specify below)								

Description of other significant pressures than those selected above.	

Code of ICPDR GW-body		*GWB-7*
National share of ICPDR GW-body (nationally aggregated part)		*HU-7, RO-7, RS-7*

	Status pressure types 2015						Risk pressure types 2013→2021					
Significant Pressures for Groundwater	**Chemical** Yes/-			**Quantity** Yes/-			**Chemical** Yes/-			**Quantity** Yes/-		
	HU poor	RO	RS	HU poor	RO	RS poor	HU risk	RO	RS	HU risk	RO	RS risk
Point sources		-						-				
Leakages from contaminated sites												
Leakages from waste disposal sites (landfill and agricultural waste disposal)												
Leakages associated with oil industry infrastructure												
Mine water discharges												
Discharges to ground such as disposal of contaminated water to soak ways												
Other relevant point sources (specify below)												
Diffuse Sources	**Yes**	-					**Yes**	-	-			
due to agricultural activities	x											
due to non-sewered population	x											
Urban land use	x											
Other significant diffuse pressures (specify below)												
Water abstractions				**Yes**	-	**Yes**				**Yes**	-	**Yes**
Abstractions for agriculture						x						x
Abstractions for public water supply						x						x
Abstractions by industry						x						x
IPPC activities												
Non-IPPC activities												
Abstractions by quarries/open cast coal sites												
Other major abstractions (specify below)												
Artificial recharge					-						-	
Discharges to groundwater for artificial recharge purposes												
Returns of groundwater to GWB from which it was abstracted (e.g. for sand and gravel washing)												
Mine water rebound												
Other major recharges (specify below)												
Other significant pressures		-			-			-			-	
Saltwater intrusion												
Other intrusion (specify below)												

Description of other significant pressures than those selected above.	

Code of ICPDR GW-body		GWB-8
National share of ICPDR GW-body (nationally aggregated part)		HU-8, SK-8

	Status pressure types 2015				Risk pressure types 2013→2021			
Significant Pressures for Groundwater	**Chemical** Yes/-		**Quantity** Yes/-		**Chemical** Yes/-		**Quantity** Yes/-	
	HU	SK	HU poor	SK	HU risk	SK risk	HU	SK
Point sources	-				-	**Yes**		
Leakages from contaminated sites						x		
Leakages from waste disposal sites (landfill and agricultural waste disposal)								
Leakages associated with oil industry infrastructure						x		
Mine water discharges						x		
Discharges to ground such as disposal of contaminated water to soak ways								
Other relevant point sources (specify below)								
Diffuse Sources	-				**Yes**			
due to agricultural activities						x		
due to non-sewered population								
Urban land use								
Other significant diffuse pressures (specify below)								
Water abstractions			**Yes**	-			-	
Abstractions for agriculture								
Abstractions for public water supply								
Abstractions by industry								
IPPC activities								
Non-IPPC activities								
Abstractions by quarries/open cast coal sites								
Other major abstractions (specify below)			X					
Artificial recharge			-				-	
Discharges to groundwater for artificial recharge purposes								
Returns of groundwater to GWB from which it was abstracted (e.g. for sand and gravel washing)								
Mine water rebound								
Other major recharges (specify below)								
Other significant pressures	-		-		-		-	
Saltwater intrusion								
Other intrusion (specify below)								

Description of other significant pressures than those selected above.	HU: sinking riverbed, inland excess water drainage

Code of ICPDR GW-body		*GWB-9*
National share of ICPDR GW-body (nationally aggregated part)		*HU-9, SK-9*

	Status pressure types 2015				**Risk pressure types 2013→2021**			
Significant Pressures for Groundwater	**Chemical** Yes/-		**Quantity** Yes/-		**Chemical** Yes/-		**Quantity** Yes/-	
	HU	SK	HU	SK	HU	SK	HU	SK
Point sources	-				-			
Leakages from contaminated sites								
Leakages from waste disposal sites (landfill and agricultural waste disposal)								
Leakages associated with oil industry infrastructure								
Mine water discharges								
Discharges to ground such as disposal of contaminated water to soak ways								
Other relevant point sources (specify below)								
Diffuse Sources	-				-			
due to agricultural activities								
due to non-sewered population								
Urban land use								
Other significant diffuse pressures (specify below)								
Water abstractions			-				-	
Abstractions for agriculture								
Abstractions for public water supply								
Abstractions by industry								
IPPC activities								
Non-IPPC activities								
Abstractions by quarries/open cast coal sites								
Other major abstractions (specify below)								
Artificial recharge			-				-	
Discharges to groundwater for artificial recharge purposes								
Returns of groundwater to GWB from which it was abstracted (e.g. for sand and gravel washing)								
Mine water rebound								
Other major recharges (specify below)								
Other significant pressures	-		-		-		-	
Saltwater intrusion								
Other intrusion (specify below)								

Description of other significant pressures than those selected above.	

Code of ICPDR GW-body		*GWB-10*
National share of ICPDR GW-body (nationally aggregated part)		*HU-10, SK-10*

Significant Pressures for Groundwater	**Status pressure types 2015**				**Risk pressure types 2013→2021**			
	Chemical Yes/-		**Quantity** Yes/-		**Chemical** Yes/-		**Quantity** Yes/-	
	HU	SK	HU	SK	HU	SK	HU	SK
Point sources	-				-			
Leakages from contaminated sites								
Leakages from waste disposal sites (landfill and agricultural waste disposal)								
Leakages associated with oil industry infrastructure								
Mine water discharges								
Discharges to ground such as disposal of contaminated water to soak ways								
Other relevant point sources (specify below)								
Diffuse Sources	-				-			
due to agricultural activities								
due to non-sewered population								
Urban land use								
Other significant diffuse pressures (specify below)								
Water abstractions			-				-	
Abstractions for agriculture								
Abstractions for public water supply								
Abstractions by industry								
IPPC activities								
Non-IPPC activities								
Abstractions by quarries/open cast coal sites								
Other major abstractions (specify below)								
Artificial recharge			-				-	
Discharges to groundwater for artificial recharge purposes								
Returns of groundwater to GWB from which it was abstracted (e.g. for sand and gravel washing)								
Mine water rebound								
Other major recharges (specify below)								
Other significant pressures	-		-		-		-	
Saltwater intrusion								
Other intrusion (specify below)								

Description of other significant pressures than those selected above.	

Code of ICPDR GW-body		*GWB-11*
National share of ICPDR GW-body (nationally aggregated part)		*HU-11, SK-11*

Significant Pressures for Groundwater	**Status pressure types 2015**				**Risk pressure types 2013→2021**			
	Chemical Yes/-		**Quantity** Yes/-		**Chemical** Yes/-		**Quantity** Yes/-	
	HU	SK	HU	SK	HU	SK	HU risk	SK risk
Point sources	-				-			
Leakages from contaminated sites								
Leakages from waste disposal sites (landfill and agricultural waste disposal)								
Leakages associated with oil industry infrastructure								
Mine water discharges								
Discharges to ground such as disposal of contaminated water to soak ways								
Other relevant point sources (specify below)								
Diffuse Sources	-				-			
due to agricultural activities								
due to non-sewered population								
Urban land use								
Other significant diffuse pressures (specify below)								
Water abstractions			-				**Yes**	
Abstractions for agriculture								
Abstractions for public water supply								
Abstractions by industry								
IPPC activities								
Non-IPPC activities								
Abstractions by quarries/open cast coal sites								
Other major abstractions (specify below)								
Artificial recharge			-				-	
Discharges to groundwater for artificial recharge purposes								
Returns of groundwater to GWB from which it was abstracted (e.g. for sand and gravel washing)								
Mine water rebound								
Other major recharges (specify below)								
Other significant pressures	-		-		-		-	
Saltwater intrusion								
Other intrusion (specify below)								

Description of other significant pressures than those selected above.	

Groundwater measures

The overview table indicates the status of implementation of all key measures in the following way:

MC **Measure** implementation **Completed**

*Implementation of measure is estimated to be **completed by the end of 2012***

MO **Measure** implementation **On-going**

*Implementation of measure is **on-going**.*

(Involving administrative acts, diffuse pollution, advisory services, research etc.)

PO **Construction** Measure - **Planning On-going**

***Planning** of construction measure is **on-going**.*

(Involving construction or building works)

CO **Construction** Measure - **Construction On-going**

***Construction** of measure is **on-going**.*

(Involving construction or building works)

MP **Measure** implementation **Planned**

Implementation of measure is planned

The listed stages of measure implementation are structured according to the schema, which is annexed to the CIS Concept Paper for 2012 Reporting.

For construction or building works the information about the on-going implementation is divided into ‘construction planning’ and ‘construction’.

The detailed tables provide more details on particular measures in each relevant GWB:

- description of the measure,
- responsible authority,
- quantitative information by appropriate indicators (number of measures/projects and costs).

GWBs at poor status in 2015 and implemented measures

DRBD-GWB		5-RO-HU			7-RO-RS-HU			8-SK-HU
National part / Status		**5-RO / Quality**	**5-HU / Quality**	**5-HU / Quantity**	**7-HU / Quality**	**7-RS / Quantity**	**7-HU / Quantity**	**8-HU / Quantity**
Basic Measures (BM) – Article 11(3)(a)								
BM-01	BathingWater							
BM-02	Birds							
BM-03	DrinkingWater	CO						
BM-04	Seveso							
BM-05	EnvironmentalImpact							
BM-06	SewageSludge							
BM-07	UrbanWasteWater	MC, CO	MO		MO			
BM-08	PlantProtectionProducts							
BM-09	Nitrates	MC, MO	MO		MO			
BM-10	Habitats							
BM-11	IPPC	MC						
Other Basic Measures (OBM) – Article 11(3)(b-l)								
OBM-20	CostRecoveryWaterServices							
OBM-21	EfficientWaterUse							
OBM-22	ProtectionWaterAbstractions							
OBM-23	ControlsWaterAbstraction			MP			MO	MP
OBM-24	RechargeAugmentationGroundwater							
OBM-25	PointSourceDischarge							
OBM-26	PollutantsDiffuse							
OBM-27	AdverseImpact							
OBM-28	PollutantDirectGroundwater							
OBM-29	SurfacePrioritySubstances							
OBM-30	AccidentalPollution							
Supplementary Measures (SM) – Article 11(4)&(5)		MP		MP		MO	MO, MC	MP

MC…Measure implementation completed by end of 2012, **MO**…Measure implementation on-going, **PO**…Construction planning on-going, **CO**…Construction on-going, **MP**…Measure implementation planned

Detailed description of measures

[**BM** = basic measures**, OBM** = other basic measures**, SM** = supplementary measures].

GWB Code	Size [km^2]	Pressures		Status		Measures		Exemptions
		Quality	Quantity	Quality	Quantity	Quality	Quantity	
5-HU-RO	7,216	DS	WA	Poor	Poor/Good	BM, SM	OBM, SM	2027

Measure completed = Implementation is estimated to be completed by the end of 2012 (reference to the measures codes in table 1) (MC)

RO – quality:

BM – 07 Construction of collecting system in Periam agglomeration

- **description of the measure** – execution of the new sewage network in Periam locality (Timis county)
- **responsible authority:** local authority of the Periam agglomeration
- **quantitative information by appropriate indicators**:
  - number of population equivalent covered by measure - 2676 4730 p.e.;
  - total cost of the measure – 400,000 Euro;

BM-09 Applying the Code of good agricultural practice in vulnerable zones

In Romania, following the discussions with the EC, whole territory approach is applied according with Decision 221983/GC/12.06.2013 of the Interministerial Commission for the implementation of the Action Plan for the protection of waters against pollution caused by nitrates from agricultural sources.

- **description of the measure –** building of two facilities for the livestock manure storage in Pecica and Macea localities
- **responsible authority:** county council and local authorities
- **quantitative information by appropriate indicators:**
  - area of agricultural land covered by measures – 313.59 km^2;
  - total costs of the two measures – 739,000 Euro;

BM-11 Reduction of the pollutant loads in the waste waters

- **description of the measure –** rehabilitation of the collecting system and improvement of the waste water treatment plant performance;
- **responsible authority:** COMBINATUL AGROINDUSTRIAL Curtici (Arad County);
- **quantitative information by appropriate indicators:** cost of the measure is 200,000 Euro.

Measure implementation on-going = Measure implementation is estimated to be on-going (reference to the measures codes in table 1) (MO)

RO – quality:

BM-09 Applying of specific action programmes

In Romania, following the discussions with the EC, whole territory approach is applied according with Decision 221983/GC/12.06.2013 of the Interministerial Commission for the implementation of the Action Plan for the protection of waters against pollution caused by nitrates from agricultural sources.

- **description of the measure**: programme of measures applied for the agriculture diffuse sources in order to reduce the effects of the agriculture activities
- **responsible authority:** county agriculture authorities, local authorities and farmers
- **quantitative information:** This measure is applied in whole Mures Water Basin Administrations territory.

SM Research study for evaluation of the type and quantity of pollutants in soil and groundwaters and the transfer / degradation mechanisms (MP - Measure implementation is planned)

- **description of the measure**: development of the modelling tools for the evaluation of spatial and temporal pollutants migration – the support tool for finalising the evaluation methodology of the groundwater status and of the pollutant trends

- **responsible authority:** Ministry of Environment and Climatic Changes – Department of Water, Forests and Fisheries, National Administration "Romanian Waters" and National Institute for Hydrology and Water Management
- **quantitative information:**
  - 1 research study;
  - the estimated total cost of the research study – 150,000 Euro.

HU – quality:

description of the measure: BM07

responsible authority: local governments

quantitative information by appropriate indicators (number of measures/projects and costs):

HU transposed the Urban Waste Water Directive by Gov. decree 25/2002. (II. 27.) on the National Wastewater Collection and Treatment program. The implementation of UWWD is ongoing.

In the South Great Plain Region 52,4% of the settlements were connected to the sewage system in 2008, and 82,4% are planned to be reached by 2015.

description of the measure: BM09

responsible authority: authorities for soil protection and for water protection

quantitative information by appropriate indicators (number of measures/projects and costs):

HU transposed the ND by the Gov. Decree No. 27/2006. (II.7.) on the protection of waters against pollution caused by nitrates of agricultural sources. Designation of nitrate vulnerable zones was revised in 2013 (NVZ; ~69% of Hungary) . The Code of Good Agricultural Practice (GAP) is obligatory on NVZ's. Outside the NVZ's, the agri environmental measures assist the implementation of GAP on a voluntary basis.

Construction measure planning on-going = Planning of construction measure is estimated to be on-going (reference to the measures codes in table 1)

Construction of measure on-going = Construction of measure is estimated to be on-going (reference to the measures codes in table 1) (CO)

RO – quality:

BM-03 Ensuring the protection areas for the drinking groundwater abstraction (CO)

- **description of the measure**: establishment of safeguard zones and buffer zones ensuring the protected area according to the water legislation in force (Water Law 107/1996 modified and completed, HG 930/2005 and Order 1278/2011); banning measures for some activities and restricted use of land, in order to prevent the water contamination risks due to the economic and social activities
- **responsible authority:** water authorities, local authorities ;
- **quantitative information:** according with the Water Law 107/1996 as amended and GD 930/2005, for all drinking groundwater abstractions are establishing the safeguard zones and buffer zones, in order to prevent the water resources contamination.

BM-07 Construction of collecting system in 8 agglomerations (CO)

- **description of the measure** – extension of existing collecting system in 8 agglomerations) and execution of the new sewage network (Arad and Timis counties);
- **responsible authority:** local authorities of the Arad, Pecica, Sannicolu Mare, Lipova, Nadlac, Curtici, Frumuseni, Macea agglomerations
- **quantitative information by appropriate indicators**:
  - number of population equivalent covered by 8 agglomerations – 104,253 p.e.;
  - estimated total cost of the measure – 30,686,939 Euro.

Measure not started = Implementation is estimated of not being started by end of 2012 (reference to the measures codes in table 1)

HU – quantity:

SM: measure for the inland excess water retention

OBM23: development of water information system**;** New regulation on water management fines is being elaborated to take action against the installation and use of illegal water wells. New legislation is planned to be set in force in 2016

GWB Code	Size [km²]	Pressures		Status		Measures		Exemptions
		Quality	Quantity	Quality	Quantity	Quality	Quantity	
7-HU-RO-RS	28,959	DS	WA	P/G/G	P/G/P	BM	BM, OBM, SM	2027

Measure completed = Implementation is estimated to be completed by the end of 2012 (reference to the measures codes in table 1)

RS – quantity:

SM-01

Type of measure : Supplementary measures (Annex VI, Part B), including: research, development and demonstration projects and construction designs for new GW sources

Indicators :

1. **Strategy on water supply and protection of AP Vojvodina (Official Journal APV no. 1/2010):**

   Adopted in the Vojvodinian Assembly in December 2009, providing planning background and guidelines for solving the problems of water supply. Strategy defines responsibilities, time plan and necessary investments for the improvement of public water supply and water protection. (Responsible Authority: Government of AP Vojvodina)

   Estimated cost : ~200.000 €

2. **Research Study and Investigations on locations of regional GW source in the Danube alluvium (2009-2012, on-going)**

   Research field investigations incl. pumping tests, chemical and microbiolocal analyses for the purpose of GW resource estimation and GW protection. (Responsible Authority: Serbian Directorate for Water)

   Estimated cost : ~500.000 €

3. **Environmental Impact Assessment for Underwater Coal Mine Kovin on future regional GW source Kovin-Dubovac (2010, not finished)**

   Estimation of the impact of future underwater coal minning activities on potential regional GW source (incl. field investigations, GW modeling) (Financed by private company, under supervison of Government of AP Vojvodina)

   Estimated cost : 750.000 €

4. **Study on GW resource assessment on the territory of AP Vojvodina (2010, not finished)**

   Estimation of the GW reserves, identification of potential locations for regional GW sources for DW supply in AP Vojvodina. (Responsible Authority: Government of AP Vojvodina)

   Estimated cost : 150.000 €

HU – quantity:

description of the measure: SM construction and rehabilitation project

responsible authority or beneficiary: Lower Tisza Region Environmental and Water Directorate, Szeged in HU

quantitative information by appropriate indicators (number of measures/projects and costs): (INTERREG; Code: HUSER 0602/13): Sustainable development of the use of ground waters in the region along the Hungarian-Serbian border construction and rehabilitation project. Amount of funding: 28 332 352 HUF

description of the measure: SM demand management measures

responsible authority or beneficiary: Ministry of Rural Development and farmers

quantitative information by appropriate indicators (number of measures/projects and costs):

Within the "New Hungary Rural Development Program" (under the European Agricultural Fund for Rural Development - EAFRD) 2007-2013 environmentally friendly investments in the field of agricultural water management can be supported (e. g. water-saving irrigation techniques). The requirements for water-saving (dripping) irrigation are regulated in the

34/2008. (III. 27) FVM Agricultural Ministerial Decree. According to the Decree only the water- and energy-saving micro-irrigation technological improvements are eligible, if water is produced from the deeper layers.

Measure implementation on-going = Measure implementation is estimated to be on-going (reference to the measures codes in table 1)

HU – quality:

description of the measure: BM07

responsible authority: local governments

quantitative information by appropriate indicators (number of measures/projects and costs):

HU transposed the Urban Waste Water Directive by Gov. decree 25/2002. (II. 27.) on the National Wastewater Collection and Treatment program. The implementation of UWWD is ongoing.

In the South Great Plain Region 52,4% of the settlements were connected to the sewage system in 2008, and 82,4% are planned to be reached by 2015.

description of the measure: BM09

responsible authority: authorities for soil protection and for water protection

quantitative information by appropriate indicators (number of measures/projects and costs):

HU transposed the ND by the Gov. Decree No. 27/2006. (II.7.) on the protection of waters against pollution caused by nitrates of agricultural sources. Designation of nitrate vulnerable zones was revised in 2013 (69% of Hungary at present). The Code of Good Agricultural Practice is obligatory on NVZ's. Outside the NVZ's, the agri environmental measures assist the implementation of GAP on a voluntary basis.

HU – quantity:

description of the measure: SM Construction and rehabilitation project;

responsible authority or beneficiary: Lower Tisza Region Environment and Water Directorate, Lower Danube Valley Environment and Water Directorate

quantitative information by appropriate indicators (number of measures/projects and costs):

Currently, 4 regional importance water conservation measures are ongoing, which influence the groundwater quantitative status.

Protection of water quantity and quality along the Danube valley – 2 991 019 750 HUF

Artificial recharge (intake) of Algyő main channel catchment area – 685 954 812 HUF

Artificial recharge (intake) in the Danube -Tisza Interfluvial Region – 618 592 500 HUF

Improving Water balance in the Danube -Tisza Interfluvial Region – 444 800 000 HUF

description of the measure: OBM-23

responsible authority or beneficiary: Ministry of Interior

quantitative information by appropriate indicators (number of measures/projects and costs):

Gov. decision 1405/2011. (XII. 25.) on the 'Simple State' governmental program implies the transposition of the licensing of domestic wells (i. e. used for domestic water use only) from local governments to environmental authorities where experts ensure that aspects of water management and protection are taken into consideration in the licensing procedure. The relevant legislation will be modified in 2013.

Construction measure planning on-going = Planning of construction measure is estimated to be on-going (reference to the measures codes in table 1)

Construction of measure on-going = Construction of measure is estimated to be on-going (reference to the measures codes in table 1)

Measure not started = Implementation is estimated of not being started by end of 2012 (reference to the measures codes in table 1)

HU – quantity: **description of the measure:** SM, promotion of adapted agricultural production such as low water requiring crops in areas affected by drought **responsible authority or beneficiary:** Ministry of Rural Development and farmers **quantitative information by appropriate indicators (number of measures/projects and costs):** The measures is planned to be implemented in the frame of EU funds 2014-2020 Multiannual Financial Framework (MFF). New regulation on water management fines is being elaborated to take action against the installation and use of illegal water wells. New legislation is planned to be set in force in 2016.

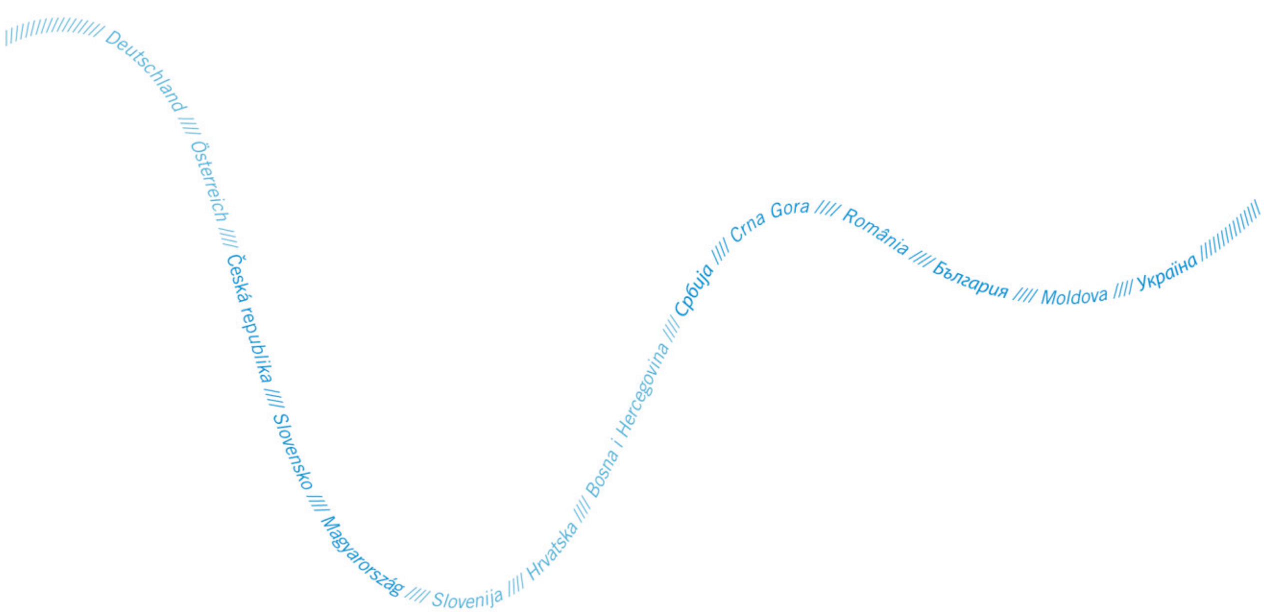
GWB Code	Size [km²]	Pressures		Status		Measures		Exemptions
		Quality	Quantity	Quality	Quantity	Quality	Quantity	
8-HU-SK	3,363	-	WA	Good	P/G	-	OBM, SM	2027
Measure completed = Implementation is estimated to be completed by the end of 2012 (reference to the measures codes in table 1)								
Measure implementation on-going = Measure implementation is estimated to be on-going (reference to the measures codes in table 1)								
Construction measure planning on-going = Planning of construction measure is estimated to be on-going (reference to the measures codes in table 1)								
Construction of measure on-going = Construction of measure is estimated to be on-going (reference to the measures codes in table 1)								
Measure not started = Implementation is estimated of not being started by end of 2012 (reference to the measures codes in table 1) **HU – quantity:** **SM:** measure for the inland excess water retention, measure for raising the surface water level of the sinking riverbed **OBM23:** development of water information system; New regulation on water management fines is being elaborated to take action against the installation and use of illegal water wells. New legislation is planned to be set in force in 2016								

Detailed results of classification of all assessed surface water bodies according to particular biological, hydromorphological and chemical quality elements

icpdr iksd
International Commission for the Protection of the Danube River
Internationale Kommission zum Schutz der Donau

ANNEX 9

DRBM Plan – Update 2015



Explanations

	Labels in the table	Descripton	Possible values
	Water body code with country code		
	Name of river		
Biological Quality Elements	**Fish**	Status Class for the Water Body	1 = high, 2 = good, 3 = moderate, 4 = poor, 5 = bad
	Benthic invertebrates	Status Class for the Water Body	
	Phytobenthos and Macrophytes	Status Class for the Water Body	
	Phytoplankton	Status Class for the Water Body	
	Overall Biological Status	Status Class for the Water Body = worst case of the status classes of all biological quality elements (acc. to one-out-all-out principle)	
Hydromorphology	**Hydromorphology - High Status**	Only if biological quality elements are in high status hydromorphology must also be in high status	Y = Yes, N = No
General Physical and Chemical conditions	**General Physical and Chemical conditions supportive to the Ecological Status**	Status Class for the Water Body	1 = high, 2 = good, 3 = moderate, 4 = poor, 5 = bad
Specific pollutants	**Specific pollutants** (good or failing for Ecological Status)	Status Class for the Water Body for specific pollutants based on national quality standards; relevant for the assessment of Ecological Status. Specific pollutants are those pollutants that are regulated at the national level (and not included in the List	G = good, F = failing
OVERALL ECOLOGICAL STATUS	**Overall Ecological Status**	Worst case of the Biological Quality Class and Specific pollutants Status Class. For High Ecological Status additionally the General Physical and Chemical Parameters and the Hydromorphology have to be in high status.	1 = high, 2 = good, 3 = moderate, 4 = poor, 5 = bad
	Confidence class (Overall Ecol. Status)	Confidence level of assessment (agreed from MA EG)	H = high, M = medium, L = low

Artificial and HMWB	**Artificial Water Body**	Is the water body artificial?	Y = Yes, N = No
	HMWB	Is the water body heavily modified?	Y = Yes, N = No, PN = provisionally no, PY = provisionally yes
	Ecological Potential Class	If the water body is artificial or heavily modified - please give the information of the Ecological Potential Class	2 = good and above, 3 = moderate, 4 = poor, 5 = bad
	Confidence class (Ecological Potential)	Confidence level of assessment (agreed from MA EG)	H = high, M = medium, L = low

CHEMICAL STATUS CLASS	**CHEMICAL STATUS CLASS**	Chemical Status Class for priority substances in water, regulated by the EU	G = good, F = failing
	Confidence (Chemical Status)	Confidence level of the assessment of priority substances in water (agreed from MA EG)	H = high, M = medium, L = low
	CHEMICAL STATUS CLASS	Chemical Status Class for Mercury in biota, regulated by the EU	G = good, F = failing
	Confidence (Chemical Status)	Confidence level of the assessment of Mercury in biota (agreed from MA EG)	H = high, M = medium, L = low

Exemptions	Exemption Art. 4(4)		Y = Yes, N = No
	Exemption Art. 4(5)		Y = Yes, N = No

Status assessment of the Danube river

Water Body code with country code	Name of river	Name of water body	from River-km	to River-km	Biological Quality Elements					Hydromorphology - High Status	General Phys. and Chem. conditions	Specific pollutants	OVERALL ECOLOGICAL STATUS	Confidence class (Overall Ecol.Status)	Artificial and HMWB				CHEMICAL STATUS (Priority substances in water)	Confidence class (Chemical Status - Priority substances in water)	CHEMICAL STATUS (Mercury in biota)	Confidence class (Chemical Status - Mercury in biota)	Exemption Art. 4(4)	Exemption Art. 4(5)
					Fish	Benthic invertebrates	Phytobenthos & Macrophytes	Phytoplankton	Overall Biological Status						Artificial Water Body	Heavily modified Water Body	Ecological Potential Class	Confidence class (Ecol. Pot.)						
DEDEBW_6-01	Donau	Donau oberhalb Beuroner Tal (TBG 60)	2717	2780	3	3	3	-	3	N	2	F	3	H	N	N			G	H	F	H	Y	N
DEDEBW_6-02	Donau	Donau ab Beuroner Tal oberhalb Lauchert (TBG 61)	2676	2717	3	3	2	-	3	N	2	G	3	H	N	N			F	H	F	H	Y	N
DEDEBW_6-03	Donau	Donau ab Lauchert oberhalb Zwiefalter Ach (TBG 62)	2640	2676	3	2	2	2	3	N	2	G	3	H	N	N			F	H	F	H	Y	N
DEDEBW_6-04	Donau	Donau ab Zwiefalter Ach oberhalb Riß (TBG 63)	2603	2640	3	3	2	2	3	N	2	G	3	H	N	N			F	H	F	H	Y	N
DEDEBW_6-05	Donau	Donau ab Riß oberhalb Iller (TBG 64)	2588	2603	4	3	3	2	4	N	2	G	4	H	N	N			F	H	F	H	Y	N
DEDEBY_1_F030_BW	Donau	Donau von Einmündung Iller bis Einmündung Landgraben bei Offingen	2551	2583	2	2	2	2	2	N	2	G			N	Y	2	H	G	-	F	-	Y	N
DEDEBY_1_F062	Donau	Donau von Einmündung Landgraben bei Offingen bis Staustufe Donauwörth	2507	2551	3	2	2	2	3	N	2	G			N	Y	3	M	G	-	F	-	Y	N
DEDEBY_1_F074	Donau	Donau von Donauwörth bis Einmündung Lech	2491	2507	2	2	2	3	3	N	2	G	3	H	N	N			G	-	F	-	Y	N
DEDEBY_1_F163	Donau	Donau von Einmündung Lech bis Einmündung Paar	2438	2491	2	2	2	3	3	N	3	G	3	H	N	N			G	-	F	-	Y	N

Water Body code with country code	**Name of river**	**Name of water body**	**from River-km**	**to River-km**	**Biological Quality Elements**										**Artificial and HMWB**									
					Fish	**Benthic invertebrates**	**Phytobenthos & Macrophytes**	**Phytoplankton**	**Overall Biological Status**	**Hydromorphology - High Status**	**General Phys. and Chem. conditions**	**Specific pollutants**	**OVERALL ECOLOGICAL STATUS**	Confidence class (Overall Ecol.Status)	**Artificial Water Body**	**Heavily modified Water Body**	**Ecological Potential Class**	Confidence class (Ecol. Pot.)	**CHEMICAL STATUS (Priority substances in water)**	Confidence class (Chemical Status - Priority substances in water)	**CHEMICAL STATUS (Mercury in biota)**	Confidence class (Chemical Status - Mercury in biota)	**Exemption Art. 4(4)**	**Exemption Art. 4(5)**
DEDEBY_1_F204	Donau	Donau von Einmündung Paar bis Staubing (Fkm 165)	2418	2438	2	3	3	3	3	N	3	G	3	H	N	N			G	-	F	-	Y	N
DEDEBY_1_F205	Donau	Donau von Staubing bis Einmündung Main-Donau-Kanal	2406	2418	2	3	3	3	3	N	3	G	3	H	N	N			G	-	F	-	Y	N
DEDEBY_1_F223	Donau	Donau von Einmündung Main-Donau-Kanal bis Einmündung Naab	2380	2406	3	3	3	3	3	N	3	G			N	Y	3	H	G	-	F	-	Y	N
DEDEBY_1_F348	Donau	Donau von Einmündung Naab bis Einmündung Große Laber	0	2380	3	3	3	3	3	N	3	G			N	Y	3	H	G	-	F	-	Y	N
DEDEBY_1_F361	Donau	Donau von Einmündung Große Laber bis Einmündung Isar	2282	2324	2	2	3	3	3	N	2	G	3	H	N	N			G	-	F	-	Y	N
DEDEBY_1_F477	Donau	Donau von Einmündung Isar bis Einmündung Vils	2249	2282	2	2	3	3	3	N	2	G	3	H	N	N			G	-	F	-	Y	N
DEDEBY_1_F478	Donau	Donau von Einmündung Vils bis Einmündung Inn	2225	2249	2	2	3	3	3	N	2	G			N	Y	3	H	G	-	F	-	Y	N
DEDEBY_1_F633	Donau	Donau von Passau bis Staatsgrenze	2202	2225	3	2	3	2	3	N	2	G			N	Y	3	H	G	-	F	-	Y	N
ATOK303070000	Donau	Donau	2202	2223	5	-	2	-	5	N	2	G	-	-	N	Y	3	H	G	H	F	H	Y	Y
ATOK410360003	Donau	Donau-Aschach	2162	2202	-	-	-	-	-	N	2	G	-	-	N	Y	3	M	G	M	F	L	Y	Y
ATOK410360005	Donau	Donau-Ottensheim_Wilhering	2146	2162	-	-	-	-	-	N	2	G	-	-	N	Y	3	M	G	M	F	L	Y	Y
ATOK410360007	Donau	Donau_10, KW Ottensheim_Wilhering bis KW Abwinden_Asten, EP groß	2120	2146	-	-	-	-	-	N	2	G	-	-	N	Y	3	M	G	M	F	L	Y	Y

Water Body code with country code	**Name of river**	**Name of water body**	**from River-km**	**to River-km**	**Biological Quality Elements**					**Hydromorphology - High Status**	**General Phys. and Chem. conditions**	**Specific pollutants**	**OVERALL ECOLOGICAL STATUS**	Confidence class (Overall Ecol.Status)	**Artificial and HMWB**				**CHEMICAL STATUS (Priority substances in water)**	Confidence class (Chemical Status - Priority substances in water)	**CHEMICAL STATUS (Mercury in biota)**	Confidence class (Chemical Status - Mercury in biota)	**Exemption Art. 4(4)**	**Exemption Art. 4(5)**
					Fish	**Benthic invertebrates**	**Phytobenthos & Macrophytes**	**Phytoplankton**	**Overall Biological Status**						**Artificial Water Body**	**Heavily modified Water Body**	**Ecological Potential Class**	Confidence class (Ecol. Pot.)						
ATOK410360009	Donau	Donau_09 KW Abwinden_Asten bis KW Wallsee_Mitterkirchen, EP groß	2094	2120	4	-	2	-	4	N	2	G	-	-	N	Y	3	H	G	H	F	L	Y	Y
ATOK410360012	Donau	Donau_08, KW Wallsee_Mitterkirchen bis KW Ybbs_Persenbeug, EP groß	2060	2094	5	-	-	-	5	N	2	G	-	-	N	Y	3	H	G	H	F	L	Y	Y
ATOK410360002	Donau	Donau_07, KW Ybbs Persenbeug bis KW Melk, EP groß	2038	2060	-	-	-	-	-	N	2	G	-	-	N	Y	3	L	G	M	F	L	Y	Y
ATOK410350000	Donau	Donau_06, KW Melk bis Mautern, EP groß	2005	2038	5	-	-	-	5	N	2	G	4	H	N	N			G	H	F	L	Y	Y
ATOK409040012	Donau	Donau_05, Mautern bis KW Altenwörth, EP groß	1980	2005	-	-	-	-	-	N	2	G	-	-	N	Y	3	L	G	M	F	L	Y	Y
ATOK409040011	Donau	Donau_04, KW Altenwörth bis KW Greifenstein, EP groß	1950	1980	-	-	-	-	-	N	2	G	-	-	N	Y	3	L	G	M	F	L	Y	Y
ATOK409040013	Donau	Donau_03, KW Greifenstein bis KW Freudenau, EP groß	1921	1950	5	-	-	-	5	N	2	G	-	-	N	Y	3	H	G	M	F	L	N	Y
ATOK409040008	Donau	Donau_02, KW Freudenau bis Devin, EP groß	1880	1921	-	-	-	-	-	N	2	G	2	H	N	N			G	H	F	L	N	Y
ATOK411340000	Donau	Donau_01, unterhalb Devin, EP groß	1873	1880	-	-	-	-	-	N	2	G	2	L	N	N			G	H	F	H	N	Y
SKD0016	Dunaj	Dunaj	1869	1880	-	2	2	1	2	N	2	G	2	H	N	N			G	M			N	N
SKD0019	Dunaj	Dunaj	1852	1869	-	3	2	1	3	N	2	G	-	-	N	Y	3	M	F	M			Y	N

Water Body code with country code	**Name of river**	**Name of water body**	**from River-km**	**to River-km**	**Biological Quality Elements**					**Hydromorphology - High Status**	**General Phys. and Chem. conditions**	**Specific pollutants**	**OVERALL ECOLOGICAL STATUS**	Confidence class (Overall Ecol.Status)	**Artificial and HMWB**				**CHEMICAL STATUS (Priority substances in water)**	Confidence class (Chemical Status - Priority substances in water)	**CHEMICAL STATUS (Mercury in biota)**	Confidence class (Chemical Status - Mercury in biota)	**Exemption Art. 4(4)**	**Exemption Art. 4(5)**
					Fish	**Benthic invertebrates**	**Phytobenthos & Macrophytes**	**Phytoplankton**	**Overall Biological Status**						**Artificial Water Body**	**Heavily modified Water Body**	**Ecological Potential Class**	Confidence class (Ecol. Pot.)						
SKD0017	Dunaj	Dunaj	1790	1852	-	3	2	1	3	N	2	G	-	-	N	Y	3	M	G	M			Y	N
HUAEP443	Duna	Duna Szigetköznél	1789	1850	-	3	3	1	3	N	2	G			N	Y	3	H	G	M			Y	N
SKD0018	Dunaj	Dunaj	1708	1790	-	3	3	1	3	N	2	G	3	H	N	N			G	M			Y	N
HUAEP446	Duna	Duna Gönyü-Szob között	1708	1789	-	3	2	1	3	N	2	G	3	H	N	N			G	L			Y	N
HUAOC756	Duna, Szentendrei-Duna	Duna Szob–Budapest között	1660	1708	-	3	3	2	3	N	2	G	3	M	N	N			G	M			Y	N
HUAOC752	Duna, Szentendrei-Duna	Duna–Budapest	1633	1660	-	3	3	3	3	N	2	F			N	Y	3	H	G	M			Y	N
HUAOC753	Duna	Duna Budapest–Dunaföldvár között	1561	1633	-	2	1	3	3	N	2	G			N	Y	3	L	G	L			Y	N
HUAOC754	Duna	Duna Dunaföldvár–Sió torkolat között	1497	1561	-	3	2	3	3	N	2	G			N	Y	3	M	G	L			Y	N
HUAOC755	Duna	Duna Sió torkolat–országhatár között	1433	1497	-	3	2	2	3	N	2	G			N	Y	3	H	G	M			Y	N
HRDDRI010002	Dunav	DDRI010002	1382	1433	-	-	-	-	-	N	2	-			N	Y	3	M	G	M			-	-
RSD10	Dunav	Dunav uzvodno od ušća Drave	1382	1433	-	3	3	3	3	N	2	G	3	M	N	N			F	M			-	-
HRDDRI010001	Dunav	DDRI010001	1294	1382	-	-	-	-	-	N	2	-			N	Y	3	M	G	M			-	-
RSD9	Dunav	Dunav od RH-HR granice do ušća Drave	1295	1382	-	3	3	-	3	N	2	G	3	M	N	N			F	M			-	-
RSD8	Dunav	Dunav od Novog Sada do RS-HR granice	1255	1295	-	3	2	-	3	N	2	G			N	PY	3	M	F	L			-	-
RORW14.1_B1	Dunarea	Dunarea Portile de Fier I	1038	1261	-	2	2	1	2	N	2	F			N	Y	3	H	F	M			Y	N

Water Body code with country code	**Name of river**	**Name of water body**	**from River-km**	**to River-km**	**Biological Quality Elements**					**Hydromorphology - High Status**	**General Phys. and Chem. conditions**	**Specific pollutants**	**OVERALL ECOLOGICAL STATUS**	Confidence class (Overall Ecol.Status)	**Artificial and HMWB**				**CHEMICAL STATUS (Priority substances in water)**	Confidence class (Chemical Status - Priority substances in water)	**CHEMICAL STATUS (Mercury in biota)**	Confidence class (Chemical Status - Mercury in biota)	**Exemption Art. 4(4)**	**Exemption Art. 4(5)**
					Fish	**Benthic invertebrates**	**Phytobenthos & Macrophytes**	**Phytoplankton**	**Overall Biological Status**						**Artificial Water Body**	**Heavily modified Water Body**	**Ecological Potential Class**	Confidence class (Ecol. Pot.)						
RSD7	Dunav	Akumulacija HE Đerdap I od ušća Tise do Novog Sada	1215	1255	-	3	2	-	3	N	2	G			N	Y	3	M	F	L			-	-
RORW14.1_B2	Dunarea	Dunarea Portile de Fier II	1021	1223	-	1	1	1	1	N	2	F			N	Y	3	H	F	M			Y	N
RSD6	Dunav	Akumulacija HE Đerdap I od ušća Save do ušća Tise	1170	1215	-	3	2	-	3	N	2	G			N	Y	3	M	F	L			-	-
RSD5	Dunav	Akumulacija HE Đerdap I od ušća Velike Morave do ušća Save	1105	1170	-	3	3	-	3	N	2	G			N	Y	3	M	F	M			-	-
RSD4	Dunav	Akumulacija HE Đerdap I od ušća Nere do ušća Velike Morave	1075	1105	-	3	2	-	3	N	2	G			N	Y	3	M	F	M			-	-
RSD3	Dunav	Akumulacija HE Đerdap I do ušća Nere	943	1075	-	3	2	-	3	N	2	G			N	Y	3	M	F	M			-	-
RORW14.1_B3	Dunarea	Dunarea Portile de Fier II - Chiciu	445	1021	3	2	1	1	3	N	3	F			N	Y	3	H	F	M			N	N
RSD2	Dunav	Akumulacija HE Đerdap II	863	943	-	5	3	-	5	N	2	G			N	Y	4	L	F	M			-	-
RSD1	Dunav	Dunav nizvodno od HE Đerdap II	846	863	-	4	2	-	4	N	3	G			N	PY	4	M	F	M			-	-
BG1DU000R001	Dunav	DUNAV RWB01	374	846	-	-	-	-	-		2	G			N	Y	3	L	-	-			Y	N
RORW14.1_B4	Dunarea	Dunarea Chiciu-Isaccea	124	446	3	2	1	1	3	N	2	G			N	Y	3	M	G	M			N	N
UADB_UA_01	Danube	Danube	75	169	-	-	-	-	-		-	-	-	-	N	PY	-	-	-	-			-	-
UADB_UA_02	Danube	Danube	75	169	-	-	-	-	-		-	-	-	-	N	PY	-	-	-	-			-	-
RORW14.1_B6	Dunarea	Dunarea Chilia	0	133	3	1	1	1	3	N	2	G	3	M	N	N			G	M			N	N

Water Body code with country code	**Name of river**	**Name of water body**	**from River-km**	**to River-km**	**Biological Quality Elements**										**Artificial and HMWB**									
					Fish	**Benthic invertebrates**	**Phytobenthos & Macrophytes**	**Phytoplankton**	**Overall Biological Status**	**Hydromorphology - High Status**	**General Phys. and Chem. conditions**	**Specific pollutants**	**OVERALL ECOLOGICAL STATUS**	Confidence class (Overall Ecol.Status)	**Artificial Water Body**	**Heavily modified Water Body**	**Ecological Potential Class**	Confidence class (Ecol. Pot.)	**CHEMICAL STATUS (Priority substances in water)**	Confidence class (Chemical Status - Priority substances in water)	**CHEMICAL STATUS (Mercury in biota)**	Confidence class (Chemical Status - Mercury in biota)	**Exemption Art. 4(4)**	**Exemption Art. 4(5)**
RORW14.1_B5	Dunarea	Dunarea Isaccea-Sulina	0	124	-	2	1	1	2	N	2	G			N	Y	2	M	G	M			N	N
RORW14.1_B7	Dunarea	Dunarea Sf. Gheorghe	0	88	2	2	1	1	2	N	2	G	2	M	N	N			G	M			N	N
UADB_UA_03	Danube	Danube	22	32	-	-	-	-	-		-	-	-	-	N	PY	-	-	-	-			-	-

Status assessment of the tributaries

Water Body code with country code	**Name of river**	**Name of water body**	**Biological Quality Elements**										**Artificial and HMWB**									
			Fish	**Benthic invertebrates**	**Phytobenthos & Macrophytes**	**Phytoplankton**	**Overall Biological Status**	**Hydromorphology - High Status**	**General Phys. and Chem. conditions**	**Specific pollutants**	**OVERALL ECOLOGICAL STATUS**	Confidence class (Overall Ecol.Status)	**Artificial Water Body**	**Heavily modified Water Body**	**Ecological Potential Class**	Confidence class (Ecol. Pot.)	**CHEMICAL STATUS (Priority substances in water)**	Confidence class (Chemical Status - Priority substances in water)	**CHEMICAL STATUS (Mercury in biota)**	Confidence class (Chemical Status - Mercury in biota)	**Exemption Art. 4(4)**	**Exemption Art. 4(5)**
DEDEBY_1_F509	Inn	Inn von Innstau Passau-Ingling bis Mündung in die Donau	2	2	2	-	2	N	2	G	2	H	N	N			G	-	F	-	Y	N
DEDEBY_1_F556	Inn	Inn von Einmündung Innwerkkanal bis Einmündung Alz	3	2	2	-	3	N	2	G			N	Y	3	H	G	-	F	-	Y	N
DEDEBY_1_F557	Inn	Inn von Ausleitung Innwerkkanal bis Einmündung Innwerkkanal	4	2	2	-	4	N	3	G	4	H	N	N			G	-	F	-	Y	N
DEDEBY_1_F558	Inn	Inn von Einmündung der Mangfall bis Jettenbach	2	2	2	-	2	N	2	G			N	Y	2	H	G	-	F	-	Y	N
DEDEBY_1_F583	Inn	Inn von Einmündung Alz bis Einmündung der Salzach	3	2	2	-	3	N	2	G			N	Y	3	M	G	-	F	-	Y	N
DEDEBY_1_F654	Inn	Inn von Einmündung Salzach bis unterhalb Stau Neuhaus	3	2	2	-	3	N	2	G			N	Y	3	M	G	-	F	-	Y	N
DEDEBY_1_F655	Inn	Inn von unterhalb Stau Neuhaus bis Innstau Passau-Ingling	3	2	2	-	3	N	2	G			N	Y	3	M	G	-	F	-	Y	N
DEDEBY_1_F656	Inn	Inn von unterhalb Kufstein bis unterhalb Erl	4	2	2	-	4	N	2	G			N	Y	4	M	G	-	F	-	Y	N
DEDEBY_1_F657	Inn	Inn von unterhalb Erl bis Einmündung der Mangfall; Moosbach; Altwasser; Husarenbach	4	2	2	-	4	N	2	G			N	Y	4	H	G	-	F	-	Y	N

Water Body code with country code	**Name of river**	**Name of water body**	**Biological Quality Elements**					**Hydromorphology - High Status**	**General Phys. and Chem. conditions**	**Specific pollutants**	**OVERALL ECOLOGICAL STATUS**	Confidence class (Overall Ecol.Status)	**Artificial and HMWB**				**CHEMICAL STATUS (Priority substances in water)**	Confidence class (Chemical Status - Priority substances in water)	**CHEMICAL STATUS (Mercury in biota)**	Confidence class (Chemical Status - Mercury in biota)	**Exemption Art. 4(4)**	**Exemption Art. 4(5)**
			Fish	**Benthic invertebrates**	**Phytobenthos & Macrophytes**	**Phytoplankton**	**Overall Biological Status**						**Artificial Water Body**	**Heavily modified Water Body**	**Ecological Potential Class**	Confidence class (Ecol. Pot.)						
DEDEBY_1_F373	Isar	Isar von Staatsgrenze bis zum Krüner Wehr	2	2	1	-	2	N	2	G	2	H	N	N			G	-	F	-	Y	N
DEDEBY_1_F374	Isar	Isar vom Krüner Wehr bis Sylvensteinspeicher	2	1	1	-	2	N	2	G	2	H	N	N			G	-	F	-	Y	N
DEDEBY_1_F375	Isar	Isar vom Sylvensteinspeicher bis Bad Tölz (Fkm 202,8)	4	2	2	-	4	N	2	G	4	H	N	N			G	-	F	-	Y	N
DEDEBY_1_F376	Isar	Isar von Fkm 202,8 bis Fkm 195 (Bad Tölz)	3	2	2	-	3	N	2	G			N	Y	3	H	G	-	F	-	Y	N
DEDEBY_1_F377	Isar	Isar von Fkm 195 bis Einmündung der Loisach	2	2	2	-	2	N	2	G	2	H	N	N			G	-	F	-	Y	N
DEDEBY_1_F402	Isar	Isar von Einmündung der Loisach bis Corneliuswehr	3	2	2	-	3	N	2	G	3	H	N	N			G	-	F	-	Y	N
DEDEBY_1_F403	Isar	Isar von Corneliuswehr bis Oberföhringer Wehr	3	2	2	-	3	N	2	G			N	Y	3	H	G	-	F	-	Y	N
DEDEBY_1_F404	Isar	Isar von Anfang Mittlerer Isarkanal bis Moosburg	2	2	2	-	2	N	2	G	2	H	N	N			G	-	F	-	Y	N
DEDEBY_1_F405	Isar	Isar von Einmündung der Amper bis Einmündung des Mittleren-Isar-Kanals	3	2	2	-	3	N	3	G	3	H	N	N			G	-	F	-	Y	N
DEDEBY_1_F406	Isar	Isar von Moosburg bis Einmündung der Amper	3	2	2	-	3	N	3	G	3	M	N	N			G	-	F	-	Y	N

Water Body code with country code	**Name of river**	**Name of water body**	**Biological Quality Elements**					**Hydromorphology - High Status**	**General Phys. and Chem. conditions**	**Specific pollutants**	**OVERALL ECOLOGICAL STATUS**	Confidence class (Overall Ecol.Status)	**Artificial and HMWB**				**CHEMICAL STATUS (Priority substances in water)**	Confidence class (Chemical Status - Priority substances in water)	**CHEMICAL STATUS (Mercury in biota)**	Confidence class (Chemical Status - Mercury in biota)	**Exemption Art. 4(4)**	**Exemption Art. 4(5)**
			Fish	**Benthic invertebrates**	**Phytobenthos & Macrophytes**	**Phytoplankton**	**Overall Biological Status**						**Artificial Water Body**	**Heavily modified Water Body**	**Ecological Potential Class**	Confidence class (Ecol. Pot.)						
DEDEBY_1_F429	Isar	Isar von Einmündung des Mittleren-Isar-Kanals bis Stützkraftstufe Pielweichs bei Plattling; Kl	4	4	3	-	4	N	3	G			N	Y	4	H	G	-	F	-	Y	N
DEDEBY_1_F430	Isar	Isar von Plattling bis Mündung in die Donau	2	3	2	-	3	N	2	G	3	H	N	N			G	-	F	-	Y	N
DEDEBY_1_F121	Lech	Lech mit Lechfall von Staatsgrenze bis Theresienbrücke Füssen (Fkm 168,5 - 166,3)	2	2	2	-	2	N	2	G	2	M	N	N			G	-	F	-	Y	N
DEDEBY_1_F122	Lech	Lech von Einmündung Lechkanal Meitingen bis Mündung in die Donau	4	-	-	-	4	N	2	G			N	Y	4	H	G	-	F	-	Y	N
DEDEBY_1_F124	Lech	Lech Mutterbett von Einmündung Wertach bis Einmündung Lechkanal bei Ostendorf	3	2	2	-	3	N	2	G			N	Y	3	H	G	-	F	-	Y	N
DEDEBY_1_F125	Lech	Lech von Fkm 139 bis Fkm 133 (Litzauer Schleife)	3	2	2	-	3	N	2	G	3	H	N	N			G	-	F	-	Y	N
DEDEBY_1_F126	Lech	Lech Mutterbett vom Hochablass Augsburg bis Einmündung Wertach	3	3	2	-	3	N	2	G			N	Y	3	H	G	-	F	-	Y	N
DEDEBY_1_F127	Lech	Lech von Staustufe 23 bis zum Hochablass Augsburg	3	2	2	-	3	N	2	G			N	Y	3	H	G	-	F	-	Y	N
DEDEBY_1_F128	Lech	Lech von Staustufe 1 bis Staustufe 4 (Kraftwerk Roßhaupten bis Fkm 139)	4	2	2	-	4	N	2	G			N	Y	4	H	G	-	F	-	Y	N

Water Body code with country code	**Name of river**	**Name of water body**	**Biological Quality Elements**					**Hydromorphology - High Status**	**General Phys. and Chem. conditions**	**Specific pollutants**	**OVERALL ECOLOGICAL STATUS**	Confidence class (Overall Ecol.Status)	**Artificial and HMWB**				**CHEMICAL STATUS (Priority substances in water)**	Confidence class (Chemical Status - Priority substances in water)	**CHEMICAL STATUS (Mercury in biota)**	Confidence class (Chemical Status - Mercury in biota)	**Exemption Art. 4(4)**	**Exemption Art. 4(5)**
			Fish	**Benthic invertebrates**	**Phytobenthos & Macrophytes**	**Phytoplankton**	**Overall Biological Status**						**Artificial Water Body**	**Heavily modified Water Body**	**Ecological Potential Class**	Confidence class (Ecol. Pot.)						
DEDEBY_1_F129	Lech	Lech von Theresienbrücke Füssen bis Staustufe 1 (Kraftwerk Roßhaupten)	-	2	2	-	2	N	2	G			N	Y	2	H	G	-	F	-	Y	N
DEDEBY_1_F130	Lech	Lech von Staustufe 15 bis Eisenbahnbrücke in Kaufering	2	2	2	-	2	N	2	G	2	H	N	N			G	-	F	-	Y	N
DEDEBY_1_F131	Lech	Lech von Eisenbahnbrücke in Kaufering bis Staustufe 23	3	2	2	-	3	N	2	G			N	Y	3	M	G	-	F	-	Y	N
DEDEBY_1_F132	Lech	Lech von Mündung in Schongauer Lechsee bis Staustufe 15	3	2	2	-	3	N	2	G			N	Y	3	M	G	-	F	-	Y	N
DEDEBY_1_F226	Main-Donau-Kanal	Main-Donau-Kanal (Altmühl) von Dietfurt bis Mündung in die Donau	2	4	3	3	4	N	3	G			N	Y	4	H	G	-	F	-	Y	N
DEDEBY_1_F243	Main-Donau-Kanal	Main-Donau-Kanal von Pierheim bis Dietfurt	-	2	3	3	3		3	G			Y	N	3	H	G	-	F	-	Y	N
DEDEBY_1_F251	Naab	Tirschenreuther Waldnaab unterhalb Tirschenreuth (Fkm 168,8), Waldnaab bis Zusammenfluss mit der Hai	3	2	3	-	3	N	3	G	3	H	N	N			G	-	F	-	Y	N
DEDEBY_1_F252	Naab	Tirschenreuther Waldnaab oh. WSP Liebenstein; Heiligenbach	4	3	3	-	4	N	3	G	4	H	N	N			F	-	F	-	Y	N
DEDEBY_1_F253	Naab	Tir. Waldnaab ab Einmündung in Liebensteinspeicher bis Tirschenreuth (Fkm 168,8); Geisbach von Kr	4	3	2	-	4	N	3	G	4	H	N	N			G	-	F	-	Y	N

Water Body code with country code	**Name of river**	**Name of water body**	**Biological Quality Elements**					**Hydromorphology - High Status**	**General Phys. and Chem. conditions**	**Specific pollutants**	**OVERALL ECOLOGICAL STATUS**	Confidence class (Overall Ecol.Status)	**Artificial and HMWB**				**CHEMICAL STATUS (Priority substances in water)**	Confidence class (Chemical Status - Priority substances in water)	**CHEMICAL STATUS (Mercury in biota)**	Confidence class (Chemical Status - Mercury in biota)	**Exemption Art. 4(4)**	**Exemption Art. 4(5)**
			Fish	**Benthic invertebrates**	**Phytobenthos & Macrophytes**	**Phytoplankton**	**Overall Biological Status**						**Artificial Water Body**	**Heavily modified Water Body**	**Ecological Potential Class**	Confidence class (Ecol. Pot.)						
DEDEBY_1_F273	Naab	Naab von Zusammenfluss Haidenaab und Waldnaab bis Mündung in die Donau	2	2	3	3	3	N	3	G	3	H	N	N			G	-	F	-	Y	N
DEDEBY_1_F640	Salzach	Salzach von Einmündung Alzkanal bis Mündung in den Inn	3	2	2	-	3	N	2	G			N	Y	3	L	G	-	F	-	Y	N
DEDEBY_1_F641	Salzach	Salzach von Einmündung Saalach bis Einmündung Alzkanal	3	1	2	-	3	N	2	G	3	H	N	N			G	-	F	-	Y	N
ATOK900470001	Drau	Drau	-	2	-	-	2	N	2	G	2	M	N	N			G	M	F	L	N	Y
ATOK900470003	Drau	DRAU (von 515,7 bis 549,9)	-	-	-	-	-	N	1	G	-	-	N	Y	3	M	G	M	F	L	N	Y
ATOK900470021	Drau	DRAU (von 571,5 bis 611,0)	-	-	-	-	-	N	2	G	2	M	N	N			G	M	F	L	N	Y
ATOK900470022	Drau	DRAU (von 549,9 bis 571,5)	-	-	-	-	-	N	2	G	-	-	N	Y	3	H	G	M	F	L	Y	Y
ATOK900470055	Drau	DRAU (von 453,7 bis 498,5)	-	-	-	-	-	N	2	G	-	-	N	Y	3	M	G	M	F	L	N	Y
ATOK900470056	Drau	DRAU (von 498,5 bis 505,5)	2	-	-	-	2	N	2	G	2	M	N	N			G	M	F	L	N	Y
ATOK900470057	Drau	DRAU (von 505,5 bis 515,7)	-	-	-	-	-	N	2	G	-	-	N	Y	3	M	G	M	F	L	N	Y
ATOK900470058	Drau	DRAU (von 411,2 bis 435,8)	4	3	2	-	4	N	2	G	-	-	N	Y	2	H	G	M	F	L	N	Y
ATOK900470059	Drau	DRAU (von 435,8 bis 453,7)	-	-	-	-	-	N	2	G	-	-	N	Y	3	H	G	M	F	L	N	Y
ATOK903540001	Drau	Drau	-	-	-	-	-	N	2	G	-	-	N	Y	3	M	G	M	F	L	Y	Y
ATOK903540002	Drau	Drau_1	2	-	-	-	2	N	2	G	2	M	N	N			G	M	F	L	N	Y
ATOK903540003	Drau	Drau_2	-	-	-	-	-	N	2	G	3	H	N	N			G	M	F	L	Y	Y
ATOK903770000	Drau	DRAU (von 407,1 bis 411,2)	-	-	-	-	-	N	2	G	-	-	N	Y	2	H	G	M	F	L	N	Y

Water Body code with country code	Name of river	Name of water body	Biological Quality Elements					Hydromorphology - High Status	General Phys. and Chem. conditions	Specific pollutants	OVERALL ECOLOGICAL STATUS	Confidence class (Overall Ecol.Status)	Artificial and HMWB				CHEMICAL STATUS (Priority substances in water)	Confidence class (Chemical Status - Priority substances in water)	CHEMICAL STATUS (Mercury in biota)	Confidence class (Chemical Status - Mercury in biota)	Exemption Art. 4(4)	Exemption Art. 4(5)
			Fish	Benthic invertebrates	Phytobenthos & Macrophytes	Phytoplankton	Overall Biological Status						Artificial Water Body	Heavily modified Water Body	Ecological Potential Class	Confidence class (Ecol. Pot.)						
ATOK400240027	Enns	Gewässer: Enns, Abschnitt: Landesgrenze bis Radstadt	-	-	-	-	-	N	2	G	4	M	N	N			G	M	F	L	Y	Y
ATOK400240089	Enns	Enns	-	-	-	-	-	N	2	G	2	M	N	N			G	M	F	L	N	Y
ATOK400240090	Enns	Enns	-	-	-	-	-	N	2	G	2	M	N	N			G	M	F	L	N	Y
ATOK400240092	Enns	Enns	-	-	-	-	-	N	2	G	4	M	N	N			G	M	F	L	N	Y
ATOK400240103	Enns	Gewässer: Enns, Abschnitt: Ende Fischlebensraum bis Labgeggbach	-	-	-	-	-	N	2	G	2	M	N	N			G	M	F	L	N	Y
ATOK400240104	Enns	Gewässer: Enns, Abschnitt: Langeggbach bis Ursprung	-	-	-	-	-	Y	1	G	1	M	N	N			G	M	F	L	N	Y
ATOK400240105	Enns	Gewässer: Enns, Abschnitt: Radstadt bis Altenmarkt	-	-	-	-	-	N	2	G	-	-	N	Y	3	H	G	M	F	L	Y	Y
ATOK400240106	Enns	Altenmarkt bis Flachau	-	-	-	-	-	N	2	G	4	H	N	N			G	M	F	L	Y	Y
ATOK400240163	Enns	Oberhalb Flachau bis Grenze Fischlebensraum	-	-	-	-	-	N	2	G	4	H	N	N			G	M	F	L	Y	Y
ATOK409970000	Enns	Enns	-	-	-	-	-	N	2	G	-	-	N	Y	3	H	G	M	F	L	N	Y
ATOK411250006	Enns	Enns_Hafen Donaurückstau	-	-	-	-	-	N	2	G	-	-	N	Y	3	M	G	M	F	L	Y	Y
ATOK411250008	Enns	Enns	-	-	-	-	-	N	2	G	-	-	N	Y	3	L	G	M	F	L	Y	Y
ATOK411250009	Enns	Enns Gesäuse	-	-	2	-	2	N	2	G	2	M	N	N			G	H	F	H	N	Y
ATOK411250010	Enns	Enns	5	-	-	-	5	N	2	G	5	H	N	N			G	M	F	L	N	Y
ATOK411250012	Enns	Enns, Enns-Seitenarm	-	-	-	-	-	N	2	G	-	-	N	Y	3	M	G	M	F	L	N	Y

Water Body code with country code	**Name of river**	**Name of water body**	**Biological Quality Elements**										**Artificial and HMWB**									
			Fish	**Benthic invertebrates**	**Phytobenthos & Macrophytes**	**Phytoplankton**	**Overall Biological Status**	**Hydromorphology - High Status**	**General Phys. and Chem. conditions**	**Specific pollutants**	**OVERALL ECOLOGICAL STATUS**	Confidence class (Overall Ecol.Status)	**Artificial Water Body**	**Heavily modified Water Body**	**Ecological Potential Class**	Confidence class (Ecol. Pot.)	**CHEMICAL STATUS (Priority substances in water)**	Confidence class (Chemical Status - Priority substances in water)	**CHEMICAL STATUS (Mercury in biota)**	Confidence class (Chemical Status - Mercury in biota)	**Exemption Art. 4(4)**	**Exemption Art. 4(5)**
ATOK411250014	Enns	Enns_Thurnsdorf-Stau	5	-	-	-	5	N	2	G	-	-	N	Y	3	H	G	M	F	L	Y	Y
ATOK411250016	Enns	Enns_Mühlrading-Stau	-	-	-	-	-	N	2	G	-	-	N	Y	3	M	G	M	F	L	Y	Y
ATOK411250018	Enns	Enns_Staning	-	-	-	-	-	N	2	G	-	-	N	Y	3	M	G	M	F	L	Y	Y
ATOK411250020	Enns	Enns_Steyr-Fließstrecke	4	-	-	-	4	N	2	G	-	-	N	Y	3	H	G	M	F	L	Y	Y
ATOK411250021	Enns	Enns_Garsten	-	-	-	-	-	N	2	G	-	-	N	Y	3	M	G	M	F	L	Y	Y
ATOK411250023	Enns	Enns_Rosenau	-	-	-	-	-	N	2	G	-	-	N	Y	3	M	G	M	F	L	Y	Y
ATOK411250025	Enns	Enns_Ternberg	-	-	-	-	-	N	2	G	-	-	N	Y	3	M	G	M	F	L	Y	Y
ATOK411250027	Enns	Enns_Losenstein	-	-	-	-	-	N	2	G	-	-	N	Y	3	M	G	M	F	L	Y	Y
ATOK411250029	Enns	Enns_Großraming	-	-	-	-	-	N	2	G	-	-	N	Y	3	M	G	M	F	L	Y	Y
ATOK411250031	Enns	Enns_Weyer	-	-	-	-	-	N	2	G	-	-	N	Y	3	M	G	M	F	L	Y	Y
ATOK411250035	Enns	Enns_Altennmarkt_1	-	-	-	-	-	N	2	G	-	-	N	Y	3	M	G	M	F	L	Y	Y
ATOK411250036	Enns	Enns_Hilfswehr-Enns	-	-	-	-	-	N	2	G	-	-	N	Y	3	M	G	M	F	L	Y	Y
ATOK411250037	Enns	Enns_Thurnsdorf RWStrecke	-	-	-	-	-	N	2	G	-	-	N	Y	3	H	G	M	F	L	Y	Y
ATOK304980003	Inn	Inn	5	-	-	-	5	N	2	G	-	-	N	Y	3	H	G	M	F	L	N	Y
ATOK304980005	Inn	Inn_1	-	-	-	-	-	N	2	G	-	-	N	Y	3	M	G	M	F	L	Y	Y
ATOK304980006	Inn	Inn_2	5	3	-	-	5	N	2	G	-	-	N	Y	3	H	G	M	F	L	Y	Y
ATOK304980007	Inn	Inn_1	-	-	-	-	-	N	2	G	-	-	N	Y	3	M	G	M	F	L	Y	Y
ATOK304980008	Inn	Inn_2	-	-	-	-	-	N	2	G	-	-	N	Y	3	M	G	M	F	L	Y	Y
ATOK304980009	Inn	Inn_3	-	-	-	-	-	N	2	G	-	-	N	Y	3	H	G	M	F	L	Y	Y

Water Body code with country code	Name of river	Name of water body	Biological Quality Elements					Hydromorphology - High Status	General Phys. and Chem. conditions	Specific pollutants	OVERALL ECOLOGICAL STATUS	Confidence class (Overall Ecol.Status)	Artificial and HMWB				CHEMICAL STATUS (Priority substances in water)	Confidence class (Chemical Status - Priority substances in water)	CHEMICAL STATUS (Mercury in biota)	Confidence class (Chemical Status - Mercury in biota)	Exemption Art. 4(4)	Exemption Art. 4(5)
			Fish	Benthic invertebrates	Phytobenthos & Macrophytes	Phytoplankton	Overall Biological Status						Artificial Water Body	Heavily modified Water Body	Ecological Potential Class	Confidence class (Ecol. Pot.)						
ATOK304980010	Inn	Inn_4	-	-	-	-	-	N	2	G	-	-	N	Y	3	M	G	M	F	L	Y	Y
ATOK305340005	Inn	Inn_Schärding_Neuhaus	5	-	-	-	5	N	2	G	-	-	N	Y	3	H	G	M	F	L	Y	Y
ATOK305340007	Inn	Inn_Egglfing_Obernberg	-	-	-	-	-	N	2	G	-	-	N	Y	3	M	G	M	F	L	Y	Y
ATOK305340009	Inn	Inn_Ering_Frauenstein	4	4	3	-	4	N	3	G	-	-	N	Y	3	H	G	H	F	L	Y	Y
ATOK305340010	Inn	Inn_Braunau_Simbach	-	-	-	-	-	N	3	G	-	-	N	Y	3	H	G	L	F	L	Y	Y
ATOK305340011	Inn	Inn_Ingling Unterwasser-Fließstrecke	5	-	-	-	5	N	2	G	2	H	N	N			G	M	F	L	N	Y
ATOK305340012	Inn	Inn_Ingling Stauraum	-	-	-	-	-	N	3	G	-	-	N	Y	3	H	G	M	F	L	Y	Y
ATOK305850006	Inn	Inn_1	-	-	-	-	-	N	2	G	-	-	N	Y	3	H	G	M	F	L	Y	Y
ATOK305850010	Inn	Inn_6	4	-	-	-	4	N	2	G	-	-	N	Y	3	H	G	M	F	L	N	Y
ATOK305850011	Inn	Inn_5	-	-	-	-	-	N	2	G	-	-	N	Y	3	M	G	M	F	L	Y	Y
ATOK307030000	Inn	Inn	-	-	-	-	-	N	2	G	-	-	N	Y	3	M	G	M	F	H	Y	Y
ATOK307210001	Inn	Inn_1	-	-	-	-	-	N	2	G	-	-	N	Y	3	M	G	M	F	L	N	Y
ATOK307210002	Inn	Inn_2	-	-	-	-	-	N	2	G	-	-	N	Y	3	M	G	M	F	L	N	Y
ATOK301860007	Isar	Isar_10	-	-	-	-	-	Y	1	G	1	M	N	N			G	M	F	L	N	Y
ATOK301860008	Isar	Isar_11	-	-	-	-	-	N	2	G	4	M	N	N			G	M	F	L	Y	Y
ATOK302340001	Isar	Isar_1	-	1	-	-	1	N	2	G	2	H	N	N			G	M	F	L	N	Y
ATOK302340002	Isar	Isar_2	-	-	-	-	-	Y	1	G	1	M	N	N			G	M	F	L	N	Y
ATOK301500002	Lech	Lech, Formarinbach	-	-	-	-	-	Y	1	G	1	M	N	N			G	M	F	L	N	Y
ATOK301500003	Lech	Lech_1_obh Zug	-	-	-	-	-	Y	1	G	1	L	N	N			G	M	F	L	N	Y

Water Body code with country code	Name of river	Name of water body	Biological Quality Elements					Hydromorphology - High Status	General Phys. and Chem. conditions	Specific pollutants	OVERALL ECOLOGICAL STATUS	Confidence class (Overall Ecol.Status)	Artificial and HMWB				CHEMICAL STATUS (Priority substances in water)	Confidence class (Chemical Status - Priority substances in water)	CHEMICAL STATUS (Mercury in biota)	Confidence class (Chemical Status - Mercury in biota)	Exemption Art. 4(4)	Exemption Art. 4(5)
			Fish	Benthic invertebrates	Phytobenthos & Macrophytes	Phytoplankton	Overall Biological Status						Artificial Water Body	Heavily modified Water Body	Ecological Potential Class	Confidence class (Ecol. Pot.)						
ATOK301500004	Lech	Lech_2_Ort	-	-	-	-	-	N	2	G	2	M	N	N			G	M	F	L	N	Y
ATOK302370006	Lech	Lech	-	-	-	-	-	N	2	G	2	M	N	N			G	M	F	L	N	Y
ATOK302370007	Lech	Lech	2	-	-	-	2	N	2	G	2	M	N	N			G	M	F	L	N	Y
ATOK302370009	Lech	Lech_1	4	-	-	-	4	N	2	G	-	-	N	Y	3	H	G	M	F	L	Y	Y
ATOK302370010	Lech	Lech_2	-	-	-	-	-	N	2	G	-	-	N	Y	3	M	G	M	F	L	Y	Y
ATOK302370011	Lech	Lech_1	-	-	-	-	-	N	2	G	2	M	N	N			G	M	F	L	N	Y
ATOK302370013	Lech	Lech_2_1	-	-	-	-	-	N	2	G	2	M	N	N			G	M	F	L	N	Y
ATOK302370014	Lech	Lech_2_2	-	-	-	-	-	Y	2	G	2	H	N	N			G	M	F	L	N	Y
ATOK307080000	Lech	Lech	2	2	-	-	2	N	2	G	2	H	N	N			G	M	F	L	N	Y
ATOK500020001	March	March, MP	2	-	3	-	3	N	3	G	3	H	N	N			G	H	F	L	N	Y
ATOK801180001	Mur	Gewässer: Mur, Abschnitt: Landesgrenze bis Kendlbruck; 8011802	2	2	2	-	2	N	2	G	2	H	N	N			G	M	F	H	N	Y
ATOK801180002	Mur	Gewässer: Mur, Abschnitt: Kendlbruck bis Madling/Thomertalerbach Taurachmündung; 8011801	-	-	-	-	-	N	2	G	2	H	N	N			G	M	F	L	N	Y
ATOK801180003	Mur	Gewässer: Mur, Abschnitt: Madling/Thomertalerbach bis Taurachmündung	-	-	-	-	-	N	2	G	3	H	N	N			G	M	F	L	Y	Y

Water Body code with country code	**Name of river**	**Name of water body**	**Biological Quality Elements**					**Hydromorphology - High Status**	**General Phys. and Chem. conditions**	**Specific pollutants**	**OVERALL ECOLOGICAL STATUS**	Confidence class (Overall Ecol.Status)	**Artificial and HMWB**				**CHEMICAL STATUS (Priority substances in water)**	Confidence class (Chemical Status - Priority substances in water)	**CHEMICAL STATUS (Mercury in biota)**	Confidence class (Chemical Status - Mercury in biota)	**Exemption Art. 4(4)**	**Exemption Art. 4(5)**
			Fish	**Benthic invertebrates**	**Phytobenthos & Macrophytes**	**Phytoplankton**	**Overall Biological Status**						**Artificial Water Body**	**Heavily modified Water Body**	**Ecological Potential Class**	Confidence class (Ecol. Pot.)						
ATOK801180004	Mur	Gewässer: Mur, Abschnitt: Taurachmündung bis Zederhausbachmündung; 8011805	3	-	-	-	3	N	2	G	3	H	N	N			G	M	F	L	Y	Y
ATOK801180005	Mur	Gewässer: Mur, Abschnitt: Zederhausbach bis Untere Au; 8011806	-	-	-	-	-	N	2	G	2	M	N	N			G	M	F	L	N	Y
ATOK801180006	Mur	Gewässer: Mur, Abschnitt: Untere Au bis Murfall	-	-	-	-	-	N	2	G	2	M	N	N			G	M	F	L	N	Y
ATOK801180007	Mur	Gewässer: Mur, Abschnitt: Murfall bis Rotgüldenbach	-	-	-	-	-	N	2	G	-	-	N	Y	2	H	G	M	F	L	N	Y
ATOK801180008	Mur	Gewässer: Mur, Abschnitt: Rotgüldenbach bis Dreischuppen; 8011807	-	-	-	-	-	N	2	G	-	-	N	Y	3	H	G	M	F	L	Y	Y
ATOK801180009	Mur	Gewässer: Mur, Abschnitt: Drei Schuppen bis Nähe Zalußenalm	-	-	-	-	-	N	2	G	2	M	N	N			G	M	F	L	N	Y
ATOK801180028	Mur	Mur, Mur-Seitenarm St. Georgen	-	-	-	-	-	N	2	G	2	M	N	N			G	M	F	L	N	Y
ATOK801180029	Mur	Mur	-	-	-	-	-	N	2	G	-	-	N	Y	3	M	G	M	F	L	N	Y
ATOK801180055	Mur	Mur	-	-	-	-	-	N	2	G	2	M	N	N			G	M	F	L	N	Y
ATOK802710002	Mur	Mur	-	-	-	-	-	N	2	G	-	-	N	Y	2	H	G	H	F	H	N	Y
ATOK802710008	Mur	Mur	-	-	-	-	-	N	2	G	-	-	N	Y	2	M	G	M	F	L	N	Y
ATOK802710009	Mur	Mur	-	-	-	-	-	N	2	G	-	-	N	Y	3	M	G	M	F	L	N	Y
ATOK802710010	Mur	Mur	-	-	-	-	-	N	2	G	3	H	N	N			G	M	F	L	N	Y

Water Body code with country code	Name of river	Name of water body	Biological Quality Elements					Hydromorphology - High Status	General Phys. and Chem. conditions	Specific pollutants	OVERALL ECOLOGICAL STATUS	Confidence class (Overall Ecol.Status)	Artificial and HMWB				CHEMICAL STATUS (Priority substances in water)	Confidence class (Chemical Status - Priority substances in water)	CHEMICAL STATUS (Mercury in biota)	Confidence class (Chemical Status - Mercury in biota)	Exemption Art. 4(4)	Exemption Art. 4(5)
			Fish	Benthic invertebrates	Phytobenthos & Macrophytes	Phytoplankton	Overall Biological Status						Artificial Water Body	Heavily modified Water Body	Ecological Potential Class	Confidence class (Ecol. Pot.)						
ATOK802710012	Mur	Mur Graz	-	-	-	-	-	N	2	G	2	M	N	N			G	M	F	L	N	Y
ATOK802710014	Mur	Mur	-	-	2	-	2	N	2	G	-	-	N	Y	3	M	G	H	F	H	N	Y
ATOK802710015	Mur	Mur	-	-	-	-	-	N	2	G	-	-	N	Y	2	M	G	H	F	L	N	Y
ATOK802720001	Mur	Mur	-	-	-	-	-	N	2	G	-	-	N	Y	2	M	G	M	F	L	N	Y
ATOK802720002	Mur	Mur	2	-	-	-	2	N	2	G	2	H	N	N			G	M	F	L	N	Y
ATOK802720003	Mur	Mur	-	-	-	-	-	N	2	G	-	-	N	Y	3	M	G	M	F	L	N	Y
ATOK802720004	Mur	Mur	-	-	-	-	-	N	2	G	2	M	N	N			G	M	F	L	N	Y
ATOK802720005	Mur	Mur	-	-	-	-	-	N	2	G	-	-	N	Y	3	M	G	M	F	L	Y	Y
ATOK802720006	Mur	Mur	-	-	-	-	-	N	2	G	2	M	N	N			G	M	F	L	N	Y
ATOK803280000	Mur	Gewässer: Mur, Abschnitt: Nähe Zalußenalm bis Sticklerhütte	-	-	-	-	-	N	2	G	2	M	N	N			G	M	F	L	N	Y
ATOK803280001	Mur	Gewässer: Mur, Abschnitt: Sticklerhütte bis Ursprung	-	-	-	-	-	Y	1	G	1	M	N	N			G	M	F	L	N	Y
ATOK804000000	Mur	Mur (Mura)	-	-	-	-	-	N	2	G	2	H	N	N			G	H	F	L	N	Y
ATOK1000960015	Raab	Raab	-	-	-	-	-	N	2	G	4	M	N	N			G	M	F	L	Y	Y
ATOK1000960017	Raab	Raab	-	-	-	-	-	N	2	G	2	M	N	N			G	M	F	L	N	Y
ATOK1000960019	Raab	Raab	-	-	-	-	-	N	2	G	4	M	N	N			G	M	F	L	Y	Y
ATOK1000960020	Raab	Raab	3	-	-	-	3	N	2	G	3	H	N	N			G	M	F	L	Y	Y
ATOK1001040041	Raab	Raab_Neumarkt	2	-	-	-	2	N	3	G	3	H	N	N			G	H	F	H	N	Y
ATOK1001040042	Raab	Raab_St. Martin	-	-	-	-	-	N	3	G	3	H	N	N			G	H	F	L	Y	Y

Water Body code with country code	**Name of river**	**Name of water body**	**Biological Quality Elements**										**Artificial and HMWB**									
			Fish	**Benthic invertebrates**	**Phytobenthos & Macrophytes**	**Phytoplankton**	**Overall Biological Status**	**Hydromorphology - High Status**	**General Phys. and Chem. conditions**	**Specific pollutants**	**OVERALL ECOLOGICAL STATUS**	Confidence class (Overall Ecol.Status)	**Artificial Water Body**	**Heavily modified Water Body**	**Ecological Potential Class**	Confidence class (Ecol. Pot.)	**CHEMICAL STATUS (Priority substances in water)**	Confidence class (Chemical Status - Priority substances in water)	**CHEMICAL STATUS (Mercury in biota)**	Confidence class (Chemical Status - Mercury in biota)	**Exemption Art. 4(4)**	**Exemption Art. 4(5)**
ATOK1001040098	Raab	Raab	-	-	3	-	3	N	2	G	-	-	N	Y	3	M	G	M	F	L	Y	Y
ATOK1001040102	Raab	Raab	2	-	-	-	2	N	2	G	2	M	N	N			G	M	F	L	N	Y
ATOK1001040105	Raab	Raab	-	-	-	-	-	N	2	G	-	-	N	Y	3	M	G	M	F	L	Y	Y
ATOK1001040108	Raab	Raab	-	-	-	-	-	N	2	G	3	L	N	N			G	H	F	L	N	Y
ATOK1001040109	Raab	Raab	-	-	-	-	-	N	2	G	3	L	N	N			G	M	F	L	Y	Y
ATOK1002140000	Raab	Raab_Grenzstrecke	-	-	-	-	-	Y	3	G	3	L	N	N			G	M	F	L	Y	Y
ATOK1002160000	Raab	Raab	4	-	-	-	4	N	2	G	4	H	N	N			G	M	F	L	Y	Y
ATOK1001790012	Rabnitz	Rabnitz_Piringsdorf	4	-	-	-	4	N	3	G	4	H	N	N			G	M	F	L	N	Y
ATOK1001790013	Rabnitz	Rabnitz_Oberrabnitz	-	-	-	-	-	N	3	G	3	L	N	N			G	M	F	L	Y	Y
ATOK1001790035	Rabnitz	Rabnitz_Unterloisdorf	-	-	-	-	-	N	3	G	3	H	N	N			G	M	F	L	N	Y
ATOK1001790039	Rabnitz	Rabnitz_Frankenau	4	-	-	-	4	N	3	G	4	H	N	N			G	M	F	L	Y	Y
ATOK1002370000	Rabnitz	Rabnitz_01, MR	-	-	-	-	-	N	2	G	2	M	N	N			G	M	F	L	N	Y
ATOK304690001	Salzach	Gewässer: Salzach, Abschnitt: Gasteinerachenmündung bis KW Ausleitung in Högmoos	4	-	-	-	4	N	2	G	4	H	N	N			G	M	F	L	N	Y
ATOK304690002	Salzach	Gewässer: Salzach, Abschnitt: KW Ausleitung in Högmoos bis Fuscherachenmündung	5	2	2	-	5	N	2	G	-	-	N	Y	3	H	G	M	F	L	Y	Y

Water Body code with country code	**Name of river**	**Name of water body**	**Biological Quality Elements**					**Hydromorphology - High Status**	**General Phys. and Chem. conditions**	**Specific pollutants**	**OVERALL ECOLOGICAL STATUS**	Confidence class (Overall Ecol.Status)	**Artificial and HMWB**				**CHEMICAL STATUS (Priority substances in water)**	Confidence class (Chemical Status - Priority substances in water)	**CHEMICAL STATUS (Mercury in biota)**	Confidence class (Chemical Status - Mercury in biota)	**Exemption Art. 4(4)**	**Exemption Art. 4(5)**
			Fish	**Benthic invertebrates**	**Phytobenthos & Macrophytes**	**Phytoplankton**	**Overall Biological Status**						**Artificial Water Body**	**Heavily modified Water Body**	**Ecological Potential Class**	Confidence class (Ecol. Pot.)						
ATOK304690003	Salzach	Gewässer: Salzach, Abschnitt: Fuscherachenmündung bis Mündung Felber Ache	-	-	-	-	-	N	2	G	5	H	N	N			G	M	F	L	N	Y
ATOK304690004	Salzach	Gewässer: Salzach, Abschnitt: Mündung Felber Ache bis Trattenbachmündung	4	-	-	-	4	N	2	G	3	H	N	N			G	M	F	L	Y	Y
ATOK304690005	Salzach	Gewässer: Salzach, Abschnitt: Trattenbachmündung bis Mündung Krimmlerache	2	-	-	-	2	N	2	G	2	M	N	N			G	M	F	L	N	Y
ATOK304690006	Salzach	Gewässer: Salzach, Abschnitt: Ende Fischlebensraum bis Überleitung Durlassboden	-	-	-	-	-	N	2	G	-	-	N	Y	3	M	G	M	F	L	Y	Y
ATOK304690007	Salzach	Gewässer: Salzach, Abschnitt: Überleitung Durlassboden bis Nähe Salzachjochütte	-	-	-	-	-	Y	1	G	1	M	N	N			G	M	F	L	N	Y
ATOK304690078	Salzach	Gewässer: Salzach, Abschnitt: Krimmlerachenmündung bis Ende Fischlebensraum	-	-	-	-	-	N	2	G	2	M	N	N			G	M	F	L	N	Y
ATOK305000000	Salzach	Gewässer: Salzach, Abschnitt: Nähe Salzachjochhütte bis Ursprung	-	-	-	-	-	Y	1	G	1	M	N	N			G	M	F	L	N	Y

Water Body code with country code	**Name of river**	**Name of water body**	**Biological Quality Elements**					**Hydromorphology - High Status**	**General Phys. and Chem. conditions**	**Specific pollutants**	**OVERALL ECOLOGICAL STATUS**	Confidence class (Overall Ecol.Status)	**Artificial and HMWB**				**CHEMICAL STATUS (Priority substances in water)**	Confidence class (Chemical Status - Priority substances in water)	**CHEMICAL STATUS (Mercury in biota)**	Confidence class (Chemical Status - Mercury in biota)	**Exemption Art. 4(4)**	**Exemption Art. 4(5)**
			Fish	**Benthic invertebrates**	**Phytobenthos & Macrophytes**	**Phytoplankton**	**Overall Biological Status**						**Artificial Water Body**	**Heavily modified Water Body**	**Ecological Potential Class**	Confidence class (Ecol. Pot.)						
ATOK305350001	Salzach	Gewässer: Salzach, Abschnitt: Blühnbachmündung bis Mündung Kleinarlerache	5	-	-	-	5	N	2	G	-	-	N	Y	3	H	G	M	F	L	Y	Y
ATOK305350002	Salzach	Gewässer: Salzach, Abschnitt: Tauglmündung bis Blühnbachmündung	5	-	-	-	5	N	2	G	4	M	N	N			G	M	F	L	Y	Y
ATOK305350003	Salzach	Gewässer: Salzach, Abschnitt: Mündung der Oberalm bis zur Tauglmündung	-	-	-	-	-	N	2	G	-	-	N	Y	3	M	G	M	F	L	Y	Y
ATOK305350004	Salzach	Gewässer: Salzach, Abschnitt: von der Saalachmündung bis KW Urstein	5	2	1	-	5	N	2	G	-	-	N	Y	3	H	G	M	F	L	Y	Y
ATOK305350006	Salzach	Gewässer: Salzach, Abschnitt: KW Urstein bis Mündung der Oberalm	-	-	-	-	-	N	2	G	-	-	N	Y	3	M	G	M	F	L	Y	Y
ATOK305360001	Salzach	Gewässer: Salzach, Abschnitt: Stauraum KW Wallnerau bis zur Mündung Gasteinerache	3	-	-	-	3	N	2	G	3	H	N	N			G	M	F	L	N	Y
ATOK305360002	Salzach	Gewässer: Salzach, Abschnitt: Kleinarlerachenmündung bis zum Stauraum KW Wallerau	5	-	-	-	5	N	2	G	-	-	N	Y	3	H	G	M	F	L	Y	Y
ATOK307200001	Salzach	Salzach_Mündung	-	-	-	-	-	N	2	G	-	-	N	Y	3	M	G	M	F	L	Y	Y
ATOK307200002	Salzach	Salzach	5	-	-	-	5	N	2	G	5	H	N	N			G	M	F	L	Y	Y

Water Body code with country code	**Name of river**	**Name of water body**	**Biological Quality Elements**					**Hydromorphology - High Status**	**General Phys. and Chem. conditions**	**Specific pollutants**	**OVERALL ECOLOGICAL STATUS**	Confidence class (Overall Ecol.Status)	**Artificial and HMWB**				**CHEMICAL STATUS (Priority substances in water)**	Confidence class (Chemical Status - Priority substances in water)	**CHEMICAL STATUS (Mercury in biota)**	Confidence class (Chemical Status - Mercury in biota)	**Exemption Art. 4(4)**	**Exemption Art. 4(5)**
			Fish	**Benthic invertebrates**	**Phytobenthos & Macrophytes**	**Phytoplankton**	**Overall Biological Status**						**Artificial Water Body**	**Heavily modified Water Body**	**Ecological Potential Class**	Confidence class (Ecol. Pot.)						
ATOK307200003	Salzach	Gewässer: Salzach, Abschnitt: Landesgrenze bis Saalachmündung	-	2	2	-	2	N	2	G	3	M	N	N			G	M	F	L	N	Y
ATOK1001760000	Spratzbach	Spratzbach_02, ER	-	-	-	-	-	N	2	G	3	L	N	N			G	M	F	L	Y	Y
ATOK1002370003	Spratzbach	Spratzbach_01	-	-	-	-	-	N	2	G	2	M	N	N			G	M	F	L	N	Y
ATOK500010030	Thaya	Thaya_07, EP mittel	-	-	-	-	-	N	3	G	-	-	N	Y	3	M	G	M	F	L	Y	Y
ATOK500010031	Thaya	Thaya_08, EP klein	-	-	-	-	-	N	3	G	-	-	N	Y	3	M	G	M	F	L	Y	Y
ATOK500010036	Thaya	Thaya_06, EP mittel	-	-	-	-	-	N	2	G	-	-	N	Y	3	M	G	M	F	L	Y	Y
ATOK500010038	Thaya	Thaya_09, EP klein	-	-	-	-	-	N	3	G	3	M	N	N			G	M	F	L	Y	Y
ATOK500010043	Thaya	Thaya_07, EP mittel	-	-	-	-	-	N	2	G	-	-	N	Y	3	M	G	M	F	L	Y	Y
ATOK500040002	Thaya	Thaya_10, MR	-	-	-	-	-	N	2	G	3	M	N	N			G	M	F	L	Y	Y
ATOK500040003	Thaya	Thaya_11, ER	-	-	-	-	-	N	2	G	3	L	N	N			G	M	F	L	Y	Y
ATOK501710003	Thaya	Thaya_04, EP mittel 2	4	-	3	-	4	N	3	G	4	H	N	N			G	H	F	L	Y	Y
ATOK501790000	Thaya	Thaya_01, MP	-	-	-	-	-	N	3	G	3	H	N	N			G	M	F	L	Y	Y
ATOK501870001	Thaya	Thaya_05, EP mittel	-	-	-	-	-	N	2	G	-	-	N	Y	3	M	G	H	F	L	Y	Y
ATOK501930000	Thaya	Thaya_03, EP mittel 2	3	-	3	-	3	N	3	G	3	H	N	N			G	H	F	L	Y	Y
ATOK501940000	Thaya	Thaya_02, MP	-	-	3	-	3	N	3	G	3	H	N	N			G	H	F	L	N	Y
ATOK400780000	Traun	Toplitzbach	-	-	-	-	-	Y	1	G	1	M	N	N			G	M	F	L	N	Y
ATOK400780002	Traun	Traun-Ursprung	-	-	-	-	-	Y	1	G	1	M	N	N			G	M	F	L	N	Y
ATOK401220004	Traun	Traun	-	-	-	-	-	N	2	G	2	M	N	N			G	M	F	L	N	Y

Water Body code with country code	**Name of river**	**Name of water body**	**Biological Quality Elements**					**Hydromorphology - High Status**	**General Phys. and Chem. conditions**	**Specific pollutants**	**OVERALL ECOLOGICAL STATUS**	Confidence class (Overall Ecol.Status)	**Artificial and HMWB**				**CHEMICAL STATUS (Priority substances in water)**	Confidence class (Chemical Status - Priority substances in water)	**CHEMICAL STATUS (Mercury in biota)**	Confidence class (Chemical Status - Mercury in biota)	**Exemption Art. 4(4)**	**Exemption Art. 4(5)**
			Fish	**Benthic invertebrates**	**Phytobenthos & Macrophytes**	**Phytoplankton**	**Overall Biological Status**						**Artificial Water Body**	**Heavily modified Water Body**	**Ecological Potential Class**	Confidence class (Ecol. Pot.)						
ATOK401220012	Traun	Traun	-	2	2	-	2	N	2	G	3	L	N	N			G	M	F	L	Y	Y
ATOK401220014	Traun	Traun_Obertaun	-	3	2	-	3	N	2	G	3	H	N	N			G	M	F	L	N	Y
ATOK401220015	Traun	Traun_Koppenschlucht_HMSG	1	-	-	-	1	Y	2	G	2	M	N	N			G	M	F	L	N	Y
ATOK409920001	Traun	Traun	-	2	2	-	2	N	2	G	4	M	N	N			G	M	F	L	Y	Y
ATOK411130001	Traun	Traun	5	2	2	-	5	N	2	G	5	H	N	N			G	M	F	L	Y	Y
ATOK411970000	Traun	Grundlseer-Traun, Traun, Vereinigte Traun	-	-	-	-	-	N	2	G	3	L	N	N			G	M	F	L	Y	Y
ATOK411980001	Traun	Grundlseer-Traun, Vereinigte Traun	-	-	-	-	-	N	2	G	4	M	N	N			G	M	F	L	Y	Y
ATOK411980002	Traun	Grundlseer-Traun	-	-	-	-	-	N	2	G	3	L	N	N			G	M	F	L	Y	Y
ATOK412090005	Traun	Traun	-	-	-	-	-	Y	2	G	2	M	N	N			G	M	F	L	N	Y
ATOK412090013	Traun	Traun_Traun	-	2	2	-	2	N	2	G	-	-	N	Y	3	M	G	M	F	L	Y	Y
ATOK412090014	Traun	Traun_Pucking	5	4	2	-	5	N	2	G	-	-	N	Y	3	H	G	M	F	L	Y	Y
ATOK412090016	Traun	Traun_Marchtrenk	-	-	-	-	-	N	2	G	-	-	N	Y	3	M	G	M	F	L	Y	Y
ATOK412090018	Traun	Traun_Wels	-	2	2	-	2	N	2	G	3	L	N	N			G	M	F	L	Y	Y
ATOK412090020	Traun	Traun_Welser_Wehr	-	-	-	-	-	N	2	G	-	-	N	Y	3	M	G	M	F	L	Y	Y
ATOK412090024	Traun	Traun_Saag	-	2	1	-	2	N	2	G	4	M	N	N			G	M	F	L	Y	Y
ATOK412090027	Traun	Traun_Ebelsberg-Rückstau Donau	-	-	-	-	-	N	2	G	-	-	N	Y	3	M	G	M	F	L	Y	Y
ATOK412090028	Traun	Traun_Ebelsberg-RWStrecke	3	-	-	-	3	N	2	G	3	H	N	N			G	M	F	L	N	Y
ATOK412090030	Traun	Traun_Stadl	-	-	-	-	-	N	2	G	-	-	N	Y	3	M	G	M	F	L	Y	Y

Water Body code with country code	**Name of river**	**Name of water body**	**Biological Quality Elements**										**Artificial and HMWB**									
			Fish	**Benthic invertebrates**	**Phytobenthos & Macrophytes**	**Phytoplankton**	**Overall Biological Status**	**Hydromorphology - High Status**	**General Phys. and Chem. conditions**	**Specific pollutants**	**OVERALL ECOLOGICAL STATUS**	Confidence class (Overall Ecol.Status)	**Artificial Water Body**	**Heavily modified Water Body**	**Ecological Potential Class**	Confidence class (Ecol. Pot.)	**CHEMICAL STATUS (Priority substances in water)**	Confidence class (Chemical Status - Priority substances in water)	**CHEMICAL STATUS (Mercury in biota)**	Confidence class (Chemical Status - Mercury in biota)	**Exemption Art. 4(4)**	**Exemption Art. 4(5)**
ATOK412090031	Traun	Traun_Lambach	-	3	1	-	3	N	1	G	-	-	N	Y	3	M	G	M	F	L	Y	Y
ATOK412090032	Traun	Traun_Kemating	-	-	-	-	-	N	2	G	-	-	N	Y	3	M	G	M	F	L	Y	Y
ATOK412090036	Traun	Traun	-	2	1	-	2	N	2	G	3	L	N	N			G	M	F	L	Y	Y
ATOK412090037	Traun	Traun_Roitham_HMSG	-	2	1	-	2	Y	2	G	2	M	N	N			G	M	F	L	N	Y
ATOK412090040	Traun	Traun_HMSG_Fischerinsel	-	-	-	-	-	Y	2	G	2	M	N	N			G	M	F	L	N	Y
ATOK412090042	Traun	Traun_Laakirchen	-	2	2	-	2	N	2	G	-	-	N	Y	3	H	G	M	F	L	Y	Y
ATOK412100001	Traun	Traun_UW_Gmunden	-	-	-	-	-	N	2	G	3	L	N	N			G	M	F	L	Y	Y
ATOK412100002	Traun	Traun_KW_Gmunden	5	1	1	-	5	N	2	G	-	-	N	Y	3	H	G	M	F	L	Y	Y
CZDYJ_0100	Dyje	Dyje od státní hranice po vzdutí nádrže Vranov, vcetne toku Kreslický potok	5	3	3	-	5		3	G	5	H	N	N			F	M	-	-	Y	N
CZDYJ_0160	Dyje	Dyje od hráze nádrže Vranov po státní hranici	-	2	-	-	2		2	G	2	M	N	N			G	H	-	-	N	N
CZDYJ_0170	Dyje	Dyje od státní hranice po vzdutí nádrže Znojmo	-	2	2	-	2		2	G	2	H	N	N			F	M	-	-	Y	N
CZDYJ_0180	Dyje	Dyje od vzdutí nádrže Znojmo po státní hranici	-	2	2	-	2		2	G	2	H	N	N			G	H	-	-	N	N
CZDYJ_0190	Dyje	Dyje od státní hranice po státní hranici	-	2	3	-	3		3	F	3	M	N	N			F	H	-	-	Y	N
CZDYJ_0200	Dyje	Dyje od státní hranice po vzdutí nádrže Nové Mlýny I. – horní	3	2	3	-	3		3	F			N	Y	3	M	G	M	-	-	Y	N

Water Body code with country code	Name of river	Name of water body	Biological Quality Elements					Hydromorphology - High Status	General Phys. and Chem. conditions	Specific pollutants	OVERALL ECOLOGICAL STATUS	Confidence class (Overall Ecol.Status)	Artificial and HMWB				CHEMICAL STATUS (Priority substances in water)	Confidence class (Chemical Status - Priority substances in water)	CHEMICAL STATUS (Mercury in biota)	Confidence class (Chemical Status - Mercury in biota)	Exemption Art. 4(4)	Exemption Art. 4(5)
			Fish	Benthic invertebrates	Phytobenthos & Macrophytes	Phytoplankton	Overall Biological Status						Artificial Water Body	Heavily modified Water Body	Ecological Potential Class	Confidence class (Ecol. Pot.)						
CZDYJ_1240	Dyje	Dyje od hráze nádrže Nové Mlýny III. - dolní po tok Odlehcovací rameno Dyje, Poštorná	-	2	-	-	2		3	G			N	Y	3	M	F	H	-	-	Y	N
CZDYJ_1260	Dyje	Dyje od toku Odlehcovací rameno Dyje, Poštorná po tok Kyjovka (Stupava)	5	2	4	3	5		3	G	5	M	N	N			F	M	F	-	Y	Y
CZDYJ_1300	Dyje	Dyje od toku Kyjovka (Stupava) po tok Morava	5	2	4	3	5		3	G	5	L	N	N			F	L	F	-	Y	Y
CZMOV_0010	Morava	Morava od pramene po tok Krupá	-	1	-	-	1		2	G	2	M	N	N			G	H	-	-	N	N
CZMOV_0080	Morava	Morava od toku Krupá po tok Desná	-	1	-	-	1	N	1	G	2	M	N	N			F	M	-	-	Y	N
CZMOV_0180	Morava	Morava od toku Desná po soutok s tokem Moravská Sázava	-	2	2	-	2		2	G	2	H	N	N			G	H	-	-	N	N
CZMOV_0310	Morava	Morava od toku Moravská Sázava po tok Trebuvka	-	1	1	-	1		2	G	2	M	N	N			F	H	-	-	Y	N
CZMOV_0950	Morava	Morava od toku Becva po tok Haná	-	-	-	-	-		2	G	2	L	N	N			G	H	-	-	N	N
CZMOV_1170	Morava	Morava od toku Haná po tok Drevnice	-	4	-	-	4		2	G			N	Y	4	M	F	M	-	-	Y	N
CZMOV_1290	Morava	Morava od toku Drevnice po tok Olšava	-	3	3	2	3		2	G			N	Y	3	L	F	M	-	-	Y	N
CZMOV_1390	Morava	Morava od toku Olšava po tok Radejovka	-	3	-	-	3		2	G	3	M	N	N			F	H	-	-	Y	Y

Water Body code with country code	**Name of river**	**Name of water body**	**Biological Quality Elements**					**Hydromorphology - High Status**	**General Phys. and Chem. conditions**	**Specific pollutants**	**OVERALL ECOLOGICAL STATUS**	Confidence class (Overall Ecol.Status)	**Artificial and HMWB**				**CHEMICAL STATUS (Priority substances in water)**	Confidence class (Chemical Status - Priority substances in water)	**CHEMICAL STATUS (Mercury in biota)**	Confidence class (Chemical Status - Mercury in biota)	**Exemption Art. 4(4)**	**Exemption Art. 4(5)**
			Fish	**Benthic invertebrates**	**Phytobenthos & Macrophytes**	**Phytoplankton**	**Overall Biological Status**						**Artificial Water Body**	**Heavily modified Water Body**	**Ecological Potential Class**	Confidence class (Ecol. Pot.)						
CZMOV_1430	Morava	Morava od toku Radejovka po státní hranici	3	2	3	2	3		2	G			N	Y	3	H	F	M	F	-	Y	Y
CZMOV_2530	Morava	Morava od toku Trebuvka po tok Becva	4	3	2	2	4		2	G	4	H	N	N			F	H	-	-	Y	Y
CZDYJ_0300	Svratka	Svratka od pramene po Bílý potok	-	2	-	-	2		2	G	2	M	N	N			G	H	-	-	N	N
CZDYJ_0330	Svratka	Svratka od toku Bílý potok po vzdutí nádrže Vír I.	-	2	-	-	2		2	G	2	M	N	N			F	H	-	-	Y	Y
CZDYJ_0380	Svratka	Svratka od hráze nádrže Vír I. po tok Bobruvka (Loucka)	-	2	-	-	2		2	G	2	M	N	N			G	H	-	-	N	N
CZDYJ_0450	Svratka	Svratka od toku Bobruvka (Loucka) po vzdutí nádrže Brno	3	2	3	-	3		2	G	3	M	N	N			F	H	-	-	Y	Y
CZDYJ_0490	Svratka	Svratka od hráze nádrže Brno po tok Svitava	-	2	-	-	2		2	G			N	Y	2	M	G	H	-	-	N	N
CZDYJ_0670	Svratka	Svratka od toku Svitava po tok Litava (Cézava)	2	2	3	2	3		3	G			N	Y	3	L	F	L	-	-	Y	Y
CZDYJ_0800	Svratka	Svratka od toku Litava (Cézava) po vzdutí nádrže Nové Mlýny II. - stredni	5	3	3	1	5		3	F	5	H	N	N			F	L	F	-	Y	Y
SKB0001	Bodrog	Bodrog	2	3	3	1	3	N	2	F	3	H	N	N			G	M			Y	N
SKV0003	Čierny Váh	Čierny Váh	-	1	2	-	2	Y	2	G	2	M	N	N			G	M			N	N
SKV0004	Čierny Váh	Čierny Váh	1	2	2	-	2	Y	2	G	2	H	N	N			G	M			N	N
SKH0001	Hornád	Hornád	2	3	2	-	3	N	2	G	3	-	N	N			G	M			Y	N

Water Body code with country code	**Name of river**	**Name of water body**	**Biological Quality Elements**										**Artificial and HMWB**									
			Fish	**Benthic invertebrates**	**Phytobenthos & Macrophytes**	**Phytoplankton**	**Overall Biological Status**	**Hydromorphology - High Status**	**General Phys. and Chem. conditions**	**Specific pollutants**	**OVERALL ECOLOGICAL STATUS**	Confidence class (Overall Ecol.Status)	**Artificial Water Body**	**Heavily modified Water Body**	**Ecological Potential Class**	Confidence class (Ecol. Pot.)	**CHEMICAL STATUS (Priority substances in water)**	Confidence class (Chemical Status - Priority substances in water)	**CHEMICAL STATUS (Mercury in biota)**	Confidence class (Chemical Status - Mercury in biota)	**Exemption Art. 4(4)**	**Exemption Art. 4(5)**
SKH0002	Hornád	Hornád	1	1	2	-	2	N	2	G	2	H	N	N			G	M			N	N
SKH0003	Hornád	Hornád	3	3	3	-	3	N	3	F	3	H	N	N			G	M			Y	N
SKH0004	Hornád	Hornád	2	3	3	1	3	N	2	G	3	H	N	N			G	M	F	H	N	N
SKR0001	Hron	Hron	1	2	2	-	2	Y	1	G	2	H	N	N			G	M			N	N
SKR0002	Hron	Hron	-	-	-	-	-	N	-	-	3	L	N	N			G	L			Y	N
SKR0003	Hron	Hron	2	3	1	-	3	N	2	G	3	H	N	N			G	M			Y	N
SKR0004	Hron	Hron	2	3	3	-	3		2	G	3	H	N	N			G	M			Y	N
SKR0005	Hron	Hron	2	3	3	3	3	N	2	G	3	H	N	N			G	M			Y	N
SKI0001	Ipeľ	Ipeľ	1	2	2	-	2	Y	2	F	3	H	N	N			G	M			Y	N
SKI0003	Ipeľ	Ipeľ	-	-	-	-	-		2	G	2	L	N	N			G	M			N	N
SKI0004	Ipeľ	Ipeľ	3	3	3	3	3	N	3	G	3	H	N	N			G	M	F	H	N	N
SKB0141	Laborec	Laborec	-	-	-	-	-		-	-	2	L	N	N			G	L			N	N
SKB0142	Laborec	Laborec	1	3	2	-	3	N	2	G	3	H	N	N			G	M	F	H	N	N
SKB0144	Laborec	Laborec	4	4	2	2	4	N	2	G	4	H	N	N			G	M			Y	N
SKB0140	Latorica	Latorica	2	3	2	1	3	N	2	F	3	H	N	N			G	M			Y	N
SKM0001	Morava	Morava	3	2	3	3	3	N	3	G	-	-	N	Y	3	M	G	M			Y	N
SKM0002	Morava	Morava	2	3	2	3	3	N	3	G	3	H	N	N			G	M			Y	N
SKN0001	Nitra	Nitra	-	1	1	-	1	Y	2	G	1	M	N	N			G	M			N	N
SKN0002	Nitra	Nitra	2	3	2	-	3	N	3	G	3	H	N	N			G	M			Y	N

Water Body code with country code	**Name of river**	**Name of water body**	**Biological Quality Elements**										**Artificial and HMWB**									
			Fish	**Benthic invertebrates**	**Phytobenthos & Macrophytes**	**Phytoplankton**	**Overall Biological Status**	**Hydromorphology - High Status**	**General Phys. and Chem. conditions**	**Specific pollutants**	**OVERALL ECOLOGICAL STATUS**	Confidence class (Overall Ecol.Status)	**Artificial Water Body**	**Heavily modified Water Body**	**Ecological Potential Class**	Confidence class (Ecol. Pot.)	**CHEMICAL STATUS (Priority substances in water)**	Confidence class (Chemical Status - Priority substances in water)	**CHEMICAL STATUS (Mercury in biota)**	Confidence class (Chemical Status - Mercury in biota)	**Exemption Art. 4(4)**	**Exemption Art. 4(5)**
SKN0003	Nitra	Nitra	3	3	2	-	3	N	3	F	3	H	N	N			F	M			Y	N
SKN0004	Nitra	Nitra	4	3	3	4	4	N	3	F	-	-	N	Y	4	M	G	M			Y	N
SKD0015	Prívodný kanál (VN Gabčíkovo) - Odpadový kanál	Prívodný kanál (VN Gabčíkovo) - Odpadový kanál	-	-	-	2	2		2	G	-	-	Y	N	2	M	G	M			N	N
SKS0001	Slaná	Slaná	-	-	-	-	-		-	-	2	L	N	N			G	L			N	N
SKS0002	Slaná	Slaná	2	2	2	-	2	N	2	F	3	H	N	N			F	M			Y	N
SKS0003	Slaná	Slaná	2	3	3	2	3	N	3	G	3	H	N	N			G	M	F	H	N	N
SKT0001	Tisa	Tisa	2	3	-	3	3	Y	2	F	3	H	N	N			G	M			Y	N
SKV0005	Váh	Váh	1	3	1	-	3	Y	2	G	3	H	N	N			G	M			Y	N
SKV0006	Váh	Váh	3	3	3	-	3	N	2	G	3	H	N	N			G	M	F	H	N	N
SKV0007	Váh	Váh	4	3	3	2	4		2	G	-	-	N	Y	4	M	G	M	F	H	N	N
SKV0008	Váh	Váh	2	3	3	2	3		2	G	-	-	N	Y	3	M	G	M	F	H	N	N
SKV0019	Váh	Váh	-	3	2	2	3		2	G	-	-	N	Y	3	M	G	M			Y	N
SKV0027	Váh	Váh	4	4	3	2	4		3	F	-	-	N	Y	4	M	G	M			Y	N
HUAEP322	Berettyó	Berettyó	3	2	2	2	3	N	2	F			N	Y	3	M	F	H			Y	N
HUAEP334	Bodrog	Bodrog	2	2	2	2	2	N	2	G	3	M	N	N			G	M			Y	N
HUAEP438	Dráva	Dráva alsó	2	2	1	2	2	N	1	G	2	M	N	N			G	L			N	N
HUAEP439	Dráva	Dráva felső	3	3	3	2	3	Y	1	-			N	Y	4	M	-	-			Y	N

Water Body code with country code	Name of river	Name of water body	Biological Quality Elements: Fish	Biological Quality Elements: Benthic invertebrates	Biological Quality Elements: Phytobenthos & Macrophytes	Biological Quality Elements: Phytoplankton	Biological Quality Elements: Overall Biological Status	Hydromorphology - High Status	General Phys. and Chem. conditions	Specific pollutants	OVERALL ECOLOGICAL STATUS	Confidence class (Overall Ecol.Status)	Artificial and HMWB: Artificial Water Body	Artificial and HMWB: Heavily modified Water Body	Artificial and HMWB: Ecological Potential Class	Artificial and HMWB: Confidence class (Ecol. Pot.)	CHEMICAL STATUS (Priority substances in water)	Confidence class (Chemical Status - Priority substances in water)	CHEMICAL STATUS (Mercury in biota)	Confidence class (Chemical Status - Mercury in biota)	Exemption Art. 4(4)	Exemption Art. 4(5)
HUAEP471	Fehér-Körös	Fehér-Körös	3	2	2	2	3	N	1	F			Y	N	3	M	F	H			Y	N
HUAEP475	Fekete-Körös	Fekete-Körös	3	2	2	2	3	N	1	F			N	Y	3	M	F	H			Y	N
HUAOC778	Hármas-Körös	Hármas-Körös alsó	2	2	1	2	2	N	2	G	3	M	N	N			F	M			Y	N
HUAOC779	Hármas-Körös	Hármas-Körös felső	3	3	2	2	3	N	2	F			N	Y	3	H	F	H			Y	N
HUAEP579	Hernád	Hernád alsó	2	2	3	3	3	N	2	G	3	M	N	N			G	M			Y	N
HUAEP580	Hernád	Hernád felső	1	3	3	2	3	N	2	F			N	Y	3	M	G	H			Y	N
HUAEP594	Hortobágy-Berettyó	Hortobágy-Berettyó	3	2	3	4	4	N	2	G			N	Y	4	M	F	H			Y	N
HUAOC785	Hortobágy-főcsatorna	Hortobágy-főcsatorna	3	2	2	3	3	N	3	F			N	Y	3	M	F	H			Y	N
HUAEP614	Ipoly	Ipoly	2	2	3	2	3	N	2	G	3	M	N	N			G	M			Y	N
HUAEP668	Kettős-Körös	Kettős-Körös	3	2	2	2	3	N	1	G			N	Y	3	M	F	M			Y	N
HUAEP783	Maros	Maros torkolat	2	2	2	3	3	N	2	F			N	Y	3	M	G	M			Y	N
HUAEP784	Maros	Maros kelet	2	2	2	3	3	N	2	G			N	Y	3	M	F	H			Y	N
HUAEP810	Mosoni-Duna	Mosoni-Duna alsó		3	3	1	3	N	2	G			N	Y	3	H	G	H			Y	N
HUAEP811	Mosoni-Duna	Mosoni-Duna felső	3	3	2	2	3	N	2	G			N	Y	3	M	G	M			Y	N
HUAEP812	Mosoni-Duna	Mosoni-Duna középső		3	3	2	3	N	2	G	3	H	N	N			G	M			Y	N
HUAEP816	Mura	Mura	2	1	3	2	3	N	1	-			N	Y	3	M	-	-			Y	N
HUAEP898	Rába	Rába (Kis-Rábától)	3	2	3	2	3	N	2	G			N	Y	3	H	G	H			Y	N
HUAEP899	Rába	Rába (Csörnöc-Herpenyőtől)	3	2	3	-	3	N	2	G			N	Y	3	H	G	L			Y	N

Water Body code with country code	Name of river	Name of water body	Biological Quality Elements: Fish	Biological Quality Elements: Benthic invertebrates	Biological Quality Elements: Phytobenthos & Macrophytes	Biological Quality Elements: Phytoplankton	Biological Quality Elements: Overall Biological Status	Hydromorphology - High Status	General Phys. and Chem. conditions	Specific pollutants	OVERALL ECOLOGICAL STATUS	Confidence class (Overall Ecol.Status)	Artificial and HMWB: Artificial Water Body	Artificial and HMWB: Heavily modified Water Body	Artificial and HMWB: Ecological Potential Class	Artificial and HMWB: Confidence class (Ecol. Pot.)	CHEMICAL STATUS (Priority substances in water)	Confidence class (Chemical Status - Priority substances in water)	CHEMICAL STATUS (Mercury in biota)	Confidence class (Chemical Status - Mercury in biota)	Exemption Art. 4(4)	Exemption Art. 4(5)
HUAEP900	Rába	Rába (Lapincstól)	2	2	3	2	3	N	2	G			N	Y	3	H	G	L			Y	N
HUAEP901	Rába	Rába (ÉDÁSZ-üzemvízcsatornától)	-	1	3	2	3	N	2	-	3	H	N	N			-	-			Y	N
HUAEP902	Rába	Rába torkolati szakasz	2	2	1	2	2	N	2	G			N	Y	2	H	G	H			N	N
HUAEP903	Rába	Rába (határtól)	2	1	3	2	3	N	2	G			N	Y	3	H	G	H			Y	N
HUAEP904	Rábca	Rábca	4	2	3	2	4	N	2	G			N	Y	4	M	G	M			Y	N
HUAEP919	Répce	Répce felső	2	1	3	1	3	N	3	G			N	Y	3	H	G	M			Y	N
HUAEP920	Répce	Répce alsó		4	3	2	4	N	2	-			N	Y	4	L	-	-			Y	N
HUAEP921	Répce	Répce középső	2	2	3	1	3	N	2	-	3	H	N	N			-	-			Y	N
HUAEP931	Sajó	Sajó felső	2	2	2	2	2	N	2	G	2	L	N	N			G	M			N	N
HUAEP932	Sajó	Sajó alsó	2	3	3	2	3	N	2	G	3	M	N	N			G	M			Y	N
HUAEP953	Sebes-Körös	Sebes-Körös felső	2	2	2	1	2	N	1	F			N	Y	3	M	F	H			Y	N
HUAEP954	Sebes-Körös	Sebes-Körös alsó	2	3	3	1	3	N	1	F			N	Y	3	M	F	H			Y	N
HUAEP958	Sió	Sió felső	-	4	-	-	4	N	3	G			Y	N	4	M	G	M			Y	N
HUAEP959	Sió	Sió alsó	4	5	4	5	5	N	3	G			Y	N	5	M	G	M			Y	N
HUAEP971	Szamos	Szamos	2	2	2	3	3	N	3	F	3	H	N	N			F	H			Y	N
HUAEQ054	Tisza	Tisza Túrtól Szipa-főcsatornáig	2	1	-	-	2	N	1	G	2	M	N	N			G	M			N	N
HUAEQ055	Tisza	Tisza országhatártól Túrig	2	2	2	1	2	N	1	F	3	M	N	N			F	H			Y	N
HUAEQ056	Tisza	Tisza Hármas-Köröstől déli országhatárig	-	2	3	3	3	N	2	G			N	Y	3	H	F	H			Y	N

Water Body code with country code	Name of river	Name of water body	Biological Quality Elements										Artificial and HMWB									
			Fish	Benthic invertebrates	Phytobenthos & Macrophytes	Phytoplankton	Overall Biological Status	Hydromorphology - High Status	General Phys. and Chem. conditions	Specific pollutants	OVERALL ECOLOGICAL STATUS	Confidence class (Overall Ecol.Status)	Artificial Water Body	Heavily modified Water Body	Ecological Potential Class	Confidence class (Ecol. Pot.)	CHEMICAL STATUS (Priority substances in water)	Confidence class (Chemical Status - Priority substances in water)	CHEMICAL STATUS (Mercury in biota)	Confidence class (Chemical Status - Mercury in biota)	Exemption Art. 4(4)	Exemption Art. 4(5)
HUAEQ057	Tisza	Tisza Szipa-főcsatornától Belfő-csatornáig	2	2	2	2	2	N	2	F	3	H	N	N			F	H			Y	N
HUAEQ058	Tisza	Tisza Belfő-csatornától Keleti-főcsatornáig	3	3	2	3	3	N	2	F	3	M	N	N			F	M			Y	N
HUAEQ059	Tisza	Tisza Keleti-főcsatornától Tiszabábolnáig	3	2	2	1	3	N	2	G			N	Y	3	M	G	L			Y	N
HUAEQ060	Tisza	Tisza Kiskörétől Hármas-Körösig	2	3	2	2	3	N	2	F			N	Y	3	H	F	M			Y	N
HUAIW389	Tisza	Tisza Tiszabábolnától Kisköréig	2	3	2	1	3	N	2	-			N	Y	3	H	G	L			Y	N
HUAEQ139	Zagyva	Zagyva felső	3	3	2	3	3	N	3	G			N	Y	3	M	G	L			Y	N
HUAEQ140	Zagyva	Zagyva alsó	2	2	2	2	2	N	3	-	3	H	N	N			F	H			Y	N
HUAEQ137	Zagyva-patak	Zagyva-patak-alsó	2	2	2		2	N	3	G	3	M	N	N			G	M			Y	N
HUAEQ138	Zagyva-patak	Zagyva-patak felső és Bárna-patak	4	4	3		4	N	2	G	4	M	N	N			G	L			Y	N
HUAEQ144	Zala	Zala forrásvidék	2	1	2	1	2	Y	2	G	2	M	N	N			G	M			N	N
HUAEQ146	Zala	Zala (Széplaki-patakig)	3	2	3	1	3	N	2	G	3	M	N	N			G	L			Y	N
HUAEQ147	Zala	Zala (Bárándi-patakig)	3	3	2	1	3	N	2	G	3	L	N	N			G	M			Y	N
SISI3VT197	Drava	MPVT Drava mejni odsek z Avstrijo	-	5	1		5		1	G	-	-	N	Y	3	L	G	M	F	H	Y	N
SISI3VT359	Drava	MPVT Drava Dravograd - Maribor	-	4	2		4		1	G	-	-	N	Y	3	L	G	H	F	L	Y	N
SISI3VT5171	Drava	VT Drava Maribor - Ptuj	-	2	2		2		1	G	2	H	N	N			G	H	F	L	Y	N
SISI3VT930	Drava	VT Drava Ptuj - Ormož	-	2	2		2		2	G	2	H	N	N			G	H	F	H	Y	N

Water Body code with country code	**Name of river**	**Name of water body**	**Biological Quality Elements**					**Hydromorphology - High Status**	**General Phys. and Chem. conditions**	**Specific pollutants**	**OVERALL ECOLOGICAL STATUS**	Confidence class (Overall Ecol.Status)	**Artificial and HMWB**				**CHEMICAL STATUS (Priority substances in water)**	Confidence class (Chemical Status - Priority substances in water)	**CHEMICAL STATUS (Mercury in biota)**	Confidence class (Chemical Status - Mercury in biota)	**Exemption Art. 4(4)**	**Exemption Art. 4(5)**
			Fish	**Benthic invertebrates**	**Phytobenthos & Macrophytes**	**Phytoplankton**	**Overall Biological Status**						**Artificial Water Body**	**Heavily modified Water Body**	**Ecological Potential Class**	Confidence class (Ecol. Pot.)						
SISI3VT970	Drava	VT Drava zadrževalnik Ormoško jezero - Središče ob Dravi	-	2	1		2		1	G	2	H	N	N			G	H	F	L	Y	N
SISI378VT	Kanal Hidroelektrarne Formin	UVT Kanal HE Formin	-	-	-		-		-	G	-	-	Y	N	-	-	G	H	F	L	Y	N
SISI35172VT	Kanal Hidroelektrarne Zlatoličje	UVT Kanal HE Zlatoličje	-	-	-		-		-	G	-	-	Y	N	-	-	G	H	F	L	Y	N
SISI21VT13	Kolpa	VT Kolpa Osilnica - Petrina	-	1	1		1		1	G	1	M	N	N			G	H	F	L	Y	N
SISI21VT50	Kolpa	VT Kolpa Petrina - Primostek	-	2	2		2		1	G	2	M	N	N			G	H	F	L	Y	N
SISI21VT70	Kolpa	VT Kolpa Primostek - Kamanje	-	2	2		2		1	G	2	H	N	N			G	H	F	H	Y	N
SISI43VT10	Mura	VT Mura Ceršak - Petanjci	-	2	2		2		2	G	2	H	N	N			G	M	F	H	Y	N
SISI43VT30	Mura	VT Kučnica Mura Petanjci - Gibina	-	3	2		3		2	G	3	H	N	N			G	M	F	L	Y	N
SISI43VT50	Mura	VT Mura Gibina - Podturen	-	2	2		2		2	G	2	H	N	N			G	H	F	L	Y	N
SISI111VT5	Sava	VT Sava izvir - Hrušica	-	2	2		2		1	G	2	H	N	N			G	H	F	H	Y	N
SISI111VT7	Sava	MPVT zadrževalnik HE Moste	-	5	2		5		2	G	-	-	N	Y	3	L	G	H	F	H	Y	N
SISI1VT137	Sava	VT Sava HE Moste - Podbrezje	-	3	1		3		1	G	3	M	N	N			G	H	F	L	Y	N
SISI1VT150	Sava	VT Sava Podbrezje - Kranj	-	2	2		2		1	G	2	H	N	N			G	H	F	L	Y	N
SISI1VT170	Sava	MPVT Sava Mavčiče - Medvode	-	3	2		3		1	G	-	-	N	Y	2	L	G	M	F	H	Y	N
SISI1VT310	Sava	VT Sava Medvode - Podgrad	-	2	2		2		1	G	2	H	N	N			G	H	F	L	Y	N

Water Body code with country code	**Name of river**	**Name of water body**	**Biological Quality Elements**										**Artificial and HMWB**									
			Fish	**Benthic invertebrates**	**Phytobenthos & Macrophytes**	**Phytoplankton**	**Overall Biological Status**	**Hydromorphology - High Status**	**General Phys. and Chem. conditions**	**Specific pollutants**	**OVERALL ECOLOGICAL STATUS**	Confidence class (Overall Ecol.Status)	**Artificial Water Body**	**Heavily modified Water Body**	**Ecological Potential Class**	Confidence class (Ecol. Pot.)	**CHEMICAL STATUS (Priority substances in water)**	Confidence class (Chemical Status - Priority substances in water)	**CHEMICAL STATUS (Mercury in biota)**	Confidence class (Chemical Status - Mercury in biota)	**Exemption Art. 4(4)**	**Exemption Art. 4(5)**
SISI1VT519	Sava	VT Sava Podgrad - Litija	-	2	3		3		2	G	3	M	N	N			G	H	F	L	Y	N
SISI1VT557	Sava	VT Sava Litija - Zidani Most	-	2	2		2		2	G	2	H	N	N			G	H	F	L	Y	N
SISI1VT713	Sava	MPVT Sava Vrhovo - Boštanj	-	4	2		4		2	G	-	-	N	Y	3	L	G	M	F	H	Y	N
SISI1VT739	Sava	VT Sava Boštanj - Krško	-	3	3		3		2	G	3	H	N	N			G	H	F	L	Y	N
SISI1VT913	Sava	VT Sava Krško - Vrbina	-	2	2		2		1	G	2	H	N	N			G	H	F	L	Y	N
SISI1VT930	Sava	VT Sava mejni odsek	-	2	2		2		2	G	2	H	N	N			G	H	F	H	Y	N
HRDSRN165011	Česma	DSRN165011	-	-	-	-	-	N	3	-			N	Y	3	M	G	M			-	-
HRDSRN165034	Česma	DSRN165034	-	-	-	-	-	N	3	-			N	Y	3	M	G	M			-	-
HRDSRN165051	Česma	DSRN165051	-	-	-	-	-	N	3	-	3	M	N	N			G	M			-	-
HRDSRN165101	Česma	DSRN165101	-	-	-	-	-	Y	1	-	1	M	N	N			G	M			-	-
HRDSRN020001	Dobra, Kupa	DSRN020001	-	-	-	-	-	Y	1	-	1	M	N	N			F	M			-	-
HRDDRI020003	Drava	DDRI020003	-	-	-	-	-	N	2	-			N	Y	3	M	G	M			-	-
HRDDRI020005	Drava	DDRI020005	-	-	-	-	-	N	1	-	4	M	N	N			G	M			-	-
HRDDRI020006	Drava	DDRI020006	-	-	-	-	-	Y	1	-	1	M	N	N			G	M			-	-
HRDDRI020007	Drava	DDRI020007	-	-	-	-	-	N	2	-	3	M	N	N			G	M			-	-
HRDDRI945039	Drava	DDRI945039	-	-	-	-	-	N	1	-			Y	N	5	M	G	M			-	-
HRDDRN020001	Drava	DDRN020001	-	-	-	-	-	N	2	-			N	Y	4	M	F	M			-	-
HRDDRN020002	Drava	DDRN020002	-	-	-	-	-	N	2	-			N	Y	3	M	G	M			-	-
HRDDRI020004	Drava, Mura	DDRI020004	-	-	-	-	-	N	2	-			N	Y	3	M	G	M			-	-

Water Body code with country code	Name of river	Name of water body	Biological Quality Elements					Hydromorphology - High Status	General Phys. and Chem. conditions	Specific pollutants	OVERALL ECOLOGICAL STATUS	Confidence class (Overall Ecol.Status)	Artificial and HMWB				CHEMICAL STATUS (Priority substances in water)	Confidence class (Chemical Status - Priority substances in water)	CHEMICAL STATUS (Mercury in biota)	Confidence class (Chemical Status - Mercury in biota)	Exemption Art. 4(4)	Exemption Art. 4(5)
			Fish	Benthic invertebrates	Phytobenthos & Macrophytes	Phytoplankton	Overall Biological Status						Artificial Water Body	Heavily modified Water Body	Ecological Potential Class	Confidence class (Ecol. Pot.)						
HRDSRI020003	Kupa	DSRI020003	-	-	-	-	-	Y	1	-	1	M	N	N			F	M			-	-
HRDSRI020004	Kupa	DSRI020004	-	-	-	-	-	N	1	-	2	M	N	N			G	M			-	-
HRDSRN020002	Kupa	DSRN020002	-	-	-	-	-	Y	1	-	1	M	N	N			F	M			-	-
HRDSRN935009	Kupa	DSRN935009	-	-	-	-	-	N	1	-	2	M	N	N			G	M			-	-
HRDSRN160001	Lonja	DSRN160001	-	-	-	-	-	N	3	-	3	M	N	N			G	M			-	-
HRDSRN165010	Lonja	DSRN165010	-	-	-	-	-	N	3	-			Y	N	3	M	G	M			-	-
HRDDRI030001	Mura	DDRI030001	-	-	-	-	-	N	2	-			N	Y	3	M	G	M			-	-
HRDDRN035001	Mura	DDRN035001	-	-	-	-	-	N	3	-			N	Y	3	M	G	M			-	-
HRDSRI010001	Sava	DSRI010001	-	-	-	-	-	N	2	-			N	Y	4	M	G	M			-	-
HRDSRI010002	Sava	DSRI010002	-	-	-	-	-	N	2	-			N	Y	4	M	G	M			-	-
HRDSRI010003	Sava	DSRI010003	-	-	-	-	-	N	2	-			N	Y	4	M	G	M			-	-
HRDSRI010004	Sava	DSRI010004	-	-	-	-	-	N	2	-			N	Y	3	M	G	M			-	-
HRDSRI010010	Sava	DSRI010010	-	-	-	-	-	Y	3	-	3	M	N	N			G	M			-	-
HRDSRN010005	Sava	DSRN010005	-	-	-	-	-	N	2	-			N	Y	3	M	F	M			-	-
HRDSRN010006	Sava	DSRN010006	-	-	-	-	-	N	2	-			N	Y	3	M	G	M			-	-
HRDSRN010007	Sava	DSRN010007	-	-	-	-	-	N	2	-			N	Y	4	M	G	M			-	-
HRDSRN010008	Sava	DSRN010008	-	-	-	-	-	N	2	-			N	Y	3	M	G	M			-	-
HRDSRN010009	Sava	DSRN010009	-	-	-	-	-	N	2	-	2	M	N	N			G	M			-	-
HRDSRI030001	Una	DSRI030001	-	-	-	-	-	N	1	-	2	M	N	N			G	M			-	-

Water Body code with country code	**Name of river**	**Name of water body**	**Biological Quality Elements**					**Hydromorphology - High Status**	**General Phys. and Chem. conditions**	**Specific pollutants**	**OVERALL ECOLOGICAL STATUS**	Confidence class (Overall Ecol.Status)	**Artificial and HMWB**				**CHEMICAL STATUS (Priority substances in water)**	Confidence class (Chemical Status - Priority substances in water)	**CHEMICAL STATUS (Mercury in biota)**	Confidence class (Chemical Status - Mercury in biota)	**Exemption Art. 4(4)**	**Exemption Art. 4(5)**
			Fish	**Benthic invertebrates**	**Phytobenthos & Macrophytes**	**Phytoplankton**	**Overall Biological Status**						**Artificial Water Body**	**Heavily modified Water Body**	**Ecological Potential Class**	Confidence class (Ecol. Pot.)						
HRDSRI030002	Una	DSRI030002	-	-	-	-	-	Y	2	-	2	M	N	N			G	M			-	-
HRDSRI030003	Una	DSRI030003	-	-	-	-	-	Y	1	-	1	M	N	N			G	M			-	-
HRDSRI030004	Una	DSRI030004	-	-	-	-	-	Y	1	-	1	M	N	N			G	M			-	-
BABOS_1	Bosna	BA_BOS_1	-	4	-	2			-	-	4	M	N	N			G	L				
BABOS_2	Bosna	BA_BOS_2	-	-	-	-			-	-	-	-	N	PN			-	-				
BABOS_3	Bosna	BA_BOS_3	-	-	-	-			-	-	-	-	N	PN			-	-				
BABOS_4	Bosna	BA_BOS_4	-	-	-	-			-	-	-	-	N	PN			-	-				
BABOS_5	Bosna	BA_BOS_5	-	-	-	-			-	-	-	-	N	PN			-	-				
BABOS_6	Bosna	BA_BOS_6	-	-	-	-			-	-	-	-	N	PN			-	-				
BABOS_7	Bosna	BA_BOS_7	-	-	-	-			-	-	-	-	N	PN			-	-				
BADR_1	Drina	BA_DR_1	-	2	-	2			-	-	3	M	N	N			G	L				
BADR_3	Drina	BA_DR_3	-	-	-	-			-	-	-	-	N	PY	-	-	-	-				
BADR_5	Drina	BA_DR_5	-	-	-	-			-	-	-	-	N	PY	-	-	-	-				
BADR_6	Drina	BA_DR_6	-	-	-	-			-	-	-	-	N	PY	-	-	-	-				
BADR_7	Drina	BA_DR_7	-	-	3	2			-	-	3	M	N	N			G	L				
BALIM_1	Lim	BA_LIM_1	-	3	-	2			-	-	3	M	N	Y	-	-	F	L				
BAUNA_SAN_1	Sana	BA_UNA_SAN_1	-	2	-	2			-	-	3	M	N	N			G	L				
BAUNA_SAN_2	Sana	BA_UNA_SAN_2	-	-	-	-			-	-	-	-	N	PN			-	-				
BAUNA_SAN_3	Sana	BA_UNA_SAN_3	-	-	-	-			-	-	-	-	N	PY	-	-	-	-				

Water Body code with country code	Name of river	Name of water body	Biological Quality Elements: Fish	Biological Quality Elements: Benthic invertebrates	Biological Quality Elements: Phytobenthos & Macrophytes	Biological Quality Elements: Phytoplankton	Biological Quality Elements: Overall Biological Status	Hydromorphology - High Status	General Phys. and Chem. conditions	Specific pollutants	OVERALL ECOLOGICAL STATUS	Confidence class (Overall Ecol.Status)	Artificial and HMWB: Artificial Water Body	Artificial and HMWB: Heavily modified Water Body	Artificial and HMWB: Ecological Potential Class	Artificial and HMWB: Confidence class (Ecol. Pot.)	CHEMICAL STATUS (Priority substances in water)	Confidence class (Chemical Status - Priority substances in water)	CHEMICAL STATUS (Mercury in biota)	Confidence class (Chemical Status - Mercury in biota)	Exemption Art. 4(4)	Exemption Art. 4(5)
BAUNA_SAN_4	Sana	BA_UNA_SAN_4	-	-	-	-			-	-	-	-	N	PN			-	-				
BAUNA_SAN_5	Sana	BA_UNA_SAN_5	-	-	-	-			-	-	-	-	N	PN			-	-				
BASA_1	Sava	BA_SA_1	-	3	-	2			-	-	3	M	N	Y	-	-	G	L				
BASA_2	Sava	BA_SA_2	-	-	-	-			-	-	-	-	N	PY	-	-	-	-				
BASA_3	Sava	BA_SA_3	-	2	-	2			-	-	3	M	N	Y	-	-	G	L				
BAUNA_1	Una	BA_UNA_1	-	2	-	2			-	-	3	M	N	N			G	L				
BAUNA_2	Una	BA_UNA_2	-	2	-	2			-	-	2	M	N	N			G	L				
BAUNA_3	Una	BA_UNA_3	-	-	-	-			-	-	-	-	N	PN			-	-				
BAUNA_4	Una	BA_UNA_4	-	-	-	-			-	-	-	-	N	PN			-	-				
BAVRB_1	Vrbas	BA_VRB_1	-	3	-	2			-	-	3	M	N	N			G	L				
BAVRB_2	Vrbas	BA_VRB_2	-	3	-	2			-	-	3	M	N	Y	-	-	G	L				
BAVRB_3	Vrbas	BA_VRB_3	-	-	-	-			-	-	-	-	N	PY	-	-	-	-				
BAVRB_4	Vrbas	BA_VRB_4	-	-	-	-			-	-	-	-	N	PY	-	-	-	-				
BAVRB_5	Vrbas	BA_VRB_5	-	-	-	-			-	-	-	-	N	PY	-	-	-	-				
BAVRB_6	Vrbas	BA_VRB_6	-	-	-	-			-	-	-	-	N	PN			-	-				
BAVRB_7	Vrbas	BA_VRB_7	-	-	-	-			-	-	-	-	N	PN			-	-				
BAVRB_8	Vrbas	BA_VRB_8	-	-	-	-			-	-	-	-	N	PN			-	-				
MEIBAR_1	Ibar	Ibar	-	-	-	-	-	Y	4	-	2	L	N	N			F	L			-	-
MEIBAR_2	Ibar	Ibar	-	-	-	-	-	Y	2	-	3	L	N	N			G	L			-	-

Water Body code with country code	Name of river	Name of water body	Biological Quality Elements					Hydromorphology - High Status	General Phys. and Chem. conditions	Specific pollutants	OVERALL ECOLOGICAL STATUS	Confidence class (Overall Ecol.Status)	Artificial and HMWB				CHEMICAL STATUS (Priority substances in water)	Confidence class (Chemical Status - Priority substances in water)	CHEMICAL STATUS (Mercury in biota)	Confidence class (Chemical Status - Mercury in biota)	Exemption Art. 4(4)	Exemption Art. 4(5)
			Fish	Benthic invertebrates	Phytobenthos & Macrophytes	Phytoplankton	Overall Biological Status						Artificial Water Body	Heavily modified Water Body	Ecological Potential Class	Confidence class (Ecol. Pot.)						
MELIM_1	Lim	Lim	-	-	-	-	-	Y	2	-	2	L	N	PN			G	L			-	-
MELIM_2	Lim	Lim	-	-	-	-	-	Y	3	-	3	L	N	PN			F	L			-	-
MEPIV_1	Piva	Piva	-	-	-	-	-	Y	2	-	2	L	N	PN			G	L			-	-
MEPIV_2	Piva	Piva	-	-	-	-	-	N	2	-	2	L	N	PY	2	L	G	L			-	-
METAR_1	Tara	Tara	-	-	-	-	-	Y	2	-	2	L	N	PN			G	L			-	-
METAR_2	Tara	Tara	-	-	-	-	-	Y	2	-	2	L	N	PN			G	L			-	-
RSCAN_BAJ	Bajski kanal	Bajski kanal	-	3	2	4	4	N	3	F			Y	N	4	M	G	L			-	-
RSBEG	Begej	Begej	-	4	3	-	4	N	4	F			N	Y	4	M	F	M			-	-
RSDR_1	Drina	Drina od ušća u Savu do brane HE Zvornik	-	4	2	-	4	N	2	G			N	PY	4	M	G	M			-	-
RSDR_3	Drina	Drina od ušća Velike reke do brane HE Bajina Bašta	-	3	2	-	3	N	2	G	3	M	N	PN			G	M			-	-
RSCAN_BP-KAR	DTD Bački Petrovac-Karavukovo	DTD B.Petrovac-Karavukovo	-	3	3	4	4	N	3	G			Y	N	4	M	G	L			-	-
RSCAN_BP-NB_1	DTD Banatska Palanka-Novi Bečej	DTD Ban. Palanka-Novi Bečej	-	3	2	2	3	N	3	G			Y	N	3	M	G	L			-	-
RSCAN_BP-NB_2	DTD Banatska Palanka-Novi Bečej	DTD Ban. Palanka-Novi Bečej	-	-	-	-	-	N	2	G			Y	N	3	L	G	L			-	-

Water Body code with country code	Name of river	Name of water body	Biological Quality Elements: Fish	Biological Quality Elements: Benthic invertebrates	Biological Quality Elements: Phytobenthos & Macrophytes	Biological Quality Elements: Phytoplankton	Biological Quality Elements: Overall Biological Status	Hydromorphology - High Status	General Phys. and Chem. conditions	Specific pollutants	OVERALL ECOLOGICAL STATUS	Confidence class (Overall Ecol.Status)	Artificial and HMWB: Artificial Water Body	Artificial and HMWB: Heavily modified Water Body	Artificial and HMWB: Ecological Potential Class	Artificial and HMWB: Confidence class (Ecol. Pot.)	CHEMICAL STATUS (Priority substances in water)	Confidence class (Chemical Status - Priority substances in water)	CHEMICAL STATUS (Mercury in biota)	Confidence class (Chemical Status - Mercury in biota)	Exemption Art. 4(4)	Exemption Art. 4(5)
RSCAN_BEC-BOG	DTD Bečej-Bogojevo	DTD Bečej-Bogojevo	-	3	3	4	4	N	4	F			Y	N	4	M	G	L			-	-
RSCAN_KOS-MS	DTD Kosančić-Mali Stapar	DTD Kosančić-Mali Stapar	-	-	-	-	-	N	2	G			Y	N	3	L	G	L			-	-
RSCAN_NS-SS	DTD Novi Sad-Savino selo	DTD Novi Sad-Savino selo	-	4	2	4	4	N	2	G			Y	N	4	M	F	L			-	-
RSCAN_OD-SO	DTD Odzaci-Sombor	DTD Odzaci-Sombor	-	-	-	-	-	N	3	F			Y	N	3	L	G	L			-	-
RSCAN_PR-BEZ	DTD Prigrevica-Bezdan	DTD Prigrevica-Bezdan	-	-	2	-	2	N	3	F			Y	N	3	M	G	L			-	-
RSCAN_VR-BEZ	DTD Vrbas-Bezdan	DTD Vrbas-Bezdan	-	3	2	2	3	N	4	F			Y	N	3	L	F	M			-	-
RSIB_1	Ibar	Ibar od ušća u Z. Moravu do Mataruške banje	-	5	4	-	5	N	3	G	5	M	N	N			G	L			-	-
RSIB_2	Ibar	Ibar od Mataruške banje do ušća Jošanice	-	-	-	-	-	N	3	G	3	L	N	N			G	L			-	-
RSIB_3	Ibar	Ibar od ušća Jošanice do ušća Sitnice	-	4	4	-	4	N	3	G	4	M	N	N			G	L			-	-
RSIB_4	Ibar	Ibar od ušća Sitnice do brane HE Gazivode	-	-	-	-	-	N	3	G	3	L	N	N			G	L			-	-
RSIB_6	Ibar	Ibar uzvodno od ušća Paljevske	-	1	2	-	2	N	3	G	2	M	N	N			G	-			-	-

Water Body code with country code	**Name of river**	**Name of water body**	**Biological Quality Elements**										**Artificial and HMWB**									
			Fish	**Benthic invertebrates**	**Phytobenthos & Macrophytes**	**Phytoplankton**	**Overall Biological Status**	**Hydromorphology - High Status**	**General Phys. and Chem. conditions**	**Specific pollutants**	**OVERALL ECOLOGICAL STATUS**	Confidence class (Overall Ecol.Status)	**Artificial Water Body**	**Heavily modified Water Body**	**Ecological Potential Class**	Confidence class (Ecol. Pot.)	**CHEMICAL STATUS (Priority substances in water)**	Confidence class (Chemical Status - Priority substances in water)	**CHEMICAL STATUS (Mercury in biota)**	Confidence class (Chemical Status - Mercury in biota)	**Exemption Art. 4(4)**	**Exemption Art. 4(5)**
		reke																				
RSJMOR_1	Južna Morava	Južna Morava od sastava sa Z. Moravom do ušća Ribarske (Stalacka klisura)	-	4	4	-	4	N	3	F	4	M	N	N			G	L			-	-
RSJMOR_2	Južna Morava	Južna Morava od ušća Ribarske reke do ušća Nišave	-	-	-	-	-	N	3	G	3	L	N	PN			G	M			-	-
RSJMOR_3	Južna Morava	Južna Morava od ušća Nišave do ušća Toplice	-	4	5	-	5	N	3	F	5	M	N	PN			G	L			-	-
RSJMOR_4	Južna Morava	Južna Morava od ušća Toplice do ušća Kopašničke (Leskovačka dolina)	-	-	-	-	-	N	3	F	3	L	N	PN			G	L			-	-
RSJMOR_5	Južna Morava	Južna Morava od ušća Kopašničke do ušća Vrle (Grdelička klisura)	-	-	-	-	-	N	3	G	3	L	N	N			G	M			-	-
RSJMOR_6	Južna Morava	Južna Morava od ušća Vrle do sastava Moravice i Binačke Morave	-	4	5	-	5	N	3	G	5	M	N	PN			G	M			-	-
RSCAN_KIK	Kikindski kanal	Kikindski kanal	-	3	-	-	3	N	4	F			Y	N	3	L	G	L			-	-
RSLIM_1	Lim	Lim od RS-BA granice do ušća Uvca	-	-	-	-	-	N	2	G	3	L	N	N			F	M			-	-
RSLIM_2	Lim	Lim od ušća Uvca do brane HE Potpeć	-	-	-	-	-	N	2	G	3	L	N	N			F	M			-	-
RSLIM_4	Lim	Lim uzvodno od akumulacije HE Potpeć do RS-ME granice	-	2	2	-	2	N	2	G	2	M	N	N			G	L			-	-

Water Body code with country code	Name of river	Name of water body	Biological Quality Elements: Fish	Benthic invertebrates	Phytobenthos & Macrophytes	Phytoplankton	Overall Biological Status	Hydromorphology - High Status	General Phys. and Chem. conditions	Specific pollutants	OVERALL ECOLOGICAL STATUS	Confidence class (Overall Ecol.Status)	Artificial and HMWB: Artificial Water Body	Heavily modified Water Body	Ecological Potential Class	Confidence class (Ecol. Pot.)	CHEMICAL STATUS (Priority substances in water)	Confidence class (Chemical Status - Priority substances in water)	CHEMICAL STATUS (Mercury in biota)	Confidence class (Chemical Status - Mercury in biota)	Exemption Art. 4(4)	Exemption Art. 4(5)
RSNIS_1	Nišava	Nišava od ušća u J. Moravu do ušća Studene	-	5	4	-	5	N	3	F			N	PY	5	M	G	L			-	-
RSNIS_2	Nišava	Sićevačka klisura	-	-	-	-	-	N	2	G			N	PY	3	L	G	L			-	-
RSNIS_3	Nišava	Nišava uzvodno od Sićevačke klisure do RS-BG granice	-	3	3	-	3	N	3	G	3	M	N	N			G	L			-	-
RSPLBEG	Plovni Begej	Plovni Begej	-	4	2	-	4	N	4	F			Y	N	4	M	F	M			-	-
RSSA_1	Sava	Sava od Beograda do Šapca	-	3	-	3	3	N	2	F			N	Y	3	M	F	M			-	-
RSSA_2	Sava	Sava od Šapca do ušća Drine	-	4	-	5	5	N	2	F	4	M	N	N			F	M			-	-
RSSA_3	Sava	Sava uzvodno od ušća Drine do RS-HR granice	-	4	-	4	4	N	2	F	4	M	N	N			F	M			-	-
RSTAM_1	Tamiš	Donji Tamiš	-	4	2	-	4	N	3	F			N	PY	4	M	F	M			-	-
RSTAM_2	Tamiš	Tamiš uzvodno od ustave Tomaševac do RS-RO granice	-	4	3	-	4	N	2	G			N	PY	4	M	F	L			-	-
RSTIM_1	Timok	Timok od ušća u Dunav do Bregova (RS-BG granica)	-	4	4	-	4	N	2	F	4	M	N	N			F	L			-	-
RSTIM_2	Timok	Timok od Bregova do Tabakovačke klisure	-	-	-	-	-	N	2	F	3	L	N	N			F	L			-	-
RSTIM_3	Timok	Tabakovačka klisura do ušća Borske reke	-	-	-	-	-	N	3	F	4	L	N	N			F	M			-	-
RSTIM_4	Timok	Timok od ušća Borske reke do sastava Belog i Crnog Timoka	-	4	4	-	4	N	3	F	4	M	N	N			F	L			-	-

Water Body code with country code	**Name of river**	**Name of water body**	Biological Quality Elements: **Fish**	Biological Quality Elements: **Benthic invertebrates**	Biological Quality Elements: **Phytobenthos & Macrophytes**	Biological Quality Elements: **Phytoplankton**	Biological Quality Elements: **Overall Biological Status**	**Hydromorphology - High Status**	**General Phys. and Chem. conditions**	**Specific pollutants**	**OVERALL ECOLOGICAL STATUS**	Confidence class (Overall Ecol.Status)	Artificial and HMWB: **Artificial Water Body**	Artificial and HMWB: **Heavily modified Water Body**	Artificial and HMWB: **Ecological Potential Class**	Artificial and HMWB: Confidence class (Ecol. Pot.)	**CHEMICAL STATUS (Priority substances in water)**	Confidence class (Chemical Status - Priority substances in water)	**CHEMICAL STATUS (Mercury in biota)**	Confidence class (Chemical Status - Mercury in biota)	**Exemption Art. 4(4)**	**Exemption Art. 4(5)**
RSTIS_1	Tisa	Tisa od ušća u Dunav do brane Novi Bečej	-	3	2	-	3	N	3	F			N	Y	3	M	F	M			-	-
RSTIS_2	Tisa	Tisa uzvodno od brane Novi Bečej	-	2	2	3	3	N	3	G			N	Y	3	M	F	M			-	-
RSVMOR_1	Velika Morava	Velika Morava od ušća u Dunav do Ljubičevskog mosta	-	4	-	-	4	N	3	G			N	Y	4	M	F	L			-	-
RSVMOR_2	Velika Morava	Velika Morava od Ljubičevskog mosta do ušća Resave	-	3	-	4	4	N	3	G			N	PY	4	M	F	L			-	-
RSVMOR_3	Velika Morava	Velika Morava od ušća Resave do sastava Južne i Zapadne Morave	-	3	-	4	4	N	3	G			N	PY	4	M	F	L			-	-
RSZMOR_1	Zapadna Morava	Zapadna Morava od sastava sa Južnom Moravom do ušća Ibra	-	-	-	-	-	N	3	G	3	L	N	N			F	L			-	-
RSZMOR_2	Zapadna Morava	Zapadna Morava od ušća Ibra do brane Parmenac	-	4	4	-	4	N	2	G	4	M	N	N			F	L			-	-
RORW10.1_B1	Arges	Arges: sector izvor - intrare Ac. Vidraru si afluentii	-	1	1		1	N	2	G	2	H	N	N			G	M			N	N
RORW10.1_B2	Arges	Arges: sector aval Ac. Vidraru - intrare Ac. Oesti	-	3	-		3		2	G			N	Y	3	M	G	-			N	Y
RORW10.1_B3	Arges	Arges: sector aval Ac. Golesti - intrare Ac. Zavoiul Orbului	1	1		1	1		2	G	2	H	N	N			G	-			N	N
RORW10.1_B4	Arges	Arges: sector aval Ac. Zavoiul Orbului - intrare Ac. Frontala Ogrezeni	1	1		1	1		3	G	3	H	N	N			G	-			N	N

Water Body code with country code	**Name of river**	**Name of water body**	**Biological Quality Elements**					**Hydromorphology - High Status**	**General Phys. and Chem. conditions**	**Specific pollutants**	**OVERALL ECOLOGICAL STATUS**	Confidence class (Overall Ecol.Status)	**Artificial and HMWB**				**CHEMICAL STATUS (Priority substances in water)**	Confidence class (Chemical Status - Priority substances in water)	**CHEMICAL STATUS (Mercury in biota)**	Confidence class (Chemical Status - Mercury in biota)	**Exemption Art. 4(4)**	**Exemption Art. 4(5)**
			Fish	**Benthic invertebrates**	**Phytobenthos & Macrophytes**	**Phytoplankton**	**Overall Biological Status**						**Artificial Water Body**	**Heavily modified Water Body**	**Ecological Potential Class**	Confidence class (Ecol. Pot.)						
RORW10.1_B5	Arges	Arges: sector aval Ac. Frontala Ogrezeni - intrare Ac. Mihailesti	-	1		2	2		2	G	2	H	N	N			G	M			N	N
RORW10.1_B6	Arges	Arges: sector aval Ac. Mihailesti - amonte confluenta Dambovita	1	2		1	2		3	G			N	Y	3	H	G	-			N	N
RORW10.1_B7	Arges	Arges: sector amonte confluenta Dambovita - confluenta Dunare	-	2	1	1	2		3	F			N	Y	3	H	F	L			N	N
RORW3.1.44.33_B1	Barcau	Barcau - izvor - cnf. Toplita + Afluenti	-	1	1		1	Y	2	G	2	H	N	N			G	L			N	N
RORW3.1.44.33_B2	Barcau	Barcau - cnf. Toplita - cnf. Groapa	-	2	2	2	2	N	2	G			N	Y	2	L	G	M			N	N
RORW3.1.44.33_B3	Barcau	Barcau - cnf. Groapa - am Ac.Suplacu de Barcau	2	2	2	-	2	N	2	G	2	L	N	N			G	M			N	N
RORW3.1.44.33_B5	Barcau	Barcau - av Ac.Suplacu de Barcau - cnf. Bistra	2	2		2	2	N	3	G	3	H	N	N			G	M			N	N
RORW3.1.44.33_B6	Barcau	Barcau - cnf. Bistra - frontiera	3	1	1	1	3	N	3	G	3	H	N	N			G	M			N	N
RORW5.1_B1	Bega	Bega - izvor-cf. bega poienilor + afluenti	1	1	1		1	Y	2	G	2	H	N	N			G	M			N	N
RORW5.1_B2	Bega	Bega - cf. bega poienilor-cf. chizdia	1	1		1	1	N	2	G	2	H	N	N			G	M			N	N
RORW5.1_B3	Bega	Bega - cf. chizdia-cf. behela	-	1		1	1		2	G			N	Y	2	H	G	M			N	N
RORW5.1_B4	Bega	Bega - cf. behela-frontiera	2	2		1	2		3	F			Y	N	3	H	G	M			N	N
RORW12.1.78_B1	Birlad	Barlad - izvoare - confl. Garboveta	2	2	2		2		2	G	2	H	N	N			G	L			N	N

Water Body code with country code	**Name of river**	**Name of water body**	**Biological Quality Elements**										**Artificial and HMWB**									
			Fish	**Benthic invertebrates**	**Phytobenthos & Macrophytes**	**Phytoplankton**	**Overall Biological Status**	**Hydromorphology - High Status**	**General Phys. and Chem. conditions**	**Specific pollutants**	**OVERALL ECOLOGICAL STATUS**	Confidence class (Overall Ecol.Status)	**Artificial Water Body**	**Heavily modified Water Body**	**Ecological Potential Class**	Confidence class (Ecol. Pot.)	**CHEMICAL STATUS (Priority substances in water)**	Confidence class (Chemical Status - Priority substances in water)	**CHEMICAL STATUS (Mercury in biota)**	Confidence class (Chemical Status - Mercury in biota)	**Exemption Art. 4(4)**	**Exemption Art. 4(5)**
RORW12.1.78_B2	Birlad	Barlad - confl. Garboveta - confl. Crasna	-	3	2		3		3	F			N	Y	3	H	F	M			N	N
RORW12.1.78_B3	Birlad	Barlad - confl. Crasna - confl. Siret (include si derivatia Munteni - Tecucel)	-	2	2	2	2		3	G			N	Y	3	H	G	L			N	N
RORW12.1.53_B1	Bistrita	Bistrita (izv - cf Neagra)	1	2	2		2	N	2	G	2	H	N	N			G	M			N	N
RORW12.1.53_B2	Bistrita	Bistrita (cf Neagra - ac Izvorul Muntelui)	-	2	1		2	N	2	G	2	H	N	N			G	M			N	N
RORW12.1.53_B4	Bistrita	Bistrita (baraj Izv Muntelui - ac Pangarati	1	1	1		1	N	2	G	2	H	N	N			G	M			N	N
RORW12.1.53_B6	Bistrita	Bistrita (baraj Batca Doamnei - ac Racova)	-	1	1		1	N	3	G	3	H	N	N			G	M			N	N
RORW12.1.82_B1	Buzau	Buzau Izv. - Ac. Siriu si afluentii	1	1	1		1	Y	2	G	2	M	N	N			G	L			N	N
RORW12.1.82_B2	Buzau	Buzau Ac. Siriu - Cf. Basca	-	1	1		1		2	G	2	M	N	N			G	L			N	N
RORW12.1.82_B3	Buzau	Buzau Cf. Basca - Ac. Candesti	-	1	1		1	N	2	G	2	M	N	N			G	M			N	N
RORW12.1.82_B4	Buzau	Buzau Ac. Candesti - Buzau	2	2		1	2		3	G	3	M	N	N			G	L			N	N
RORW12.1.82_B5	Buzau	Buzau Buzau - Cf. Costei	2	2		1	2	N	3	G	3	M	N	N			G	L			N	N
RORW12.1.82_B6	Buzau	Buzau Cf. Costei - Cf. Siret	2	1		1	2	N	3	G	3	M	N	N			G	L			N	N
RORW15.1.10B_B1	Canal Dunare Marea Neagra 1	Canalul Dunarea Marea Neagra 1	-	2	1	1	2	N	2	G			Y	N	2	M	G	M			N	N

Water Body code with country code	**Name of river**	**Name of water body**	**Biological Quality Elements**					**Hydromorphology - High Status**	**General Phys. and Chem. conditions**	**Specific pollutants**	**OVERALL ECOLOGICAL STATUS**	Confidence class (Overall Ecol.Status)	**Artificial and HMWB**				**CHEMICAL STATUS (Priority substances in water)**	Confidence class (Chemical Status - Priority substances in water)	**CHEMICAL STATUS (Mercury in biota)**	Confidence class (Chemical Status - Mercury in biota)	**Exemption Art. 4(4)**	**Exemption Art. 4(5)**
			Fish	**Benthic invertebrates**	**Phytobenthos & Macrophytes**	**Phytoplankton**	**Overall Biological Status**						**Artificial Water Body**	**Heavily modified Water Body**	**Ecological Potential Class**	Confidence class (Ecol. Pot.)						
RORW15.1.10B_B2	Canal Dunare Marea Neagra 2 - Canal Poarta Alba - Marea Neagra	Canalul Dunare Marea Neagra 2 - CPAMN	-	2	1	1	2	N	2	G			Y	N	2	M	G	M			N	N
RORW3.1_B1	Crisul Alb	Crisul Alb --> izvor - am Ac.Mihaileni + Afluenti	-	1	1		1	Y	2	G	2	H	N	N			G	M			N	N
RORW3.1_B2	Crisul Alb	Crisul Alb--Ac.Mihaileni + Afluent	-	1	1		1	N	2	G	2	M	N	N			G	M			N	N
RORW3.1_B3	Crisul Alb	Crisul Alb --> av Ac.Mihaileni - cnf. Tebea	1	2	1		2	N	2	G	2	H	N	N			G	M			N	N
RORW3.1_B4	Crisul Alb	Crisul Alb --> cnf. Tebea - cnf. Zimbru	-	1	1		1	N	2	G	2	H	N	N			G	M			N	N
RORW3.1_B5	Crisul Alb	Crisul Alb --> cnf. Zimbru - cnf. Chisindia	2	2	2	2	2	N	2	G	2	L	N	N			G	L			N	N
RORW3.1_B6	Crisul Alb	Crisul Alb --> cnf. Chisindia - cnf. Cigher	-	1		1	1	N	2	G	2	H	N	N			G	M			N	N
RORW3.1_B7	Crisul Alb	Crisul Alb --> cnf. Cigher - frontiera	-	1	1	1	1	N	2	G	2	H	N	N			G	M			N	N
RORW3.1.42_B1	Crisul Negru	Crisul Negru --> izvor - cnf. Valea Mare + Afluent	-	2	1		2	N	2	G			N	Y	2	H	G	L			N	N
RORW3.1.42_B2	Crisul Negru	Crisul Negru --> cnf. Valea Mare - cnf. Nimaiesti	2	1	2		2	N	2	G	2	H	N	N			G	M			N	N
RORW3.1.42_B3	Crisul Negru	Crisul Negru --> cnf. Nimaiesti - cnf. Soimul	2	2	2	2	2	N	2	G	2	L	N	N			G	L			N	N

Water Body code with country code	**Name of river**	**Name of water body**	**Biological Quality Elements**										**Artificial and HMWB**									
			Fish	**Benthic invertebrates**	**Phytobenthos & Macrophytes**	**Phytoplankton**	**Overall Biological Status**	**Hydromorphology - High Status**	**General Phys. and Chem. conditions**	**Specific pollutants**	**OVERALL ECOLOGICAL STATUS**	Confidence class (Overall Ecol.Status)	**Artificial Water Body**	**Heavily modified Water Body**	**Ecological Potential Class**	Confidence class (Ecol. Pot.)	**CHEMICAL STATUS (Priority substances in water)**	Confidence class (Chemical Status - Priority substances in water)	**CHEMICAL STATUS (Mercury in biota)**	Confidence class (Chemical Status - Mercury in biota)	**Exemption Art. 4(4)**	**Exemption Art. 4(5)**
RORW3.1.42_B4	Crisul Negru	Crisul Negru --> cnf. Soimul - cnf. Valea Noua	-	1		1	1	N	2	G	2	H	N	N			G	M			N	N
RORW3.1.42_B5	Crisul Negru	Crisul Negru --> cnf. Valea Noua - frontiera	-	1	1	1	1	N	2	G	2	H	N	N			G	M			N	N
RORW3.1.44_B1	Crisul Repede	Crisul Repede --> izvor - cnf. Sacuieu	-	3	2		3	N	3	G	3	H	N	N			G	L			N	N
RORW3.1.44_B2	Crisul Repede	Crisul Repede --> cnf. Sacuieu - cnf. Iad	2	1	1		2	N	2	G	2	M	N	N			G	M			N	N
RORW3.1.44_B3	Crisul Repede	Crisul Repede--Def.Crisu Repede --> cnf. Iad - out Def.Crisu Repede + Afluent	2	1	1		2	N	2	G	2	H	N	N			G	M			N	N
RORW3.1.44_B4	Crisul Repede	Crisul Repede --> av Def.Crisu Repede - am Ac.Lugasu	2	1	1	1	2	N	2	G	2	H	N	N			G	M			N	N
RORW3.1.44_B6	Crisul Repede	Crisul Repede --> av Ac.Tileagd - cnf. Bonor	2	2	2	2	2	N	2	G	2	L	N	N			G	L			N	N
RORW3.1.44_B7	Crisul Repede	Crisul Repede --> cnf. Bonor - frontiera	-	1	1	1	1	N	2	G			N	Y	2	H	G	M			N	N
RORW11.1_B1	Ialomita	Ialomita Izv. - Ac. Bolboci	-	1	1		1	Y	2	G	2	M	N	N			G	L			N	N
RORW11.1_B2	Ialomita	Ialomita Ac Bolboci - Cf. Ialomicioara I	1	1	1		1	N	2	G	2	M	N	N			G	L			N	N
RORW11.1_B3	Ialomita	Ialomita Cf. Ialomicioara I - Ac. Pucioasa	1	2	1		2	N	3	G	2	M	N	N			G	L			N	N
RORW11.1_B4	Ialomita	Ialomita Ac. Pucioasa - Priboiu	-	2	1		2	N	2	G	2	M	N	N			G	L			N	N

Water Body code with country code	**Name of river**	**Name of water body**	**Biological Quality Elements**					**Hydromorphology - High Status**	**General Phys. and Chem. conditions**	**Specific pollutants**	**OVERALL ECOLOGICAL STATUS**	Confidence class (Overall Ecol.Status)	**Artificial and HMWB**				**CHEMICAL STATUS (Priority substances in water)**	Confidence class (Chemical Status - Priority substances in water)	**CHEMICAL STATUS (Mercury in biota)**	Confidence class (Chemical Status - Mercury in biota)	**Exemption Art. 4(4)**	**Exemption Art. 4(5)**
			Fish	**Benthic invertebrates**	**Phytobenthos & Macrophytes**	**Phytoplankton**	**Overall Biological Status**						**Artificial Water Body**	**Heavily modified Water Body**	**Ecological Potential Class**	Confidence class (Ecol. Pot.)						
RORW11.1_B5	Ialomita	Ialomita Priboiu - Cf. Izvoru	-	2	1		2	N	3	G	3	M	N	N			G	L			N	N
RORW11.1_B6	Ialomita	Ialomita Cf. Izvoru - AC. Dridu	-	2		1	2	N	2	G	2	M	N	N			G	L			N	N
RORW11.1_B7	Ialomita	Ialomita Ac. Dridu - Ion Roata	-	2		1	2	N	3	G	3	L	N	N			G	L			N	N
RORW11.1_B8	Ialomita	Ialomita Ion Roata - Slobozia	-	2		1	2	N	3	G	3	M	N	N			G	L			N	N
RORW11.1_B9	Ialomita	Ialomita Slobozia - Cf. Dunare	-	2		2	2	N	3	G	3	M	N	N			G	M			N	N
RORW13.1.15_B1	Jijia	Jijia - sector izvor - ac. Ezer	-	1	1		1	Y	2	G	2	L	N	N			G	M			N	N
RORW13.1.15_B3	Jijia	Jijia - sector aval ac. Ezer - confl. Sitna	-	2	1	1	2	N	3	G	3	H	N	N			G	M			N	N
RORW13.1.15_B4	Jijia	Jijia - sector confl. Sitna - confl. Prut	-	2	1	2	2	N	3	G			Y	N	3	H	G	M			N	N
RORW13.1.15_B5	Jijia	Jijia Veche	-	3	3		3		3	G			N	Y	3	L	G	M			N	N
RORW7.1_B1	Jiu	Jiu de Vest - izvor- loc. Paroseni si afl.	1	1	1		1	N	2	G	2	H	N	N			G	M			N	N
RORW7.1_B121	Jiu	Jiu Acum. Isalnita- Bratovoiesti	1	1	-	1	1		3	G	3	H	N	N			G	M			N	N
RORW7.1_B14	Jiu	Jiu confl. Jiu de Est-Acum. Vadeni	1	1	1		1		2	G	2	H	N	N			G	M			N	N
RORW7.1_B148	Jiu	Jiu Bratovoiesti-confl. Dunarea	2	1	-	1	2		3	G	3	H	N	N			G	M			N	N
RORW7.1_B28	Jiu	Jiu Tg. Jiu-Rovinari	1	2	1		2		2	G	2	H	N	N			G	M			N	N
RORW7.1_B4	Jiu	Jiu de Vest - loc. Paroseni-confl. Jiul de Est	1	2	1		2		2	G	2	H	N	N			G	M			N	N
RORW7.1_B51	Jiu	Jiu Rovinari-Ac. Turceni	1	1	-	1	1	N	2	G	2	H	N	N			G	M			N	N
RORW7.1_B57	Jiu	Jiu Acum. Turceni-Acum. Isalnita	1	1	-	1	1	N	2	G	2	H	N	N			G	M			N	N

Water Body code with country code	**Name of river**	**Name of water body**	**Biological Quality Elements**					**Hydromorphology - High Status**	**General Phys. and Chem. conditions**	**Specific pollutants**	**OVERALL ECOLOGICAL STATUS**	Confidence class (Overall Ecol.Status)	**Artificial and HMWB**				**CHEMICAL STATUS (Priority substances in water)**	Confidence class (Chemical Status - Priority substances in water)	**CHEMICAL STATUS (Mercury in biota)**	Confidence class (Chemical Status - Mercury in biota)	**Exemption Art. 4(4)**	**Exemption Art. 4(5)**
			Fish	**Benthic invertebrates**	**Phytobenthos & Macrophytes**	**Phytoplankton**	**Overall Biological Status**						**Artificial Water Body**	**Heavily modified Water Body**	**Ecological Potential Class**	Confidence class (Ecol. Pot.)						
RORW12.1.40_B1	Moldova	Moldova (izv - cf Sadova)	2	1	2		2	N	2	G	2	H	N	N			G	M			N	N
RORW12.1.40_B2	Moldova	Moldova (cf Sadova - cf Suha)	1	1	2		2	N	2	G	2	H	N	N			G	L			N	N
RORW12.1.40_B3	Moldova	Moldova (cf Suha - cf Vier)	-	1	1		1	N	2	G	2	H	N	N			G	M			N	N
RORW12.1.40_B4	Moldova	Moldova (cf Vier - cf Siret)	1	1	1		1	N	2	G	2	H	N	N			G	M			N	N
RORW4.1_B1	Mures	Mures, izvor - conf. Carbunele Negru	2	2	1		2	N	2	G	2	L	N	N			G	L			N	N
RORW4.1_B10	Mures	Mures, conf. Soimos - conf. Zadarlac	2	1	1	2	2	N	2	G			N	Y	2	M	G	M			N	N
RORW4.1_B11	Mures	Mures, conf. Zadarlac - Romanian/Hungarian border	2	2	1	2	2	N	2	G			N	Y	2	M	G	M			N	N
RORW4.1_B2	Mures	Mures, conf. Carbunele Negru - conf. Lazarea	-	1	1		1	N	2	G			N	Y	2	M	G	M			N	N
RORW4.1_B3	Mures	Mures, conf. Lazarea - conf.Toplita	-	1	1		1	N	2	G	2	M	N	N			G	M			N	N
RORW4.1_B4	Mures	Mures, conf. Toplita - conf. Pietris	-	1	1		1	N	2	G	2	M	N	N			G	M			N	N
RORW4.1_B5	Mures	Mures, conf. Pietris - conf. Petrilaca	-	1	1	1	1	N	2	G	2	M	N	N			G	M			N	N
RORW4.1_B6	Mures	Mures, conf. Petrilaca - conf. Aries	-	2	-	3	3	N	3	G			N	Y	3	M	G	M			N	N
RORW4.1_B7	Mures	Mures, conf. Aries - conf. Cerna	2	2	1	2	2	N	2	G			N	Y	2	M	G	M			N	N
RORW4.1_B8	Mures	Mures, conf. Cerna - conf. Dobra	2	2	-	3	3	N	2	G			N	Y	3	M	G	M			Y	N
RORW4.1_B9	Mures	Mures, conf. Dobra - conf. Soimos	1	2	1	-	2	N	2	G	2	M	N	N			G	M			N	N

Water Body code with country code	**Name of river**	**Name of water body**	**Biological Quality Elements**										**Artificial and HMWB**									
			Fish	**Benthic invertebrates**	**Phytobenthos & Macrophytes**	**Phytoplankton**	**Overall Biological Status**	**Hydromorphology - High Status**	**General Phys. and Chem. conditions**	**Specific pollutants**	**OVERALL ECOLOGICAL STATUS**	Confidence class (Overall Ecol.Status)	**Artificial Water Body**	**Heavily modified Water Body**	**Ecological Potential Class**	Confidence class (Ecol. Pot.)	**CHEMICAL STATUS (Priority substances in water)**	Confidence class (Chemical Status - Priority substances in water)	**CHEMICAL STATUS (Mercury in biota)**	Confidence class (Chemical Status - Mercury in biota)	**Exemption Art. 4(4)**	**Exemption Art. 4(5)**
ROLW8.1_B10	Olt	Olt - ac.Ionesti, Zavideni, Dragasani, Strejesti, Arcesti...Draganesti si av Frunzaru	-		1	1	1		2	G			N	Y	2	H	G	M			N	N
ROLW8.1_B11	Olt	Olt - acumulare Rusanesti si Izbiceni	-		1	2	2		2	G			N	Y	2	H	G	M			N	N
ROLW8.1_B7	Olt	Olt - am. Ac. Voila, Vistea, Arpas, Scorei Arig si aval ac. Racovita	-		1	2	2		3	-			N	Y	3	H	G	L			N	Y
ROLW8.1_B9	Olt	Olt - am.ac.Robesti, Cornet, Gura Lotrului, Turnu...Rm Valcea, Raureni, Govora si av Babeni	-		1	2	2		3	G			N	Y	3	H	G	L			N	Y
RORW8.1_B1	Olt	Olt - izv.- aval confl.Sipos si afluentii (Medias si Sipos)	-	1	1		1	N	2	G	2	H	N	N			G	L			N	N
RORW8.1_B12	Olt	Olt - aval acumulare Izbiceni – confluenta Dunare	2	2		1	2	N	2	G	2	H	N	N			G	M			N	N
RORW8.1_B2	Olt	Olt - aval confluenta Sipos - aval confluenta Cad	-	1	1		1		3	G	3	H	N	N			G	H			N	N
RORW8.1_B3	Olt	Olt - aval confluenta Cad – aval confluenta Mitaci	-	2	1		2		3	G	3	H	N	N			G	M			N	N
RORW8.1_B4	Olt	Olt - aval confluenta Mitaci – aval confluenta Talomir	-	2	1		2	N	3	G	3	H	N	N			G	L			N	N
RORW8.1_B5	Olt	Olt - aval confluenta Talomir – aval confluenta Raul Negru	2	2	1		2		3	G	3	H	N	N			G	M			N	N

Water Body code with country code	**Name of river**	**Name of water body**	**Biological Quality Elements**					**Hydromorphology - High Status**	**General Phys. and Chem. conditions**	**Specific pollutants**	**OVERALL ECOLOGICAL STATUS**	Confidence class (Overall Ecol.Status)	**Artificial and HMWB**				**CHEMICAL STATUS (Priority substances in water)**	Confidence class (Chemical Status - Priority substances in water)	**CHEMICAL STATUS (Mercury in biota)**	Confidence class (Chemical Status - Mercury in biota)	**Exemption Art. 4(4)**	**Exemption Art. 4(5)**
			Fish	**Benthic invertebrates**	**Phytobenthos & Macrophytes**	**Phytoplankton**	**Overall Biological Status**						**Artificial Water Body**	**Heavily modified Water Body**	**Ecological Potential Class**	Confidence class (Ecol. Pot.)						
RORW8.1_B6	Olt	Olt - aval confluenta Raul Negru – amonte acumulare Voila	-	2	1	2	2		3	G	3	H	N	N			G	M			N	N
RORW8.1_B8	Olt	Olt - aval acumulare Racovita - amonte acumulare Robesti	-	2	1	2	2	N	3	G	3	H	N	N			G	L			N	N
RORW13.1_B1	Prut	Prut - sector am. ac. Stanca	1	1	1	1	1	Y	2	G	2	H	N	N			G	M			N	N
RORW13.1_B3	Prut	Prut - sector av. ac. Stanca - conf. Solonet	-	1	1	1	1	N	2	G	2	H	N	N			G	M			N	N
RORW13.1_B4	Prut	Prut - sector conf. Solonet - confl. Jijia	-	1	1	1	1	N	3	G			N	Y	3	H	G	M			N	N
RORW13.1_B5	Prut	Prut - sector confl. Jijia - confl. Dunarea	-	2	1	1	2	N	3	G			N	Y	3	H	G	M			N	N
RORW12.1_B0	Siret	Siret (granita - lac Rogojesti)	-	-	-		-	N	2	-	2	H	N	N			G	L			N	N
RORW12.1_B2	Siret	Siret (ac Rogojesti - ac Bucecea)	-	-	-		-	N	2	-	2	L	N	N			G	M			N	N
RORW12.1_B4	Siret	Siret (baraj Bucecea - cf Moldova)	1	1	2		2	N	3	G	3	H	N	N			G	M			N	N
RORW12.1_B5	Siret	Siret (cf Moldova - ac Galbeni)	-	2	-	1	2	N	3	G	3	H	N	N			G	M			N	N
RORW12.1_B7	Siret	Siret (baraj Beresti - ac Calimanesti)	1	1	-	1	1	N	3	G	3	H	N	N			G	L			N	N
RORW12.1_B9	Siret	Siret (baraj Calimanesti - cf Dunare)	-	2	1	1	2	N	3	G	3	H	N	N			G	M			N	N
RORW2.1_B1	Somes	Somesul Mare-izvoare-cf.Feldrisel si afluenti	1	1	2		2	N	2	G	2	H	N	N			G	H			N	N
RORW2.1_B2	Somes	Somesul Mare-cf.Feldrisel-cf.Sieu	1	2	2		2	N	2	G	2	H	N	N			G	M			N	N

Water Body code with country code	Name of river	Name of water body	Biological Quality Elements					Hydromorphology - High Status	General Phys. and Chem. conditions	Specific pollutants	OVERALL ECOLOGICAL STATUS	Confidence class (Overall Ecol.Status)	Artificial and HMWB				CHEMICAL STATUS (Priority substances in water)	Confidence class (Chemical Status - Priority substances in water)	CHEMICAL STATUS (Mercury in biota)	Confidence class (Chemical Status - Mercury in biota)	Exemption Art. 4(4)	Exemption Art. 4(5)
			Fish	Benthic invertebrates	Phytobenthos & Macrophytes	Phytoplankton	Overall Biological Status						Artificial Water Body	Heavily modified Water Body	Ecological Potential Class	Confidence class (Ecol. Pot.)						
RORW2.1_B3	Somes	Somesul Mare-cf.Sieu-Dej	3	2	1		3		3	G			N	Y	3	H	G	H			N	N
RORW2.1_B4	Somes	Somes-Dej-cf.Apa Sarata	1	3	1		3	N	3	G	3	H	N	N			G	M			N	N
RORW2.1_B5	Somes	Somes-cf.Apa Sarata-cf.Lapus	1	1	-	1	1	N	2	G	2	H	N	N			G	L			N	N
RORW2.1_B6	Somes	Somes-cf.Lapus-cf.Homorodul Nou	1	1	-	2	2	N	2	G	2	H	N	N			F	M			N	N
RORW2.1_B7	Somes	Somes-cf.Homorodul Nou-granita HU	1	2	1	2	2	N	3	G	3	H	N	N			G	H			N	N
RORW4.1.96_B1	Tarnava Mare	Tarnava Mare, izvor - ac. Zetea si afluentii	2	1	2		2	N	2	G	2	M	N	N			G	M			N	N
RORW4.1.96_B3	Tarnava Mare	Tarnava Mare, ac. Zetea - conf. Bradesti si DESAG	2	1	2		2	N	2	G	2	M	N	N			G	M			N	N
RORW4.1.96_B4	Tarnava Mare	Tarnava Mare, conf. Bradesti - conf. Cris	-	1	1	-	1	N	2	G			N	Y	2	M	G	M			N	N
RORW4.1.96_B5	Tarnava Mare	Tarnava Mare, conf. Cris - conf. Paucea	2	2	-	3	3	N	2	G	3	M	N	N			G	M			N	N
RORW4.1.96_B6	Tarnava Mare	Tarnava Mare, conf. Paucea - conf. Vorumloc	2	2	-	2	2	N	2	G			N	Y	2	L	G	L			N	N
RORW4.1.96_B7	Tarnava Mare	Tarnava Mare, conf. Vorumloc - conf. Mures	2	2	-	3	3	N	2	G			N	Y	3	M	G	M			N	N
RORW5.2_B1	Timis	Timis - izvoare-ac. trei ape	1	1	1		1	Y	2	G	2	M	N	N			G	L			N	N
RORW5.2_B2	Timis	Timis - ac. trei ape-cf. fenes	2	1	2		2		2	G			N	Y	2	H	G	M			N	N
RORW5.2_B3	Timis	Timis - cf. fenes-cf. sebes	1	1	1		1	N	2	G	2	H	N	N			G	M			N	N

Water Body code with country code	Name of river	Name of water body	Biological Quality Elements					Hydromorphology - High Status	General Phys. and Chem. conditions	Specific pollutants	OVERALL ECOLOGICAL STATUS	Confidence class (Overall Ecol.Status)	Artificial and HMWB				CHEMICAL STATUS (Priority substances in water)	Confidence class (Chemical Status - Priority substances in water)	CHEMICAL STATUS (Mercury in biota)	Confidence class (Chemical Status - Mercury in biota)	Exemption Art. 4(4)	Exemption Art. 4(5)
			Fish	Benthic invertebrates	Phytobenthos & Macrophytes	Phytoplankton	Overall Biological Status						Artificial Water Body	Heavily modified Water Body	Ecological Potential Class	Confidence class (Ecol. Pot.)						
RORW5.2_B4	Timis	Timis - cf. sebes-cf. tapia	1	1		1	1	N	2	G	2	H	N	N			G	M			N	N
RORW5.2_B5	Timis	Timis - cf. tapia-evacuare gc lugoj	-	1		1	1		2	G			N	Y	2	H	G	M			N	N
RORW5.2_B6	Timis	Timis - evacuare gc lugoj-cf. timisana	-	1		1	1		2	G			N	Y	2	H	G	M			N	N
RORW5.2_B7	Timis	Timis - cf. timisana-frontiera	-	1		1	1	N	2	G	2	H	N	N			G	M			N	N
RORW1.1_B1	Tisa	Tisa	1	1	-		1	N	2	G	2	H	N	N			G	M			N	N
RORW12.1.69_B1	Trotus	Trotus (izvor - cf Valea Rece)	-	-	-		-	Y	2	-	2	L	N	N			G	M			N	N
RORW12.1.69_B2	Trotus	Trotus (cf Valea Rece - cf Urmenis)	-	1	1		1	N	3	G	3	H	N	N			G	M			N	N
RORW12.1.69_B3	Trotus	Trotus (cf Urmenis - cf Tazlau)	2	2	1		2	N	3	G	3	H	N	N			G	M			N	N
RORW12.1.69_B4	Trotus	Trotus (cf Tazlau - cf Siret)	-	1	-	1	1	N	3	G	3	H	N	N			G	M			N	N
RORW9.1_B2	Vedea	Vedea : confluenta Vedita - amonte confluenta Cotmeana	1	1		1	1	N	2	G	2	H	N	N			G	-			N	N
RORW9.1_B3	Vedea	Vedea : confluenta Cotmeana - amonte evacuare Rosiori de Vede	1	1		1	1	N	2	G	2	H	N	N			G	-			N	N
RORW9.1_B4	Vedea	Vedea : amonte evacuare Rosiori de Vede - confluenta Paraul Cainelui	-	1		1	1		3	G	3	H	N	N			F	L			N	N
RORW9.1_B5	Vedea	Vedea : confluenta Paraul Cainelui - amonte evacuare Alexandria	-	1		1	1		3	G	3	H	N	N			F	L			N	N
RORW9.1_B6	Vedea	Vedea : amonte evacuare Alexandria - amonte confluenta Teleorman	-	1	2	2	2		3	G	3	H	N	N			G	-			N	N

Water Body code with country code	**Name of river**	**Name of water body**	**Biological Quality Elements**					**Hydromorphology - High Status**	**General Phys. and Chem. conditions**	**Specific pollutants**	**OVERALL ECOLOGICAL STATUS**	Confidence class (Overall Ecol.Status)	**Artificial and HMWB**				**CHEMICAL STATUS (Priority substances in water)**	Confidence class (Chemical Status - Priority substances in water)	**CHEMICAL STATUS (Mercury in biota)**	Confidence class (Chemical Status - Mercury in biota)	**Exemption Art. 4(4)**	**Exemption Art. 4(5)**
			Fish	**Benthic invertebrates**	**Phytobenthos & Macrophytes**	**Phytoplankton**	**Overall Biological Status**						**Artificial Water Body**	**Heavily modified Water Body**	**Ecological Potential Class**	Confidence class (Ecol. Pot.)						
RORW9.1_B7	Vedea	Vedea : confluenta Teleorman - localitate Bujoru	-	1		1	1		3	G			N	Y	3	H	G	M			N	N
RORW9.1_B8	Vedea	Vedea : localitate Bujoru - confluenta Dunare	3	1		2	3		3	G			Y	N	3	H	G	L			N	N
BG1IS100R1027	Iskar	ISKAR RWB1027	-	2	2	-	2		3	F			N	Y	2	M	-	-			N	N
BG1IS135R1026	Iskar	ISKAR RWB1026	-	3	4	-	4		3	F	4	L	N	N			-	-			N	Y
BG1IS135R1126	Iskar	ISKAR RWB1126	-	-	-	-	-		3	G	-	-	N	N			-	-			N	Y
BG1IS135R1226	Iskar	ISKAR RWB1226	-	3	4	-	4		3	G	3	M	N	N			G	M			N	Y
BG1IS135R1326	Iskar	ISKAR RWB1326	-	3	4	-	4		3	G			N	Y	4	L	-	-			Y	-
BG1IS135R1426	Iskar	ISKAR RWB1426	-	5	4	-	5		3	F	5	M	N	N			F	M			N	Y
BG1IS135R1726	Iskar	ISKAR RWB1726	-	-	-	-	-		3	F	-	-	N	N			G	M			-	-
BG1IS700R1006	Iskar	ISKAR RWB1006	-	3	3	-	3		2	F	4	M	N	N			G	L			N	N
BG1IS700R1206	Iskar	ISKAR RWB1206	-	-	-	-	-		3	F	-	-	N	N			-	-			-	-
BG1IS789R1104	Iskar	ISKAR RWB1104	-	-	-	-	-		3	F	-	-	N	N			-	-			-	-
BG1IS900R1003	Iskar	ISKAR RWB1003	-	-	-	-	-		3	F	-	-	N	N			-	-			-	-
BG1NV200R1001	Nishava	NISHAVA RWB1001	-	2	2	-	2		3	G	2	M	N	N			-	-			N	N
BG1OG100R014	Ogosta	OGOSTA RWB14	-	3	3	-	3		3	F			N	Y	3	L	-	-			N	Y
BG1OG307R1013	Ogosta	OGOSTA RWB1013	-	-	-	-	-		3	F	-	-	N	N			-	-			-	-
BG1OG307R1213	Ogosta	OGOSTA RWB1213	-	3	2	-	3		2	F	4	M	N	N			G	L			Y	N
BG1OG307R1313	Ogosta	OGOSTA RWB1313	-	2	2	-	2		2	F	2	M	N	N			G	L			N	N

Water Body code with country code	**Name of river**	**Name of water body**	**Biological Quality Elements**					**Hydromorphology - High Status**	**General Phys. and Chem. conditions**	**Specific pollutants**	**OVERALL ECOLOGICAL STATUS**	Confidence class (Overall Ecol.Status)	**Artificial and HMWB**				**CHEMICAL STATUS (Priority substances in water)**	Confidence class (Chemical Status - Priority substances in water)	**CHEMICAL STATUS (Mercury in biota)**	Confidence class (Chemical Status - Mercury in biota)	**Exemption Art. 4(4)**	**Exemption Art. 4(5)**
			Fish	**Benthic invertebrates**	**Phytobenthos & Macrophytes**	**Phytoplankton**	**Overall Biological Status**						**Artificial Water Body**	**Heavily modified Water Body**	**Ecological Potential Class**	Confidence class (Ecol. Pot.)						
BG1OG789R1001	Ogosta	OGOSTA RWB1001	2	2	2	-	2		2	F	3	M	N	N			G	L			N	Y
BG1OG789R1401	Ogosta	OGOSTA RWB1401	-	-	-	-	-		2	F	-	-	N	N			-	-			-	-
BG1OG789R1501	Ogosta	OGOSTA RWB1501	-	-	-	-	-		2	F	-	-	N	N			-	-			-	-
BG1OG789R1601	Ogosta	OGOSTA RWB1601	5	2	2	-	5		2	F	3	M	N	N			G	L			N	Y
BG1WO100R001	Timok	TIMOK WORWB01	-	5	3	-	5		3	F	5	M	N	N			F	L			N	Y
BG1YN130R1029	Yantra	YANTRA RWB1029	-	3	-	-	3		2	F			N	Y	3	M	-	-			Y	N
BG1YN307R1027	Yantra	YANTRA RWB1027	-	2	2	-	2		2	F	-	-	N	N			G	M			N	N
BG1YN307R1127	Yantra	YANTRA RWB1127	-	-	-	-	-		2	F	-	-	N	N			G	M			-	-
BG1YN700R1017	Yantra	YANTRA RWB1017	-	3	3	-	3		3	G	3	M	N	N			G	M			Y	N
BG1YN900R1015	Yantra	YANTRA RWB1015	-	4	4	-	4		3	G	4	M	N	N			G	M			N	Y
BG1YN900R1215	Yantra	YANTRA RWB1215	-	5	2	-	5		3	G	2	M	N	N			G	M			N	N
BG1YN900R1415	Yantra	YANTRA RWB1415	-	-	-	-	-		2	G	-	-	N	N			-	-			-	-
MD0201/01	Prut	Prut	-	-	-	-	-	N	2	G	-	-	N	N			G	L			-	-
MD0201/02	Prut	Prut	-	3	-	2	3	N	4	G	2	L	N	N			F	L			-	-
MD0201/03	Prut	Prut	-	-	-	-	-	N	4	G	2	L	N	N			F	L			-	-
MD0201/04	Prut	Prut	-	-	-	-	-	N	4	G	-	-	N	N			F	L			-	-
MD0201/05	Prut	Prut (l.a.Costesti Stinca)	-	-	-	-	-	N	4	G	-	-	N	Y	-	-	F	L			-	-
MD0201/07	Prut	Prut	-	3	-	2	3	N	2	G	-	-	N	N			G	L			-	-
MD0201/08	Prut	Prut	-	-	-	-	-	N	2	G	-	-	N	N			G	L			-	-

Water Body code with country code	**Name of river**	**Name of water body**	**Biological Quality Elements**										**Artificial and HMWB**									
			Fish	**Benthic invertebrates**	**Phytobenthos & Macrophytes**	**Phytoplankton**	**Overall Biological Status**	**Hydromorphology - High Status**	**General Phys. and Chem. conditions**	**Specific pollutants**	**OVERALL ECOLOGICAL STATUS**	Confidence class (Overall Ecol.Status)	**Artificial Water Body**	**Heavily modified Water Body**	**Ecological Potential Class**	Confidence class (Ecol. Pot.)	**CHEMICAL STATUS (Priority substances in water)**	Confidence class (Chemical Status - Priority substances in water)	**CHEMICAL STATUS (Mercury in biota)**	Confidence class (Chemical Status - Mercury in biota)	**Exemption Art. 4(4)**	**Exemption Art. 4(5)**
MD0201/09	Prut	Prut	-	-	-	-	-	N	2	G	-	-	N	N			G	L			-	-
MD0201/10	Prut	Prut	-	3	-	2	3	N	2	G	2	L	N	N			G	L			-	-
MD0201/11	Prut	Prut	-	3	-	2	3	N	4	G	-	-	N	N			F	L			-	-
MD0201/12	Prut	Prut	-	-	-	-	-	N	4	G	2	L	N	N			F	L			-	-
MD0201/13	Prut	Prut	-	3	-	2	3	N	4	G	2	L	N	N			F	L			-	-
MD0201/14	Prut	Prut	-	-	-	-	-	N	4	G	-	-	N	N			F	L			-	-
MD0201/15	Prut	Prut	-	3	-	2	3	N	4	G	-	-	N	N			F	L			-	-
UALAR01	Latorica	Tisa	-	-	-	-	-		-	-	-	-	N	N			-	-			-	-
UALAR02	Latorica	Tisa	-	-	-	-	-		-	-	-	-	N	N			-	-			-	-
UALAR03	Latorica	Tisa	-	-	-	-	-		-	-	-	-	N	N			-	-			-	-
UA0201/01	Prut	Prut	-	-	-	-	-		-	-	-	-	N	N			-	-			-	-
UA0201/02	Prut	Prut	-	-	-	-	-		-	-	-	-	N	N			-	-			-	-
UA0201/03	Prut	Prut	-	-	-	-	-		-	-	-	-	N	N			-	-			-	-
UA0201/04	Prut	Prut	-	-	-	-	-		-	-	-	-	N	N			-	-			-	-
UA0201/05	Prut	Prut	-	-	-	-	-		-	-	-	-	N	N			-	-			-	-
UA0201/06	Prut	Prut	-	-	-	-	-		-	-	-	-	N	N			-	-			-	-
UA0201/07	Prut	Prut	-	-	-	-	-		-	-	-	-	N	N			-	-			-	-
UA0201/08	Prut	Prut	-	-	-	-	-		-	-	-	-	N	N			-	-			-	-
UA0201/09	Prut	Prut	-	-	-	-	-		-	-	-	-	N	N			-	-			-	-

Water Body code with country code	**Name of river**	**Name of water body**	**Biological Quality Elements**					**Hydromorphology - High Status**	**General Phys. and Chem. conditions**	**Specific pollutants**	**OVERALL ECOLOGICAL STATUS**	Confidence class (Overall Ecol.Status)	**Artificial and HMWB**				**CHEMICAL STATUS (Priority substances in water)**	Confidence class (Chemical Status - Priority substances in water)	**CHEMICAL STATUS (Mercury in biota)**	Confidence class (Chemical Status - Mercury in biota)	**Exemption Art. 4(4)**	**Exemption Art. 4(5)**
			Fish	**Benthic invertebrates**	**Phytobenthos & Macrophytes**	**Phytoplankton**	**Overall Biological Status**						**Artificial Water Body**	**Heavily modified Water Body**	**Ecological Potential Class**	Confidence class (Ecol. Pot.)						
UA0201/10	Prut	Prut	-	-	-	-	-		-	-	-	-	N	N			-	-			-	-
UA0201/11	Prut	Prut	-	-	-	-	-		-	-	-	-	N	N			-	-			-	-
UA0201/12	Prut	Prut	-	-	-	-	-		-	-	-	-	N	N			-	-			-	-
UA0201/13	Prut	Prut	-	-	-	-	-		-	-	-	-	N	N			-	-			-	-
UA0201/14	Prut	Prut	-	-	-	-	-		-	-	-	-	N	N			-	-			-	-
UA0201/15	Prut	Prut	-	-	-	-	-		-	-	-	-	N	N			-	-			-	-
UA0201/16	Prut	Prut	-	-	-	-	-		-	-	-	-	N	N			-	-			-	-
UA0201/17	Prut	Prut	-	-	-	-	-		-	-	-	-	N	N			-	-			-	-
UA0201/18	Prut	Prut	-	-	-	-	-		-	-	-	-	N	N			-	-			-	-
UA0201/19	Prut	Prut	-	-	-	-	-		-	-	-	-	N	N			-	-			-	-
UA0201/20	Prut	Prut	-	-	-	-	-		-	-	-	-	N	N			-	-			-	-
UA0201/21	Prut	Prut	-	-	-	-	-		-	-	-	-	N	N			-	-			-	-
UA0201/22	Prut	Prut	-	-	-	-	-		-	-	-	-	N	N			-	-			-	-
UA0201/23	Prut	Prut	-	-	-	-	-		-	-	-	-	N	N			-	-			-	-
UA0201/24	Prut	Prut	-	-	-	-	-		-	-	-	-	N	N			-	-			-	-
UA0201/25	Prut	Prut	-	-	-	-	-		-	-	-	-	N	N			-	-			-	-
UA0201/26	Prut	Prut	-	-	-	-	-		-	-	-	-	N	N			-	-			-	-
UA0201/27	Prut	Prut	-	-	-	-	-		-	-	-	-	N	N			-	-			-	-
UA0201/28	Prut	Prut	-	-	-	-	-		-	-	-	-	N	N			-	-			-	-

Water Body code with country code	**Name of river**	**Name of water body**	**Biological Quality Elements**					**Hydromorphology - High Status**	**General Phys. and Chem. conditions**	**Specific pollutants**	**OVERALL ECOLOGICAL STATUS**	Confidence class (Overall Ecol.Status)	**Artificial and HMWB**				**CHEMICAL STATUS (Priority substances in water)**	Confidence class (Chemical Status - Priority substances in water)	**CHEMICAL STATUS (Mercury in biota)**	Confidence class (Chemical Status - Mercury in biota)	**Exemption Art. 4(4)**	**Exemption Art. 4(5)**
			Fish	**Benthic invertebrates**	**Phytobenthos & Macrophytes**	**Phytoplankton**	**Overall Biological Status**						**Artificial Water Body**	**Heavily modified Water Body**	**Ecological Potential Class**	Confidence class (Ecol. Pot.)						
UA0201/29	Prut	Prut	-	-	-	-	-		-	-	-	-	N	N			-	-			-	-
UASr	Siret	Siret	-	-	-	-	-		-	-	-	-	N	N			-	-			-	-
UATISR01	Tisza	Tisa	-	-	-	-	-		-	-	-	-	N	N			-	-			-	-
UATISR02	Tisza	Tisa	-	-	-	-	-		-	-	-	-	N	N			-	-			-	-
UATISR03	Tisza	Tisa	-	-	-	-	-		-	-	-	-	N	N			-	-			-	-
UATISR04	Tisza	Tisa	-	-	-	-	-		-	-	-	-	N	N			-	-			-	-
UATISR05	Tisza	Tisa	-	-	-	-	-		-	-	-	-	N	N			-	-			-	-
UADUN_IAL_MD_05 (39_05)	Yalpug	Danube	-	-	-	-	-		-	-	-	-	N	Y	-	-	-	-			-	-

Status assessment of lakes

Water Body code with country code	Name of water body	Biological Quality Elements					Hydromorphology - High Status	General Phys. and Chem. conditions	Specific pollutants	OVERALL ECOLOGICAL STATUS	Confidence class (Overall Ecol.Status)	Artificial and HMWB				CHEMICAL STATUS (Priority substances in water)	Confidence class (Chemical Status - Priority substances in water)	CHEMICAL STATUS (Mercury in biota)	Confidence class (Chemical Status - Mercury in biota)	Exemption Art. 4(4)	Exemption Art. 4(5)
		Fish	Benthic invertebrates	Phytobenthos & Macrophytes	Phytoplankton	Overall Biological Status						Artificial Water Body	Heavily modified Water Body	Ecological Potential Class	Confidence class (Ecol. Pot.)						
ATOK10500200	Neusiedler See	2	2	2	2	2	Y	2	G	2	M	N	N			G	H	F	L	Y	N
HUAIH049	Balaton			-	2	2	N	2	G	2	H	N	N			G	M	-	-	N	N
HUAIH070	Fertő			3	2	3	N	2	G	2	H	N	N			G	M	-	-	N	N
ROLW14.1_B7	Razim	-	-	2	2	2	Y	2	G	2	M	N	N			G	M	-	-	N	N
UAKUW	Kugurlui (Yalpug-Kugurlui Lakes)											N	PY					-	-		
UAYAW	Yalpug (Yalpug-Kugurlui Lakes)											N	Y					-	-		

Explanations

	Labels in the table	Descripton	Possible values
	Water body code with country code		
	Name of water body		
Biological Quality Elements	**Fish**	Status Class for the Water Body	1 = high, 2 = good, 3 = moderate, 4 = poor, 5 = bad
	Benthic invertebrates	Status Class for the Water Body	
	Angiosperms	Status Class for the Water Body	
	Macroalgae	Status Class for the Water Body	
	Phytoplankton	Status Class for the Water Body	
	Overall Biological Status	Status Class for the Water Body = worst case of the status classes of all biological quality elements (acc. to one-out-all-out principle)	
Hydromorphology	**Hydromorphology - High Status**	Only if biological quality elements are in high status hydromorphology must also be in high status	Y = Yes, N = No
General Physical and Chemical conditions	**General Physical and Chemical conditions SUPPORTIVE to the Ecological Status**	Status Class for the Water Body	1 = high, 2 = good, 3 = moderate, 4 = poor, 5 = bad
Specific pollutants	**Specific pollutants** (good or failing for Ecological Status)	Status Class for the Water Body for specific pollutants based on national quality standards; relevant for the assessment of Ecological Status. Specific pollutants are those pollutants that are regulated at the national level (and not included in the List	G = good, F = failing

OVERALL ECOLOGICAL STATUS	**Overall Ecological Status**	Worst case of the Biological Quality Class and Specific pollutants Status Class. For High Ecological Status additionally the General Physical and Chemical Parameters and the Hydromorphology have to be in high status.	1 = high, 2 = good, 3 = moderate, 4 = poor, 5 = bad
	Confidence class (high, medium, low for Overall Ecol.Status)	Confidence level of assessment (agreed from MA EG)	H = high, M = medium, L = low

Artificial and HMWB	**Artificial Water Body (Y/N)**	Is the water body artificial?	Y = Yes, N = No
	HMWB (Y/N)	Is the water body heavily modified?	Y = Yes, N = No, PN = provisionally no, PY = provisionally yes
	Ecological Potential Class	If the water body is artificial or heavily modified - please give the information of the Ecological Potential Class	2 = good and above, 3 = moderate, 4 = poor, 5 = bad
	Confidence class (Ecological Potential)	Confidence level of assessment (agreed from MA EG)	H = high, M = medium, L = low

CHEMICAL STATUS CLASS	**CHEMICAL STATUS CLASS**	Chemical Status Class for all pollutants that are regulated by the EU	G = good, F = failing
	Confidence (Chemical Status)	Confidence level of assessment (agreed from MA EG)	H = high, M = medium, L = low

Exemptions	Exemption Art. 4(4)		Y = Yes, N = No
	Exemption Art. 4(5)		Y = Yes, N = No

Status assessment of coastal waters

Water Body code with country code	**Name of water body**	**Biological Quality Elements**											**Artificial and HMWB**							
		Fish	**Benthic invertebrates**	**Angiosperms**	**Macroalgae**	**Phytoplankton**	**Overall Biological Status**	**Hydromorphology - High Status**	**General Phys. and Chem. conditions**	**Specific pollutants**	**OVERALL ECOLOGICAL STATUS**	Confidence class (Overall Ecol.Status)	**Artificial Water Body**	**Heavily modified Water Body**	**Ecological Potential Class**	Confidence class (Ecol. Pot.)	**CHEMICAL STATUS**	Confidence class (Chemical Status)	**Exemption Art. 4(4)**	**Exemption Art. 4(5)**
ROCT01_B1	Periboina-Cap Singol		1	-	-	3	3	Y	3	G	3	M	N	N			G	M	N	N
ROCT01_B2	Mangalia		1	-	-	2	2	N	3	G			N	Y	3	M	G	M	N	N
ROCT02_B1	Cap Singol-Eforie Nord		-	-	-	2	2	N	3	G			N	Y	3	M	G	M	N	N
ROCT02_B2	Eforie Nord-Vama Veche		1	-	-	2	2	Y	3	G	3	M	N	N			G	M	N	N
UABScstl	Black Sea coastal												N	0						

Statuss assessment of transitional waters

Water Body code with country code	**Name of water body**	**Biological Quality Elements**												**Artificial and HMWB**							
		Fish	**Benthic invertebrates**	**Angiosperms**	**Macroalgae**	**Phytoplankton**	**Overall Biological Status**	**Hydromorphology - High Status**	**General Phys. and Chem. conditions**	**Specific pollutants**	**OVERALL ECOLOGICAL STATUS**	Confidence class (Overall Ecol.Status)	**Artificial Water Body**	**Heavily modified Water Body**	**Ecological Potential Class**	Confidence class (Ecol. Pot.)	**CHEMICAL STATUS**	Confidence class (Chemical Status)	**Exemption Art. 4(4)**	**Exemption Art. 4(5)**
ROTT02_B1	Sinoe	-	-	-	-	5	5	Y	2	G	5	M	N	N			G	M	N	N
ROTT03_B1	Chilia-Periboina	-	-	-	-	3	3	Y	3	G	3	M	N	N			G	M	N	N
UADDBS	Black sea												N	N						
UADD_UA_Bys	Bystroe												N	Y						
UADD_UA_Och	Ochakovskoe												N	N						
UADD_UA_Sts	Starostambulskoe												N	N						

Inventory of Protected Areas

ANNEX 10

DRBM Plan – Update 2015

Explanations

Types:

H = Habitat (FFH) Directive

B = Bird Protection Directive

O = Others (Non EU MS)

Country	Area code	Name of Protected Area	Type(s)	Area in km²
AT	AT1110137	Neusiedler See - Nordöstliches Leithagebirge	B,H	570.86
AT	AT1122916	Lafnitzauen	H	5.9
AT	AT1126129	Waasen - Hanság	B	30.04
AT	AT1202000	March-Thaya-Auen	H	88.76
AT	AT1202V00	March-Thaya-Auen (SPA)	B	148.27
AT	AT1204000	Donau-Auen östlich von Wien	H	95.11
AT	AT1204V00	Donau-Auen östlich von Wien (SPA)	B	90.95
AT	AT1208A00	Thayatal bei Hardegg	H	44.28
AT	AT1301000	Nationalpark Donau-Auen (Wiener Teil)	B,H	22.57
AT	AT2101000	SCI Nationalpark Hohe Tauern	B,H	346.03
AT	AT2102000	Nationalpark Nockberge (Kernzone)	H	77.4
AT	AT2108000	Inneres Pöllatal	H	31.96
AT	AT2109000	Wolayersee und Umgebung	H	19.39
AT	AT2114000	Obere Drau	B,H	10.28
AT	AT2116000	Görtschacher Moos-Obermoos im Gailtal	B,H	12.42
AT	AT2120000	Schütt-Graschelitzen	B,H	23.05
AT	AT2205000	Pürgschachen-Moos und ennsnahe Bereiche zwischen Selzthal und dem Gesäuseeingang	B,H	16.13
AT	AT2208000	Lafnitztal - Neudauer Teiche	B,H	11.63
AT	AT2210000	Ennstaler Alpen / Gesäuse	B,H	145.12
AT	AT2213000	Steirische Grenzmur mit Gamlitzbach und Gnasbach	B,H	21.59
AT	AT2215000	Teile der Eisenerzer Alpen	H	43.87
AT	AT2220000	Zirbitzkogel	B	23.11
AT	AT2225000	Demmerkogel-Südhänge; Wellinggraben mit Sulm, Saggau und Laßnitzabschnitten und Pößnitzbach,Demmerkogel-Südhänge; Wöllinggraben mit Sulm, Saggau und Laßnitzabschnitten und Pößn.	B,H	20.97
AT	AT2226000	Furtner Teich - Dürnberger-Moor	B	10.73
AT	AT2229000	Teile des Steirischen Jogl- und Wechsellandes	B	454.87
AT	AT2229002	Ennstal zwischen Liezen und Niederstuttern	B	25.59
AT	AT2230000	Teile des südoststeirischen Hügellandes inklusive Höll und Grabenlandbäche	B,H	156.56
AT	AT2233000	Raabklamm	B,H	5.55
AT	AT2236000	Ober- und Mittellauf der Mur mit Puxer Auwald, Puxer Wand und Gulsen	H	13.08
AT	AT2243000	Totes Gebirge mit Altausseer See	B,H	239.53
AT	AT3101000	Dachstein	B,H	146.17
AT	AT3105000	Unterer Inn	B,H	8.63
AT	AT3110000	Ettenau	B,H	6.25
AT	AT3111000	Nationalpark Kalkalpen, 1. Verordnungsabschnitt	B,H	214.36
AT	AT3112000	Oberes Donautal	B	9.24
AT	AT3113000	Untere Traun	B	23.08
AT	AT3114000	Traun-Donau-Auen	B,H	6.64
AT	AT3117000	Mond- und Attersee	H	61.36
AT	AT3119000	Auwälder am Unteren Inn	H	5.5
AT	AT3120000	Waldaist und Naarn	H	41.55

Country	Area code	Name of Protected Area	Type(s)	Area in km²
AT	AT3121000	Böhmerwald und Mühltäler	H	93.52
AT	AT3122000	Oberes Donau- und Aschachtal	H	71.18
AT	AT3123000	Wiesengebiete und Seen im Alpenvorland	H	10.63
AT	AT3124000	Wiesengebiete im Freiwald	B	21.43
AT	AT3209022	Salzachauen, Salzburg (SPA)	B	11.19
AT	AT3210001	Hohe Tauern, Salzburg	B	805
AT	AT3211012	Kalkhochalpen, Salzburg	H	236.9
AT	AT3223000	Salzachauen, Salzburg	H	5.78
AT	AT3302000	Vilsalpsee	B,H	18.28
AT	AT3309000	Lechtal	B,H	41.44
BA	BABardaca	Zasticeno podrucje BARDACA	B	35
BA	BAProkosko jezero	Zasticeno podrucje Prokoško jezero	O	21.19
BA	BASkakavac	Zasticeno podrucje Skakavac	O	14.3
BA	BAUna	Zasticeno podrucje Una	O	198
BA	BAVrelo Bosne	Zasticeno podrucje Vrelo Bosne	O	6.03
BG	BG0000106	Harsovska reka	H	367.56
BG	BG0000107	Suha reka	H	624.81
BG	BG0000113	Vitosha	B,H	158.7
BG	BG0000117	Kotlenska planina	H	149.18
BG	BG0000165	Lozenska planina	H	12.96
BG	BG0000166	Vrachanski Balkan	H	360.25
BG	BG0000168	Ludogorie	H	594.47
BG	BG0000169	Ludogorie - Srebarna	H	52.24
BG	BG0000171	Ludogorie - Boblata	H	48.33
BG	BG0000173	Ostrovche	H	58.94
BG	BG0000180	Boblata	H	32.17
BG	BG0000181	Reka Vit	H	57.18
BG	BG0000182	Orsoya	H	24.61
BG	BG0000190	Vitata stena	H	26.3
BG	BG0000199	Tzibar	H	23.04
BG	BG0000204	Vardim	H	11.05
BG	BG0000211	Tvardishka planina	H	256.04
BG	BG0000213	Tarnovski visochini	H	44.32
BG	BG0000214	Dryanovski manastir	H	29.86
BG	BG0000231	Belenska gora	H	50.39
BG	BG0000232	Batin	H	26.83
BG	BG0000233	Studena reka	H	52.99
BG	BG0000237	Ostrov Pozharevo	B	9.75
BG	BG0000239	Obnova - Karaman dol	H	107.49
BG	BG0000240	Studenetz	B,H	280.57
BG	BG0000241	Srebarna	B,H	14.47
BG	BG0000247	Nikopolsko plato	H	185.01

Country	Area code	Name of Protected Area	Type(s)	Area in km²
BG	BG0000263	Skalsko	H	21.89
BG	BG0000275	Yazovir Stamboliyski	H	93.53
BG	BG0000308	Verila	H	37.48
BG	BG0000313	Rui	H	16.36
BG	BG0000322	Dragoman	H	213.57
BG	BG0000332	Karlukovski karst	B	142.17
BG	BG0000334	Ostrov	H	34.4
BG	BG0000335	Karaboaz	H	122
BG	BG0000336	Zlatiya	H	31.95
BG	BG0000339	Rabrovo	H	9.11
BG	BG0000340	Tzar Petrovo	H	17.48
BG	BG0000374	Bebresh	H	68.22
BG	BG0000377	Kalimok - Brashlen	H	73.32
BG	BG0000396	Persina	H	223.77
BG	BG0000399	Bulgarka	H	210.91
BG	BG0000432	Golyama reka	H	74.52
BG	BG0000494	Tzentralen Balkan	B,H	312.21
BG	BG0000495	Rila	B,H	206.5
BG	BG0000497	Archar	H	5.97
BG	BG0000498	Vidbol	H	13.05
BG	BG0000500	Voynitza	H	23.13
BG	BG0000503	Reka Lom	H	14.41
BG	BG0000507	Deleina	H	22.58
BG	BG0000509	Tzibritza	H	9.63
BG	BG0000517	Portitovtsi-Vladimirovo	H	6.64
BG	BG0000518	Vartopski dol	H	9.87
BG	BG0000521	Makresh	H	20.61
BG	BG0000522	Vidinski park	H	15.79
BG	BG0000523	Shishentzi	H	5.73
BG	BG0000529	Marten-Ryahovo	H	11.73
BG	BG0000530	Pozharevo - Garvan	H	58.66
BG	BG0000533	Ostrovi Kozlodui	H	6.06
BG	BG0000569	Kardam	H	9.18
BG	BG0000570	Izvorovo - Kraishte	H	10.81
BG	BG0000572	Rositza - Loznitza	H	18.12
BG	BG0000576	Svishtovska gora	H	19.17
BG	BG0000608	Lomovete	H	324.89
BG	BG0000609	Reka Rositza	H	14.41
BG	BG0000610	Reka Yantra	H	139
BG	BG0000611	Yazovir Gorni Dubnik	H	25.39
BG	BG0000613	Reka Iskar	H	94.58
BG	BG0000614	Reka Ogosta	H	12.53

Country	Area code	Name of Protected Area	Type(s)	Area in km²
BG	BG0000615	Devetashko plato	H	149.97
BG	BG0000616	Mikre	H	154.47
BG	BG0000617	Reka Palakariya	H	31.56
BG	BG0000618	Vidima	H	18.23
BG	BG0000624	Lyubash	H	12.67
BG	BG0001014	Karlukovo	H	288.42
BG	BG0001017	Karvav kamak	H	36.5
BG	BG0001036	Balgarski izvor	H	26.19
BG	BG0001037	Pastrina	H	35.52
BG	BG0001040	Zapadna stara planina i Predba	H	2193.03
BG	BG0001042	Iskarski prolom - Rzhana	H	226.93
BG	BG0001043	Etropole - Baylovo	H	191.26
BG	BG0001307	Plana	H	27.89
BG	BG0001389	Sredna Gora	H	21.42
BG	BG0001493	Tzentralen Balkan - buffer	H	867.22
BG	BG0002001	Rayanovtsi	B	132.02
BG	BG0002002	Zapaden Balkan	B	1467.72
BG	BG0002004	Dolni Bogrov-Kazichene	B	22.54
BG	BG0002005	Ponor	B	314.06
BG	BG0002009	Zlatiata	B	435.38
BG	BG0002017	Complex Belenski Ostrovi	B	66.83
BG	BG0002018	Ostrov Vardim	B	11.66
BG	BG0002024	Ribarnitsi Mechka	B	27.11
BG	BG0002025	Lomovete	B	43.08
BG	BG0002029	Kotlenska planina	B	196.89
BG	BG0002030	Complex Kalimok	B	92.2
BG	BG0002039	Harsovska reka	B	354
BG	BG0002048	Suha reka	B	257.5
BG	BG0002053	Vrachanski Balkan	B	309.17
BG	BG0002062	Ludogorie	B	913.15
BG	BG0002074	Nikopolsko plato	B	222.31
BG	BG0002083	Svishtovsko-Belenska nizina	B	54.39
BG	BG0002084	Palakaria	B	158.25
BG	BG0002085	Chairya	B	14.5
BG	BG0002088	Mikre	B	123.87
BG	BG0002090	Berkovitsa	B	28.04
BG	BG0002091	Ostrov Lakat	B	11.56
BG	BG0002095	Gorni Dabnik-Telish	B	34
BG	BG0002096	Obnova	B	54.21
BG	BG0002101	Meshtitsa	B	16.27
BG	BG0002102	Devetashko plato	B	78.92
BG	BG0002104	Tsibarsko blato	B	9.11

Country	Area code	Name of Protected Area	Type(s)	Area in km²
BG	BG0002109	Vasilyovska planina	B	454.84
BG	BG0002110	Apriltsi	B	19.42
BG	BG0002111	Velchevo	B	23.1
BG	BG0002112	Ruy	B	173.94
CZ	CZ0314024	Šumava	H	107.77
CZ	CZ0320180	Čerchovský les	H	21.91
CZ	CZ0323151	Kateřinský a Nivní potok	H	9.79
CZ	CZ0324026	Niva Nemanického potoka	H	6.81
CZ	CZ0530146	Králický Sněžník	H	17.16
CZ	CZ0614131	Údolí Oslavy a Chvojnice	H	23.39
CZ	CZ0614134	Údolí Jihlavy	H	8.62
CZ	CZ0620009	Lednické rybníky	H	6.18
CZ	CZ0620245	Rakovecké údolí	H	7.56
CZ	CZ0621025	Bzenecká Doubrava - Strážnické Pomoraví	B	117.2
CZ	CZ0621027	Soutok-Tvrdonicko	B	95.59
CZ	CZ0621028	Lednické rybníky	B	6.85
CZ	CZ0621029	Pálava	B	85.39
CZ	CZ0621030	Střední nádrž vodního díla Nové Mlýny	B	10.47
CZ	CZ0624064	Krumlovský les	H	19.46
CZ	CZ0624068	Strážnická Morava	H	6.59
CZ	CZ0624070	Hodonínská doubrava	H	30.29
CZ	CZ0624072	Čertoryje	H	48.52
CZ	CZ0624095	Údolí Dyje	H	18.21
CZ	CZ0624096	Podyjí	H	62.68
CZ	CZ0624099	Niva Dyje	H	32.49
CZ	CZ0624103	Mušovský luh	H	5.57
CZ	CZ0624119	Soutok - Podluží	H	97
CZ	CZ0624130	Moravský kras	H	64.85
CZ	CZ0710161	Království	H	5.88
CZ	CZ0711018	Litovelské Pomoraví	B	93.19
CZ	CZ0714073	Litovelské Pomoraví	H	94.59
CZ	CZ0714075	Keprník	H	17.51
CZ	CZ0714077	Praděd	H	28.02
CZ	CZ0714085	Morava - Chropyňský luh	H	32.05
CZ	CZ0714133	Libavá	H	67.32
CZ	CZ0720033	Semetín	H	13.27
CZ	CZ0720192	Velká Vela	H	7.71
CZ	CZ0720422	Valy-Bučník	H	10.95
CZ	CZ0720428	Na Koncoch	H	17.35
CZ	CZ0720435	Podkrálovec	H	9.62
CZ	CZ0720437	Valentová	H	5.58
CZ	CZ0724089	Beskydy	H	632.22

Country	Area code	Name of Protected Area	Type(s)	Area in km²
CZ	CZ0724090	Bílé Karpaty	H	200.34
CZ	CZ0724091	Chřiby	H	192.26
CZ	CZ0724107	Nedakonický les	H	15.25
CZ	CZ0724120	Kněžpolský les	H	5.21
CZ	CZ0724121	Nad Jasenkou	H	7.39
CZ	CZ0724429	Hostýnské vrchy	H	23.97
CZ	CZ0724430	Vlárský průsmyk	H	31.69
DE	DEBW_6927341	Rotachtal	H	5.95
DE	DEBW_7226441	Albuch	B	73.62
DE	DEBW_7327341	Härtsfeld	H	31.88
DE	DEBW_7422441	Mittlere Schwäbische Alb	B	52.36
DE	DEBW_7427341	Giengener Alb und Eselsburger Tal	H	9.91
DE	DEBW_7524341	Blau und Kleine Lauter	H	15.9
DE	DEBW_7527341	Donaumoos	H	9.14
DE	DEBW_7527441	Donauried	B	42.49
DE	DEBW_7622341	Großes Lautertal und Landgericht	H	33.12
DE	DEBW_7623341	Tiefental und Schmiechtal	H	33.07
DE	DEBW_7722341	Zwiefaltener Alb	H	7.88
DE	DEBW_7819341	Östlicher Großer Heuberg	H	8.63
DE	DEBW_7820341	Schmeietal	H	9.79
DE	DEBW_7820342	Truppenübungsplatz Heuberg	H	47.38
DE	DEBW_7820441	Südwestalb und Oberes Donautal	B	291.65
DE	DEBW_7821341	Gebiete um das Laucherttal	H	16.6
DE	DEBW_7822341	Großer Buchwald und Tautschbuch	H	27.42
DE	DEBW_7823341	Donau zwischen Munderkingen und Riedlingen	H	14.29
DE	DEBW_7918342	Südwestlicher Großer Heuberg	H	26.84
DE	DEBW_7919341	Donautal und Hochflächen von Tuttlingen bis Beuron	H	54.25
DE	DEBW_7920342	Oberes Donautal zwischen Beuron und Sigmaringen	H	27.1
DE	DEBW_7921401	Baggerseen Krauchenwies/Zielfingen	B	7.51
DE	DEBW_7922342	Donau zwischen Riedlingen und Sigmaringen	H	11.65
DE	DEBW_7923341	Federsee und Blinder See bei Kanzach	H	28.34
DE	DEBW_7923401	Federseeried	B	29.32
DE	DEBW_7924341	Umlachtal und Riß südlich Biberach	H	7.13
DE	DEBW_7926341	Rot und Bellamonter Rottum	H	5.36
DE	DEBW_8016341	Baar	H	18.97
DE	DEBW_8017341	Nördliche Baaralb und Donau bei Immendingen	H	24.98
DE	DEBW_8017441	Baar	B	280.71
DE	DEBW_8022401	Pfrunger und Burgweiler Ried	B	27.64
DE	DEBW_8025341	Wurzacher Ried und Rohrsee	H	18.91
DE	DEBW_8025401	Wurzacher Ried	B	17.99
DE	DEBW_8026341	Aitrach und Herrgottsried	H	5.58
DE	DEBW_8116441	Wutach und Baaralb	B	24.1

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DE	DEBW_8117341	Südliche Baaralb	H	10.46
DE	DEBW_8122342	Pfrunger Ried und Seen bei Illmensee	H	16.21
DE	DEBW_8226441	Adelegg	B	11.84
DE	DEBY_5937-471	Schneeberggebiet und Goldkronacher / Sophientaler Forst	B	26.19
DE	DEBY_6139-371	Waldnaabtal zwischen Tirschenreuth und Windisch-Eschenbach	H	26.18
DE	DEBY_6139-471	Waldnaabaue westlich Tirschenreuth	B	22.6
DE	DEBY_6237-371	Heidenaab, Creussenaue und Weihergebiet nordwestlich Eschenbach	H	18.66
DE	DEBY_6336-301	US-Truppenübungsplatz Grafenwöhr	B,H	192.8
DE	DEBY_6336-471	Vilsecker Mulde	B	9.21
DE	DEBY_6337-371	Vilsecker Mulde mit den Tälern der Schmalnohe und Wiesenohe	H	9.39
DE	DEBY_6338-301	Lohen im Manteler Forst mit Schießlweiher und Straßweiherkette	H	7.72
DE	DEBY_6338-401	Manteler Forst	B	26.92
DE	DEBY_6528-371	Anstieg der Frankenhöhe östlich der A 7	H	11.79
DE	DEBY_6537-371	Vils von Vilseck bis zur Mündung in die Naab	H	6.22
DE	DEBY_6541-371	Bayerische Schwarzach und Biberbach	H	5.3
DE	DEBY_6636-371	Lauterachtal	H	8.22
DE	DEBY_6639-371	Talsystem von Schwarzach, Auerbach und Ascha	H	7.84
DE	DEBY_6639-372	Charlottenhofer Weihergebiet, Hirtlohweiher und Langwiedteiche	B,H	9.31
DE	DEBY_6728-471	Altmühltal mit Brunst-Schwaigau und Altmühlsee	B	49.71
DE	DEBY_6736-302	Truppenübungsplatz Hohenfels	B,H	149.06
DE	DEBY_6741-371	Chamb, Regentalaue und Regen zwischen Roding und Donaumündung	H	31.94
DE	DEBY_6741-471	Regentalaue und Chambtal mit Rötelseeweihergebiet	B	27.77
DE	DEBY_6830-371	Obere Altmühl mit Brunst-Schwaigau und Wiesmet	H	45.08
DE	DEBY_6833-371	Trauf der südlichen Frankenalb	H	41.47
DE	DEBY_6834-301	Trauf der mittleren Frankenalb im Sulztal	H	12.24
DE	DEBY_6836-371	Schwarze Laaber	H	11.59
DE	DEBY_6844-371	Oberlauf des Weißen Regens bis Kötzting mit Kaitersbachaue	H	6.38
DE	DEBY_6844-373	Großer und Kleiner Arber mit Arberseen	H	22.95
DE	DEBY_6935-371	Weiße, Wissinger, Breitenbrunner Laaber u. Kreuzberg bei Dietfurt	H	23.23
DE	DEBY_6937-371	Naab unterhalb Schwarzenfeld und Donau von Poikam bis Regensburg	H	11.15
DE	DEBY_6939-302	Bachtäler im Falkensteiner Vorwald	H	13.87
DE	DEBY_6939-371	Trockenhänge am Donaurandbruch	H	5.21
DE	DEBY_6946-301	Nationalpark Bayerischer Wald	B,H	242.17
DE	DEBY_7029-371	Wörnitztal	H	38.93
DE	DEBY_7036-371	Trockenhänge im unteren Altmühltal mit Laaberleiten und Galgental	H	27.2
DE	DEBY_7037-471	Felsen und Hangwälder im Altmühl-, Naab-, Laber- und Donautal	B	48.43
DE	DEBY_7038-371	Standortübungsplatz Oberhinkofen	H	5.27
DE	DEBY_7040-302	Wälder im Donautal	B,H	12.89
DE	DEBY_7040-371	Donau und Altwässer zwischen Regensburg und Straubing	H	21.94
DE	DEBY_7040-471	Donau zwischen Regensburg und Straubing	B	32.6
DE	DEBY_7043-371	Deggendorfer Vorwald	H	14.97

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DE	DEBY_7045-371	Oberlauf des Regens und Nebenbäche	H	19.22
DE	DEBY_7128-371	Trockenverbund am Rand des Nördlinger Rieses	H	9.49
DE	DEBY_7130-471	Nördlinger Ries und Wörnitztal	B	70.36
DE	DEBY_7132-371	Mittleres Altmühltal mit Wellheimer Trockental und Schambachtal	H	42.05
DE	DEBY_7132-471	Felsen und Hangwälder im Altmühltal und Wellheimer Trockental	B	36.12
DE	DEBY_7136-301	'Weltenburger Enge' und 'Hirschberg und Altmühlleiten'	H	9.34
DE	DEBY_7136-304	Donauauen zwischen Ingolstadt und Weltenburg	H	27.66
DE	DEBY_7138-372	Tal der Großen Laaber zwischen Sandsbach und Unterdeggenbach	H	6.82
DE	DEBY_7142-301	Donauauen zwischen Straubing und Vilshofen	H	47.87
DE	DEBY_7142-471	Donau zwischen Straubing und Vilshofen	B	67.8
DE	DEBY_7229-471	Riesalb mit Kesseltal	B	120.38
DE	DEBY_7230-371	Donauwörther Forst mit Standortübungsplatz und Harburger Karab	H	24.01
DE	DEBY_7231-471	Donauauen zwischen Lechmündung und Ingolstadt	B	69.61
DE	DEBY_7232-301	Donau mit Jura-Hängen zwischen Leitheim und Neuburg	H	32.82
DE	DEBY_7233-372	Donauauen mit Gerolfinger Eichenwald	H	29.27
DE	DEBY_7233-373	Donaumoosbäche, Zucheringer Wörth und Brucker Forst	H	9.47
DE	DEBY_7243-301	Untere Isar zwischen Landau und Plattling	H	12.17
DE	DEBY_7243-302	Isarmündung	H	19.06
DE	DEBY_7243-401	Untere Isar oberhalb Mündung	B	9.74
DE	DEBY_7243-402	Isarmündung	B	21.13
DE	DEBY_7246-371	Ilz-Talsystem	H	28.47
DE	DEBY_7329-301	Donauauen Blindheim-Donaumünster	H	12.11
DE	DEBY_7329-372	Jurawälder nördlich Höchstädt	H	38.19
DE	DEBY_7330-301	Mertinger Hölle und umgebende Feuchtgebiete	H	8.58
DE	DEBY_7330-471	Wiesenbrüterlebensraum Schwäbisches Donauried	B	39.66
DE	DEBY_7335-371	Feilenmoos mit Nöttinger Viehweide	H	8.7
DE	DEBY_7341-471	Wiesenbrütergebiete im Unteren Isartal	B	13.84
DE	DEBY_7347-371	Erlau	H	5.75
DE	DEBY_7427-471	Schwäbisches Donaumoos	B	25.78
DE	DEBY_7428-301	Donau-Auen zwischen Thalfingen und Höchstädt	H	57.98
DE	DEBY_7428-471	Donauauen	B	80.52
DE	DEBY_7433-371	Paar	H	29.7
DE	DEBY_7439-371	Isarleiten bei der Gretlmühle	H	6.43
DE	DEBY_7440-371	Vilstal zwischen Vilsbiburg und Marklkofen	H	8.35
DE	DEBY_7446-301	Donauleiten von Passau bis Jochenstein	H	5.17
DE	DEBY_7446-371	Östlicher Neuburger Wald und Innleiten bis Vornbach	H	10.88
DE	DEBY_7447-371	Donau von Kachlet bis Jochenstein mit Inn- und Ilzmündung	H	5.08
DE	DEBY_7537-301	Isarauen von Unterföhring bis Landshut	H	52.76
DE	DEBY_7537-401	Naturschutzgebiet "Vogelfreistätte Mittlere Isarstauseen"	B	5.87
DE	DEBY_7630-371	Schmuttertal	H	8.99
DE	DEBY_7631-371	Lechauen zwischen Königsbrunn und Augsburg	H	23.04
DE	DEBY_7631-372	Lech zwischen Landsberg und Königsbrunn mit Auen und Leite	H	25.02

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DE	DEBY_7635-301	Ampertal	H	21.71
DE	DEBY_7636-471	Freisinger Moos	B	11.3
DE	DEBY_7637-471	Nördliches Erdinger Moos	B	45.25
DE	DEBY_7726-371	Untere Illerauen	H	8.34
DE	DEBY_7736-471	Ismaninger Speichersee und Fischteiche	B	10.29
DE	DEBY_7739-371	Isental mit Nebenbächen	H	7.66
DE	DEBY_7742-371	Inn und Untere Alz	H	15.65
DE	DEBY_7744-371	Salzach und Unterer Inn	H	56.88
DE	DEBY_7744-471	Salzach und Inn	B	48.27
DE	DEBY_7828-471	Mindeltal	B	26.55
DE	DEBY_7829-301	Angelberger Forst	H	6.41
DE	DEBY_7832-371	Ampermoos	H	5.29
DE	DEBY_7833-371	Moore und Buchenwälder zwischen Etterschlag und Fürstenfeldbruck	H	7.76
DE	DEBY_7837-371	Ebersberger und Großhaager Forst	H	38.4
DE	DEBY_7932-372	Ammerseeufer und Leitenwälder	H	9.52
DE	DEBY_7932-471	Ammerseegebiet	B	77.11
DE	DEBY_7934-371	Moore und Wälder der Endmoräne bei Starnberg	H	5.87
DE	DEBY_7939-301	Innauen und Leitenwälder	H	35.53
DE	DEBY_7939-401	NSG 'Vogelfreistätte Innstausee bei Attel und Freiham'	B	5.67
DE	DEBY_8031-471	Mittleres Lechtal	B	32.08
DE	DEBY_8032-371	Ammersee-Südufer und Raistinger Wiesen	H	8.82
DE	DEBY_8032-372	Moore und Wälder westlich Dießen	H	25.91
DE	DEBY_8033-371	Moränenlandschaft zwischen Ammersee und Starnberger See	H	20.72
DE	DEBY_8034-371	Oberes Isartal	H	46.7
DE	DEBY_8038-371	Rotter Forst und Rott	H	8.46
DE	DEBY_8039-302	Moore und Seen nordöstlich Rosenheim	H	5.59
DE	DEBY_8039-371	Murn, Murner Filz und Eiselfinger See	H	5.14
DE	DEBY_8040-371	Moorgebiet von Eggstädt-Hemhof bis Seeon	H	21.16
DE	DEBY_8040-471	Moorgebiet von Eggstätt-Hemhof bis Seeon	B	20.05
DE	DEBY_8127-301	Illerdurchbruch zwischen Reicholzried und Lautrach	H	9.68
DE	DEBY_8131-301	Moorkette von Peiting bis Wessobrunn	H	9.44
DE	DEBY_8131-371	Lech zwischen Hirschau und Landsberg mit Auen und Leiten	H	28.9
DE	DEBY_8133-301	Naturschutzgebiet 'Osterseen'	H	10.87
DE	DEBY_8133-302	Eberfinger Drumlinfeld mit Magnetsrieder Hardt u. Bernrieder Filz	H	11.15
DE	DEBY_8133-371	Starnberger See	H	56.89
DE	DEBY_8133-401	Starnberger See	B	56.93
DE	DEBY_8134-371	Moore südlich Königsdorf, Rothenrainer Moore und Königsdorfer Alm	H	11
DE	DEBY_8135-371	Moore zwischen Dietramszell und Deining	H	9.6
DE	DEBY_8136-302	Taubenberg	B,H	18.5
DE	DEBY_8136-371	Mangfalltal	H	13.48
DE	DEBY_8138-372	Moore um Raubling	H	10.28
DE	DEBY_8139-371	Simsseegebiet	H	10.42

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DE	DEBY_8140-371	Moore südlich des Chiemsees	H	35.66
DE	DEBY_8140-372	Chiemsee	H	81.52
DE	DEBY_8140-471	Chiemseegebiet mit Alz	B	103.55
DE	DEBY_8141-471	Moore südlich des Chiemsees	B	27.2
DE	DEBY_8142-371	Moore im Salzach-Hügelland	H	13.09
DE	DEBY_8142-372	Oberes Surtal und Urstromtal Höglwörth	H	8.78
DE	DEBY_8227-373	Kürnacher Wald	H	27.6
DE	DEBY_8228-301	Kempter Wald mit Oberem Rottachtal	H	40.96
DE	DEBY_8232-371	Grasleitner Moorlandschaft	H	21.38
DE	DEBY_8233-301	Moor- und Drumlinlandschaft zwischen Hohenkasten und Antdorf	H	14.12
DE	DEBY_8234-371	Moore um Penzberg	H	11.61
DE	DEBY_8235-301	Ellbach- und Kirchseemoor	H	11.73
DE	DEBY_8235-371	Attenloher Filzen und Mariensteiner Moore	H	6.5
DE	DEBY_8236-371	Flyschberge bei Bad Wiessee	H	9.55
DE	DEBY_8237-371	Leitzachtal	H	22.41
DE	DEBY_8239-371	Hochriesgebiet und Hangwälder im Aschauer Tal	H	18.26
DE	DEBY_8239-372	Geigelstein und Achentaldurchbruch	H	32.07
DE	DEBY_8239-401	Geigelstein	B	32.08
DE	DEBY_8241-372	Östliche Chiemgauer Alpen	H	129.23
DE	DEBY_8327-304	Rottachberg und Rottachschlucht	H	5.27
DE	DEBY_8329-301	Wertachdurchbruch	B,H	8.76
DE	DEBY_8329-303	Sulzschneider Moore	H	17.95
DE	DEBY_8330-371	Urspringer Filz,Premer Filz und Viehweiden	H	5.47
DE	DEBY_8330-471	Ammergebirge mit Kienberg und Schwarzenberg sowie Falkenstein	B	301.06
DE	DEBY_8331-302	Ammer vom Alpenrand b. zum NSG 'Vogelfreistätte Ammersee-Südufer'	H	23.91
DE	DEBY_8331-303	Trauchberger Ach, Moore und Wälder am Nordrand des Ammergebirges	H	11.29
DE	DEBY_8332-301	Murnauer Moos	H	42.91
DE	DEBY_8332-371	Moore im oberen Ammertal	H	6.3
DE	DEBY_8332-372	Moränenlandschaft zwischen Staffelsee und Baiersoien	H	25.92
DE	DEBY_8332-471	Murnaür Moos und Pfrühlmoos	B	72.82
DE	DEBY_8334-371	Loisach-Kochelsee-Moore	H	19
DE	DEBY_8334-373	Kesselberggebiet	H	6.48
DE	DEBY_8334-471	Loisach-Kochelsee-Moore	B	41.84
DE	DEBY_8336-371	Mangfallgebirge	H	148.71
DE	DEBY_8342-301	Nationalpark Berchtesgaden	B,H	213.64
DE	DEBY_8342-302	NSG 'Aschau', NSG 'Schwarzbach' und Schwimmendes Moos	H	8.03
DE	DEBY_8343-303	Untersberg	H	35.14
DE	DEBY_8426-302	Nagelfluhkette Hochgrat-Steineberg	H	19.93
DE	DEBY_8429-303	Kienberg mit Magerrasen im Tal der Steinacher Ach	H	6.24
DE	DEBY_8430-301	Naturschutzgebiet 'Bannwaldsee'	H	5.58
DE	DEBY_8430-303	Falkenstein, Alatsee, Faulenbacher- und Lechtal	H	9.87

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DE	DEBY_8431-371	Ammergebirge	H	275.82
DE	DEBY_8432-301	Loisachtal zwischen Farchant und Eschenlohe	H	6.92
DE	DEBY_8433-301	Karwendel mit Isar	B,H	195.9
DE	DEBY_8433-371	Estergebirge	H	60.77
DE	DEBY_8434-372	Jachenau und Extensivwiesen bei Fleck	H	14.54
DE	DEBY_8527-301	Hörnergruppe	H	11.84
DE	DEBY_8528-301	Allgäuer Hochalpen	H	212.28
DE	DEBY_8532-371	Wettersteingebirge	H	42.57
DE	DEBY_8532-471	Naturschutzgebiet "Schachen und Reintal"	B	39.64
DE	DEBY_8533-301	Mittenwalder Buckelwiesen	H	19.27
DE	DEBY_8626-301	Hoher Ifen	H	24.51
HR	HR1054	Plitvička jezera	O	296.2
HR	HR146755	Jelas polje	O	195.26
HR	HR146758	Bara Dvorina kraj Donje Bebrine	O	7.37
HR	HR15602	Kopački rit	O	231.43
HR	HR15605	Už e podrucje Kopačkog rita	O	72.37
HR	HR15614	Medvednica	O	179.36
HR	HR15615	Bijele i Samarske stijene	O	11.26
HR	HR15618	Crna Mlaka	O	6.94
HR	HR2518	Risnjak	O	63.45
HR	HR377823	Vuka	O	5.23
HR	HR377833	Mura	O	143.54
HR	HR377853	Ž umberak - Samoborsko gorje	O	342.43
HR	HR377920	Turopoljski lug i vlaž ne livade uz rijeku Odru	O	33.48
HR	HR378013	Odransko polje	O	93.99
HR	HR378033	Papuk	O	343.07
HR	HR392915	Sunjsko polje	O	203.2
HR	HR393049	Mura-Drava	O	1448.11
HR	HR63666	Lonjsko polje	O	511.26
HR	HR81108	Veliki Paž ut	O	12.01
HR	HR81116	Varoški Lug	O	8.97
HR	HR81145	Jankovac	O	6.48
HR	HRHR1000001	Pokupski bazen	B	449.69
HR	HRHR1000002	Sava kod Hru□čice (s okolnim š ljunčarama)	B	17.58
HR	HRHR1000003	Turopolje	B	227.44
HR	HRHR1000004	Donja Posavina	B	1258.87
HR	HRHR1000005	Jelas polje s ribnjacima i poplavnim paš njacima uz Savu	B	418.46
HR	HRHR1000006	Spačvanski bazen	B	429.3
HR	HRHR1000011	Ribnjaci Grudnjak i Naš ički ribnjak s kompleksom luž njakovih š uma	B	205.56
HR	HRHR1000013	Dravske akumulacije	B	196.81
HR	HRHR1000014	Gornji tok Drave (od Donje Dubrave do Terezinog polja)	B	341.21
HR	HRHR1000015	Srednji tok Drave (od Terezinog polja do Donjeg Miholjca)	B	171.76

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HR	HRHR1000016	Podunavlje i donje Podravlje	B	823.99
HR	HRHR1000040	Papuk	B	362.72
HR	HRHR2000364	Mura	H	145.93
HR	HRHR2000365	Plitvica	H	21.5
HR	HRHR2000366	Bednja	H	42.25
HR	HRHR2000372	Dunav - Vukovar	H	61.83
HR	HRHR2000382	Potok Zbel	H	7.45
HR	HRHR2000387	Beletinec	H	16.17
HR	HRHR2000388	Slanje	H	6.76
HR	HRHR2000394	Kopa_ki rit	H	231.27
HR	HRHR2000401	Uš_e Plitvice i Bednje	H	13.5
HR	HRHR2000409	Kri_nica	H	6.98
HR	HRHR2000414	Izvorišno podru_je Odre	H	9.05
HR	HRHR2000415	Odransko polje	H	84.96
HR	HRHR2000416	Lonjsko polje	H	501.83
HR	HRHR2000420	Sunjsko polje	H	203.6
HR	HRHR2000424	Vlakanac - Radinje	H	32.05
HR	HRHR2000426	Dvorina	H	20.64
HR	HRHR2000427	Gajna	H	5.65
HR	HRHR2000431	Sava - Štitar	H	17.55
HR	HRHR2000439	Dolina Bijele	H	5.16
HR	HRHR2000452	Zrinska gora	H	356.59
HR	HRHR2000463	dolina Une	H	39.35
HR	HRHR2000465	Ž utica	H	46.97
HR	HRHR2000569	Vuka	H	5.23
HR	HRHR2000580	Papuk	H	350.34
HR	HRHR2000583	Medvednica	H	226.09
HR	HRHR2000592	Ogulinsko-plaš_ansko podru_je	H	434.78
HR	HRHR2000593	Mre_nica - Tounj_ica	H	15.21
HR	HRHR2000595	Korana	H	25.74
HR	HRHR2000609	Dolina Dretulje	H	5.81
HR	HRHR2000613	Stari tok Drave I	H	26.41
HR	HRHR2000614	Stari tok Drave II	H	24.51
HR	HRHR2000620	Mala i Velika Utinja	H	21.5
HR	HRHR2000631	Odra	H	5.03
HR	HRHR2000632	Krbavsko polje	H	118.53
HR	HRHR2000634	Stajni_ko polje	H	5
HR	HRHR2000642	Kupa	H	63.66
HR	HRHR2000646	Polje Lug	H	7.31
HR	HRHR2000879	Lapa_ko polje	H	22.23
HR	HRHR2001070	Sutla	H	5.53
HR	HRHR2001118	Park šuma Jankovac	H	6.38

Country	Area code	Name of Protected Area	Type(s)	Area in km²
HR	HRHR2001311	Sava	H	123.61
HR	HRHR5000006	Spa_vanski bazen	H	429.3
HR	HRHR5000013	Šire podru_je Drave	H	1527.98
HR	HRHR5000019	Gorski kotar, Primorje i sjeverna Lika	H	1651.27
HR	HRHR5000020	Nacionalni park Plitvi_ka jezera (s Vrhovinskim poljem)	H	266.49
HU	HU109/NP/74	Kiskunsági Nemzeti Park	O	505.23
HU	HU112/TK/75	Ócsai Tájvédelmi Körzet	O	36.45
HU	HU118/TK/75	Lázbérci Tájvédelmi Körzet	O	37.18
HU	HU122/TK/76	Pusztaszeri Tájvédelmi Körzet	O	223.33
HU	HU124/TT/76	Péteri-tavi madárrezervátum természetvédelmi terület	O	7.8
HU	HU126/TK/76	Zselici Tájvédelmi Körzet	O	83.01
HU	HU138/NP/76	Bükki Nemzeti Park	O	428.41
HU	HU139/TK/76	Vértesi Tájvédelmi Körzet	O	152.08
HU	HU140/TK/77	Soproni Tájvédelmi Körzet	O	50.68
HU	HU146/TK/77	Kelet-Mecsek Tájvédelmi Körzet	O	93.39
HU	HU148/TT/77	Tiszadobi-ártér természetvédelmi terület	O	10.21
HU	HU150/TT/77	Nagybereki Fehér-víz természetvédelmi terület	O	15.83
HU	HU152/TK/77	Gerecsei Tájvédelmi Körzet	O	86.6
HU	HU158/TK/78	Közép-tiszai Tájvédelmi Körzet	O	94.52
HU	HU164/TT/78	Tiszatelek– Tiszaberceli-ártér természetvédelmi terület	O	15.06
HU	HU170/TK/80	Kőszegi Tájvédelmi Körzet	O	43.35
HU	HU171/TK/82	Szatmár-beregi Tájvédelmi Körzet	O	218.92
HU	HU172/TK/84	Zempléni Tájvédelmi Körzet	O	267.65
HU	HU177/NP/85	Aggteleki Nemzeti Park	O	201.84
HU	HU180/TK/85	Mátrai Tájvédelmi Körzet	O	129.88
HU	HU181/TK/86	Sárréti Tájvédelmi Körzet	O	22.14
HU	HU183/TK/86	Tokaj–Bodrogzug Tájvédelmi Körzet	O	52.86
HU	HU184/TT/86	Bihari-legelő természetvédelmi terület	O	7.7
HU	HU185/TT/86	Balatonfüredi-erdő természetvédelmi terület	O	8.69
HU	HU187/TK/87	Szigetközi Tájvédelmi Körzet	O	96.87
HU	HU201/TK/88	Hajdúsági Tájvédelmi Körzet	O	70.9
HU	HU211/TK/89	Karancs– Medves Tájvédelmi Körzet	O	66.2
HU	HU212/TK/89	Borsodi-Mezőség Tájvédelmi Körzet	O	184.3
HU	HU219/TT/90	Császártöltési Vörös Mocsár Természetvédelmi Terület	O	9.3
HU	HU221/TT/90	Kiskőrösi-turjános természetvédelmi terület	O	6.41
HU	HU230/TT/90	Kecskeri-puszta Természetvédelmi Terület	O	12.63
HU	HU232/TK/90	Kesznyéteni Tájvédelmi Körzet	O	58.33
HU	HU238/NP/91	Fertő– Hanság Nemzeti Park	O	237.27
HU	HU240/TK/91	Magas-bakonyi Tájvédelmi Körzet	O	87.32
HU	HU242/TK/91	Boronka-melléki Tájvédelmi Körzet	O	84.96
HU	HU253/TK/92	Pannonhalmi Tájvédelmi Körzet	O	82.85
HU	HU258/TK/93	Hevesi Füves Puszták Tájvédelmi Körzet	O	161.07

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HU	HU260/TK/93	Tarnavidéki Tájvédelmi Körzet	O	93.84
HU	HU271/NP/96	Duna–Dráva Nemzeti Park	O	496.34
HU	HU272/TT/96	Rétszilasi-tavak Természetvédelmi Terület	O	14.96
HU	HU274/TT/96	Long-erdő természetvédelmi terület	O	10.05
HU	HU276/NP/97	Körös– Maros Nemzeti Park	O	512.01
HU	HU280/TK/97	Sárvíz-völgye Tájvédelmi Körzet	O	34.8
HU	HU282/NP/97	Balaton-felvidéki Nemzeti Park	O	580.56
HU	HU283/NP/97	Duna– Ipoly Nemzeti Park	O	606.69
HU	HU284/TK/98	Bihari-sík Tájvédelmi Körzet	O	166.05
HU	HU287/TK/98	Tápió-Hajta Vidéke Tájvédelmi Körzet	O	42.31
HU	HU293/TK/99	Dél-Mezőföld Tájvédelmi Körzet	O	77.52
HU	HU296/NP/02	Őrségi Nemzeti Park	O	438.98
HU	HU308/TK/07	Mura-menti Tájvédelmi Körzet	O	19.02
HU	HU319/TK/09	Nyugat-Mecsek Tájvédelmi Körzet	O	103.65
HU	HU330/TK/12	Körös-éri Tájvédelmi Körzet	O	22.24
HU	HU87/TT/66	Dinnyési-fertő természetvédelmi terület	O	5.29
HU	HU94/TK/71	Mártélyi Tájvédelmi Körzet	O	22.76
HU	HU97/NP/73	Hortobágyi Nemzeti Park	O	811.31
HU	HUAN10001	Aggteleki-karszt	B	236.2
HU	HUAN10002	Putnok-dombság	B	71.16
HU	HUAN20001	Aggteleki-karszt és peremterületei	H	231.04
HU	HUAN20002	Rakaca-völgy és oldalvölgyei	H	20.82
HU	HUAN20003	Bódva-völgy és Sas-patak-völgye	H	26.95
HU	HUAN20004	Hernád-völgy és Sajóládi-erdő	H	50.38
HU	HUAN20005	Szuha-völgy	H	10.39
HU	HUAN20006	Sajó-völgy	H	20.75
HU	HUAN21007	Bózsva-patak	H	8.32
HU	HUBF10001	Mórichelyi-halastavak	B	6.49
HU	HUBF20001	Keleti-Bakony	H	226.5
HU	HUBF20002	Papod és Mikládi	H	77.35
HU	HUBF20003	Kab-hegy	H	80.76
HU	HUBF20004	Agár-tető	H	51.36
HU	HUBF20006	Tihanyi-félsziget	H	7.74
HU	HUBF20007	Monostorapáti Fekete-hegy	H	17.89
HU	HUBF20009	Devecseri Széki-erdő	H	15.94
HU	HUBF20011	Felső-Nyirádi-erdő és Meggyes-erdő	H	41.77
HU	HUBF20014	Pécselyi-medence	H	8.67
HU	HUBF20015	Marcal-medence	H	48.87
HU	HUBF20016	Öreg-hegyi riviéra	H	12.07
HU	HUBF20017	Kádártai dolomitmezők	H	7.93
HU	HUBF20028	Tapolcai-medence	H	23.01
HU	HUBF20034	Balatonfüredi-erdő	H	34.9

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HU	HUBF20035	Keszthelyi-hegység	H	148.98
HU	HUBF20037	Alsó-Zala-völgy	H	65.52
HU	HUBF20039	Nyugat-Göcsej	H	45.25
HU	HUBF20040	Vétyempuszta	H	41.41
HU	HUBF20043	Mura mente	H	21.45
HU	HUBF20044	Kerka mente	H	73.41
HU	HUBF20045	Szévíz–Principális-csatorna	H	80.19
HU	HUBF20046	Oltárc	H	89.61
HU	HUBF20047	Felső-Zala-völgy	H	11.1
HU	HUBF20048	Kebele	H	19.25
HU	HUBF20049	Dél-zalai homokvidék	H	29.09
HU	HUBF20050	Csörnyeberek	H	21.34
HU	HUBF20052	Sárvíz-patak mente	H	11.86
HU	HUBF20054	Nagykapornaki erdő	H	6.38
HU	HUBF20055	Remetekert	H	9.72
HU	HUBF30001	Északi-Bakony	B,H	257.79
HU	HUBF30002	Balaton	B,H	594.83
HU	HUBF30003	Kis-Balaton	B,H	133.44
HU	HUBN10001	Bodrogzug–Kopasz-hegy–Taktaköz	B	226.46
HU	HUBN10002	Borsodi-sík	B	362.4
HU	HUBN10003	Bükk hegység és peremterületei	B	662.08
HU	HUBN10004	Hevesi-sík	B	770.16
HU	HUBN10005	Kesznyéten	B	63.53
HU	HUBN10006	Mátra	B	373.07
HU	HUBN10007	Zempléni-hegység a Szerencsi-dombsággal és a Hernád-völggyel	B	1145.37
HU	HUBN20001	Bükk-fennsík és Lök-völgy	H	143.83
HU	HUBN20002	Hór-völgy és Déli-Bükk	H	55.2
HU	HUBN20007	Kisgyőri Halom-vár– Csincse-völgy– Cseh-völgy	H	10.01
HU	HUBN20012	Egerbakta-Bátor környéki erdők	H	26.3
HU	HUBN20013	Hevesaranyosi-Fedémesi dombvidék	H	12.38
HU	HUBN20014	Gyepes-völgy	H	30.13
HU	HUBN20015	Izra-völgy és Arlói-tó	H	13.49
HU	HUBN20018	Upponyi-szoros	H	12.9
HU	HUBN20021	Domaházi Hangony-patak völgye	H	11.71
HU	HUBN20025	Nagybarcai Liget-hegy és sajóvelezdi Égett-hegy	H	12.02
HU	HUBN20034	Borsodi-Mezőség	H	148.5
HU	HUBN20041	Pélyi szikesek	H	27.69
HU	HUBN20047	Mátra északi letörése	H	7.8
HU	HUBN20049	Mátrabérc– Fallóskúti-rétek	H	15.07
HU	HUBN20051	Nyugat-Mátra	H	14.99
HU	HUBN20056	Tepke	H	24.23
HU	HUBN20057	Bézma	H	8.32

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HU	HUBN20062	Középső-Ipoly-völgy	H	16.79
HU	HUBN20063	Karancs	H	8.82
HU	HUBN20069	Kesznyéteni Sajó-öböl	H	47.29
HU	HUBN20071	Bodrogzug és Bodrog hullámtere	H	73.72
HU	HUBN20081	Long-erdő	H	31.6
HU	HUBN20084	Központi-Zempléni-hegység	H	86.66
HU	HUBN20085	Északi-Zempléni-hegység	H	18.54
HU	HUBN20087	Baskói-rétek	H	5.86
HU	HUBN20089	Füzéri Pál-hegy	H	7.33
HU	HUDD10002	Nyugat-Dráva	B	152.37
HU	HUDD10003	Gemenc	B	196.41
HU	HUDD10004	Béda-Karapancsa	B	87.22
HU	HUDD10007	Mecsek	B	206.35
HU	HUDD10008	Belső-Somogy	B	333.28
HU	HUDD10012	Balatoni berkek	B	86.49
HU	HUDD20001	Tenkes	H	15.59
HU	HUDD20004	Dél-Zselic	H	68.05
HU	HUDD20007	Kelet-Dráva	H	66.24
HU	HUDD20008	Ormánsági erdők	H	105.32
HU	HUDD20011	Szekszárdi-dombvidék	H	24.46
HU	HUDD20012	Geresdi-dombvidék	H	65.67
HU	HUDD20014	Jánosházi-erdő és Égett-berek	H	6.19
HU	HUDD20015	Kisbajomi erdők	H	13
HU	HUDD20016	Észak-Zselici erdőségek	H	162.48
HU	HUDD20017	Mocsoládi-erdő	H	25.86
HU	HUDD20020	Közép-mezőföldi löszvölgyek	H	15.98
HU	HUDD20023	Tolnai Duna	H	71.62
HU	HUDD20026	Lengyel-hőgyészi erdők	H	36.36
HU	HUDD20029	Kisszékelyi-dombság	H	29.79
HU	HUDD20030	Mecsek	H	261.81
HU	HUDD20031	Fehérvíz	H	15.5
HU	HUDD20032	Gemenc	H	207.04
HU	HUDD20035	Pogány-völgyi rétek	H	19.87
HU	HUDD20036	Ordacsehi berek	H	7.49
HU	HUDD20040	Tengelici homokvidék	H	57.88
HU	HUDD20042	Köröshegyi-erdők	H	16.82
HU	HUDD20044	Boronka-melléke	H	114.91
HU	HUDD20045	Béda-Karapancsa	H	107.98
HU	HUDD20046	Törökkoppányi erdők	H	21.65
HU	HUDD20051	Darányi borókás	H	34.79
HU	HUDD20052	Ormánsági vizes élőhelyek és gyepek	H	14.14
HU	HUDD20056	Közép-Dráva	H	62.75

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HU	HUDD20057	Somogymeggyesi erdő	H	6.78
HU	HUDD20058	Látrányi-puszta	H	9.81
HU	HUDD20059	Balatonkeresztúri rétek	H	5.89
HU	HUDD20062	Nyugat-Dráva-sík	H	51.78
HU	HUDD20063	Szentai erdő	H	195.28
HU	HUDD20064	Ságvári dombok	H	23.44
HU	HUDD20066	Pécsi-sík	H	5.05
HU	HUDD20068	Gyékényesi erdők	H	7.76
HU	HUDD20073	Szedresi Ős-Sárvíz	H	7.53
HU	HUDI10003	Gerecse	B	295.98
HU	HUDI10004	Jászkarajenői puszták	B	104.34
HU	HUDI10005	Sárvíz völgye	B	78.64
HU	HUDI10006	Tatai Öreg-tó	B	26.24
HU	HUDI10007	Velencei-tó és Dinnyési-fertő	B	21.76
HU	HUDI10008	Ipoly völgye	B	63.54
HU	HUDI20003	Alapi kaszálórétek	H	5.19
HU	HUDI20005	Bársonyos	H	12.1
HU	HUDI20009	Budai-hegység	H	95.22
HU	HUDI20015	Déli-Gerecse	H	48.15
HU	HUDI20016	Epöli szarmata vonulat	H	15.77
HU	HUDI20019	Felső-Tápió	H	20.48
HU	HUDI20021	Gerje mente	H	33.43
HU	HUDI20022	Gógány- és Kőrös-ér mente	H	8.18
HU	HUDI20023	Gödöllői-dombság	H	75.17
HU	HUDI20024	Tápiógyörgye-Újszilvási szikesek	H	17.44
HU	HUDI20025	Hajta mente	H	57.94
HU	HUDI20026	Ipoly-völgy	H	29.37
HU	HUDI20030	Központi-Gerecse	H	59.12
HU	HUDI20031	Lajoskomáromi löszvölgyek	H	9.1
HU	HUDI20033	Móri-árok	H	6.84
HU	HUDI20034	Duna és ártere	H	165.74
HU	HUDI20039	Pilis és Visegrádi-hegység	H	301.46
HU	HUDI20042	Ráckevei Duna-ág	H	31.91
HU	HUDI20044	Sárrét	H	41.09
HU	HUDI20046	Székek	H	36.16
HU	HUDI20049	Szentgyörgypuszta	H	9.75
HU	HUDI20050	Alsó-Tápió és patakvölgyek	H	18.01
HU	HUDI20051	Turjánvidék	H	122.13
HU	HUDI20054	Velencei-tó	H	10.82
HU	HUDI30001	Vértes	B,H	255.54
HU	HUDI30002	Zámolyi-medence	B,H	25.95
HU	HUFH10001	Fertő-tó	B	86.97

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HU	HUFH10004	Mosoni-sík	B	130.96
HU	HUFH20001	Rábaköz	H	59.73
HU	HUFH20002	Fertő-tó	H	112.99
HU	HUFH20003	Fertőmelléki dombsor	H	25.64
HU	HUFH20009	Gönyüi-homokvidék	H	28.81
HU	HUFH20010	Répce mente	H	16.26
HU	HUFH20011	Rába	H	51.07
HU	HUFH20012	Soproni-hegység	H	52.64
HU	HUFH20013	Határ-menti erdők	H	22.53
HU	HUFH30004	Szigetköz	B,H	171.83
HU	HUFH30005	Hanság	B,H	135.45
HU	HUHN10001	Szatmár-Bereg	B	528.48
HU	HUHN10002	Hortobágy	B	1211.1
HU	HUHN10004	Közép-Tisza	B	136.39
HU	HUHN10008	Felső-Tisza	B	148.2
HU	HUHN20001	Felső-Tisza	H	286.82
HU	HUHN20002	Hortobágy	H	1051.7
HU	HUHN20003	Tisza-tó	H	178.3
HU	HUHN20004	Felső-Sebes-Körös	H	5.18
HU	HUHN20008	Kismarj-pocsaj-esztári gyepek	H	24.27
HU	HUHN20013	Közép-Bihar	H	120.45
HU	HUHN20015	Közép-Tisza	H	142.36
HU	HUHN20016	Kék-Kálló-völgye	H	15.04
HU	HUHN20032	Gúti-erdő	H	56.83
HU	HUHN20035	Ömbölyi-erdő és Fényi-erdő	H	14.33
HU	HUHN20045	Kaszonyi-hegy– Dédai-erdő	H	13.27
HU	HUHN20046	Gelénes– Beregdaróc	H	11.59
HU	HUHN20047	Vámosatya-Csaroda	H	20.08
HU	HUHN20048	Tarpa-Tákos	H	63.51
HU	HUHN20049	Lónya-Tiszaszalka	H	41.35
HU	HUHN20050	Kömörő-Fülesd	H	19.44
HU	HUHN20053	Magosligeti-erdő és gyepek	H	5.6
HU	HUHN20054	Csaholc– Garbolc	H	40.54
HU	HUHN20055	Rozsály– Csengersima	H	9.85
HU	HUHN20058	Teremi-erdő	H	9.12
HU	HUHN20069	Hajdúszoboszlói szikes gyepek	H	5.54
HU	HUHN20113	Kisvárdai gyepek	H	6.87
HU	HUHN21164	Liget-legelő	H	22.07
HU	HUKM10002	Kis-Sárrét	B	83.4
HU	HUKM10003	Dévaványai-sík	B	252.14
HU	HUKM10004	Vásárhelyi- és Csanádi-puszták	B	218.33
HU	HUKM10005	Cserebökényi-puszták	B	280.75

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HU	HUKM20001	Hódmezővásárhely környéki és csanádi-háti puszták	H	164.19
HU	HUKM20002	Hómezővásárhelyi Kék-tó	H	39.1
HU	HUKM20004	Száraz-ér	H	15.22
HU	HUKM20005	Deszki gyepek	H	5.37
HU	HUKM20008	Maros	H	59.65
HU	HUKM20012	Fekete-, Fehér- és Kettős-Körös	H	19.8
HU	HUKM20014	Dévaványa környéki gyepek	H	140.27
HU	HUKM20015	Hortobágy-Berettyó	H	30.79
HU	HUKM20016	Sebes-Körös	H	14.55
HU	HUKM20017	Hármas-Körös	H	78.18
HU	HUKM20019	Dél-bihari szikesek	H	65.22
HU	HUKM20026	Tóniszállás-szarvasi gyepek	H	5.87
HU	HUKM20027	Cserebökény	H	100
HU	HUKM20028	Tőkei gyepek	H	29.86
HU	HUKM20029	Szentesi gyepek	H	6.06
HU	HUKM20030	Lapistó-Fertő	H	19.03
HU	HUKN10001	Felső-Kiskunsági szikes puszták és turjánvidék	B	418.16
HU	HUKN10002	Kiskunsági szikes tavak és az őrjegi turjánvidék	B	357.22
HU	HUKN10004	Tisza Alpár-Bokrosi ártéri öblözete	B	50.27
HU	HUKN10007	Alsó-Tiszavölgy	B	362.93
HU	HUKN10008	Balástya-Szatymaz környéki homokvidék	B	61.72
HU	HUKN20002	Peszéri-erdő	H	16.28
HU	HUKN20003	Felső-kiskunsági turjánvidék	H	144.36
HU	HUKN20004	Dél-Bácska	H	7.81
HU	HUKN20008	Déli-Homokhátság	H	23.86
HU	HUKN20013	Fülöpszállás-soltszentimre-csengődi lápok	H	31.23
HU	HUKN20015	Ágasegyháza-orgoványi rétek	H	43.21
HU	HUKN20017	Közép-csongrádi szikesek	H	11.43
HU	HUKN20019	Baksi-puszta	H	48.75
HU	HUKN20020	Harkai-tó	H	6.62
HU	HUKN20021	Ökördi– erdőteleki– keceli lápok	H	25.18
HU	HUKN20022	Kiskőrösi turjános	H	28.71
HU	HUKN20024	Bócsa-bugaci homokpuszta	H	116.6
HU	HUKN20026	Móricgáti lápok	H	7.67
HU	HUKN20028	Tisza Alpár-Bokrosi ártéri öblözet	H	32.88
HU	HUKN20031	Alsó-Tisza hullámtér	H	79.3
HU	HUKN20032	Dél-Őrjeg	H	45.85
HU	HUKN20036	Imre-hegy– pirtó– kiskunhalasi homokbuckák	H	15.64
HU	HUKN30001	Csongrád-Bokrosi Sós-tó	B	7.14
HU	HUKN30002	Gátéri Fehér-tó	B	8.14
HU	HUKN30003	Izsáki Kolon-tó	B,H	35.82
HU	HUON10001	Őrség	B	456.94

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HU	HUON20002	Kőszegi-hegység	H	40.18
HU	HUON20003	Ablánc-patak völgye	H	14.65
HU	HUON20008	Rába és Csörnöc-völgy	H	121.47
HU	HUON20012	Kemenessömjéni cserjés legelő	H	6.18
HU	HUON20018	Őrség	H	441.65
MD	MDPA03	Feteti-Fetesti	O	5.55
MD	MDPA04	La Costel-Gordinesti	O	7.39
MD	MDPA05	Zabriceni-Onesti	O	5.93
MD	MDPA06	Suta de Movila-Cobani	O	6.88
MD	MDPA08	Padurea Domneasca-Cobani	O	60.52
MD	MDPA09	Izvoare-Risipeni-Risipeneni	O	15.41
MD	MDPA13	Vila Nisporeni-Nisporeni	O	41.55
MD	MDPA14	Padurea Hincesti-Mereseni	O	46.78
MD	MDPA18	Prutul de Jos-Manta	O	132.47
ME	MEBiogradskaGora	Biogradska Gora National Park	O	56.5
ME	MEDurmitor	Dumitor National Park with the Tara River Gorge	O	390
RO	RO2.104.	Zona carstica - Cheile Dambovita	O	12.46
RO	RO2.125.	Valea Valsanului	O	118.85
RO	RO2.234.	Rezervatia naturala Bucegi (Abruptul Bucsoiu, Malaesti, Gaura)	O	17.17
RO	RO2.243.	Rezervatia naturala Cheile Dopca	O	20.63
RO	RO2.253.	Rezervatia naturala Muntele Postavarul	O	12.36
RO	RO2.257.	Rezervatia naturala Padurea Bogatii	O	63.3
RO	RO2.260.	Lacul Jirlau-Trup Visani	O	5.43
RO	RO2.271.	Balta Alba	O	11.67
RO	RO2.272.	Balta Amara	O	8.14
RO	RO2.276.	Rezervatia Cheile Nerei – Beusnita	O	41.86
RO	RO2.277.	Valea Ciclovei – Ilidia	O	19.63
RO	RO2.282.	Cheile Carasului	O	32.65
RO	RO2.283.	Izvoarele Carasului	O	5.78
RO	RO2.284.	Izvoarele Nerei	O	50.73
RO	RO2.285.	Cheile Garlistei	O	5.11
RO	RO2.298.	Rezervaţia naturala Valea Mare	O	11.64
RO	RO2.334.	Stufarisurile de la Sic I	O	5.04
RO	RO2.337.	Pestera din Piatra Ponorului	O	17.08
RO	RO2.345.	Vama Veche – 2 Mai (Acvatoriul litoralul marin)	O	55.6
RO	RO2.346.	Grindul Chituc DD–A	O	23
RO	RO2.347.	Grindul Lupilor DD–A	O	20.74
RO	RO2.372.	Mestecanisul de la Reci	O	21.13
RO	RO2.376.	Orzea - Zanoaga	O	7.13
RO	RO2.389.	Gogosu Stefanel	O	8.17
RO	RO2.399.	Cleanov	O	7.39
RO	RO2.414.	Lunca joasa a Prutului	O	11.69

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RO	RO2.422.	Piatra Closanilor	O	23.58
RO	RO2.442.	Cheile Sohodolului	O	6.1
RO	RO2.482.	Cheile Bicazului si Lacul Rosu	O	22
RO	RO2.483.	Masivul Hasmasul Mare, Piatra Singuratica	O	8.76
RO	RO2.485.	Cheile Varghisului si pesterile din chei	O	7.71
RO	RO2.494.	Rezervatia Stiintifica Gemenele	O	19.29
RO	RO2.497.	Complexul carstic Calianu – Ponorici – Ciclovina	O	15.5
RO	RO2.499.	Cheile si Pestera Sura Mare	O	37.95
RO	RO2.500.	Pestera Tecuri (Complexul carstic Rachitaua – Tecuri)	O	5.36
RO	RO2.525.	Codrii seculari de pe valea Dobrisoarei si Prisloapei	O	5.04
RO	RO2.530.	Cheile Cernei	O	5.35
RO	RO2.556.	Raul Prut	O	53.21
RO	RO2.580.	Cornu Nedeii-Ciungii Balasanii	O	25.14
RO	RO2.583.	Cheile Lapusului (intre Groape si Impreunaturi)	O	14.87
RO	RO2.589.	Piatra Rea	O	5.23
RO	RO2.597.	Gura Vaii - Varciorova PN - D, Municipiul Drobeta - Turnu Severin, localitatea	O	7.21
RO	RO2.600.	Padurea de liliac Ponoarele Comuna Ponoarele	O	6.17
RO	RO2.601.	Tufarisurile mediteraneene de la Isverna Comuna Isverna	O	5
RO	RO2.602.	Varful lui Stan, PN-B, Comuna Isverna	O	7.1
RO	RO2.603.	Valea Tesna PN-B Comuna Balta	O	10.65
RO	RO2.613.	Complexul carstic de la Ponoarele Comuna Ponoarele	O	6.63
RO	RO2.615.	Cheile Cosustei	O	7.19
RO	RO2.616.	Cornetul Babelor si Cerboaniei Comuna Balta	O	8.51
RO	RO2.619.	Cornetul Baltii, Comuna Balta	O	9.35
RO	RO2.638.	Defileul Deda - Toplita	O	91.57
RO	RO2.643.	Cheile Bicazului	O	17.46
RO	RO2.658.	Rezervatia de zimbri Neamt	O	121.14
RO	RO2.672.	Abruptul Prahovean Bucegi	O	56.33
RO	RO2.673.	Muntii Coltii lui Barbes	O	8.73
RO	RO2.680.	Cursul inferior al raului Tur, Comuna Calinesti Oas	O	15.12
RO	RO2.701.	Valea Balii	O	5.07
RO	RO2.705.	Iezerele Cindrelului	O	14.53
RO	RO2.706.	Parcul Natural Dumbrava Sibiului	O	10.06
RO	RO2.707.	Parcul Natural Cindrel	O	79.13
RO	RO2.709.	Golul Alpin al Munților Fagaras	O	48.45
RO	RO2.715.	Tinovul Poiana Stampei	O	6.44
RO	RO2.722.	Pietrele Doamnei-Rarau	O	9.7
RO	RO2.723.	Codrul Secular Slatioara	O	10.07
RO	RO2.730.	Jnepenisul cu Pinus Cembra-Calimani PN-K	O	5.61
RO	RO2.750.	Rosca – Buhaiova DD–A	O	94.56
RO	RO2.751.	Padurea Letea DD–A	O	30.85
RO	RO2.752.	Grindul si Lacul Raducu DD–A	O	26.64

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RO	RO2.754.	Complexul – Vatafu Lungulet DD–A	O	16.21
RO	RO2.755.	Padurea Caraorman DD–A	O	22.49
RO	RO2.758.	Complexul Sacalin Zatoana DD–A	O	213.93
RO	RO2.761.	Lacul Potcoava DD–A	O	6.26
RO	RO2.798.	Padurea Calinesti - Brezoi	O	9.93
RO	RO2.826.	Rezervaţia naturala Valea Tisitei	O	27.12
RO	RO2.827.	Rezervatia naturala Padurea Neagra	O	5.99
RO	ROA	Delta Dunarii - zona marina	O	5800
RO	ROA.1	Defileul Muresului Superior	O	94.94
RO	ROA.1.	Defileul Jiului	O	111.36
RO	ROB	Domogled - Valea Cernei	O	611.9
RO	ROC	Retezat	O	381.17
RO	ROD	Portile de Fier	O	1300
RO	ROE	Cheile Nerei - Beusnita	O	367.07
RO	ROF	Apuseni	O	760.22
RO	ROG	Muntii Rodnei	O	472.07
RO	ROH	Bucegi	O	325.98
RO	ROI	Cheile Bicazului - Hasmas	O	69.33
RO	ROII.1.	Buila - Vanturarita	O	44.9
RO	ROJ	Ceahlau	O	77.39
RO	ROK	Calimani	O	239.15
RO	ROL	Cozia	O	167.21
RO	ROM	Piatra Craiului	O	147.81
RO	RON	Gradistea Muncelului - Cioclovina	O	381.16
RO	ROO	Semenic - Cheile Carasului	O	362.19
RO	ROP	Muntii Macinului	O	111.14
RO	ROR	Balta Mica a Brailei	O	204.6
RO	ROS	Vanatori-Neamt	O	308.41
RO	ROSCI0002	Apuseni	H	759.43
RO	ROSCI0004	Bagau	H	31.29
RO	ROSCI0005	Balta Alba - Amara - Jirlau - Lacul Sarat Câineni	H	63
RO	ROSCI0006	Balta Mica a Brailei	H	208.72
RO	ROSCI0007	Bazinul Ciucului de Jos	H	26.93
RO	ROSCI0008	Betfia	H	17.48
RO	ROSCI0009	Bisoca	H	11.63
RO	ROSCI0012	Bratul Macin	H	102.35
RO	ROSCI0013	Bucegi	H	387.87
RO	ROSCI0014	Bucsani	H	5.13
RO	ROSCI0015	Buila - Vânturarita	H	45.25
RO	ROSCI0019	Calimani - Gurghiu	H	1349.66
RO	ROSCI0020	Câmpia Careiului	H	236.36
RO	ROSCI0021	Câmpia Ierului	H	212.83

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RO	ROSCI0022	Canaralele Dunarii	H	259.43
RO	ROSCI0024	Ceahlau	H	77.37
RO	ROSCI0025	Cefa	H	52.57
RO	ROSCI0027	Cheile Bicazului - Hasmas	H	76.41
RO	ROSCI0028	Cheile Cernei	H	5.77
RO	ROSCI0029	Cheile Glodului, Cibului si Mazii	H	7.35
RO	ROSCI0030	Cheile Lapusului	H	16.6
RO	ROSCI0031	Cheile Nerei - Beusnita	H	377.2
RO	ROSCI0036	Cheile Vârghisului	H	8.34
RO	ROSCI0037	Ciomad - Balvanyos	H	59.91
RO	ROSCI0038	Ciucas	H	218.64
RO	ROSCI0039	Ciuperceni - Desa	H	395.74
RO	ROSCI0040	Coasta Lunii	H	6.94
RO	ROSCI0042	Codru Moma	H	246.5
RO	ROSCI0043	Comana	H	264.81
RO	ROSCI0044	Corabia - Turnu Magurele	H	81.85
RO	ROSCI0045	Coridorul Jiului	H	710.93
RO	ROSCI0046	Cozia	H	167.6
RO	ROSCI0047	Creasta Nemirei	H	35.09
RO	ROSCI0048	Crisul Alb	H	8.91
RO	ROSCI0049	Crisul Negru	H	18.27
RO	ROSCI0050	Crisul Repede amonte de Oradea	H	18.59
RO	ROSCI0051	Cusma	H	442.53
RO	ROSCI0056	Dealul Ciocas - Dealul Vitelului	H	9.17
RO	ROSCI0058	Dealul lui Dumnezeu	H	5.79
RO	ROSCI0061	Defileul Crisului Negru	H	22.03
RO	ROSCI0062	Defileul Crisului Repede - Padurea Craiului	H	394.11
RO	ROSCI0063	Defileul Jiului	H	109.46
RO	ROSCI0064	Defileul Muresului	H	341.34
RO	ROSCI0065	Delta Dunarii	H	4530.76
RO	ROSCI0066	Delta Dunarii - zona marina	H	737.56
RO	ROSCI0069	Domogled - Valea Cernei	H	621.71
RO	ROSCI0070	Drocea	H	261.08
RO	ROSCI0071	Dumbraveni - Valea Urluia - Lacul Vederoasa	H	179.75
RO	ROSCI0074	Fagetul Clujului - Valea Morii	H	16.67
RO	ROSCI0075	Padurea Patrauti	H	87.46
RO	ROSCI0076	Dealul Mare - Hârlau	H	251.12
RO	ROSCI0084	Ferice - Plai	H	19.97
RO	ROSCI0085	Frumoasa	H	1373.59
RO	ROSCI0086	Gaina - Lucina	H	8.48
RO	ROSCI0087	Gradistea Muncelului - Ciclovina	H	398.18
RO	ROSCI0088	Gura Vedei - Saica - Slobozia	H	97.93

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RO	ROSCI0089	Gutâi - Creasta Cocosului	H	6.84
RO	ROSCI0090	Harghita Madaras	H	133.73
RO	ROSCI0091	Herculian	H	128.83
RO	ROSCI0092	Ignis	H	195.98
RO	ROSCI0099	Lacul Stiucilor - Sic - Puini - Bontida	H	37.98
RO	ROSCI0101	Larion	H	30.23
RO	ROSCI0102	Leaota	H	13.93
RO	ROSCI0103	Lunca Buzaului	H	69.86
RO	ROSCI0104	Lunca Inferioara a Crisului Repede	H	6.56
RO	ROSCI0105	Lunca Joasa a Prutului	H	48.21
RO	ROSCI0106	Lunca Mijlocie a Argesului	H	36.14
RO	ROSCI0108	Lunca Muresului Inferior	H	174.65
RO	ROSCI0109	Lunca Timisului	H	99.19
RO	ROSCI0111	Mestecanisul de la Reci	H	21.04
RO	ROSCI0115	Mlastina Satchinez	H	22.9
RO	ROSCI0116	Molhasurile Capatânei	H	8.16
RO	ROSCI0119	Muntele Mare	H	16.54
RO	ROSCI0122	Muntii Fagaras	H	1986.17
RO	ROSCI0123	Muntii Macinului	H	168.94
RO	ROSCI0124	Muntii Maramuresului	H	1068.91
RO	ROSCI0125	Muntii Rodnei	H	480.62
RO	ROSCI0126	Muntii Tarcu	H	586.57
RO	ROSCI0128	Nordul Gorjului de Est	H	491.6
RO	ROSCI0129	Nordul Gorjului de Vest	H	869.58
RO	ROSCI0130	Oituz - Ojdula	H	153.5
RO	ROSCI0131	Oltenita - Mostistea - Chiciu	H	113.49
RO	ROSCI0132	Oltul Mijlociu - Cibin - Hârtibaciu	H	28.26
RO	ROSCI0135	Padurea Bârnova - Repedea	H	122.16
RO	ROSCI0137	Padurea Bogatii	H	63.52
RO	ROSCI0138	Padurea Bolintin	H	57.36
RO	ROSCI0140	Padurea Calugareasca	H	6.77
RO	ROSCI0149	Padurea Eseschioi - Lacul Bugeac	H	29.67
RO	ROSCI0152	Padurea Floreanu - Frumusica - Ciurea	H	189.78
RO	ROSCI0154	Padurea Glodeni	H	10.42
RO	ROSCI0155	Padurea Goroniste	H	9.52
RO	ROSCI0156	Muntii Gosman	H	171.56
RO	ROSCI0157	Padurea Hagieni - Cotul Vaii	H	36.2
RO	ROSCI0158	Padurea Balteni - Hârboanca	H	5.26
RO	ROSCI0162	Lunca Siretului Inferior	H	250.81
RO	ROSCI0166	Padurea Resca Hotarani	H	16.3
RO	ROSCI0168	Padurea Sarului	H	67.93
RO	ROSCI0172	Padurea si Valea Canaraua Fetii - Iortmac	H	136.32

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RO	ROSCI0173	Padurea Stârmina	H	27.69
RO	ROSCI0177	Padurea Topana	H	8.91
RO	ROSCI0187	Pajistile lui Suciu	H	160.05
RO	ROSCI0188	Parâng	H	304.34
RO	ROSCI0190	Penteleu	H	112.68
RO	ROSCI0194	Piatra Craiului	H	158.67
RO	ROSCI0195	Piatra Mare	H	42.74
RO	ROSCI0198	Platoul Mehedinti	H	535.94
RO	ROSCI0200	Platoul Vascau	H	49.83
RO	ROSCI0201	Podisul Nord Dobrogean	H	847.99
RO	ROSCI0202	Silvostepa Olteniei	H	92.97
RO	ROSCI0206	Portile de Fier	H	1255.46
RO	ROSCI0207	Postavarul	H	13.03
RO	ROSCI0208	Putna - Vrancea	H	381.82
RO	ROSCI0211	Podisul Secaselor	H	70.14
RO	ROSCI0212	Rarau - Giumalau	H	25.47
RO	ROSCI0213	Râul Prut	H	80.7
RO	ROSCI0214	Râul Tur	H	205.15
RO	ROSCI0217	Retezat	H	435.61
RO	ROSCI0218	Dealul Mocrei - Rovina - Ineu	H	37.3
RO	ROSCI0219	Rusca Montana	H	127.58
RO	ROSCI0220	Sacueni	H	7.33
RO	ROSCI0222	Saraturile Jijia Inferioara - Prut	H	106.13
RO	ROSCI0224	Scrovistea	H	33.91
RO	ROSCI0225	Seaca - Optasani	H	21.1
RO	ROSCI0226	Semenic - Cheile Carasului	H	375.54
RO	ROSCI0227	Sighisoara - Târnava Mare	H	858.15
RO	ROSCI0229	Siriu	H	62.3
RO	ROSCI0230	Slanic	H	14.08
RO	ROSCI0231	Nadab - Socodor - Varsad	H	66.61
RO	ROSCI0233	Somesul Rece	H	85.29
RO	ROSCI0236	Strei - Hateg	H	249.68
RO	ROSCI0238	Suatu -Cojocna - Crairât	H	41.46
RO	ROSCI0239	Târnovu Mare - Latorita	H	13.66
RO	ROSCI0240	Tasad	H	15.57
RO	ROSCI0241	Tinovul Apa Lina - Honcsok	H	79.06
RO	ROSCI0247	Tinovul Mare Poiana Stampei	H	6.93
RO	ROSCI0250	Tinutul Padurenilor	H	72
RO	ROSCI0251	Tisa Superioara	H	63.1
RO	ROSCI0252	Toplita - Scaunul Rotund Borsec	H	54.66
RO	ROSCI0253	Trascau	H	500.64
RO	ROSCI0259	Valea Calmatuiului	H	179.23

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RO	ROSCI0260	Valea Cepelor	H	7.96
RO	ROSCI0262	Valea Iadei	H	29.46
RO	ROSCI0263	Valea Ierii	H	63.02
RO	ROSCI0264	Valea Izei si Dealul Solovan	H	468.73
RO	ROSCI0265	Valea lui David	H	14.35
RO	ROSCI0266	Valea Oltetului	H	15.37
RO	ROSCI0267	Valea Rosie	H	8.19
RO	ROSCI0268	Valea Vâlsanului	H	94.8
RO	ROSCI0269	Vama Veche - 2 Mai	H	15.35
RO	ROSCI0270	Vânatori - Neamt	H	302.02
RO	ROSCI0273	Zona marina de la Capul Tuzla	H	9.83
RO	ROSCI0277	Becicherecu Mic	H	20.67
RO	ROSCI0278	Bordusani - Borcea	H	58.1
RO	ROSCI0281	Cap Aurora	H	22.82
RO	ROSCI0283	Cheile Doftanei	H	26.13
RO	ROSCI0286	Colinele Elanului	H	7.55
RO	ROSCI0289	Coridorul Drocea - Codru Moma	H	32.29
RO	ROSCI0290	Coridorul Ialomitei	H	267.27
RO	ROSCI0291	Coridorul Muntii Bihorului - Codru Moma	H	75.92
RO	ROSCI0292	Coridorul Rusca Montana - Tarcu - Retezat	H	244.42
RO	ROSCI0293	Costinesti - 23 August	H	10.09
RO	ROSCI0294	Crisul Alb între Gurahont si Ineu	H	12.28
RO	ROSCI0296	Dealurile Dragasaniului	H	76.26
RO	ROSCI0297	Dealurile Târnavei Mici - Biches	H	370.82
RO	ROSCI0298	Defileul Crisului Alb	H	165.58
RO	ROSCI0299	Dunarea la Gârla Mare – Maglavit	H	94.95
RO	ROSCI0303	Hârtibaciu Sud - Est	H	259.03
RO	ROSCI0304	Hârtibaciu Sud - Vest	H	227.26
RO	ROSCI0305	Ianca - Plopu - Sarat - Comaneasca	H	32.22
RO	ROSCI0306	Jiana	H	134.16
RO	ROSCI0308	Lacul si Padurea Cernica	H	32.67
RO	ROSCI0309	Lacurile din jurul Mascurei	H	11.6
RO	ROSCI0310	Lacurile Falticeni	H	8.95
RO	ROSCI0314	Lozna	H	102.49
RO	ROSCI0315	Lunca Chineja	H	9.45
RO	ROSCI0318	Magura Târgu Ocna	H	8.44
RO	ROSCI0319	Mlastina de la Fetesti	H	20.2
RO	ROSCI0320	Mociar	H	40.17
RO	ROSCI0322	Muntele Ses	H	348.81
RO	ROSCI0323	Muntii Ciucului	H	596.41
RO	ROSCI0324	Muntii Bihor	H	208.85
RO	ROSCI0325	Muntii Metaliferi	H	143.03

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RO	ROSCI0326	Muscelele Argesului	H	100.15
RO	ROSCI0327	Nemira - Lapos	H	98.65
RO	ROSCI0328	Obcinele Bucovinei	H	322.46
RO	ROSCI0329	Oltul Superior	H	15.08
RO	ROSCI0333	Pajistile Sarmasel - Milas - Urmenis	H	11.36
RO	ROSCI0334	Padurea Buciumeni - Homocea	H	49.93
RO	ROSCI0335	Padurea Dobrina - Husi	H	85.18
RO	ROSCI0337	Padurea Neudorfului	H	45.02
RO	ROSCI0339	Padurea Povernii - Valea Cernita	H	8.7
RO	ROSCI0341	Padurea si Lacul Stolnici	H	15.26
RO	ROSCI0342	Padurea Târgu Mures	H	5.74
RO	ROSCI0343	Padurile din Silvostepa Mostistei	H	21.2
RO	ROSCI0344	Padurile din Sudul Piemontului Cândesti	H	43.13
RO	ROSCI0345	Pajistea Cenad	H	60.31
RO	ROSCI0350	Lunca Teuzului	H	52.39
RO	ROSCI0352	Persani	H	22.61
RO	ROSCI0354	Platforma Cotmeana	H	125.28
RO	ROSCI0355	Podisul Lipovei - Poiana Rusca	H	357.1
RO	ROSCI0357	Porumbeni	H	70.52
RO	ROSCI0359	Prigoria - Bengesti	H	24.89
RO	ROSCI0360	Râul Bârlad între Zorleni si Gura Gârbovatului	H	25.69
RO	ROSCI0361	Râul Caras	H	5.88
RO	ROSCI0362	Râul Gilort	H	8.73
RO	ROSCI0363	Râul Moldova între Oniceni si Mitesti	H	32.15
RO	ROSCI0364	Râul Moldova între Tupilati si Roman	H	47.21
RO	ROSCI0365	Râul Moldova între Paltinoasa si Rusi	H	53.03
RO	ROSCI0366	Râul Motru	H	19.21
RO	ROSCI0367	Râul Mures între Moresti si Ogra	H	5.27
RO	ROSCI0370	Râul Mures între Lipova si Paulis	H	6.19
RO	ROSCI0373	Râul Mures între Branisca si Ilia	H	18.84
RO	ROSCI0374	Râul Negru	H	10.01
RO	ROSCI0376	Râul Olt între Maruntei si Turnu Magurele	H	121.46
RO	ROSCI0377	Râul Putna	H	6.55
RO	ROSCI0378	Râul Siret între Pascani si Roman	H	37.11
RO	ROSCI0379	Râul Suceava	H	8.81
RO	ROSCI0380	Râul Suceava Liteni	H	12.54
RO	ROSCI0381	Râul Târgului - Argesel - Râusor	H	132.13
RO	ROSCI0382	Râul Târnava Mare între Copsa Mica si Mihalt	H	9.3
RO	ROSCI0385	Râul Timis între Rusca si Prisaca	H	14.41
RO	ROSCI0386	Râul Vedea	H	90.77
RO	ROSCI0387	Salonta	H	35.86
RO	ROSCI0389	Saraturile de la Gura Ialomitei - Mihai Bravu	H	34.49

Country	Area code	Name of Protected Area	Type(s)	Area in km²
RO	ROSCI0390	Saraturile Dinias	H	10.12
RO	ROSCI0391	Siretul Mijlociu - Bucecea	H	5.7
RO	ROSCI0393	Somesul Mare	H	5.57
RO	ROSCI0395	Soveja	H	45.65
RO	ROSCI0400	Sieu - Budac	H	8.88
RO	ROSCI0403	Vânju Mare	H	21.88
RO	ROSCI0406	Zarandul de Est	H	203.15
RO	ROSCI0407	Zarandul de Vest	H	88.88
RO	ROSPA0001	Aliman - Adamclisi	B	194.68
RO	ROSPA0002	Allah Bair - Capidava	B	116.45
RO	ROSPA0003	Avrig - Scorei - Fagaras	B	30.23
RO	ROSPA0004	Balta Alba - Amara - Jirlau	B	20.23
RO	ROSPA0005	Balta Mica a Brailei	B	258.56
RO	ROSPA0006	Balta Tataru	B	99.81
RO	ROSPA0007	Balta Vederoasa	B	21.44
RO	ROSPA0008	Baneasa - Canaraua Fetei	B	61
RO	ROSPA0009	Bestepe - Mahmudia	B	36.63
RO	ROSPA0010	Bistret	B	19.16
RO	ROSPA0011	Blahnita	B	440
RO	ROSPA0012	Bratul Borcea	B	130.97
RO	ROSPA0013	Calafat - Ciuperceni - Dunare	B	293.68
RO	ROSPA0014	Câmpia Cermeiului	B	244.24
RO	ROSPA0015	Câmpia Crisului Alb si Crisului Negru	B	395.02
RO	ROSPA0016	Câmpia Nirului - Valea Ierului	B	385.4
RO	ROSPA0017	Canaralele de la Hârsova	B	74.06
RO	ROSPA0018	Cheile Bicazului - Hasmas	B	79.61
RO	ROSPA0019	Cheile Dobrogei	B	109.33
RO	ROSPA0020	Cheile Nerei-Beusnita	B	404.22
RO	ROSPA0021	Ciocanesti - Dunare	B	8.68
RO	ROSPA0022	Comana	B	249.56
RO	ROSPA0023	Confluenta Jiu - Dunare	B	197.67
RO	ROSPA0024	Confluenta Olt - Dunare	B	210.56
RO	ROSPA0025	Cozia - Buila - Vânturarita	B	217.69
RO	ROSPA0026	Cursul Dunarii - Bazias - Portile de Fier	B	99.1
RO	ROSPA0027	Dealurile Homoroadelor	B	370.93
RO	ROSPA0028	Dealurile Târnavelor si Valea Nirajului	B	860.73
RO	ROSPA0029	Defileul Muresului Inferior - Dealurile Lipovei	B	556.6
RO	ROSPA0030	Defileul Muresului Superior	B	95.14
RO	ROSPA0031	Delta Dunarii si Complexul Razim - Sinoie	B	5086.88
RO	ROSPA0032	Deniz Tepe	B	19
RO	ROSPA0033	Depresiunea si Muntii Giurgeului	B	878.92
RO	ROSPA0034	Depresiunea si Muntii Ciucului	B	517.44

Country	Area code	Name of Protected Area	Type(s)	Area in km²
RO	ROSPA0035	Domogled-Valea Cernei	B	665.08
RO	ROSPA0036	Dumbraveni	B	20.56
RO	ROSPA0037	Dumbravita - Rotbav - Magura Codlei	B	45.36
RO	ROSPA0038	Dunare - Oltenita	B	60.25
RO	ROSPA0039	Dunare - Ostroave	B	162.24
RO	ROSPA0040	Dunarea Veche - Bratul Macin	B	187.59
RO	ROSPA0042	Elesteele Jijiei si Miletinului	B	189.9
RO	ROSPA0043	Frumoasa	B	1309.67
RO	ROSPA0044	Gradistea - Caldarusani - Dridu	B	64.42
RO	ROSPA0045	Gradistea Muncelului - Cioclovina	B	380.6
RO	ROSPA0046	Gruia - Gârla Mare	B	27.56
RO	ROSPA0047	Hunedoara Timisana	B	15.37
RO	ROSPA0048	Ianca - Plopu - Sarat	B	19.82
RO	ROSPA0049	Iazurile de pe valea Ibanesei - Baseului - Podrigai	B	27.05
RO	ROSPA0050	Iazurile Mihesu de Câmpie - Taureni	B	12.09
RO	ROSPA0051	Iezer Calarasi	B	50.01
RO	ROSPA0053	Lacul Bugeac	B	13.92
RO	ROSPA0054	Lacul Dunareni	B	12.61
RO	ROSPA0055	Lacul Galatui	B	8.13
RO	ROSPA0056	Lacul Oltina	B	33.03
RO	ROSPA0057	Lacul Siutghiol	B	18.49
RO	ROSPA0058	Lacul Stânca Costesti	B	18.65
RO	ROSPA0059	Lacul Strachina	B	20.14
RO	ROSPA0060	Lacul Tasaul	B	27.01
RO	ROSPA0061	Lacul Techirghiol	B	29.39
RO	ROSPA0062	Lacurile de acumulare de pe Arges	B	22.6
RO	ROSPA0063	Lacurile de acumulare Buhusi - Bacau - Beres	B	55.76
RO	ROSPA0064	Lacurile Falticeni	B	7.27
RO	ROSPA0065	Lacurile Fundata -Amara	B	20.36
RO	ROSPA0066	Limanu-Herghelia	B	8.74
RO	ROSPA0067	Lunca Barcaului	B	52.91
RO	ROSPA0068	Lunca Inferioara a Turului	B	202.35
RO	ROSPA0069	Lunca Muresului Inferior	B	174.09
RO	ROSPA0070	Lunca Prutului-Vladesti-Frumusita	B	143.91
RO	ROSPA0071	Lunca Siretului Inferior	B	364.92
RO	ROSPA0072	Lunca Siretului Mijlociu	B	104.55
RO	ROSPA0073	Macin - Niculitel	B	673.61
RO	ROSPA0074	Maglavit	B	36.47
RO	ROSPA0075	Magura Odobesti	B	131.64
RO	ROSPA0076	Marea Neagra	B	1488.47
RO	ROSPA0077	Maxineni	B	15.04
RO	ROSPA0080	Muntii Almajului - Locvei	B	1181.42

Country	Area code	Name of Protected Area	Type(s)	Area in km²
RO	ROSPA0081	Muntii Apuseni - Vladeasa	B	930.82
RO	ROSPA0082	Muntii Bodoc Baraolt	B	565.92
RO	ROSPA0083	Muntii Rarau - Giumalau	B	21.57
RO	ROSPA0084	Muntii Retezat	B	382.83
RO	ROSPA0085	Muntii Rodnei	B	548.32
RO	ROSPA0086	Muntii Semenic - Cheile Carasului	B	362.4
RO	ROSPA0087	Muntii Trascaului	B	931.89
RO	ROSPA0088	Muntii Vrancei	B	381.8
RO	ROSPA0089	Obcina Feredeului	B	637.59
RO	ROSPA0090	Ostrovu Lung - Gostinu	B	23.72
RO	ROSPA0091	Padurea Babadag	B	584.73
RO	ROSPA0092	Padurea Bârnova	B	128.87
RO	ROSPA0093	Padurea Bogata	B	63.29
RO	ROSPA0094	Padurea Hagieni	B	13.74
RO	ROSPA0095	Padurea Macedonia	B	46.25
RO	ROSPA0096	Padurea Miclesti	B	86.31
RO	ROSPA0097	Pescaria Cefa - Padurea Radvani	B	121.64
RO	ROSPA0098	Piemontul Fagaras	B	712.56
RO	ROSPA0099	Podisul Hârtibaciu	B	2375.15
RO	ROSPA0100	Stepa Casimcea	B	222.02
RO	ROSPA0101	Stepa Saraiu - Horea	B	41.86
RO	ROSPA0102	Suhaia	B	44.65
RO	ROSPA0103	Valea Alceului	B	36.34
RO	ROSPA0104	Valea Fizesului - Sic - Lacul Stiucilor	B	16.27
RO	ROSPA0105	Valea Mostistea	B	65.78
RO	ROSPA0106	Valea Oltului Inferior	B	527.86
RO	ROSPA0107	Vânatori - Neamt	B	308.4
RO	ROSPA0108	Vedea - Dunare	B	223.74
RO	ROSPA0109	Acumularile Belcesti	B	20.99
RO	ROSPA0110	Acumularile Rogojesti - Bucecea	B	21.06
RO	ROSPA0111	Bertestii de Sus - Gura Ialomitei	B	68.9
RO	ROSPA0112	Câmpia Gherghitei	B	75.88
RO	ROSPA0113	Cânepisti	B	62.12
RO	ROSPA0114	Cursul Mijlociu al Somesului	B	332.59
RO	ROSPA0115	Defileul Crisului Repede-Valea Iadului	B	171.71
RO	ROSPA0116	Dorohoi-Saua Bucecei	B	253.3
RO	ROSPA0117	Drocea - Zarand	B	406.77
RO	ROSPA0118	Grindu - Valea Macrisului	B	32.58
RO	ROSPA0119	Horga - Zorleni	B	201.88
RO	ROSPA0120	Kogalniceanu - Gura Ialomitei	B	68.94
RO	ROSPA0121	Lacul Brates	B	158.01
RO	ROSPA0122	Lacul si Padurea Cernica	B	37.44

Country	Area code	Name of Protected Area	Type(s)	Area in km²
RO	ROSPA0123	Lacurile de acumulare de pe Crisul Repede	B	18.18
RO	ROSPA0124	Lacurile de pe Valea Ilfovului	B	5.97
RO	ROSPA0127	Lunca Bârzavei	B	23.93
RO	ROSPA0128	Lunca Timisului	B	134.04
RO	ROSPA0129	Masivul Ceahlau	B	278.37
RO	ROSPA0130	Mata - Cârja - Radeanu	B	57.68
RO	ROSPA0131	Muntii Maramuresului	B	709.88
RO	ROSPA0132	Muntii Metaliferi	B	266.71
RO	ROSPA0133	Muntii Calimani	B	290.48
RO	ROSPA0134	Muntii Gutâi	B	284.06
RO	ROSPA0136	Oltenita - Ulmeni	B	121.69
RO	ROSPA0137	Padurea Radomir	B	12.33
RO	ROSPA0138	Piatra Soimului - Scorteni - Gârleni	B	374.45
RO	ROSPA0139	Piemontul Muntilor Metaliferi si Vintului	B	83.88
RO	ROSPA0140	Scrovistea	B	33.56
RO	ROSPA0141	Subcarpatii Vrancei	B	358.23
RO	ROSPA0142	Teremia Mare - Tomnatic	B	66.34
RO	ROSPA0143	Tisa Superioara	B	28.39
RO	ROSPA0144	Uivar-Dinias	B	100.43
RO	ROSPA0145	Valea Calmatuiului	B	205.15
RO	ROSPA0146	Valea Câlnistei	B	25.38
RO	ROSPA0148	Vitanesti-Rasmiresti	B	11.08
RO	ROSPA0149	Depresiunea Bozovici	B	96.59
RO	ROT	Cefa	O	50.04
RO	ROV.1.	Lunca Muresului	O	173.55
RO	ROV.2	Lunca Joasa a Prutului Inferior	O	72.61
RO	ROV.3.	Comana	O	249.63
RO	ROV.4.	Geoparcul Dinozaurilor Tara Hategului	O	1000
RO	ROV.5.	Muntii Maramuresului	O	1300
RO	ROV.6.	Geoparcul Platoul Mehedinti	O	1100
RO	ROV.7.	Putna - Vrancea	O	381.9
RS	RS121	Fruška gora	O	261.24
RS	RS155	Deliblatska peščara	O	353.61
RS	RS314	Đerdap	O	636
RS	RS365	Sićevačka klisura	O	77
RS	RS470	Tara	O	192
RS	RS471	Kopaonik	O	118
RS	RS483	Subotička peščara	O	54.05
RS	RS484	Palić	O	7.35
RS	RS485	Gornje Podunavlje	O	193.55
RS	RS50	Obedska bara	O	99.14
RS	RS517	Klisura reke Gradac	O	13

Country	Area code	Name of Protected Area	Type(s)	Area in km²
RS	RS595	Uvac	O	75
RS	RS596	Klisura reke Trešnjice	O	6
RS	RS599	Zasavica	O	6.21
RS	RS601	Pašnjaci velike droplje	O	9.98
RS	RS602	Karađorđevo	O	30.45
RS	RS603	Selevenjske pustare	O	6.43
RS	RS604	Stara planina	O	1143
RS	RS605	Tikvara	O	5.31
RS	RS608	Koviljsko-petrovaradinski rit	O	58.89
RS	RS612	Lazarev kanjon	O	18
RS	RS613	Ovčarsko-Kablarska klisura	O	22
RS	RS615	Golija	O	752
RS	RS619	Slano Kopovo	O	10.07
RS	RS64	Ludaško jezero	O	8.6
RS	RS661	Šargan-Mokra Gora	O	108
RS	RS663	Jegrička	O	11.44
RS	RS666	Vlasina	O	128.15
RS	RS69	Carska bara	O	47.26
SI	SISI3000051	Krakovski gozd	H	34.19
SI	SISI3000059	Mirna	H	5.47
SI	SISI3000062	Gradac	H	15.07
SI	SISI3000075	Lahinja	H	8.5
SI	SISI3000100	Gozd Kranj - Škofja Loka	H	19.44
SI	SISI3000101	Gozd Olševek - Adergas	H	8.39
SI	SISI3000110	Ratitovec	H	23.31
SI	SISI3000117	Haloze - vinorodne	H	63.01
SI	SISI3000118	Boč - Haloze - Donačka gora	H	108.82
SI	SISI3000120	Šmarna gora	H	16.94
SI	SISI3000126	Nanoščica	H	7.71
SI	SISI3000149	Obrež	H	7.58
SI	SISI3000166	Razbor	H	14.5
SI	SISI3000171	Radensko polje - Viršnica	H	5.22
SI	SISI3000172	Zgornja Drava s pritoki	H	46.83
SI	SISI3000173	Bloščica	H	7.89
SI	SISI3000175	Kolpa	H	6.85
SI	SISI3000181	Kum	H	59.5
SI	SISI3000188	Ajdovska planota	H	24.09
SI	SISI3000191	Ajdovska jama	H	17.22
SI	SISI3000192	Radulja s pritoki	H	13.09
SI	SISI3000194	Radgonsko - Kapelske Gorice	H	10.84
SI	SISI3000205	Kandrše - Drtijščica	H	13.6
SI	SISI3000206	Lubnik	H	12.68

Country	Area code	Name of Protected Area	Type(s)	Area in km²
SI	SISI3000214	Ličenca pri Poljčanah	H	27.28
SI	SISI3000215	Mura	H	102.52
SI	SISI3000219	Grad Brdo - Preddvor	H	5.82
SI	SISI3000220	Drava	H	36.93
SI	SISI3000221	Goričko	H	448.24
SI	SISI3000224	Huda luknja	H	30.18
SI	SISI3000231	Javorniki - Snežnik	H	440.39
SI	SISI3000232	Notranjski trikotnik	H	152.32
SI	SISI3000253	Julijske Alpe	H	740.86
SI	SISI3000255	Trnovski gozd - Nanos	H	532.35
SI	SISI3000256	Krimsko hribovje - Menišija	H	203.34
SI	SISI3000257	Rački ribniki - Požeg	H	6.13
SI	SISI3000261	Menina	H	41.78
SI	SISI3000262	Sava Medvode - Kresnice	H	11.24
SI	SISI3000263	Kočevsko	H	1067.94
SI	SISI3000264	Kamniško - Savinjske Alpe	H	145.68
SI	SISI3000267	Gorjanci - Radoha	H	117.99
SI	SISI3000268	Dobrava - Jovsi	H	28.66
SI	SISI3000270	Pohorje	H	275.68
SI	SISI3000271	Ljubljansko barje	H	129.61
SI	SISI3000273	Orlica	H	38.31
SI	SISI3000274	Bohor	H	68.32
SI	SISI3000275	Rašica	H	22.36
SI	SISI3000278	Pokljuška barja	H	8.59
SI	SISI3000285	Karavanke	H	230.9
SI	SISI3000288	Dolsko	H	8.71
SI	SISI3000297	Mišja dolina	H	6.37
SI	SISI3000303	Sotla s pritoki	H	5.49
SI	SISI3000306	Dravinja s pritoki	H	5.42
SI	SISI3000311	Vitanje - Oplotnica	H	13.04
SI	SISI3000313	Vzhodni Kozjak	H	16.94
SI	SISI3000335	Polhograjsko hribovje	H	29.65
SI	SISI3000337	Zahodni Kozjak	H	16.28
SI	SISI3000338	Krka s pritoki	H	24.48
SI	SISI3000348	Bohinjska Bistrica in Jereka	H	7.27
SI	SISI5000005	Dravinjska dolina	B	19.11
SI	SISI5000009	Goričko	B	402.03
SI	SISI5000010	Mura	B	146.51
SI	SISI5000011	Drava	B	100.37
SI	SISI5000012	Krakovski gozd - Šentjernejsko polje	B	83.47
SI	SISI5000014	Ljubljansko barje	B	123.7
SI	SISI5000015	Cerkniško jezero	B	33.51

Country	Area code	Name of Protected Area	Type(s)	Area in km²
SI	SISI5000027	Črete	B	14.45
SK	SKCHVU002	Bukovské vrchy	B	409.32
SK	SKCHVU003	Cerová vrchovina - Porimavie	B	301.88
SK	SKCHVU005	Dolné Považie	B	311.96
SK	SKCHVU007	Dunajské luhy	B	165.12
SK	SKCHVU008	Horná Orava	B	587.38
SK	SKCHVU009	Košická kotlina	B	173.54
SK	SKCHVU010	Kráľová	B	12.16
SK	SKCHVU013	Malá Fatra	B	662.28
SK	SKCHVU015	Medzibodrožie	B	337.54
SK	SKCHVU016	Záhorské Pomoravie	B	310.73
SK	SKCHVU019	Ostrovné lúky	B	82.98
SK	SKCHVU021	Poiplie	B	80.63
SK	SKCHVU023	Úľanská mokraď	B	181.74
SK	SKCHVU024	Senianske rybníky	B	26.68
SK	SKCHVU026	Sĺňava	B	5.09
SK	SKCHVU027	Slovenský kras	B	438.6
SK	SKCHVU037	Ondavská rovina	B	159.07
SK	SKCHVU051	Levočské vrchy	B	455.98
SK	SKUEV0006	Latorica	H	75.01
SK	SKUEV0036	Litava	H	26.3
SK	SKUEV0048	Dukla	H	68.61
SK	SKUEV0057	Rašeliniská Oravskej kotliny	H	8.4
SK	SKUEV0064	Bratislavské luhy	H	6.92
SK	SKUEV0090	Dunajské luhy	H	45.42
SK	SKUEV0104	Homoľské Karpaty	H	51.83
SK	SKUEV0110	Levočská dubina	H	6
SK	SKUEV0112	Slovenský raj	H	168.65
SK	SKUEV0125	Gajarské alúvium Moravy	H	12.44
SK	SKUEV0130	Zobor	H	19.05
SK	SKUEV0163	Rudava	H	19.59
SK	SKUEV0168	Horný les	H	5.56
SK	SKUEV0173	Kotlina	H	6.17
SK	SKUEV0188	Pilsko	H	7.01
SK	SKUEV0189	Babia hora	H	5.04
SK	SKUEV0192	Prosečné	H	23
SK	SKUEV0194	Hybická tiesňava	H	5.64
SK	SKUEV0197	Salatín	H	33.45
SK	SKUEV0203	Stolica	H	28.12
SK	SKUEV0205	Hubková	H	27.93
SK	SKUEV0209	Morské oko	H	160.08
SK	SKUEV0210	Stinská	H	15.27

Country	Area code	Name of Protected Area	Type(s)	Area in km²
SK	SKUEV0211	Daňová	H	8.98
SK	SKUEV0225	Muránska planina	H	202.57
SK	SKUEV0229	Bukovské vrchy	H	292.31
SK	SKUEV0238	Veľká Fatra	H	463.49
SK	SKUEV0251	Zázrivské lazy	H	29.28
SK	SKUEV0252	Malá Fatra	H	222.53
SK	SKUEV0256	Strážovské vrchy	H	299.73
SK	SKUEV0259	Stará hora	H	24
SK	SKUEV0263	Hodrušská hornatina	H	102.68
SK	SKUEV0264	Klokoč	H	22.81
SK	SKUEV0265	Suť	H	90.41
SK	SKUEV0266	Skalka	H	97.15
SK	SKUEV0267	Biele hory	H	101.46
SK	SKUEV0269	Ostrovné lúčky	H	6.28
SK	SKUEV0273	Vtáčnik	H	100.57
SK	SKUEV0274	Baské	H	40.33
SK	SKUEV0275	Kňaží stôl	H	42.27
SK	SKUEV0276	Kuchynská hornatina	H	32.75
SK	SKUEV0278	Brezovské Karpaty	H	26.71
SK	SKUEV0279	Šúr	H	6.55
SK	SKUEV0282	Tisovský kras	H	14.69
SK	SKUEV0287	Galmus	H	32
SK	SKUEV0288	Kysucké Beskydy	H	70.01
SK	SKUEV0295	Biskupické luhy	H	9.16
SK	SKUEV0299	Baranovo	H	8.61
SK	SKUEV0302	Ďumbierske Tatry	H	440.28
SK	SKUEV0305	Choč	H	16.27
SK	SKUEV0306	Pod Suchým hrádkom	H	7.53
SK	SKUEV0307	Tatry	H	669.94
SK	SKUEV0310	Kráľovohoľské Tatry	H	304.79
SK	SKUEV0313	Devínske jazero	H	12.64
SK	SKUEV0318	Pod Bukovou	H	5.38
SK	SKUEV0319	Poľana	H	30.72
SK	SKUEV0326	Strahuľka	H	11.7
SK	SKUEV0327	Milič	H	51.13
SK	SKUEV0328	Stredné Pohornádie	H	70.93
SK	SKUEV0331	Čergovský Minčol	H	42.62
SK	SKUEV0332	Čergov	H	60.29
SK	SKUEV0337	Pieniny	H	13.02
SK	SKUEV0356	Horný vrch	H	60.28
SK	SKUEV0357	Cerová vrchovina	H	26.28
SK	SKUEV0366	Drienčanský kras	H	16.09

Country	Area code	Name of Protected Area	Type(s)	Area in km²
SK	SKUEV0367	Holubyho kopanice	H	39
SK	SKUEV0387	Beskyd	H	53.49
SK	SKUEV0393	Dunaj	H	14.26
SK	SKUEV0642	Javornícky hrebeň	H	13.56
SK	SKUEV0663	Šíp	H	17.94
SK	SKUEV1337	Pieniny	H	13.9
UA	UA01	Danube Biosphere reserve	O	520
UA	UA02	Izmail Islands	O	16
UA	UA11	Kartal lake	O	8
UA	UA12	Kugurlui Lake	O	84
UA	UA30	Pritisanskij regional landscape park	O	280
UA	UA37	Lung	O	17
UA	UA41	Pistenka	O	26
UA	UA42	Gutsulshina	O	387
UA	UA43	Cheremoshskiy	O	234
UA	UA44	Verhovynskiy	O	104
UA	UA47	Chernivetskiy	O	200
UA	UA48	Vyzhnytskyi	O	128
UA	UA49	Uzhanskyi	O	395
UA	UA50	Carpathian National Park	O	528
UA	UA51	Carpathian Biosphere reserve	O	547

Economic Analysis – Synthesis of Questionnaires

ANNEX 11

DRBM Plan – Update 2015

The economics analysis of the DRAFT DRBM Plan – Update 2015 is based on the economic analysis which was performed for the 2013 Update of the Danube Basin Analysis. Two questionnaires were developed and sent out in 2013 for the collection of information on economics from the Danube countries (the information was updated, if necessary, by the Danube countries in 2015). The questionnaires treat inter alia water pricing, cost recovery (CR) and environmental and resource costs (ERC) - topics which are closely interlinked. This synthesis provides an overview on the approaches which are in place in the Danube countries. The collected information is summarised in form of tables as presented below (tables 1 to 6).

Tables 7 and 8 represent the results of a second survey done in the aftermath of the TG ECON meetings in Zagreb and Vienna (2014/2015), and concern approaches towards Disproportionality of Costs and Exemptions, as well as projections of trends regarding socio-economic developments.

Data from Serbia does not include data from the Autonomous Provinces Kosovo and Metohija.

Table 1: Investment costs for water supply and wastewater, and priorities of investments for the period 2009-2015*

Country	Demand and Supply Costs[1] [EUR]	Only demand costs [EUR]	Only investment costs (without distinguishing) [EUR]	Priorities/main objectives of investments
DE	-	-	Water supply services: 340 million EUR / year Waste water services: 490 million EUR / year Aggregated investment costs: 830 million on average per annum	Good Status of water bodies
AT	-	-	3.2 billion	Good Status
CZ	-	822 million		Good Status
SK	-	-	1,086 million EUR** (water supply + wastewater) of which: water supply: 101 million wastewater: 985 million	Good status and UWWT
HU	-	-	Water supply services: 570 million EUR 2009-2015 Waste water services: 1,887 million EUR 2009-2015	Drinking Water Quality Program and UWWT derogations
SI	-	1.1 billion (1,020.6 mio EUR for wastewater collection and treatment for households and 113.4 mio EUR for water supply for households)[2] (2010-2015)	-	Wastewater collection and treatment for households and water supply for households.
HR	1.9 billion / 650 million	-	-	Drinking Water and UWWT

[1] According to the questionnaires: demand cost are the "total costs related to implementing the EU Directives"; supply costs are the investment costs that could be realistically covered.

[2] The costs for the Danube River Basin are estimated according to the relation of the Danube River Basin´s area to Slovenia´s territory (81% of the total area).

BA	-	653 million	-	Good Status and UWWT
ME	n. a.			
RS	1.8 billion / 900 million	-	-	UWWT
RO	-	-	UWWT (waste water treatment and sewerage systems): 12,700 million Euro; Water supply: 7,580 million Euro	UWWT and Water Supply
BG	-	1.6 billion (2010-2015; wastewater collection and treatment) Assessment of investment costs for the time 2016-2021 is forthcoming task in the frame of RBMP-updating process.	-	UWWT/priority in the first RBMP
MD	-	-	3.2 billion (over 20 years)	WWT (urban and rural)
UA	n. a.			

*timescales: 2009-2015, if not noted otherwise.

**data for the whole country (Danube part represents 96.23 % of the total territory of Slovakia).

Table 2: What are water services - what are water uses?

Country	Only water supply and wastewater	Water supply, wastewater AND others	Included in cost recovery calculations (Y/N)	Other definitions
DE	✓		Y	
AT	✓		Y (based on estimation)	
CZ		✓ Rivers and river basin management; surface water abstraction; GW abstraction; discharge of wastewater into surface water; discharge of wastewater into GW; impoundment for the energy production; navigation – only recreation	N (but in the 2nd cycle, several others will be added)	
SK		✓ Use of hydro-energy potential of water-course; abstraction of energy water from watercourse; abstraction of surface water from water-course	Y	Navigation is defined as a "public service - paid by the state"
HU		✓ Agricultural water services for irrigation, fishponds, etc.	Y	✓ (the other different water uses are taken into consideration as “water

		Water abstraction for its own use (for industrial, agricultural, households including thermal water uses) Damming and storage of water for energy production		uses" (according to WFD Article 2 Definition 39))
SI		✓ 23 further services defined	Partly (financial costs recovery for public water supply and for public wastewater collection and treatment services was assessed and the internalized part of ERC was considered for all water services).	
HR	✓		Y	
BA		✓ 13 other water services defined	N	
ME	n. a.			
RS	✓	✓ (irrigation)	N	
RO		✓ Storage, impoundment, regulation, quantitative and qualitative assessment of water resources, operative hydrological activities, hydrological prognoses, receiving the pollutants in surface water according to legal requirements, flood protection	Y	
BG			Y All costs considered (financial, environmental and resource costs)	✓ Public water supply; public collection of waste water; public treatment of waste water; individual water supply in industry; individual water supply in agriculture for irrigation; individual water supply for stock-breeding; producing of electric power by water electric plant; protection of harmful impact of water; conservation of water; navigation and other activities connected with navigation; individual drinking water supply
MD	✓		Y	
UA	n. a.			

Table 3: Water pricing policies in place, and prices of water services/uses

Country	Water service	Environmental cost [EUR/m³, EUR/?, not assessed]	Resource cost [EUR/m³, EUR/?, not assessed]	Payment* for environmental cost recovery [EUR/m³, no payment*]	Payment* for resource cost recovery [EUR/m³, no payment*]
DE	Water supply	ERC are considered in the recovery of the costs of water supply services (EUR/m³); they are not quantified individually		ERC are considered in the recovery of the costs of water supply services (EUR/m³); they are not quantified individually	
	Waste water treatment	ERC are considered in the recovery of the costs of waste water services; they are not quantified individually		ERC are considered in the recovery of the costs of waste water services; they are not quantified individually	
AT	Water supply	ERC are internalized in the price for drinking water (EUR/m³), but they are not assessed		Payments for ERC are internalized in the price for drinking water (EUR/m³), but they are not assessed	
	WWT	ERC are internalized in the price for wastewater treatment (EUR/m³), but they are not assessed		Payments for ERC are internalized in the price for wastewater treatment (EUR/m³), but they are not assessed	
CZ	Drinking water supply	ERC costs in the form of charges for groundwater and surface water abstraction is internalized in the price for drinking water (EUR/m3)		No separate payment exists. ERC recovery costs are internalized.	
	Wastewater treatment	ERC are in the form of charges for pollution and volume of discharged wastewater.		See the answer above.	
	Water storage and impoundment for energy production	ERC costs in the form of charges for impoundments are internalized in the price which is agreed between the customer and State Enterprises of River Basin Management(EUR/m³)		No separate payment exists. ERC recovery costs are internalized.	
	Navigation	Not assessed	Not assessed	No payment	No payment
SK	Water supply for households, industry and agriculture	Not assessed	Resource cost in the form of charges for groundwater abstraction as well as payments for surface water abstraction is internalized in the price for drinking water (EUR/m³)	No payment	No separate payment, only the internalized one
	Collection and treatment of wastewater	Environmental cost in the form of charges for discharge of wastewater is internalized in the price for the collection and treatment of wastewater (EUR/m³)	Not assessed	No separate payment, only the internalized one	No payment
	Use of hydro-energy- potential of watercourse	Not assessed	Not assessed	No payment	No payment
	Abstraction of energy water	Not assessed	Not assessed	No payment	No payment

Country	Water service	Environmental cost [EUR/m³, EUR/?, not assessed]	Resource cost [EUR/m³, EUR/?, not assessed]	Payment* for environmental cost recovery [EUR/m³, no payment*]	Payment* for resource cost recovery [EUR/m³, no payment*]
	from watercourse				
	Abstraction of surface water from watercourse	Not assessed	Not assessed	No payment	The payment for surface water abstraction is determined in EUR/m³ and is a component of the price for drinking water. This payment is considered as covering a part of resource costs.
HU	Wastewater collection and treatment for households industry public	EC were assessed in 2006-2007 based on the 2005 data. EC are partly internalised in the water load fee and this is covered by the water price	Not assessed We want to establish a kind of mechanism which can determine the resource cost utilizing market procedures, not just by administrative (legislative) measures.	0.018[1]	No payment
HU	Public water supply for households, industry and others	EC were assessed in 2006-2007 based on the 2005 data. EC are partly internalised in the water resource fee and this is covered by the water price	Not assessed	0.015 (2013)	No payment
HU	Water supply for industry, agriculture (own wells)	EC are partly internalized in water resource fee	Not assessed	Industry: 0.0083 (2013) Agriculture: no payment	No payment
HU	Water supply for agriculture (irrigation, fishponds, rice production)	Not assessed	Not assessed	No payment	No payment
HU	Damming and storage of water for energy production	Not assessed	Not assessed	No payment	No payment
SI[3]	Wastewater collection and treatment for industry	not assessed (only internalized part was assessed, additional assessments are in progress)	-	Environmental tax: 26.4125 EUR/unit load	-

[3] Data for Slovenia updated according to the draft of 2nd RBMP 2015-2021.

Country	Water service	Environmental cost [EUR/m³, EUR/?, not assessed]	Resource cost [EUR/m³, EUR/?, not assessed]	Payment* for environmental cost recovery [EUR/m³, no payment*]	Payment* for resource cost recovery [EUR/m³, no payment*]
	Wastewater collection and treatment for households	not assessed (only internalized part was assessed, additional assessments are in progress)	-	Environmental tax: 26.4125 EUR/unit load	-
	Water abstraction for drinking water supply	not assessed (only internalized part was assessed, additional assessments are in progress)		Water reimbursement fee: 0.0638 EUR/m³	
	Water abstraction for drink industry	not assessed (only internalized part was assessed, additional assessments are in progress)		Water reimbursement fee: 0.092 EUR/m³ Payment for water rights (details in Slovene RBMP for Danube RBD)	
	Water abstraction for technological purposes	not assessed (only internalized part assessed)		Water reimbursement fee: 0.092 EUR/m³	
	Water abstraction for swimming pools open to public, natural spas	not assessed (only internalized part was assessed, additional assessments are in progress)		Water reimbursement fee: 0.092 EUR/m³ For natural spas: Payment for water rights (details in Slovene RBMP for Danube RBD)	
	Water abstraction for snowmaking	not assessed (only internalized part was assessed, additional assessments are in progress)		Water reimbursement fee: 0.0666 EUR/m³	
	Water abstraction for irrigation in agriculture	not assessed (only internalized part was assessed, additional assessments are in progress)		Water reimbursement fee: 0.0015 EUR/m³	
	Water abstraction for irrigation of non-agricultural activities	not assessed (only internalized part was assessed, additional assessments are in progress)		Water reimbursement fee: 0.0919 EUR/m³	
	Water abstraction for technological purposes for cooling thermal and nuclear power plants	not assessed (only internalized part was assessed, additional assessments are in progress)		Water reimbursement fee: 0.00738 EUR/m³	
	Water abstraction for aquaculture of salmonid fish	not assessed (only internalized part was assessed), additional assessments are in		Water reimbursement fee: 0.000036 EUR/m3 available water for abstraction from water source	

Country	Water service	Environmental cost [EUR/m³, EUR/?, not assessed]	Resource cost [EUR/m³, EUR/?, not assessed]	Payment* for environmental cost recovery [EUR/m³, no payment*]	Payment* for resource cost recovery [EUR/m³, no payment*]
		progress			
	Water abstraction from public water supply services for drink industry	not assessed (only internalized part was assessed, additional assessments are in progress)		Water reimbursement fee: 0.1009 EUR/m³	
	Water abstraction for technological purposes where water is main ingredient	not assessed (only internalized part was assessed, additional assessments are in progress)		Water reimbursement fee: 0.1009 EUR/m³	
	Water abstraction for swimming pools open to public, natural spas	not assessed (only internalized part was assessed, additional assessments are in progress)		Water reimbursement fee: 0.1009 EUR/m³	
	Water abstraction for irrigation.	not assessed (only internalized part was assessed, additional assessments are in progress)		Water reimbursement fee: 0.1009 EUR/m³	
	Electricity production in hydropower plants below 10 MW	not assessed (only internalized part was assessed, additional assessments are in progress)		Water reimbursement fee: 0.2361 EUR/MWh potential water energy, available for electricity production according to obtained water right	
	Electricity production in hydropower plants from 10 MW and above	not assessed (only internalized part was assessed, additional assessments are in progress)		Water reimbursement fee: 1.8127 EUR/MWh potential water energy, available for electricity production according to obtained water right Payment for water rights (details in Slovene RBMP for Danube RBD)	
	Water used for heat production	not assessed (only internalized part was assessed, additional assessments are in progress)		Water reimbursement fee: 0.974 EUR/MWh energy, available for heat production according to obtained water right Payment for water rights (details in Slovene RBMP for Danube RBD)	
	Water used for water driven mills, saws and other similar devices	not assessed (only internalized part was assessed, additional assessments are in progress)		Water reimbursement fee: 0.1948 EUR/MWh potential water energy, available for mechanical work according to obtained water right	
	Sediment extraction	not assessed (only internalized part was assessed, additional assessments are in progress)		Reimbursement fee: 3.1 EUR/m³ of extracted gravel; 13.9 EUR/m³ of extracted sand Payment for water rights (details in Slovene RBMP for Danube RBD)	
	Water used for cyprinid fish aquaculture	not assessed (only internalized part was assessed, additional assessments are in		Water reimbursement fee: 0.000972 EUR/m²	

Country	Water service	Environmental cost [EUR/m³, EUR/?, not assessed]	Resource cost [EUR/m³, EUR/?, not assessed]	Payment* for environmental cost recovery [EUR/m³, no payment*]	Payment* for resource cost recovery [EUR/m³, no payment*]
		progress)			
	Water used for mariculture	not assessed (only internalized part was assessed, additional assessments are in progress)		Water reimbursement fee: 0.00498 EUR/m^2	
	Water used for commercial pond fishing	not assessed (only internalized part was assessed, additional assessments are in progress)		Water reimbursement fee: 0.0194 EUR/m^2	
	The use of water areas for the operation of ports to vessels	not assessed (only internalized part was assessed, additional assessments are in progress)		Water reimbursement fee: 2.07 EUR/m^2 for tourist harbours, 0.345 EUR/m2 for local ports, sports ports and other, 0.25 EUR/m^2 for ports larger than 1,000,000 m^2, 0.0207 EUR/m^2 for ports smaller than 1,000,000 m^2 and for areas of entering and exiting corridors, 0,345 EUR/m^2 for waterside land used for embarking	
	The use of water areas for the operation of anchoring vessels	not assessed (only internalized part was assessed, additional assessments are in progress)		Water reimbursement fee: 2.07 EUR/m^2 for local anchorages, 0,0128 EUR/m^2 for anchorages larger than 10,000,000 m^2	
	The use of water areas for operation of bathing places	not assessed (only internalized part was assessed, additional assessments are in progress)		Water reimbursement fee: 0.9597 EUR/m^2	
HR	Wastewater service	Water protection fee: 2.85 HRK/m^3 or 0.38 EUR/m^3 for households (for industry depends on level of pollution); Development fee introduced on local level and vary from 0–4.0 HRK/m^3 or 0.53 EUR/m^3 ERC are partly internalized through water price (in form of water fees). Assessment of ERC is ongoing.		3.0 HRK/m^3 or 0.4 EUR/m^3 For purpose of this questionnaire rough estimation has been made, based on Annual Financial Plan of Hrvatske vode (National Agency for water Management)	
	Water supply service	Water use fee: 1.35 HRK/m^3 or 0.18 EUR/m^3 abstracted water; Water use fee for energy (5-7,5% of price of 1kWh for generation of electrical power and 2 HRK/kW/year for plant operation); Development fee - introduced on local level and vary from 0–4.0 HRK/m^3 or 0-0.53 HRK/m^3 ERC are partly internalized through water price (in form of water fees). Assessment of ERC is ongoing.		1.7 HRK/m^3 or 0.22 EUR/m^3 For purpose of this questionnaire rough estimation has been made, based on Annual Financial Plan of Hrvatske vode (National Agency for water Management)	

Country	Water service	Environmental cost [EUR/m³, EUR/?, not assessed]	Resource cost [EUR/m³, EUR/?, not assessed]	Payment* for environmental cost recovery [EUR/m³, no payment*]	Payment* for resource cost recovery [EUR/m³, no payment*]
BA	Public water supply	-	-	-	0.005 Euro/ m^3 of abstracted water
	Bottling of water & mineral water	-	-	-	1.00 Euro/ m^3 of abstracted water
	Water supply to industry and others (abstraction)	-	-	-	0.01/0.015 Euro/m^3 (RS/FBiH)
	Irrigation (abstraction)	-	-	-	0.001 Euro/m^3 BA
	Fish farming (abstract.)	-	-	-	0.0005 Euro/m^3 (RS only) abstr. water
	Fish farming (pollution)	-	-	0.01/0.025 (RS/FBiH) Euro/kg produc. fish	-
	Electricity production	-	-	0.0005 Euro/kWh of produced electricity	-
	Wastewater discharge	-	-	1.00 Euro/PE	-
	Pollution caused by vehicles	-	-	1.00 Euro/PE	-
	Pollution caused by use of artificial fertilizer	-	-	0.0025 Euro/kg prod. / imported fertilizer	-
	Pollution caused by use of pesticides	-	-	0.04 Euro/kg of prod. / imported pesticides	-
	Sediment extraction	-	-	0.75 Euro/m^3 of the extracted material	-
	General water charge	-	-	0.5% of the net salary (FBiH only)	0.5% of the net salary (FBiH only)
ME	n. a.				
RS	Fee for water use (public utilities), population	-	-	-	Extracted amount 0.002

Country	Water service	Environmental cost [EUR/m³, EUR/?, not assessed]	Resource cost [EUR/m³, EUR/?, not assessed]	Payment* for environmental cost recovery [EUR/m³, no payment*]	Payment* for resource cost recovery [EUR/m³, no payment*]
	Fee for water use (public utilities), legal entities	-	-	-	Extracted amount 0.004
	Fee for raw water use	-	-	-	0.003
	Fee for irrigation water use	-	-	-	0.001
	Fee for water bottling	-	-	-	0.012 (EUR/l)
	Fee for discharged water (public utilities), population	-	-	-	0.002
	Fee for discharged water (public utilities), legal entities	-	-	-	0.002
	Electricity production in hydropower plants below 10 MW	-	-	Water reimbursement fee: 0.708 EUR/MWh potential water energy, available for electricity production according to obtained water right	
	Electricity production in hydropower plants from 10 MW and above	-	-	Water reimbursement fee: 0.711 EUR/MWh potential water energy, available for electricity production according to obtained water right	
	Thermal power plants with recirculating cooling system	-	-	Water reimbursement fee 0.386 EUR/MWh	
RO	Water supply	-	0.15 EUR/cm	-	0.018 EUR/cm
RO	Wastewater treatment (* includes sewerage)	0.3 EUR/cm	-	0.3 EUR/cm	-
RO	Water abstraction for households from surface waters				
RO	Water abstraction for industry from surface waters				
RO	Water abstraction for irrigation				
RO	Water abstraction for aquaculture				

Country	Water service	Environmental cost [EUR/m³, EUR/?, not assessed]	Resource cost [EUR/m³, EUR/?, not assessed]	Payment* for environmental cost recovery [EUR/m³, no payment*]	Payment* for resource cost recovery [EUR/m³, no payment*]
	Water abstraction for hydropower				
	Water abstraction for thermo power plants				
	Water abstraction for households from groundwater waters				
	Navigation (lock)				
	Receive pollutants in the surface waters				
BG	Public water supply	105,837.42 EUR (2012) (According Methodology: Costs for removal of damages, caused by diffuse pollution from agriculture, stock-breeding and fish- breeding)	3,765,664.71 EUR (in 2012) 1.Costs connected with present lack of water 2.Costs connected with future lack of water	Recovery through water price paid by households, industry, agriculture and services Price for water supply by water companies/drinking water: 0.41 €/m3; Price for water supply for irrigation/supply by "Irrigation systems": 0.18 €/ m3	Recovery through water price paid by households, industry, agriculture and branch of services Price for water supply by water companies/drinking water: 0.41 €/ m3 Price for water supply for irrigation/supply by "Irrigation systems": 0.18 €/ m3
	Public collection of waste water	13,260,866.23 EUR (in 2012) (Costs for removal of damages, caused by diffuse pollution from settlements without sewage system)	No identified resource costs	Recovery through prices of public collection of waste water Price for collection of waste water: 0.09 €/ m3	N
	Public treatment of waste water	27 240 608,85 EUR (in 2012) (1.Costs for removal of damages, caused by point pollution of waste water from households and industry /building of WWT-Plants 2. Costs for removal of damages, caused by diffuse pollution from	No identified resource costs	Recovery through prices of treatment of waste water Price for treatment of waste water: 0.14 €/ m3	N

Country	Water service	Environmental cost [EUR/m³, EUR/?, not assessed]	Resource cost [EUR/m³, EUR/?, not assessed]	Payment* for environmental cost recovery [EUR/m³, no payment*]	Payment* for resource cost recovery [EUR/m³, no payment*]
		landfills)			
	Individual water supply in industry	No identified environmental costs	Costs in case of future water scarcity (no resource costs for 2008-2012: 0 €/m3)	N	Recovery through fee for water use according to National Tariff for fees: 0.045€/m3 – surface water. 0.07€/m3 – ground water.
	Individual water supply in agriculture for irrigation	7,669.38 EUR (in 2012) (Costs for removal of damages, caused by diffuse pollution from agriculture)	Costs in case of future water scarcity (no resource costs for 2008-2012: 0 €/m3)	Recovery through fee for water use according to National Tariff for fees: 0.0005€/m3 – surface water 0.005€ m3 – ground water	Recovery through fee for water use according to National Tariff for fees 0.0005€/m3 – surface water 0.005€/m3 – ground water
	Individual water supply for stock-breeding and fish-breeding	750,065.19 EUR (in 2012) (Costs for removal of damages, caused by diffuse pollution from stock-breeding and fish-breeding)	Costs in case of future water scarcity (no resource costs for the period 2008-2012: 0 €/m3)	Recovery through fee for water use according to National Tariff for fees: 0.0005€/m3 – surface water 0.005€/m3 – ground water	Recovery through fee for water use according to National Tariff for fees 0.0005€/m3 – surface water 0.005€/m3 – ground water
	Producing of electric power by water electric plant	16,361.34 EUR (in 2012) (1.Costs for removal of damages, caused by drying of rivers due to water use of hydro power plants; 2. Costs for removal of damages, caused by interruption of continuation of the rivers due to water use of hydro power plants /costs for building of fish-passages)	Costs in case of future water scarcity, but no resource costs for the period 2008-2012: 0 €/ m3	Recovery through fee for water use according to National Tariff for fees: 0.0008 €/m3	Recovery through fee for water use according to National Tariff for fees: 0.0008 €/m3
	Protection of harmful impact of water	Costs for measures for recovery of damages due to gravel extraction: 2008-2012: 0 €/ m3	No identified resource costs	No fee. Cost recovery: - Own incomes of municipalities - State financing for "Irrigation systems" -State transfers Total amount for 2012:	No

Country	Water service	Environmental cost [EUR/m³, EUR/?, not assessed]	Resource cost [EUR/m³, EUR/?, not assessed]	Payment* for environmental cost recovery [EUR/m³, no payment*]	Payment* for resource cost recovery [EUR/m³, no payment*]
				20,577,453.03 EUR;	
	Water conservation	No identified environmental costs (only financial costs)	No identified resource costs (only financial costs)	No fee. Cost recovery of financial costs only	No fee. Cost recovery of financial costs only
	Navigation and other activities connected with navigation	Costs for removal and prevention of damages, caused by navigation :2008-2012 for Danube - 0 €/m3	No identified resource costs	Cost recovery through harbor fees paid by shipping sector: 2008-2012 for Danube - 0 €/ m3	No
	Individual drinking water supply	No identified environmental costs	Costs in case of future water scarcity, but no resource costs for the period 2008-2012: 0 €/m3	No	Cost recovery through fees for issue of permits 0.02 €/m3 – surface water 0.75 €/m3 – ground water
MD	Water supply for households, industry, agro-industry, hydropower, irrigation, fishery	not assessed	Resource cost is paid in the form of payments for special water use into the state budget and is internalized in the cost of goods and services provided by water users as follows: 1) For each 1 (one) m^3 of water abstracted from the surface water bodies – 0.02 EUR, including for irrigation 2) For 1 (one) m^3 of abstracted underground water , including drinking water for bottling for further commercial activity – 1 EUR 3) For each 10 (ten) m^3 of water used by hydro-power stations – 0.004 EUR	no tax	no tax
	Collection and treatment of wastewater	Environmental cost is paid to the state budget in the form of charges for discharge of wastewater, and is internalized in the price for the collection and treatment of	not assessed	no tax	no tax

Country	Water service	Environmental cost [EUR/m³, EUR/?, not assessed]	Resource cost [EUR/m³, EUR/?, not assessed]	Payment* for environmental cost recovery [EUR/m³, no payment*]	Payment* for resource cost recovery [EUR/m³, no payment*]
		wastewater (when wastewater is discharged in allowed limits, it is 0.02 EUR/m³)			
UA	n. a.				

*: Data is from 1st analysis (2005-2006).

Table 4: Use and calculation of ERC

Country	ERC estimations available [Y/N/partly]	Clear Methodology for calculating ERC [Y/N/partly]	Clear Methodology for cross subsidies [Y/N/partly]
DE	N	No commonly agreed position on the issue of operationalizing the concept of ERC available across Europe.	N
AT	N AT is "on the way" to find a method to isolate/separate the ERC in (company) cost accounting systems, to make them visible and do get a better basis for calculations.	Partly (expert judgment involved)	N
CZ	Y	Partly The calculation of EC in CZ is based on the costs of renewal and saved costs. It determines the costs that would be necessary for compensation of impacts of water management services on environment, respectively for the compensation of the impacts disturbing the state of surface and GW from the quantitative, qualitative and hydromorphological point of view.	N (Subsidies do not play a role in CZ)
SK	N No "full estimations of ERC for single water services"; only the "internalized parts are quantified"[4].	Partly For the estimation of EC, the cost-based approach is used which involves the costs for certain groups of measures. The evaluation of RC is also based on a cost-based approach (e.g. construction of long-distance pipelines to areas failing to achieve good quantitative status of GWBs). As there have not been applied regulatory measures and restrictions, the RC which appear due to non-coverage of water requirements of specific sectors (foregone costs approach) is not yet actual.	Partly (subsidies play little role)
HU	Partly EC are partly quantified, only the internalized parts are quantified. EC were assessed in 2006-2007 based on the 2005 data for waste water and drinking water. Taking the international experience into account we chose the cost-based approach, so we consider the cost of the remaining measures needed in order to	Y EC calculation methodology is clear (cost based methodology), but the cost of measures is missing The Water Load Fee (WLF) and water resource fee is internalized of (a part of the) external environmental costs The rate of the water load fee is defined by the product of: 1) the total amount of the annual discharge of the contaminant measured in kilograms, 2) multiplied by a specific rate per	N There are subsidy for covering a part of the financial cost for households when the service costs are extremely high, the cost are above a certain threshold. It is

[4] The share of the charges for the discharge of wastewater into the water courses on the total costs of water companies in providing of wastewater services (i.e. wastewater collection and treatment) is ca. 1,36 % (2010) – these charges are considered as environmental costs. Charges for groundwater abstraction and payments for surface water abstraction are considered as a part of the resource costs (which are paid by those who have the permission to use the water source). The share of these charges and payments for the abstraction on the total costs of water companies in providing of water supply service is about 2,97 % (2010). However, the abstraction of water could be also seen as a form of the environmental costs (because an abstraction represents one of the biggest pressures on water body)…The charges for discharge of wastewater do not represent full estimation of environmental costs. These charges are stipulated by the Decree of the Government and represent only a part (approximately 30%) of the real costs necessary for the wastewater treatment in the wastewater treatment plants.

Country	ERC estimations available [Y/N/partly]	Clear Methodology for calculating ERC [Y/N/partly]	Clear Methodology for cross subsidies [Y/N/partly]
	achieve "good status" as EC.	pollutant, 3) a measure of area sensitivity and 4) sludge disposal factors. (For more details see the DBA2013). Water resource fee (abstraction fee) is depend on the water resource type and water uses (and some another element)	
SI	Partly ERC are partly quantified, only the internalized parts are quantified, additional assessments are in progress.	Partly (assessment of ERC are in progress)	N
HR	Partly ERC are partly quantified, only the internalized parts are quantified.	Partly (cost-based approach) Assessment of ERC is ongoing.	N
BA	Partly ERC are partly quantified, only the internalized parts are quantified.	Partly (cost-based approach and expert judgment)	N
ME	n. a.		
RS	N No "full estimations of ERC for each water service", but parts are included in charges/fees.	Partly (cost-based approach)	N
RO	Partly ERC are partly quantified, only the internalized parts are quantified.	Partly (cost-based approach)	No cross subsidy legally imposed
BG	Y ERC are quantified (2008-2012)	Y (Methodology is developed)	N
MD	N No estimations of ERC for each water service, but ERC "are internalized".	N	N
UA	n. a.		

Table 5: Cost Recovery (CR)

Country	Prices and costs for water services available[5] [Y/N/partly]	Levels of CR stated [Y/N/partly]	Levels of CR for all defined water services [Y/N]	Clear methodology for calculating CR [Y/N/partly]
DE	Y (water supply and waste water services)	Y (water supply and waste water services)	Y	Y
AT	Y (total costs and total revenues of water	Y	Y	Y (based on expert judgment)

[5] For exact amounts, see table 3 above.

Country	Prices and costs for water services available[5] [Y/N/partly]	Levels of CR stated [Y/N/partly]	Levels of CR for all defined water services [Y/N]	Clear methodology for calculating CR [Y/N/partly]
	services (water supply and wastewater treatment) are available, as well as bandwidths/ ranges of average water prices			
CZ	Y (abstraction, water supply and wastewater)	Partly (all O&M costs are fully covered, when including also subsidies on investment we would not reach 100% of cost recovery)	N (only water supply services and wastewater treatment)	N
SK	Y (for all five water services)	Y	Y	Partly (only financial costs, including depreciation and internalized part of environmental and resource costs are considered).
HU	Yes for public water supply, for waste water collection, agricultural water service, damming and storage of water for energy production Partly for water supply for industry and agriculture(own well)	Y	Yes for public water supply, waste water collection, agricultural water service, damming and storage of water for energy production Partly for water supply for industry and agriculture(own well)	Y
SI	Y (for several water services)	Partly (additional assessments are in progress)	N (only for public water supply and for public wastewater collection and treatment services, additional assessments are in progress)	Partly (only financial costs and internalized part of environmental and resource costs considered, additional assessments are in progress)
HR	Partly (water supply for households and industry)	Y	Y	Y (methodology and CR calculation will be included in 2nd National RBMP)
BA	Y (water supply and wastewater, excluding treatment)	Y	Y	Partly (depreciation, water loses, environmental and resource costs are not included)
ME	n. a.			
RS	Partly (water supply for households and industry)	N	N	N

Country	Prices and costs for water services available[5] [Y/N/partly]	Levels of CR stated [Y/N/partly]	Levels of CR for all defined water services [Y/N]	Clear methodology for calculating CR [Y/N/partly]
RO	Partly (water supply for households and industry)	N	N	N (only O&M costs considered; no figures provided)
BG	Y (for all water services)	Y	Y	Y
MD	Y (water supply and wastewater)	N	N	N
UA	n. a.			

Table 6: The links between ERC and payments

Country	CR through fees/charges/taxes	CR through permits	CR through mitigation/supplementary measures	Clear definition of water services paying for RC and/or EC?
DE	✓	✓	✓	Concerted definition across Germany; differing definitions available and put into practice across Europe.
AT	✓	✓	Through the Programme of Measures the cost recovery regarding ERC was carried out.	Y (water supply and wastewater)
CZ	✓	-	-	Unclear
SK	✓	-	✓ (CR through mitigation/supplementary measures)	Y (water supply: RC; wastewater: EC)
HU	✓	✓ (at least for abstraction)	✓	Y (all water services except irrigation, fishponds and rice production)
SI	✓	✓	✓	Y (all water services)
HR	✓	-	Through the Programme of Measures the cost recovery analysis regarding ERC was carried out	Y
BA	✓	-	-	Y (see table 3)
ME	n. a.			
RS	✓	✓	-	-
RO	✓	-	-	Y (water supply: RC; wastewater: EC)

Country	CR through fees/charges/taxes	CR through permits	CR through mitigation/supplementary measures	Clear definition of water services paying for RC and/or EC?
BG	✓ (for some water services)	No	-	Costs for some measures of the PoM will be covered by incomes of water services and fees
MD	✓	✓	-	Y (water supply: RC; wastewater: EC)
UA	n. a.			

Table 7: Use of Disproportionality of Costs in the Danube countries

Country	"Disproportionality of costs" used as a justification for exemptions (Y/N)*	Disproportionality applied for justifying Article 4.4 exemptions (Y/N)*	Disproportionality applied for justifying Article 4.5 exemptions (Y/N)*	Methodology/analysis tools used#
Austria	Y	Y	N	CEA
Bosnia and Herzegovina	N (or partly)	-	-	-
Bulgaria	-	-	-	-
Croatia	Y	Y	Y	Cost-benefit-Analyses Affordability, Cost-Effectiveness Analysis
Czech Republic	N	-	-	-
Germany (Danube RB)	Y	Y	N	Assessment and evaluation of costs and benefits
Hungary	Y	Y	Y	Affordability in general, CBA in the case of Article 4.5 exemptions
Moldova	-	-	-	-
Montenegro	-	-	-	-
Romania	Y	Y	Y	Cost-benefit- Analyses Affordability, Cost-Effectiveness Analysis
Serbia	N	-	-	-
Slovak Republic	Y	Y	Y	Affordability, Cost-Effectiveness Analysis
Slovenia	Currently unknown	Currently unknown	Currently unknown	Currently unknown
Ukraine	-	-	-	-

Questions marked with * will be reporting requirements (EC Reporting Guidance 2016 v4.9 of 30th January 2015).

Questions marked with # are "conditional" reporting requirements, i.e. required if disproportionality has been used (EC Reporting Guidance 2016 v4.9).

Table 8: Socio-economic trends in the Danube countries

Economic growth in general until 2021	Economic growth in agriculture until 2021	Economic growth in industry until 2021	Growth in electricity production (thermal) until 2020	Growth in electricity production (hydropower) until 2020 (change in GWh/a produced 2013-2020)*	Growth in energy production (biomass) until 2020 (change in GWh/a produced 2013-2020)#	Population growth until 2021 (changes in total population 2013-2021 at constant fertility rates)+	Water demand per capita (development until 2021)
Austria							
Average economic growth: 1,5% p.a. until 2025. Overall economic output-growth: 1,8%	Agricultural area will decrease: Tendencies for intensifying agriculture will decrease.	Chemicals and chemical products: growth of 5,1% p.a. Metals: annual growth rate: 2,4%. Wood and paper e.g.: corresponds to the overall economic average. Below overall economic average: glass, products of stone and earth, food products and beverages	n. a.	+10.9% (37,958 to 42,114 GWh/a)	+7.9% (4,769 to 5,147 GWh/a)	+2.2%	120 l/capita/day until 2050 (source see below[6])
Bosnia and Herzegovina							
-	-	-	-	+607% (1,667 to 10,121 GWh/a) see below for explanation)	No information	-2.9%	-
Bulgaria							
GVA 2021: 27 507 mio. € (realistic scenario) and 20 110 mio € (baseline	GVA 2021: 1 120 mio € (realistic scenario) and 854 mio € (baseline scenario)	GVA 2021: 6 782 mio € (realistic scenario) and 5054 mio euro (baseline scenario)	n. a.	+10% (3,374 to 3,712 GWh/a)	+44.6% (251 to 865 GWh/a)	-7.3%	Water demand 2021 (1000m³; realistic scenario): Households: 124.526 Industry: 84.783 Agriculture: 14.026 Services:

[6] BMLFUW, ÖVGW, BOKU, 2012: Wasserverbrauch und Wasserbedarf, Auswertung empirischer Daten zum Wasserverbrauch.

Economic growth in general until 2021	Economic growth in agriculture until 2021	Economic growth in industry until 2021	Growth in electricity production (thermal) until 2020	Growth in electricity production (hydropower) until 2020 (change in GWh/a produced 2013-2020)*	Growth in energy production (biomass) until 2020 (change in GWh/a produced 2013-2020)#	Population growth until 2021 (changes in total population 2013-2021 at constant fertility rates)+	Water demand per capita (development until 2021)
scenario)							31.026Projected drinking water consumption per capita in 2021: 38.65 l/ day
Croatia							
3,1 (GDP growth)	-	2,85 % (average rate of growth per year)	Planned growth in electricity production until 2020 of 2400 MW	No information (only baseline was reported)	+1,280% (54.2 to 697.5 GWh/a)	-1.3%	-
Czech Republic							
3%[7]	-	-	Stagnation	+18% (2,293 to 2,706 GWh/a)	+29.9% (3,449 to 4,483 GWh/a)	+1%	1 litre/person/day decrease
Germany[8]							
Moderate increase of GDP in Germany expected for 2015; expected range: +1,0 % to +2,0 %. Projections for 2015 to 2021 not available Scenarios for 2010 to 2020	Slow further decline of contribution to GDP expected. Contribution to GDP of the sector "Agriculture, forestry and fisheries" in 2014 in Germany was 0,8 %. The GDP of the sector is fluctuating around a constant level.	Moderate growth is expected. Contribution of the industry sector to GDP +/- constant around 30 %.	Currently no up-to-date trend projection for the German share of the Danube basin available	Currently no up-to-date trend projection for German share of the Danube basin available	Currently no up-to-date trend projection for the German share of the Danube basin available	-1.8% One single figure doesn't depict situation in different regions realistically. Strong regional disparities prevail; population decrease and increase possible, depending on local conditions.	Steady conditions, slight further decrease is possible. 2010: 121 l/inhabitant and day in Germany

[7] Potential real GDP growth 2018-2013 in the Czech Republic: http://www.oecd.org/berlin/50405107.pdf

[8] National level reported; findings cover long-time empirical values and averages; findings only apply provided that further constant development of trends takes place, corresponding uncertainties exist.

Economic growth in general until 2021	Economic growth in agriculture until 2021	Economic growth in industry until 2021	Growth in electricity production (thermal) until 2020	Growth in electricity production (hydropower) until 2020 (change in GWh/a produced 2013-2020)*	Growth in energy production (biomass) until 2020 (change in GWh/a produced 2013-2020)#	Population growth until 2021 (changes in total population 2013-2021 at constant fertility rates)+	Water demand per capita (development until 2021)
for Germany range from an average rate of growth per year of +1,2 % to +1,9 %9.							
Hungary							
Official Projection 2015-2018 (Based on the Convergence Program) GDP growth per year % 2015: 3,1 2016: 2,5 2017: 3,1, 2018: 2,9 Based on the scenarios used in the national RBMP	no official forecast per sector	no official forecast per sector	Yearly growth rate around 0.9% depend on the GDP growth rate	+7.7% (221 to 238 GWh/a)	+58.5% (2,097 to 3,324 GWh/a)	-2.7% (Based on the HU calculation and what we wrote in the Chapter 5.1 of the national RBMP: Hungary's population by 2021 will be reduced by about 2.48-2.55%)	Based on the assumptions used in national RBMP the specific water consumption in households will slightly increase in the area of public (drinking) water supply. Small growth: 98-102 l/capita/day related to the different scenarios in 2013 96,5 l/capta/day

[9] Source: HWWI, October 2013

Economic growth in general until 2021	Economic growth in agriculture until 2021	Economic growth in industry until 2021	Growth in electricity production (thermal) until 2020	Growth in electricity production (hydropower) until 2020 (change in GWh/a produced 2013-2020)*	Growth in energy production (biomass) until 2020 (change in GWh/a produced 2013-2020)#	Population growth until 2021 (changes in total population 2013-2021 at constant fertility rates)+	Water demand per capita (development until 2021)
Moderate average growth rate: 1% Dynamic economic growth scenario: 2-3%							
Moldova							
-	-	-	-	No information	+620% (5 to 31 GWh/a)	-5.3%	-
Montenegro							
-	-	-	-	No information	Exceptionally large growth (from 1.1 GWh/a in 2013 to 101 GWh in 2020)	+/- 0%	-
Romania							
-	-	5.4%[10]	13%	+/- 0% (19,857 to 19,768 GWh/a)	+41.6% (1,200 to 2,900 GWh/a)	-3.4%	-
Serbia							
-	-	-	-	+15.2% (10,636 to 12,260 GWh/a)	Exceptionally large growth (from 0 GWh/a in 2013 to 945 GWh in 2020)	-4.1%	-
Slovak Republic							
Slow acceleration:	Highest priority in the agricultural sector is to	In total, the industrial production	a) Current fossil fuel power	+6% (5,099 to 5,400 GWh/a)	+62.8% (1,050 to 1,710 GWh/a)	-0.7%	Available is estimate of specific water

[10] Data are available till 2018 according to the National Commission for Prognosis.

Economic growth in general until 2021	Economic growth in agriculture until 2021	Economic growth in industry until 2021	Growth in electricity production (thermal) until 2020	Growth in electricity production (hydropower) until 2020 (change in GWh/a produced 2013-2020)*	Growth in energy production (biomass) until 2020 (change in GWh/a produced 2013-2020)#	Population growth until 2021 (changes in total population 2013-2021 at constant fertility rates)+	Water demand per capita (development until 2021)
2015: +2,9 % 2016: + 3,6 % 2017: + 3,6% 2018: + 3,7 %. - lower inflation rate - growth of export sector expected - foreign investments will stagnate - unemploy-ment will decline Estimates of economic growth for the period after 2018 are not available11.	increase efficiency (stabilize animal production, revive special crop production). The projected development are (up to 2020): Pigs: sows increase by 30,000pcs and increase of their reproductive performance parameters at the level of 20-21 piglets/sow. Poultry: increase in numbers of poultry (states in breeding) at least 885,000pcs (i. e. in 6 runs annually = 5,310,000pcs). Bovine animals: stopping the decline in the state of cattle and stabilization of milk production. Sheep and goats: continuous increase in numbers of breeding and production support from sheep's milk and meat. Vegetables: increase in harvested area of	(manufacturing) will retain its about 80 %-share in GDP creation. 13	plants: 2015: 6,3 TWh 2020: 6,3TWh 2025: 6,0 TWh 2030: 5,7 TWh 2035: 5,0 TWh b) Suggested fossil fuel power plants: 2015: 0,3 TWh 2020: 0,7 TWh 2025: 1,0 TWh 2030: 1,3 TWh 2035: 1,7 TWh Also the nuclear power plants operate on the principle of thermal power plants – using the principle of change of thermal energy into electrical. Expected electricity production in nuclear power plants:				consumption per capita (public water supply) in two variants: Variant 1: 2015: 81,7 liter/year 2016: 82,0 lit/y 2017: 82,3 lit/y 2018: 82,6 lit/y 2019: 82,9 lit/y 2020: 83,2 lit/y 2021: 83,5 lit/y Variant 2: 2015: 81,7 lit/y 2016: 82,4 lit/y 2017: 83,1 lit/y 2018: 83,9 lit/y 2019: 84,6 lit/y 2020: 85,3 lit/y 2021: 86,0 lit/y

[11] Source: Ministry of Finance of the Slovak Republic (as of January 2015).

[13] Source: Evaluation of Routing Options and Conditions for Development of Industrial Production in Slovakia after 2013 (Ministry of Economy of the SR, 2012). An additional source could be “The Innovation Strategy of the Slovak Republic for the years 2014 – 2020”.

Economic growth in general until 2021	Economic growth in agriculture until 2021	Economic growth in industry until 2021	Growth in electricity production (thermal) until 2020	Growth in electricity production (hydropower) until 2020 (change in GWh/a produced 2013-2020)*	Growth in energy production (biomass) until 2020 (change in GWh/a produced 2013-2020)#	Population growth until 2021 (changes in total population 2013-2021 at constant fertility rates)+	Water demand per capita (development until 2021)
	vegetables by 3,000 ha and increase vegetables production by 120.2 % at the level of 240,000t. Fruit: revitalization fruit orchards during 5-7 years in the area of 4,500 ha. Potatoes: increase on harvest area of potatoes by 743 ha.12		2015: 15,5 TWh 2020: 23,7 TWh 2025: 23,7 TWh 2030: 32,8 TWh 2035: 32,8 TWh14				
Slovenia							
-	-	-	-	+21.9% (4,198 to 5,121 GWh/a)	+47.9% (457 to 676 GWh/a)	+0.1%	-
Ukraine							
-	-	-	-	+25% (0.16 to 0.2 GWh/a)	Exceptionally large growth (from 0 GWh/a before 2014 to 4.220 GWh in 2020)	-6.3%	-

*Information on hydropower retrieved from the Assessment Report on Hydropower Generation in the Danube Basin; the exception is BG, where data was retrieved from the National Action Plan under the RES Directive (there was no figure for 2020). All data on hydropower applies to the national level, except HR and UA (Danube-part). For RS, the value also includes the Kosovo – a territory defined by the United Nations resolution 1244 (1999) as an autonomous province of the Republic of Serbia administered by the UN. BA reported data for the current amount of electricity production for the national part of the Danube River Basin, while the figures for the expected amount of electricity production in the year 2020 refer to the whole country. For Romania, the reference year was hydrological exceptional, an increase is therefore also expected. Data for Moldova covers time span from 2015 to 2020.

[12] Prognosis in the agricultural sector is developed based on the "Conception of Agriculture Development of the Slovak Republic for 2013-2020"; additional source: "Rural Development Programme of the Slovak Republic for the period 2014-2020"**.**

[14] There is considered only a limited construction of resources for fossil fuels and therefore only smaller sources based on natural gas with combined electricity and heat production are included in the review (mainly realized as reconstructions to replace old blocks that do not meet the new emission regulations. The thermal power plant "Vojany" with capacity of 880 MW is the largest fossil fuel power plant in Slovakia. At the power plant "Vojany 1" will operate two fluidized blocks of 110 MW, corresponding to emission requirements even after 2015. "Elektrárne Nováky" is a thermal power plant which ensures the sales of domestic coal for electricity and heat production in terms of general economic interest. In order to fulfill the new emission regulations valid after 2015 two blocks have to be reconstructed (2 x 110 MW). Construction of large *steam-gas power plants* is not intended because of air protection and preference for carbon-free nuclear power and renewable energy.

#Based on the National Action Plans in the framework of the Renewable Energies Directive (RES Directive). For non-EU countries, only for Bosnia and Herzegovina there was no NAP available. Data is on the national level.

+National level data, based on: United Nations, Department of Economic and Social Affairs, Population Division (2013) - World Population Prospects: The 2012 Revision.

Summary Assessments of trends for some Danube countries

Slovakia

Agriculture: In the “Conception of Agriculture Development of the Slovak Republic for 2013-2020” considered increase in production of selected animal commodities by 2020 at the national level (compared with 2002) does not create a real risk to the increase of water pollution with nitrogen. The emergence of such risk, which is subject to a variety of environmental factors and management cannot be excluded at farm level.

Considered increase in production of selected crop commodities by 2020 (compared with 2002) does not create preconditions for significant agriculture intensity increase and relating increase in industrial fertilizer consumption. Increase in fertilizer consumption is influenced by production of crops for marketing in relation to the realization prices. It can be stated that current intensity of nitrogen fertilization in industrial fertilizers already at present exceeds the requirements arising from the target increase in production of selected crop commodities (requirements of the “Conception”). The impact of the increase in the intensity of nitrogen fertilization for increasing risk of pollution of water resources cannot be excluded at the farm level. In relation to the risk of pollution of surface- and groundwater with nitrogen from agriculture should be noted that the surplus balance of nitrogen is more objective indicator of non-productive nitrogen losses from agriculture than the actual consumption of nitrogen in industrial and organic fertilizers.

Industry: Key position in industry has the manufacturing, which will be a driver of economic growth also in the development up to 2020. Growth tendencies of the industry of Slovakia will be accompanied by increasing its technological level. Best development prospects in the horizon to the 2020 has the automotive industry and related sectors, especially machinery industry, electrical engineering, metallurgical industry, chemical industry (production of tires and plastics) and part of the furniture industry (car seats). Thanks new investment a favorable economic development will reach also the pulp and paper industry and glass industry.

Each of the (above mentioned) industries use to a greater or lesser extent water. Automotive industry, which is the leading branch, uses in car manufacturing large quantities so called "rinse water" for degreasing and surface treatment of bodyworks. The water must be properly adjusted for each of the production processes. Moreover, it is often necessary to recycle water: the objective is to minimize the consumption of new water and to prevent the penetration of heavy metals from surface treatment processes into wastewater (use of technology of selective ion exchange). Boiler water, cooling water and water for humidification are further examples of the water use in the car industry.

Energy (from: Draft Energy Policy until 2035): According to the reference scenario in the coming period it is envisaged the growth in final energy consumption up to 2035. The energy-saving scenario envisages a further reduction of final consumption. Between 2010 and 2012 there was a significant 10% (40 PJ) decrease in final energy consumption. For saving scenario and application of long-term key measures of energy efficiency, by 2035 further final energy consumption decrease may arise.

It is assumed that by the influence of the turbulence of the economic crisis the consumption of electricity in Slovakia reaches pre-crisis levels until 2017. In the period 2015-2017 the annual increase of electricity consumption should reach 1.7%, and in the next two years it is expected to slow down to 1.4%, respectively 1.3%. As regards the balance of consumption and production of electricity a positive balance is expected only from 2016.

The largest producer of electricity at the national level is “Slovenské elektrárne, a.s.”, with the market share of 82 %. The company uses the surface water mainly as technological and cooling water and hydro-energy potential in hydropower plants. The discharge of wastewater is based on the valid permits issued by water management authorities. As the operation of power plants can have a negative influence on status of water, the company within the monitoring of groundwater and surface water ensures the control of this aspect. Data on hydrological and hydrogeological water status is continuously collected in different sites of individual power plants and their surroundings.

Hydropower: In Slovakia, the largest proportion of renewable electricity production belongs to hydropower, which covers 98% of electricity from renewable sources. The use of hydro-energy potential is approximately 57%. The potential suitable for small hydropower plants, however, is used only to 25%. Hydropower will continue to have a relatively important share of electricity production from renewable sources and by 2020 a dynamic development of mainly small hydropower plants is expected. Note: “Conception of using the hydropower potential of water courses of Slovakia until 2030” will be finished by the end of 2015 (after approval of this conception the size of usable hydropower potential will be specified).

Electricity production from hydropower can have, depending on the type of hydro power plant (derivative hydropower plant, accumulation and pumped-storage hydropower plants), a negative impact on the aquatic environment, natural environment and ecosystems. Hydropower is identified as one of the main causes of hydromorphological changes, loss of longitudinal continuity of flow and significant negative impacts on fish stocks. However, not all hydroelectric power must necessarily have resulted in a deterioration of ecological status according to the WFD.

Bosnia and Herzegovina

Increase in capacity of the urban waste water treatment from current 90,000 PE for additional 600,000 PE, through construction and reconstruction of the WWTPs.

Also in Bosnia and Herzegovina there is in strategic document planned to increase development of hydropower –electricity production and it is planned till 2021 to grow agricultural sector.

Germany

In the course of the analysis of future anthropogenic developments until 2021 in the German share of the Danube basin, socio-economic indicators were considered as well as figures concerning the hydrologic budget, the development of water abstraction and waste water disposal, the energy sector, agriculture and forestry, inland water transport and flood protection.

The development of the different sectors is widely interconnected and the effects of the observable trends are partly opposed.

Yet it remains to be stated that economic growth and use of resources, like water, are decoupled in a society based on the provision of services. Even though interactions clearly exist, changes of economic parameters don't necessarily induce direct changes of ecologic parameters, e.g. concerning the use of water resources and the hydrological balance.

In the overall view the pressure situation due to the observable trends in anthropogenic activities in the considered timeframe can be expected to remain steadily on the current level. Based on the available information, no additional endangerment for achieving the environmental objectives is to be expected, yet, under the assumption of the continuation of currently observable trends, the future pressure situation can't be expected to improve until 2021.

More detailed information on future developments concerning the driving forces affecting the pressure situation on water bodies and, in the end, water status as well as trends and developments concerning the provision of water services, can be obtained in the River Basin Management Plans for the German share of the Danube Basin, provided by Bavaria and Baden-Württemberg.

Austria

Agriculture: Owing to the studied indicators of potential water pollution (livestock or landuse) and accordingly to the prognosis of the Austrian Institute of economic research (WIFO) in the background document for the Economic Analysis 2013 the following things are predicted till 2025:

- in regions with favourable conditions for the expansion of milk production, an increase of the application of organic fertilizer will take place;
- an overall decrease of the agricultural area will happen. This also reduces the risk of diffuse pollution, provided that the specific intensities do not increase;
- as Organic agriculture will be even more financially supported in the next programme for rural development, the tendencies for intensifying agriculture will heavily decrease owing to the market conditions;
- the reason for regional differences in the river basins of Rhine and Danube will be led back to structural facts in these regions.

The expected decrease in beef production (laid down in the prognosis for the (Austrian) river basin management plan 2009) has taken place in the last decade. Unlike a decade ago it is now not to be expected that extensive forms of production will be extended. Relatively high agricultural prices tend to strengthen tendencies towards intensification (see, nitrogen balance in recent years).The impact of climate change could enhance an intensification in the coming decades. However, the agri-environmental program and conditions of the 1st pillar of the CAP weaken these trends.

Industry, Production of goods

Given the observed development of water intensity and the expected production growth, it should be expected, that industrial water consumption will decline in the range of 5% to 15% by 2025.

It is assumed that the amount of waste water will continue to develop in line with water use. I.e. a moderate reduction is to be expected in the period to 2025.

Electricity generation

The electricity generation by hydro power (excluding Pumped storage power plants) will increase till 2025 by an annual average of 0.9% from 132 PJ (2010) to 152 PJ. The share of hydropower (excluding Pumped storage power plants) in domestic generation falls during this period from 54% to 52%. The share of fossil fuel power decreases from almost a quarter to 17%. The share of electricity produced from renewable energy sources (wind, photovoltaic, biomass) increases from 7% to almost 15%.

It was assumed that production losses in small hydropower and run-of-river power occur (> 10 MW) from 2011 and increase linearly until 2027. The losses in storage power plants on the other hand become noticeable from 2021. Furthermore, it was assumed that at the same time the existing potential for plant optimization for existing small hydro- and run-of-river power plants is used. Thus, the (2005) calculated losses are largely compensated..

Czech Republic

Water abstraction and waste water discharge for/from agriculture and industry in the Czech Republic are not expected to increase and the likely scenario (in abstraction and discharge) for the two sectors is stagnation. On the other hand, water abstraction and waste water discharge are expected to increase in case of households. Number of inhabitants supplied with water from water supply systems and inhabitants connected to sewerage systems and WWTPs is also expected to increase. Water quality should be positively affected by construction and improvements of WWTPs.

Progress in urban wastewater and industrial sectors by 2015

ANNEX 12

DRBM Plan – Update 2015

Deutschland //// Österreich //// Česká republika //// Slovensko //// Magyarország //// Slovenija //// Hrvatska //// Bosna i Hercegovina //// Србија //// Crna Gora //// România //// България //// Moldova //// Україна

Country	Basic / supplementary measures									Remarks
	UWWTD implementation					IED and BAT		P-free detergents	Others	
	Agglomerations >10,000 PE (and year)	Sensitive areas %	Estimated total costs (mil. Euro)	Funding sources (mil. Euro)		Status of implementation	Trend			
				EU	National					
Germany	Accomplished	Art. 5(8), combined with Art. 5(4)	Full compliance reached, no further significant costs	Will be made available at a later point in time	Will be made available at a later point in time	Implemented	Continuous improvement corresponding to updating BAT	P-free detergents are in use		Basic measures implemented, a minor number of projects still pending
Austria	Accomplished	Art. 5(8), combined with Art 5(4)	Full compliance reached, ongoing costs for maintenance and reinvestments		65 (2012) for total investments of 265 (Federal funding only)	Implemented	Continuous improvement corresponding to updating BAT	P-free detergents are in use		Basic measures implemented
Czech Republic	Accomplished	Whole territory	Full compliance reached, ongoing costs for maintenance and reinvestments	Will be made available later	Will be made available later	Implemented	Continuous improvement corresponding to updating BAT	dishwasher agents: P content is not restricted. Detergents with concentration of P lower than 0,5 % weight are in use except in industries and institutions where washing is organized by specially trained personnel	Measures are proposed in framework of the River Basin Management Plan (RBM Plan)	Supplementary measures are planned as part of RBM Plan
Slovakia	2010	Whole territory				In	Continuous	The EU	Measures	2010

Country	Basic / supplementary measures									Remarks
	UWWTD implementation					IED and BAT		P-free detergents	Others	
	Agglomerations >10,000 PE (and year)	Sensitive areas %	Estimated total costs (mil. Euro)	Funding sources (mil. Euro)		Status of implementation	Trend			
				EU	National					
		Art. 5(8)				implementation	improvement corresponding to updating BAT	Regulation No 259/2012 as regards the use of phosphates and other phosphorus compounds in consumer laundry detergents and consumer automatic dishwasher detergents will be implemented	will be proposed in the framework of the RBM Plan	
Slovenia	2010.	Art. 5 (8); Also: existing UWWTP=>10,000 PE in Danube Region must upgrade to tertiary treatment till August 2016	More than 884 (a)	More than 35 (a)	State – more than 398 (a) Municipal – more than 133 (a) Loans – more than 318 (a)	Implemented	Continuous improvement corresponding to updating BAT	P-free and P-including detergents are in use. Regulation on implementing the EU Regulation No 259/2012 as regards the use of phosphates and other phosphorus compounds in consumer laundry detergents and	Advisory services for farmers.	In progress. (a) more detailed information is not available

Country	Basic / supplementary measures									Remarks
	UWWTD implementation					IED and BAT		P-free detergents	Others	
	Agglomerations >10,000 PE (and year)	Sensitive areas %	Estimated total costs (mil. Euro)	Funding sources (mil. Euro)		Status of implementation	Trend			
				EU	National					
								consumer automatic dishwasher detergents is in process of adoption right now – November 2014)		
Croatia	2018 (for agglomerations larger than 15.000 PE) 2020 (for agglomerations between 10.000 and 15.000 PE - in sensitive areas) 2023 (for all of remaining agglomerations)	Decision on sensitive areas was issued in 2010. Danube river basin a catchment area of sensitive area due to eutrophication of the Danube Delta - more advanced treatment with nitrogen and phosphorus removal in all agglomerations larger than 10.000 PE.	For Danube River RBD: Total construction costs EUR 1885 million, by means of which the Republic of Croatia would comply with the requirements of the Urban Waste Water Treatment Directive (Danube River RBD, till 2023.) . The greatest investments are expected in the period 2013 – 2018, amounting to slightly more than EUR 196 million per year.	EU funds: EUR 1225 million (till 2023)	National funds: EUR 660 million (till 2023)	Implemented	Continuous improvement corresponding to updating BAT.	EU legislation concerning the detergents is transposed into Croatian legislation. No production of P - detergents		Total construction costs EUR 3191 million, by means of which the Republic of Croatia would comply with the requirements of the Urban Waste Water Treatment Directive. The greatest investments are expected in the period 2013 – 2018, amounting to slightly more than EUR 294 million per

Country	Basic / supplementary measures									Remarks
	UWWTD implementation					IED and BAT		P-free detergents	Others	
	Agglomerations >10,000 PE (and year)	Sensitive areas %	Estimated total costs (mil. Euro)	Funding sources (mil. Euro)		Status of implementation	Trend			
				EU	National					
										year.
Serbia	Construction ongoing for two WWTP, for three WWTP construction not yet started, planning on-going for one WWTP and for six WWTP planning not yet started ;	Proposal for designation of SA in Serbia is expected in 2015 through the cooperation Project with Swedish EPA (Designation of sensitive and vulnerable zones according to the ND and UWWD).	4500 -5000 mil. EUR for capital costs. Estimated by national experts;	Unknown	Unknown	Six permits have been issued and 105 out of an estimated 161 IPPC installations have submitted for permits.	Slow progress	Partially in use;		
Bosnia and Herzegovina	Two existing wastewater treatment plants (WWTP) >10,000 PE and three planned WWTP of same size by 2015	Will be defined in 2013	First estimates about 450 (160 agglomerations with >2000 PE).	Unknown	Unknown	Full implementation is not determined yet. In preparation are 6 BAT for food industry.	Slow progress	Domestic factory produces about 50% P-free detergents, for imported product no information		
Hungary	Will be implemented by 31st Dec 2015 in 3 steps: 31st Dec 2015 (normal area, 2000-15000 PE) 31st Dec 2010 (normal area	On the basis of Art 5 (8) 3 sensitive areas were designated. From 2009 Art 5 (4) P and N reduction rate calculation method is using	2405 (2013-15)	1563* (2013-15)	842* (2013-15)	Implemented	Continuous improvement corresponding to updating BAT	Approx. 90% assumed as P-free by 2014 in household detergent' uses. In 2013 the 259/2004/EK regulation came into force, which will have	Measures will be proposed in the framework of the 2nd RBM Plan.	*Estimation: app. 35% of the cost is covered from national, and app. 65 % from EU sources.

Country	Basic / supplementary measures									Remarks
	UWWTD implementation					IED and BAT		P-free detergents	Others	
	Agglomerations >10,000 PE (and year)	Sensitive areas %	Estimated total costs (mil. Euro)	Funding sources (mil. Euro)		Status of implementation	Trend			
				EU	National					
	above 15.000PE) 31st Dec 2008 in sensitive area 10000-15000 PE	by HU.						further positive effect using more P-free household detergent in HU.		
Bulgaria	2010	Whole Bulgarian part of the Danube River District	352.06 (including Urban WWTP and collecting systems)	178.36 (According to implementation programme of Directive 91/271/EEC)	173.7 (According to Implementation program of Directive 91/271/EEC)	Under implementation	Issue of permits corresponding to IPPC requirements	The EU Regulation No 259/2012 as regards the use of phosphates and other phosphorus compounds in consumer laundry detergents and consumer automatic dishwasher detergents will be implemented	Basic measures will be proposed in the framework of the RBM Plan	
Romania	2015 (2018 for agglomerations between 2000 - 10,000 PE) according to the EU Accession Treaty	Whole territory Art 5 (2) Art 5 (8)	13,400 (including agglomerations between 2000 - 10,000 PE) according to the Accession Treaty	2700 (Cohesion Fund for the period 2007-2013) in the frame of the Sectoral Operational Program for	500 (National co-finance for EU Fund 2007-2013) 1792 (Loans at different International	Under implementation (maximum transition period obtained December 2015)	Continuous improvement corresponding to IPPC permits and IED permits	The decrease in trend of average % of P in AWM detergents is continuing. Romania will implement the provisions of the EU	Measures are proposed in the framework of the National RBM	In progress

Country	Basic / supplementary measures									Remarks
	UWWTD implementation					IED and BAT		P-free detergents	Others	
	Agglomerations >10,000 PE (and year)	Sensitive areas %	Estimated total costs (mil. Euro)	Funding sources (mil. Euro)		Status of implementation	Trend			
				EU	National					
			12,084 (starting with 2007, for all agglomerations, basic and supplementary measures) according to the first National RBM Plan, out of which 10,772 until 2015 and 1,312 until 2018 for basic measures and 2024 for supplementary measures	Environment 2420 (Cohesion Fund for the period 2014-2020) in the frame of the Operational Program for Large Infrastructure	Finance Institutions for the period 2006-2009) 427 (National co-finance for EU Fund 2014-2020)			Regulation No 259/2012 as regards the use of phosphates and other phosphorus compounds in consumer laundry detergents and consumer automatic dishwasher detergents (deadline 31st December 2016).	Plan	
Moldova	Till 2026 State of 2014	Not applicable Not applicable	1,8000 (source: Water Supply & Sanitation Strategy) 6,7 (for all MD)	1,530 (estimate) 6,5 (for all MD)	270 (estimate) 0,2 (for all MD)	MD-EU Association Agreement was ratified by the Parliament in July 2014 (Law No 112 of July 2, 2014). Action Plan for implementation of MD-EU Association Agreement was approved by GD No 808 of Oct	In progress	No progress	In progress	For reporting of state of 2014, there exists no national statistics on UWWTP implementatio n a) disaggregated per PE of agglomeration s, and b) foreign investments,

Country	Basic / supplementary measures									Remarks
	UWWTD implementation					IED and BAT		P-free detergents	Others	
	Agglomerations >10,000 PE (and year)	Sensitive areas %	Estimated total costs (mil. Euro)	Funding sources (mil. Euro)		Status of implementation	Trend			
				EU	National					
						7, 2014. According to Action Plan, evaluation of institutional capacities and gaps in national legislation will be done in the 4th quarter of 2015, and study aimed at identification of installations requiring permits will be finished in 4th quarter of 2016				and c) EU funds very. Therefore provided figures on funding sources relate to a) all foreign investment, which are mainly EU (source of data: National Statistics on Investments of 2013, and open publications) and b) figures on Funding Sources are estimated.
Ukraine	2020	Not designated. Designation will be decided according EU-UA Association Agreement timetable.	will be determined by the implementation plan of the UWWTP directive	-	The National Law "Programme for Drinking Water" adopted 20th of October 20011	No obligation to implement. The National Plant Protection Low was adopted in 1998. In 2006 Ukraine	Coordination of national legislation with EU standards in phytosanitary.	The Law "State regulation of detergents" had been registered in the national Parliament. This law provides a partial reduction	In progress	Not developed

Country	Basic / supplementary measures									Remarks
	UWWTD implementation					IED and BAT		P-free detergents	Others	
	Agglomerations >10,000 PE (and year)	Sensitive areas %	Estimated total costs (mil. Euro)	Funding sources (mil. Euro)		Status of implementation	Trend			
				EU	National					
					N3933-VI) provides finance for 2015 of 916.4 million UA hrn. During previous years The Programme for Drinking Water was usually underfunded. The State Budget for 2015 has not been adopted. Probably, many programs will be significantly reduced, because of the war with Russia.	subscribed the IPPC.		of phosphate compounds in detergents from 17% to 0.7% during 7 years. The law has not yet been adopted.		

COUNTRY	No of agglomerations for which WWTP will be constructed, upgraded or extended as indicated in the JPM of the 1st DRBM Plan[1]	Generated load	Costs	IMPLEMENTATION STATUS BY END 2015 (reference to measures as agreed on national level)								Comment
				Not started		Ongoing				Completed		
						Planning ongoing		Construction ongoing				
		PE	Euro	No of agglom	Generated load (PE)	No of agglom	Generated load (PE)	No of agglom	Generated load (PE)	No of agglom	Generated load (PE)	
DE												UWWTD fully implemented
AT												UWWTD fully implemented
CZ	21 (> 10,000 PE)	387,847	-	-	-	-	-	-	-	21	387,847	All agglomerations with more than 2000 PE are connected to WWTPs
	70 (> 2,000 and < 10,000 PE)	208,043	-	-	-	-	-	-	-	70	208,043	
SK	73	3,748,336		0	0	5	213,826	16	942,100	52	2,455,020	The status of the implementation according National Programme 2012 is expressed in number of agglomeration with access to WWTP or provided by IAS . Reference year of PE - 2012-
	272	1,126,112		0	0	113	442,625	22	108,122	137	712,755	
HU	322+ 16 sensitive: 338	9,687,832		0	0	125	5,852,654	93	2,071,398	120	1,763,780	total number of agglomerations >2000 PE: 567 from which 229 agglomeration are appropriate
SI	16 > 10,000 PE	565,400		0	0	0	0	0	0	16	565,400	In some Slovenian cases one UWWTP serves for more than one aggl.. There are also cases that UWW of one aggl. are treated on more than one UWWTP. Thus ratio m:n should be taken into consideration.
	29 between 2,000 and 10,000 PE	134,850		0	0	0	0	0	0	29	134,850	

[1] as indicated in the Annex 3 of the 1st Danube River Basin Management Plan 2009.

COUNTRY	No of agglomerations for which WWTP will be constructed, upgraded or extended as indicated in the JPM of the 1st DRBM Plan[1]	Generated load	Costs	IMPLEMENTATION STATUS BY END 2015 (reference to measures as agreed on national level)								Comment
				Not started		Ongoing				Completed		
						Planning ongoing		Construction ongoing				
		PE	Euro	No of agglom	Generated load (PE)	No of agglom	Generated load (PE)	No of agglom	Generated load (PE)	No of agglom	Generated load (PE)	
												The numbers in this table refer to the number of UWWTPs completed and taking into account the m:n ratio the number of the agglomerations for which UWWTPs have been constructed, upgraded or extended is even higher.
HR	31	1,941,649	829,306,734	0		5	1,000,371	7	363,807	19	577,471	For Danube River RBD
BA	6	100,000		2	5,000			2	80,000	2	15,000	
ME	-	-	-	-	-	-	-	-	-	-	-	-
RS	13*	1,481,000		6	673,000	4	343,000	2	235,000	1	230,000	*different number of aggl. due to integration of three planned WWTP in to one Regional UWWTP

COUNTRY	No of agglomerations for which WWTP will be constructed, upgraded or extended as indicated in the JPM of the 1st DRBM Plan[1]	Generated load	Costs	IMPLEMENTATION STATUS BY END 2015 (reference to measures agreed on national level)								Comment
				Not started		Ongoing				Completed		
						Planning ongoing		Construction ongoing				
		PE	Euro	No of agglom	Generated load (PE)	No of agglom	Generated load (PE)	No of agglom	Generated load (PE)	No of agglom	Generated load (PE)	
RO	1350	18,836,562	6,994,988,374	88	677,921	320	2,358,894	480	10,531,653	462	5,268,094	This situation is a result of the rearrangement of agglomerations delineation due to the reconsideration of the priorities and funding according to the new County Master Plans and local strategies developed after 2012. As consequence in comparison with the baseline scenario presented in the Annex 3 of the DRBMP 2009, the total number of agglomerations with more than 2000 p.e. decreased from 2609 to 1852, out of which 1625 agglomerations between 2000-10000 p.e. and 227 agglomerations with more than 10000 p.e. For the period 2010-2015, there will be financed works for all agglomerations with more than 10000 p.e. and 1123 agglomerations between 2000-10000 p.e., representing around 89% of total biodegradable organic loads.
BG	137*	4,046,019	340,160,000	88	322,894	9	294,322	13	2,664,780	27	764,023	*After the census in 2011 and the data provided by the

COUNTRY	No of agglomerations for which WWTP will be constructed, upgraded or extended as indicated in the JPM of the 1st DRBM Plan[1]	Generated load	Costs	IMPLEMENTATION STATUS BY END 2015 (reference to measures as agreed on national level)								Comment
				Not started		Ongoing				Completed		
						Planning ongoing		Construction ongoing				
		PE	Euro	No of agglom	Generated load (PE)	No of agglom	Generated load (PE)	No of agglom	Generated load (PE)	No of agglom	Generated load (PE)	
												National Statistics Institute, updated of the list of settlements within agglomerations reported under Directive 91/271/EC. The data showed that the population has decreased. Taking this into consideration after the calculations of the PE of these agglomerations the result showed that the number of some has been reduced under 2000 PE. Therefore these agglomerations with PE under 2000 have been excluded from the list.
MD	4	137,000	19,320,000	4	137,000	2	32000	0	0	3	40600	In 3 agglomerations with total generated load of 40600 PE upgrade and extension of UWWTPs which were not included in the DRBMP were completed Construction of UWWTPs for 4 agglomerations included in the DRBMP has not started yet.
UA	14	638,600	2,600,000	5	559,350	3	30,116	4	47,034	2 (1 – for tubercula r clinic)	2,000 (100)	For 1 UWWTP (Beregomet, PE 2,511 (Siret basin) is planned 127.5 th.Euro but financing has not yet arrived

COUNTRY	No of agglomerations for which WWTP will be constructed, upgraded or extended as indicated in the JPM of the 1st DRBM Plan[1]	Generated load	Costs	IMPLEMENTATION STATUS BY END 2015 (reference to measures as agreed on national level)								Comment
				Not started		Ongoing				Completed		
						Planning ongoing		Construction ongoing				
		PE	Euro	No of agglom	Generated load (PE)	No of agglom	Generated load (PE)	No of agglom	Generated load (PE)	No of agglom	Generated load (PE)	
TOTAL	**2,374**	**43,039,250**	**8,186,375,108**	**193**	**2,375,165**	**586**	**10,125,183**	**639**	**16,935,772**	**961**	**13,124,883**	

Trends and implementation of measures in agriculture by 2015

International Commission for the Protection of the Danube River

Internationale Kommission zum Schutz der Donau

ANNEX 13

DRBM Plan – Update 2015

Country	Land use development assessment (% change)			Livestock trends	Inorganic fertilisers application	Nitrogen (N) surplus (trends)	Nitrates Directive implementation		Rural Development Programmes (Axis 2) (mil Euro)
	Cultivated agricultural area	Forestation	Urban area				Year	Vulnerable zones %	
Germany	-1[1]	0	+1	-14%[2]	No changes	declining due to further increases in N-efficiency; estimate at present – 6%	1996	Action Programme for the whole German territory	Will be made available at a later point of time
Austria	Slightly declining, with an estimate of –3,5% (period 2006-2010)	Slight increase due to climate change and use of marginal agricultural land	Increasing, but an estimate cannot be given	0,3% [3]	2,4% [4]	Stabilized level between 25kg/ha and 35kg/ha	Fully implemented	Action Programme for the whole Austrian territory i.e. Austria accepts Black Sea waters as a *vulnerable zone*	817 (2012)[5] 5.698 (2007-2013)
Czech Republic	Slight decrease (-1)	Slight increase (0,2)	Increasing, but an estimate cannot be given	Decrease (- 10 %)	Slight increase (+ 5 % N-fertilizers and P-fertilizers)	Stabilized level	2004	41,6% of Czech Republic	Will be made available at a later point in time
Slovakia[6]	Decrease by 1.3%	Increase by 0.5%	Increase by 3%	Cattle – decrease by 8% Pigs – decrease by 42% Sheep/goats – increase by 17,5% Poultry – decrease	Increase by 35% in total (of which N increase by 45%, P_2O_5 increase by 23%).	Stabilized level, under 50 kg/ha, values till now visibly influenced by variability of climatic conditions of concrete year	2004	33.5% of Slovak country	Will be available later

[1] National statistics for total area; near total area are used at present

[2] Data from Bavarian Grassland Study 2008

[3] Data from AT Nitrates Report 2012

[4] Data from AT Nitrates Report 2012

[5] Grüner Bericht 2014 (www.gruenerbericht.at)

[6] Comments from Slovakia – Data correspond to national scale and is based on Index 2011/2006. Data source – national statistics.

Country	Land use development assessment (% change)			Livestock trends	Inorganic fertilisers application	Nitrogen (N) surplus (trends)	Nitrates Directive implementation		Rural Development Programmes (Axis 2) (mil Euro)
	Cultivated agricultural area	Forestation	Urban area				Year	Vulnerable zones %	
				by 16%					
Slovenia	Slightly increasing, 2010-2013 (SURS)	Slightly increasing, 2010-2013 (SURS)	Increasing (Kazalci okolja)	Declining trends 2010-2013 (SURS)	Slightly increasing in 2013 comparing to 2012 (SURS)	Slightly increasing since 2010-2012 (Kmetijski inštitut Slovenije, Kazalci okolja)	2004	Action Programme for the whole territory of Slovenia.	Agri-Environment Climate Measures and Organic farming (2014-2020) caa. 260 mil. euro
Croatia	In 2012. total of 1.539.000 ha was under cropland and 1.216.000 ha under grassland. That makes around 49 % of total area of Croatia under agricultural land in different categories of use.	In 2012. total of 2.334.000 ha of total Croatian area was under forests (cca 41 % of total area of Croatia).	In 2012. around 4.5 % of the total area of Croatia was under settlements.	In livestock production in 2012. there were total of 740.266 livestock units (LU) raised in Croatia. From that number 87 % was produced in the Danube river basin in Croatia.	In 2012. the consumption of mineral fertilizers in Croatia was 463.688 t.	Unknown	July 2013	Vulnerable zones are designated through Decision on designation of vulnerable zones in Republic of Croatia, OG 130/12. Total 9 % of Croatian territory (75 municipalities and cities) is designated as vulnerable zones	Croatian Rural Development Program for period 2014 – 2020 is funded by total of 2.383.790.294,12 €
Serbia	-1.5	0.5	1	In relation to the ten years average (2003-2012) cattle: -11.7%; pigs -10.7%; horses -16.9%; sheep +4.1%; goats and poultry +25.4%;	46 kg N	n/a	Not yet transposed in the National legislation. Implementation of ND is planned for 2018.	Not yet determined.	n/a
Bosnia and Herzegovina	n/a	n/a	n/a	n/a	n/a	n/a	Full implement-tation is expected end 2021.	Identification of vulnerable zones is expected end 2012.	n/a
Hungary	-1 (2009-2013)	+1,0 (2009-2013)	+ 0.3	2013/2009 ratio: cattle: +12% pig: -7% sheep: +4 %	Increasing trend 2013/2009 ratio on country level: +35%	The yearly N surplus is generally negative on country level, but there are some years when the	From 2001continuously	70.0 (2014)	1627 (for the period 2007-2013) *For the period 2014-20 still under negotiation with EU Commission.*

Country	Land use development assessment (% change)			Livestock trends	Inorganic fertilisers application	Nitrogen (N) surplus (trends)	Nitrates Directive implementation		Rural Development Programmes (Axis 2) (mil Euro)
	Cultivated agricultural area	Forestation	Urban area				Year	Vulnerable zones %	
				poultry: -8% From 2009 to 2012 slightly decreasing (cattle, pig, sheep, poultry), but from 2012-2013 slightly increasing trends mainly in cattle, pig.	Brutto NPK fertilizer application (kg /hectare): 2009. 64 2010 72 2011 77 2012 82 2013 93	mean value is positive Year /N- balance (kgN/hectar) 2004 -13 2008 -18 2011 - 2 (There are bigger differences on the county level averages.)			
Bulgaria	The arable land has increased: in 2012 with 2.1%; in 2013 with 5%. The total agricultural area has increased in 2012 with 0.7% and in 2013 decreased with 2.5% (Based on Agrarian Report 2013 and 2014).	The total forested area has increased with 16706 ha (0.4%) in 2013 (Based on Report 2014 of Executive Forest Agency).	Slightly increased with 0.8%.	The livestock equivalent indicator increased with 3.4% in 2013.	Consumption of nutrients: Nitrogen Fertilizers (N total nutrients in tonnes): 2013 379853 2012 317609 2011 371015 2010 270129 2009 278360 Phosphate Fertilizers (P205 total nutrients in tonnes): 2013 70032 2012 69362 2011 48780 2010 28148 2009 46888 (Data source: Faostat)	Gross Nitrogen Balance per hectare: level between 13kg/ha and 36kg/ha. 2004 14 2005 20 2006 19 2007 36 2008 12 2009 17 2010 13 2011 13 2012 14 (Source: Eurostat, estimated)	Ordinance № 2 of 13.09.2007 on protecting waters from pollution by nitrates from agricultural sources; Order № RD 09-157 / 03.14.2014 of the Minister of Agriculture and Food and the Order № RD - 267 / 01.04.2014 of the Minister of Environment and Water for approval program of measures to reduce and prevent nitrate pollution from agricultural sources in vulnerable areas; Order of the Minister of Agriculture and Food reg. № RD 09-501 / 07.23.2014 on the	34.55% (of the area of the whole country); 45.6% (of the area of the Bulgarian part of the Danube River Basin)	For the whole country: 1465 – Financial Rural Development programme implementation on measures (Art. 82 (2) (c) of Regulation (EC) 1698/2005) based on paid projects - Total public funds paid for the period 2008-2012, of which 193 paid under Axis 2.

Country	Land use development assessment (% change)			Livestock trends	Inorganic fertilisers application	Nitrogen (N) surplus (trends)	Nitrates Directive implementation		Rural Development Programmes (Axis 2) (mil Euro)
	Cultivated agricultural area	Forestation	Urban area				Year	Vulnerable zones %	
							approval of the Code of Good Agricultural Practice; Order (№ RD 09-369 / 05.28.2015 of the Minister of Agriculture and Food and № RD - 419 / 06.11.2015 of the Minister of Environment and Water) amending the Programme of measures to limit and prevent pollution caused by nitrates from agricultural sources in vulnerable areas		
Romania	Slightly decreasing (based on Statistics 2005-2013)	Very slight increasing (based on Statistics 2005-2013)	Slightly increasing (based on Statistics 2005-2013)	Decreasing for cattle, pigs, horses and poultry and increasing for sheep and goats (but still far behind EU average) based on National Institute of Statistics 2005-2013)	Slightly increasing until 2011 and after then a slightlyy decreasing but still far behind EU average. (based on Statistics 2005-2013)	N surplus is still very low compared with other EU member states. No important changes are expected taking into consideration the trends for livestock and fertilisers. (2005 – 2013)	2007-2010 -first action programme 2011-2013 –second action programme 2014-2017 – third action programme	6.70 (for the first Action Programme) 57.7 (for the second Action Programme) whole territory approach (for the third action programme)	- 2792 for Axis 2, 2007 - 2013 (realized, including cofinancing) - 3723 planed for Environmental Measures for the next National Rural Development Plan 2014 - 2020
Moldova	+ 0,5 (2010-2013)	Slight increase, by 400 ha (2010-2013)	+ 0,3 (2010-2013)	-14% (2010-2013)	+ 72% , from them, nitrogen fertilizers + 64 (2010-2012), however, organic farming is practiced on 1,7% of cultivated lands (or ca. on 20,5 thousand ha in the MD part of the Danube basin)	Not estimated	n/a	n/a	ac. 277 (2010-2014) (source CAPMU Progress Report I sem:2014) Separate figure for Axis 2 is unavailable
Ukraine	-0.05% according State Agency of Land Resources of	+0.09% for all Ukraine	+0.52% By regions:	2014 to 2013 (%)	+ 19% By regions :	Not estimated	n/a	n/a	16,057 - State Special Programme of Rural Development (for period

Country	Land use development assessment (% change)			Livestock trends	Inorganic fertilisers application	Nitrogen (N) surplus (trends)	Nitrates Directive implementation		Rural Development Programmes (Axis 2) (mil Euro)
	Cultivated agricultural area	Forestation	Urban area				Year	Vulnerable zones %	
	Ukraine	Forestation by region: Transkarpathian oblast- 724.6 thous.ha; Ivano-Frankivska oblast– 633 thous.ha ; Chernivetska oblast-257.9 thous.ha Odeska oblast– 223.9 thous.ha	Transkarpathian oblast- 25.9 thous.ha; Ivano-Frankivska oblast– 34.52 thous.ha ; Chernivetska oblast-20.5 thous.ha Odeska oblast– 54.4 thous.ha	Cattle: -2.5% Pigs: +4.5% Sheep: -0.2% Poultry: +7.5%	Transkarpathian - (-6.5%) Ivano-Frankivska– (-9.3%) Chernivetska – +38.2% Odeska – +18.2				2007 – 2015)

COUNTRY	MEASURES

	Afforestation of agricultural land ha /year (2007-2015)	Manure storage capacity (months)	Prohibition periods for applying fertilizer and manure (months)	Limitation of N and phosphorous application		Code of Good Agricultural practices in line with ND requirements (ha)	NVZ (ha) comparison with the values from the ND implementation, respectively similar areas declared	Restrictions of some agricultural activities on slopes (slope in %)
				• kg/ha on agricultural land	• kg/ha on grass land			
DE	No legal obligation (woodland area increased by 1 % since 1980)	6 months	1st Nov – 31st Jan of the following year on arable land, 15th Nov – 31st Jan of the following year on grass land. In the time from the harvest of the main crop till winter it is not allowed to apply more manure than the actual need of the following main crop, cover crop or on the field remaining cropstraw is, together not more than 40kg of ammonium-N or 80 kg total-N per hectare	170 kg N/ha from livestock manure in line with ND	170 - 230 kg N/ha from livestock manure in line with ND and EC 2006/1013/EG depending on no. of harvests, balance of N and P	Whole territory approach, code of good agricultural practice is therefore included in the Düngeverordnung (ca. 5 mio. ha)	Whole territory approach according to Article 5 (6) of the ND	On arable land with a mean slope > 10 % in a distance of 20 m to the upper edge of the bank of a surface water the application of N or P containing fertilizers is not allowed within a distance of 3 m to the upper edge of the bank. Otherwise fertilizers can be applied between the distance from 3 until 10 m to the upper edge of the bank if these fertilizers are introduced directly into the soil, or at the remaining part of the area according to the specific provisions.

COUNTRY	MEASURES							
	Afforestation of agricultural land ha /year (2007-2015)	Manure storage capacity (months)	Prohibition periods for applying fertilizer and manure (months)	Limitation of N and phosphorous application		Code of Good Agricultural practices in line with ND requirements (ha)	NVZ (ha) comparison with the values from the ND implementation, respectively similar areas declared	Restrictions of some agricultural activities on slopes (slope in %)
				• kg/ha on agricultural land	• kg/ha on grass land			
AT	No legal obligation; wooded area increased by 8 % since 1961; during the last years the area was almost constant. 4,0 million ha woodland, 48 % of the state territory	At least 6 months. Certificates of leak proves tests are required	15th Oct - 15th Feb of the following year on agricultural land in general, 15th Nov - 15th Feb, if following crop is sawn until 15th October 30th Nov - 28th Feb of the following year on grassland, 30th Nov - 15th February for manure, compost within the period -from harvest till the beginning of the respective prohibition period and -for grassland from 1st Oct till the beginning of the respective prohibition period it is not allowed to apply fertilizers containing more than 60 kg of N per hectare	60 - 240 kg N/ha depending on crop requirement (expected crop yield) and soil potential in total (170 kg N/ha from livestock manure in line with ND)	40 - 280 kg N/ha depending on no. of cuts	Whole territory approach, code of good agricultural practice is therefore included in the Nitrates Action Programme (ca. 3.2 mio. ha)	Whole territory approach according to Article 5 (6) of the ND	The application of N containing fertilizers including sewage sludge on agricultural fields with average slope of more than 10% within distance of 20m towards surface waters has to comply with the following obligations: the application of N containing fertilizers – with the exception of solid manure and compost - has to be split in all cases where more than 100 kg/ha of N is foreseen to be applied; in case of crops with a late start of the growing season in spring, the slope has to be subdivided with horizontal sowing stripes with soil covering plants, or between arable land foreseen for fertilization and surface waters a buffer strip of 20 m, or fields have to be vegetated over winter period.

COUNTRY	MEASURES							
	Afforestation of agricultural land ha /year (2007-2015)	Manure storage capacity (months)	Prohibition periods for applying fertilizer and manure (months)	Limitation of N and phosphorous application		Code of Good Agricultural practices in line with ND requirements (ha)	NVZ (ha) comparison with the values from the ND implementation, respectively similar areas declared	Restrictions of some agricultural activities on slopes (slope in %)
				• kg/ha on agricultural land	• kg/ha on grass land			
CZ	385 ha/year (2,5 % from agri area of NVZ for the actual period). During the whole programming time, the measure is implemented with the necessity of 18 years commitment for the HRDP and 15 years commitment for the RDP. In accordance with period of implementation of this measure, the annual number of new afforested hectares has a downward trend (2010 – 236 ha). Concerning the first results of mid-term evaluation there is more over importance for local ecosystems and regional benefits.	The capacity of storage spaces for manure must be sufficient for storing of manure during the period of ban for the fertilization.The deposition of solid manure and solid organic fertilizers on agricultural land is permissible for 12 months at longest. The deposition at the same place can be repeated after 4 years of land cultivation. Since 01.01.2014 the capacity of storage spaces for manure will have to correspond to the need for storage of their six-month production.	Use of fertilizers with a slow releasable N on arable land is prohibited between 1. 6. – 31. 7. (this provision does not apply in the case of subsequent cultivation of winter crops and catch crops) and in period between 15.12 - 15.2. Use of fertilizers with slow releasable N on grassland is prohibited between 15.12. - 15.2. Periods of fertilization ban are not applicable for faeces and urine left on the land by livestock during grazing or their other stay on agricultural land and for fertilizing covered areas (greenhouses, plastic foil greenhouses).	The quantity of total N kg/ha applied anually on agricultural land in organic and combined organic/inorganic fertilizers and manure cannot exceed on average in total area of agricultural land of farm entreprise 170 kg . ha-1, while including agricultural land appropriate for fertilization.	Application of N fertilizing substances is restricted to 80 kg of total N/ha. The calculation of used N dose per ha shall be carried out on the basis of data on total N input in organic and combined organic / inorganic fertilizers and manure.	Code of Good Agricultural practices application is obligatory in the whole area – area of 3 531 370,65 ha (35 313,7 km2), in line with ND. ND requirements are obligatory for NVZ defined. For the rest of agricultural areas are implemented on the voluntary bases.	Area of NVZ designated for ND in 2011 – 1 759 883,73 ha (arable land – 1 476 534,04 ha and grass land - 256 198,78 ha) – 49,83 % of total agricultural area. Quality monitoring report in 2012.	Appropriate agrotechnical erosion control measures which are in the conformity with site conditions shall be carried out on agricultural plots with arable land on erosion endangered soils, delimited in accordance with main soil unit (limit of 7 or 12 degrees). Appropriate agrotechnical erosion control measures are especially: contour line cultivation, soil protective cultivation with retaining of organic residues on soil surfaces, mulching, sowing into protective crop and/or stubble, sowing into rough cut or discontinuous ridging.

COUNTRY	MEASURES							
	Afforestation of agricultural land ha /year (2007-2015)	Manure storage capacity (months)	Prohibition periods for applying fertilizer and manure (months)	Limitation of N and phosphorous application		Code of Good Agricultural practices in line with ND requirements (ha)	NVZ (ha) comparison with the values from the ND implementation, respectively similar areas declared	Restrictions of some agricultural activities on slopes (slope in %)
				• kg/ha on agricultural land	• kg/ha on grass land			
SK	To 31th December 2013, first afforestation of the agricultural land, supported from RDP 2007-2013, was realized on 255 ha (0.013% of UAA).	In national legislation (MoA Decree No 338/2005) is embedded the requirement for 6-12 months storage capacity for solid manure and 3-4 months for liquid manure. Because legally defined storage capacities for animal manures in NVZs are insufficient, the relevant AP is under revision. With regard to 6 months storage capacity for solid and liquid animal manure there is still indicated some deficit which can be solved via completion of them or via contracting external storage.	In revised AP in VZs there is assumed more stringent definition of period with prohibition of manures containing nitrogen as it is at present (15th November to 15th February).	Besides ND limit (170 kg N/ha from animal manures in VZs) N inputs are limited via maximum single N rate. In the revised AP in NVZs there will be defined also the maximum fertilizer N rate for individual crops. P application is long term under the crop demands.	Soil with slope above 7o : 80 kg N/ha. Phosphorous is not limited	Code of Good Agricultural practices application is obligatory in vulnerable areas – area of 1,461,646 ha (14616.46 km2) and recommended - outside of vulnerable zones (total agricultural land in the whole SR with manure application: 1,939,275 ha (19392.75 km2).	Since 2004, the area of NVZs was unchanged and represents 60% of agricultural land.	1. Whole territory of Slovakia on recommended base (through Code of Good Agricultural practices) : a. Land with slope above 12% should not be used as arable land 2. Whole territory of Slovakia – obligation: a. Fertilizers are not applied on land with slope above 12%, if there is a risk of washing them out to surface water (MP SR Regulation Nr.338/2005 (§ 14) issued to the Act on fertilizers) 3. NVZ – obligation: a. Land with slope above 12% is prohibited for using it as arable land and is not allowed to fertilize it with nitrate fertilizers b. On agricultural land with slope above 7% is necessary to carry out anti erosion measures.
HU	During the period 2007/13, the average afforestation in HU was in ha/year 2007: 18.948	In accordance with The Code of Good Agricultural Practice the capacity of the farmyard manure	No manure shall be applied between 31 Okt and 15 Feb, except for the top dressing of winter cereals where	The annual volume of N applied through organic manure on agricultural areas may not exceed 170 kg/ha. Whether it	No special limit value for grass land in Hungary.	HU transposed the ND. The rules of the Code of Good Agricultural Practices are obligatory on the	The designation entered into force by the Government Decree No. 27/2006. (II.7.) on the	As for plantations on slopes more than 15 %, fertilizers may be applied only if the anti-erosion measures

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				• kg/ha on agricultural land	• kg/ha on grass land			
	2008: 7332 2009: 5168 2010: 5096; 2011: 2803; 2012: 4537; 2013: 2531;	storage facility shall be sufficient for the storage of 6 months' volume of farmyard manure.	manure application will be permitted from the 1st of Feb. The post-harvest application of manure containing readily soluble nitrogen is prohibited if no new crop is sown in autumn. The application of fertilizers is not allowed on frozen soil and on lands saturated with water or covered with snow	originates from grazing or from livestock farms, the volume of N applied shall be calculated by using the values in the rules of the action programme. On NVZ areas the maximum volume of total (organic+inorganic) N kg/ha allowed for major crops during the vegetation period by soil category and soil nutrient supply is set.		NVZ's (6,5 million ha). Outside the NVZ's, the agri environmental measures assist the implementation of GAP on voluntary basis.	protection of waters against pollution caused by nitrates of agricultural sources. The designation was carried out according to the ND. The revision of the NVZ's is fullfilled.	specified in the soil protection plan to be compiled pursuant to separate legislation are fulfilled. The application of slurry will not be allowed on slopes above 6%, except if done with the sliding hose (hose curtain) procedure that may be used on slopes of maximum 12%. If applied on slopes above 12%, the chemical fertilizers shall be promptly incorporated into the soil except for top dressing. The application of fertilizers will not be allowed on slopes above 17%. On slopes more than 2 % for the hindering of erosion such cultivation method shall be used which enhances the absorption of rainwater in the soil due to the conservation of the soil structure and the hindering or elimination of soil compaction.

COUNTRY	MEASURES							
	Afforestation of agricultural land ha /year (2007-2015)	Manure storage capacity (months)	Prohibition periods for applying fertilizer and manure (months)	Limitation of N and phosphorous application		Code of Good Agricultural practices in line with ND requirements (ha)	NVZ (ha) comparison with the values from the ND implementation, respectively similar areas declared	Restrictions of some agricultural activities on slopes (slope in %)
				• kg/ha on agricultural land	• kg/ha on grass land			
SI	2012 - 13945 ha, 2014 - 23391 ha (Dejanska raba MKGP, Kmetijsko zemljišče v zaraščanju - 1410)	15th of Nov till 15th of Feb; some areas from 1st of December till 31th of Jan. On areas higher than 800 m from 15th Nov till 1st March. (Uradni list RS, št. 113/09 in 5/13)	**Manure:** 15th of Nov till 15th of Feb; some areas from 1st of December till 31th of Jan. On areas higher than 800 m from 15th Nov till 1st March **Fertilizers:** 15th of Nov till 1st of March; except for fertilizing crops in greenhouse. For winter crops prohibition is from 1st of Dec till 15th of Feb. (Uradni list RS, št. 113/09 in 5/13)	Nitrogen 60 - 320 kg N/ha per year depending on crop; table 4 of Annex 1 of Decree (Uradni list RS, št. 113/09 in 5/13)	Nitrogen 170 - 320 kg N/ha per year depending on no. of harvests; table 4 of Annex 1 of Decree (Uradni list RS, št. 113/09 in 5/13)	Whole territory approach, code of good agricultural practice is therefore included in the Nitrates Action Programme (agricultural land in use – ca. 460.000 ha)	Whole territory approach according to Article 5 (6) of the ND	On slopes greater than 20%. Nitrates Action Programme: The application of manure on land has to be split in separate applications, only up to 80 kg/ha per single application of N are allowed to be spread. (Uradni list RS, št. 113/09 in 5/13)
HR	Ministry of Agriculture does not collect data on aforestation of agricultural land.	According to the 1st Action Programme the requirement for storage capacity is 6 months.	According to the Ist Action Programme fapplicaiton of manure is prohibited from 15th of November untill 15th of February. Also the application of fertilisers and manure is prohibited on water saturated, floded, frozen or snow covered agricultural land.	In the period 2013. - 2017. yearly limit for application of nitrogen is 210 kgN/ha. After this period, the appplication limit will be minimized to 170 kgN/ha/year. Moreower, in Ist Action Programme the limits for application of nitrogen according to the agricultural plant species.	Limits for application of nitrogen on grassland is 240 kg N/ha	The Brochure Codes of Good Agricultural Practice has been issued in 2009 by Croatian Ministry of Agriculture in cooperation with Croatian Advisory Service. The Brochure consists of Codes of Good Agricultural Practice in usage of Land, Air, Water and Animal Welfare.	NVZ in Croatia are established through the Governmental Deccision on designation of vulnerable zones, OG 130/12. Vulnerabla zones in Croatia cover 9 % of land teritorry (75 local municipalities and cities).	According to the Ordinance on Cross compliance, OG 32/14, agricultural activity on slopes with inclination 15 % or more must be conducted perpendicular to the slope.

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				• kg/ha on agricultural land	• kg/ha on grass land			
BA	No data regarding afforestation of agricultural land.	In Republika Srpska is not adopted any regulation regarding Codes of Good Agricultural practice.	There is no regulation in Republika Srpska which prohibits the periodic applying of fertilizers on agricultural land during the year. In Republika Srpska is not adopted any regulation regarding Codes of Good Agricultural practice.		In Republika Srpska is not adopted regulation regarding Codes of Good Agricultural practice or any other law or by-law which regulate limitation of N and P fertilizers application.	The implementation of ND and harmonization with Codes of Good Agricultural practice is not finished.	According to Water Law, there is obligation for detections, methodologies, obligations and restrictions of activities in NVZ and monitoring of NVZ, which will be proclimed by Ministry of agriculture, forestry and watermanagement in cooperation with Ministry in charge of ecology, but no by-law or decision, yet.	
ME	-	-	-	-	-	-	-	-

COUNTRY	MEASURES							
	Afforestation of agricultural land ha /year (2007-2015)	Manure storage capacity (months)	Prohibition periods for applying fertilizer and manure (months)	Limitation of N and phosphorous application		Code of Good Agricultural practices in line with ND requirements (ha)	NVZ (ha) comparison with the values from the ND implementation, respectively similar areas declared	Restrictions of some agricultural activities on slopes (slope in %)
				• kg/ha on agricultural land	• kg/ha on grass land			
RS	During the period 2010/2012, the average afforestation in Serbia was 2386 ha /year. By 2015 it is expected that aforestation area will be enlarged to 3000ha/year.	Legal framework for manure storage capacity is in preparation. Recommendation for storage capacity is 6 months, and will be implemented via transpositon of ND.	There is no regulation in Serbia which prohibits the periodic applying of fertilizers on agricultural land during the year. Traditionaly, fertilizers are not applying on a frost or snow covered land.	n/a	n/a	Activities for transposition of ND with Code of Good Agricultural have been initiated. CGA published in 2010 though the project DREPR is now in the proces of updating.	NVZ areas according to ND are not designated. Proposal for designation of VZ in Serbia is expected in 2015 through the cooperation Project with Swedish EPA (Designation of sensitive and vulnerable zones according to the ND and UWWD).	According to Low on Agricultural land (2009) agicultural area with a slope greater than 10% has to be cultivated parallel to contour lines and area with a slopes greater than 25% should not be used as arible land. Responsibility for implementation these restrictions is under local government.

COUNTRY	MEASURES							
	Afforestation of agricultural land ha /year (2007-2015)	Manure storage capacity (months)	Prohibition periods for applying fertilizer and manure (months)	Limitation of N and phosphorous application		Code of Good Agricultural practices in line with ND requirements (ha)	NVZ (ha) comparison with the values from the ND implementation, respectively similar areas declared	Restrictions of some agricultural activities on slopes (slope in %)
				• kg/ha on agricultural land	• kg/ha on grass land			
RO	According to the data of National Statistics Institute the afforestation has registered a slight increasing less than 1% (2007-2012).	The capacity of manure facilities must be at least 6.5 months for liquid manure and 5.5 months for solid manure.	According to the third Action Program, the prohibition periods are as follows: - For solid manure: 1'st Nov – 15'st March. - Liquid manure and mineral fertilizers are splited in 3 categories of prohibition periods as follows: * For autumn crops the prohibition is from 1'st Nov – 1'st March, * for other crops the prohibition is from 1'st Oct – 15'st March, * for pastures the prohibition is from 1'st Oct – 15'st March.	Third AP allows maximum 170 kg of nitrogen of organic fertilizer per hectare. Also, in the sanitary and hydrogeological safeguard zone, the fertilizers are forbidden to be applied or handled.	Third AP allows maximum 170 kg of nitrogen of organic fertilizer per hectare. Also, in the sanitary and hydrogeological safeguard zone, the fertilizers are forbidden to be applied or handled.	In the process of implementation of the Nitrates Directive, the Code of Good Agricultural Practices (CGAP) has been elaborated and harmonized with ND. The provisions of the CGAP are mandatory on whole territory of Romania (23 mil. ha).	For the first Action Program (2005 – 2008), a surface of 16,000 skm (6.7 % from the total surface) was designated as NVZ. Since December 2008, the NVZ surface increased at 137,500 skm (13,750,000 ha), which was representing 57.7 % from the total surface. For the third AP Romania adopted whole territory approach - art 3 (5) ND. (23,839 mil. ha, 100% of the total surface).	The third Action Programme stipulates the following: (1) fertilizers are to be incorporated into the soil taking into account weather forecasts (it is forbiden to apply fertilizers, especially liquid manure when intense precipitation are forecasted). (2) On the arable land with slopes between 2% - 8%, it is recomended the preservation of autumn crops and winter cover crops at minumum 20% from the farm arable land comprised in this category of slope area. (3) On the arable land with slope between 8 and 15 %, it is recommended the preservation of automn crops and winter cover crops at minumum 25% from the farm arable land comprised in this category of slope area. In this area it is recomandet that the fertilizers to be incorporated into the soil in maximum 24 hours. (4) On the arable land

COUNTRY	MEASURES							
	Afforestation of agricultural land ha /year (2007-2015)	Manure storage capacity (months)	Prohibition periods for applying fertilizer and manure (months)	Limitation of N and phosphorous application		Code of Good Agricultural practices in line with ND requirements (ha)	NVZ (ha) comparison with the values from the ND implementation, respectively similar areas declared	Restrictions of some agricultural activities on slopes (slope in %)
				• kg/ha on agricultural land	• kg/ha on grass land			
								with slope > 15 %, it is obligatory the preservation of automn crops and winter cover crops at minumum 30% from the farm arable land comprised in this category of slope area. On these areas, the application of fertilizers is made only by incorporation into the soil immediately after application (no later than 24 hours) with slope > 15 %, it is obligatory the preservation of automn crops and winter cover crops at minumum 30% from the farm arable land comprised in this category of slope area. On these areas, the application of fertilizers is made only by incorporation into the soil immediately after application (no later than 24 hours)
BG	A total of 592,3 ha of afforestation of agricultural land for the period 2007-2012 was realized within the Bulgarian part of the Danube	In line with ND, a PoM to reduce and prevent nitrate pollution from agricultural sources in the NVZ and Rules for good agricultural	For NVZ, the importation of nitrogenous fertilizers (organic and mineral) is prohibited during the following periods: - From 1 November to	In the area of NVZ for all crops, meadows and permanent pasture, the imported quantity of Nitrogen from organic fertilizer during the year must not exceed 170 kg	Complying with the same requirements as on agricultural land	Bulgaria transposed the ND. The rules of the Code of Good Agricultural practices are obligatory within the NVZ, for the Bulgarian part of the	The NVZ was designated by the Decree 930/25.10.2010 of the Minister of Environment and Water. In 2010 the	For NVZ measures are foreseenfor the use of N fertilizers (mineral and organic / inorganic) on land with slopes greater than 6° such as: treatment of soil should

COUNTRY	MEASURES							
	Afforestation of agricultural land ha /year (2007-2015)	Manure storage capacity (months)	Prohibition periods for applying fertilizer and manure (months)	Limitation of N and phosphorous application		Code of Good Agricultural practices in line with ND requirements (ha)	NVZ (ha) comparison with the values from the ND implementation, respectively similar areas declared	Restrictions of some agricultural activities on slopes (slope in %)
				• kg/ha on agricultural land	• kg/ha on grass land			
	River District. According to the annual report of the Executive Forest Agency for 2013 the total area of the forest territories for the whole county has increased with 16 706 ha in 2013 compared to 2012. Afforested area increased with 15 788 ha in 2013 compared to 2012.	practices were developed and implemented. The period of manure storage is 6 months.	25 February for North Bulgaria (regions of Varna, Vratsa, Veliko Tarnovo, Gabrovo, Dobrich, Lovech, Montana, Pleven, Razgrad, Ruse, Silistra, Targovishte and Shumen). - From 1 November to 25 February for free areas and areas occupied by permanent crops - From 15 November to 25 February in case of creation of new fruit plants. In these cases, entry of manure is exceptionally allowed to 15 November.	N/ha. When more than 12 kg active substance Nitrogen per ha is imported, the fertilizer rate should be split into two - one third of the norm must be imported before sowing or before planting, and the difference of the norm to be left for feeding up.		Danube River Basin it is 2,153 million ha; for whole country is 3,835 million ha. For agricultural lands, which are not falling within NVZ, application of the Rules of good agricultural practice (GAP) from farmers is voluntary.	area of the North NVZ was 3.08 million ha. In 2012 there were changes, and now the NVZ for the Bulgarian part of the Danube River Basin is 2,153 million ha; for the whole country NVZ is 3,835 million ha.	be contour (horizontal) or across the slope, establishment of perennial crops, the rows should be oriented in the direction of the slope and between the rows to plant grass, no fertilization of areas with a slope greater than 6°, if the distance to surface water bodies (rivers, streams, canals, lakes, reservoirs, sea, etc.) is less than 50 meters. At terrains with a slope greater than 12° the importation of fertilizer is prohibited. For arable lands, outside the NVZ, there are general precautions for the use of N fertilizers such as: limitation period for importation, according to soil type and mechanical composition, the physical condition of soils, appropriate allocation of fertilizer norm and more.

COUNTRY	MEASURES							
	Afforestation of agricultural land ha /year (2007-2015)	Manure storage capacity (months)	Prohibition periods for applying fertilizer and manure (months)	Limitation of N and phosphorous application		Code of Good Agricultural practices in line with ND requirements (ha)	NVZ (ha) comparison with the values from the ND implementation, respectively similar areas declared	Restrictions of some agricultural activities on slopes (slope in %)
				• kg/ha on agricultural land	• kg/ha on grass land			
MD	Project "Creation of forests under the jurisdiction of local public administration" - 2006-2009, reforested 10589 ha of eroded and degraded agricultural lands, through planting 2653,91 ha; in 2007 – 3861,75 ha; in 2008 – 2818,74 ha, and in 2009 – 1254,21 ha. Forest plantation activities were implemented in in many areas. The goal is to maintain, regenerate, and, where possible, expand current forests. The cost of reforestation and maintenance was approximately US$1,000/ha for the first few years until forest cover has been established	The provision is not included in any of the laws and regulations. Manure storage is allowed in specialized storage houses. The total estimated quantity of manure stored at the platforms is of 82,530 tn which represent 794 t of nutrients reduced. Adoption of manure management practices in middle Prut basin contributed to a reduction of nutrient discharges up to 40 kg N/ha/year and 36 kg P/ha/year.	National regulations are in place to monitor the timing and amount of fertilizer applications so as to minimize nutrient runoff. A key government program on using new land and increasing soil fertility includes specific soil protection measures, including fertilizer application techniques and financial assistance for soil protection activities. There is no legal restriction for applying of manure. The recommendations: chemical fertilizers containing N should be applied to the land shortly before the start of the growing season, i.e. March, provided ground and weather conditions are suitable, and others.	According to Code of Good Agricultural Practice, 10 kg of mineral fertilizers containing N /ha should be applied in order to prevent mineral N depletion. Also, 8- 10 t manure /ha/year should be applied to non-eroded soils, 14-15 t/ha /year to eroded soils, 10-12 t/ha/year to irrigated soils.	This provision is not included in the Code of Good Agricultural Practice. The main sources of pollution are runoff from agricultural fields and inappropriate manure management. Although pesticide and fertilizer use has shown a stable declining trend for the last 4-5 years, approximately 30 percent of agricultural lands currently lack P, which seriously affects soil fertility.	Moldova has already completed a Code of Good Agricultural Practice which was developed in accordance with European normative acts and Moldovan legislation, it does not represent a mandatory document, but just a set of recommendation.. The Code was widely considered as too technical/scientific to be effective and a revuion is planned.	The designation of NVZ is not provided by the Moldovan legislation, and that provision was not included in any of the laws and regulations. In this case, action programs should be implemented on the entire territory. In undertaking a revision of the Code of Good Agricultural Practice the following steps should be undertaken.	No legal provisions for restriction of agricultural activities on slopes but just recommendations. Nevertheless, crops are still mainly grown without consideration to proper relief and soil type in terms of soil conservation. The excessive transformation of hilly pastures and meadows into land for annual crops, without any attention paid to relief, physical or biological monitoring is a case. Overall eroded area increases by 0.86% a year. The annual loss of fertile soil particles amounts to about 22 x 106 t year-1, with maximum erosion rates greater than 30 t ha-1 year-1. The economic value of eroded soil corresponds to an estimated annual loss of 45-55 €MIO.

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	Afforestation of agricultural land ha /year (2007-2015)	Manure storage capacity (months)	Prohibition periods for applying fertilizer and manure (months)	Limitation of N and phosphorous application		Code of Good Agricultural practices in line with ND requirements (ha)	NVZ (ha) comparison with the values from the ND implementation, respectively similar areas declared	Restrictions of some agricultural activities on slopes (slope in %)
				• kg/ha on agricultural land	• kg/ha on grass land			
UA	According to data of the State Forest Resources Agency were reforested eroded and degraded agricultural lands: 2012 – 55.4 thou. ha 2013 – 57.6 thou. ha In Ukraine forest management is provided according the State Programme "Forests of Ukraine"for 2010-2015, adopted by 16.09.09 № 977. Budget for 2015 will be 4520.7 million UA hryvna. According the Programme 107700 ha will be added in year 2015.	Manure storage is regulated by the Law about waste. According this Law manure storage is allowed in specialized storage places, authorized in conformity with an established procedure. The large agricultural enterprises store manure both liquid and solid forms. Household manure storage are only as solid. The total quantity of produced manure in Ukraine was 12136 thousand t in 2013.	There is no legal restriction for applying of manure. Norms of fertilizers are established depends on the content of N or P in soil and volumes of application of organic fertilizers. Appropriate recommendation nitrogen fertilizers are applied only in spring (if soils are sandy or sandy loam – directly before planting). 20 % of phosphorus are recommended to apply in spring and 80 % – in autumn.	Doses of fertilizers depend on soil, crop and a plant-forecrop. Dose is defined by 3 methods: calculation, field, complex. Limitation: Nitrogen 30 - 180 kg N/ha per year Phosphorus – 45-90 kg P/ha her year Manure – 20-60 t/ha.	Nitrogen 80-120kg/ha, phosphorus 45-60 kg/ha. In year 2010 had been applied nitrogen fertilizers: Tizsa basin – 980 t; Prut basin – 4790 t in Ivano-Frankivska region and 5530 t in Chernivetska region; Lower Danube pare – 41620 t in Odeska region.	Scientific bases and technology of optimum cultivation of separate cultures are developed. It is not a mandatory document just a set of recommendation.	The designation of NVZ is not provided by the Ukrainian legislation, and that provision was not included in any of the laws and regulations.	There exists no legal provisions for restriction of agricultural activities on slopes but just recommendations. Agricultural activities depends of slope: < 3% - cultivation of all cultures is allowed; 3–9 % - soil-protective crop rotations are applied; >9–15 % - the contour-strips organisation of territory and soil-protective crop rotations are applied; >15% - only grass is allowed. By the general estimations about 31,7 % of the lands are eroded in Ukraine. Amount of eroded lands annually increases by 80-90 thousand ha.

COUNTRY	MEASURES					
	Area with organic production (ha)	Measures against erosion: buffer stripes (river in km, m of width)	Erosion-minimizing cultivation systems (catch crops) (ha of arable land)	Establishment of wetlands (ha of new wetlands or rehabilitated ones)	Nutrient Balances (% of farmers obliged to do the nutrient balances)	On Farm Advice/Extension Services (no of farmers trained)
DE	336.300 hectares (= 7,4 % of the utilised agricultural area in whole Baden-Württemberg and Bavaria) – are managed according to the criteria of organic farming (2013). No legal obligation	Whole territory 10 m (rivers, slope >10%): see column 9; optional (financial support) Bavaria: on arable land buffer stripes with a width of 10 - 30 m to the water pollution control and soil conservation. On application of fertilisers containing N or P, the direct discharge of nutrients into surface waters has to be avoided, and the run-off into surface waters has to be prevented.	Optional (financial support) Bavaria 2013: ca. 125.800 ha (6,1 % of arable land); Optional (financial support) Baden-Württemberg 2013: ca. 34.900 ha (18 % of arable land)	No relevant	100 % according to Düngeverordnung	Bavarian water protection advisory service: 11 consultants especially for implementation of the WFD; ca 6.600 consultations p.a. Water protection advisory service Baden-Württemberg: 6 consultants with focus on water protection

COUNTRY	MEASURES					
	Area with organic production (ha)	Measures against erosion: buffer stripes (river in km, m of width)	Erosion-minimizing cultivation systems (catch crops) (ha of arable land)	Establishment of wetlands (ha of new wetlands or rehabilitated ones)	Nutrient Balances (% of farmers obliged to do the nutrient balances)	On Farm Advice/Extension Services (no of farmers trained)
AT	533.230 hectares not including alpine pastures (= 20 % of the utilised agricultural area) – are managed according to the criteria of organic farming (2012). No legal obligation	Whole territory (ca. 100,000 km rivers) During fertilization of agricultural land the direct discharge of nutrients into surface waters has to be avoided by keeping a distance between the border of the spreading-width of fertilizers and the upper edge of the bank of the respective surface water. Furthermore, run-off into surface waters has to be prevented. The minimum distance must be 5m (rivers) 10m (rivers, when areas within distance of 20m to rivers have average slopes >10%) 20m (stagnant waters) In cases of permanently vegetated buffer stripes between agricultural field and surface waters or application using soil injection the distances can be halved (with exception of areas with average slope >10% within distance of 20m towards stagnant waters).	Financial support from the subsidy program "ÖPUL". In 2012: 47.464 farms with 426.539 ha participated in measures on catch crops; 4.249 farms with 156.007 ha participated in measure on precautinary soil conservation and water protection; in total 110.274 farms (76%) participated the Austrian RDP "ÖPUL" with in total € 526 million subsidies.	National parks "Lake Neusiedl-Seewinkel" (9.064 ha) and "Donau-Auen" (9.323 ha). Nature and landscape protection area	Nutrient balances with obligatory documentation for all farms > 5 ha agricultural area (> 15 ha agricultural area, if more than 90 % is grassland) or > 2 ha vegetable gardening or > 2 ha vineyards; in total 110.000 farms (60 % of all farms). From 2015 onwards: obligation to document the amount of fertilizers applied; this is necessary for any control;	Austrian Water Protection Advisory Service: 17.000 consultations p.a.; 500 trainings and lectures; 7 consultants, 44 specially trained farmers as working group leaders, ca. 2.130 working group members (farmers) + several Soil Protection Advisory Services in Austria

COUNTRY	MEASURES					
	Area with organic production (ha)	Measures against erosion: buffer stripes (river in km, m of width)	Erosion-minimizing cultivation systems (catch crops) (ha of arable land)	Establishment of wetlands (ha of new wetlands or rehabilitated ones)	Nutrient Balances (% of farmers obliged to do the nutrient balances)	On Farm Advice/Extension Services (no of farmers trained)
CZ	435 165,5 ha (11,8 % from agri area of NVZ; or 12,3 % from agri area of the whole CZ). The percentage of area overlapping reflects the geographical position of land plots designated or in organic farming evidence.	For reasons of soil protection from erosion and waters from pollution, wide-row crops (maize, sunflower, soya, bean, potatoes etc.) cannot be cultivated on agricultural plots with the slope above 7 degrees and in the distance less than 25 m. There are 6 160, 96 ha of arable land with slope over 7 degrees nearby watercourses or water bodies.The water protection and protection against erosion is also under GAEC covered by special protection technologies. The protection activities are also implemented under AEM in RDP implemented.	Agricultural plots threatened by soil erosion must be cultivated in accordance with GAEC practice (no wide-row crops). Plots protected under ND requirements Over 7°- 23 030,42 ha of NVZ There are also some measures under RDP concerning the problematic of erosion (expect of Afforestation mentioned above) in AEM. C1 Conversion of arable land to grassland -46 995 ha C2 Growing of catch crops – 80 712 ha C3 Bio – belts 2 117 ha.	Negligible in CZ Permanently waterlogged and peat land meadows – 1 652 ha under special management of AEM commitment.	100% Keeping evidence on fertilizer consumption and calculation nutrient balance (first of all the nitrogen balance) is an obligation for all farmers (base on the national legislation – using also for RDP controls) Act No. 156/1998 Coll., on fertilizers, as last amended.	MoA. Regional agencies for agriculture and countryside – no. 63 www.mze.cz The Network of Ministry of Agriculture has been built on providing necessary information to agricultural practice. Accredited consultants are taking part in regular courses and training to help farmers, not only in practical matters, crops, livestock and forestry, but today mainly related to subsidies. There is close cooperation with all researches' institutes. www.nitrate.cz www.agroporadenstvi.cz www.vuv.cz www.vurv.cz Control bodies Central Institute for Supervising and Testing in Agriculture (CISTA) ensure controls of farmers for Cross Compliance system Czech Environmental Inspection from the point of water protection. There is also consulting system under RDP Axis I – information programmes organization. Private sector participation

COUNTRY	MEASURES					
	Area with organic production (ha)	Measures against erosion: buffer stripes (river in km, m of width)	Erosion-minimizing cultivation systems (catch crops) (ha of arable land)	Establishment of wetlands (ha of new wetlands or rehabilitated ones)	Nutrient Balances (% of farmers obliged to do the nutrient balances)	On Farm Advice/Extension Services (no of farmers trained)
SK	To 31th December 2013, organic farming was supported from RDP 2007-2013 on area 148 988 ha (7.72% of UAA).	Whole territory (61,147 km rivers). Fertilizers are prohibited to apply, in minimum width of 10 m from surface waters (rivers, reservoirs, fish ponds, wetlands)	To 31th December 2013, protection of the soil against erosion was (within Agri-environmental payments) supported from RDP 2007-2013 on area 3 697 ha (0.19% of UAA)	Negligible	100% Keeping evidence on fertilizer consumption and calculation nutrient balance (first of all the nitrogen balance) is an obligation for all farmers (according to MP SR Regulation Nr. 338/2005 (§ 16) issued to the Act on fertilizers)	Agricultural advice service in SR provides Agroinštitút Nitra. To 31th December 2013, 338 farmers received support from RDP 2007-2013 within on farm advisory services. Utilization of agricultural services wiil be suported also by Rural Development Programme SR 2014 – 2020.
HU		The establishment of buffer stripes has been legislated, the implementation starts from the 1st of Jan 2012.	The Agri Environmental Program between 2009-2014 (5-year program) cultivation of catch crops is compulsory on 750 thousand hectares of arable lands. Catch crop must be applied at least once in 5 ys in these areas.	The establishment of new wetlands is not foreseen. The remediation of the existing wetlands are subsidised by the frame of the Environment and Energy Operational Programme (KEOP) as subprograms e.g.: Complex Water protection investments, and habitat-related infrastructure development The implementation is going on.	At the time of planning the nutrient management of agricultural areas, the volume of nutrients to be applied shall be calculated in view of the nutrient supply of the soil and the nutrient demand of the crop that is necessary for a crop yield adjusted to the conditions of the actual. Soil analysis in every 5 year is an important element of this assessment.	The institutional structure of the Hungarian 73/2007. (July 27th) FVM Decree of the Ministry of Agriculture gives the Common Agricultural Policy support schemes to assist the functioning of agricultural advisory system.The agricultural extension system of duties: a) The National Advisory Centre, b) the regional advisory centers, c) the regional advisory centers, d) of professional counseling centers, and e) the National Advisory Committee There are no figures available on the number of farmers trained.
SI	38897 ha (SURS, 2013 - zemljišča z ekološkim kmetovanjem in zemljišča v preusmeritvi v ekološko kmetovanje)	Buffer stripes for Rivers 1st order 15 m of width and Rivers 2nd order 5 m of width	Optional (financial support)	Most actions for keeping exsisting wetlands with sustainable management. BioMura project establishing of old canal distributaries	All farmers who use mineral fertilizers are obliged to make nutrient balances and farmers who participate in Agri-Environment Climate Measures	Slovenian chamber for agriculture and foresty (KGZS) organizes trainings and advisory through regional units. Farmers who apply for Agri-Environment Climate Measures must attend training.

COUNTRY	MEASURES					
	Area with organic production (ha)	Measures against erosion: buffer stripes (river in km, m of width)	Erosion-minimizing cultivation systems (catch crops) (ha of arable land)	Establishment of wetlands (ha of new wetlands or rehabilitated ones)	Nutrient Balances (% of farmers obliged to do the nutrient balances)	On Farm Advice/Extension Services (no of farmers trained)
HR	In 2013 there were 1609 agricultural producers doing organic production on 3,12% of agricultural land in Croatia.	Buffer stripes are desiganted through Ist Action Programme and are as follows: – at 20 m distance from the outer edge of a lake bed, or other standing water,– at 3 m distance from the outer edge of water course beds having a width of 5 meters or more,– on slanted terrains along the water courses, having a slope greater than 10% within a distance of less than 10 m from the outer edge of the water course bed. Buffer stripes are also obligatory GAEC 1 according to the Ordinance on Cross compliance.	Problems with soil erosion should be settled through minimal soil cover. On agricultural parcels with slopes of 15% or more, ploughing should be performed only perpendicular to the slope. All GAEC standards prescribed in Ordinance are obligatory for farmers in use of direct payments in Croatia.	In 2012. there is 74.000 ha of wetlands and this number is slightly increased (+2.000 ha) from 1990.	Farmers are not obliged to do the nutrient balance on their farms.	The Agricultural Advisory Service in Croatia employs 239 employees, mostly Agricultural Engineers. It has offices in each Croatian county and Zagreb.

COUNTRY	MEASURES					
	Area with organic production (ha)	Measures against erosion: buffer stripes (river in km, m of width)	Erosion-minimizing cultivation systems (catch crops) (ha of arable land)	Establishment of wetlands (ha of new wetlands or rehabilitated ones)	Nutrient Balances (% of farmers obliged to do the nutrient balances)	On Farm Advice/Extension Services (no of farmers trained)
BA	No valuable data. (till the date of filling in this table)	Measures against erosion are prohibition of: a) Perform operations in the area and in the way that intensify erosion and creation of flood flows b) Bare-denudate surface, c) Clear forest areas which prevent slide of soil and snow deposit, flatten the flows or protect in other way downstream territories against harmful erosion influence, d) Obstruct the springs, e) Collect or divert collected water through erosive or sliding territories without supervision, and other activities.	No data.	There is no organized establishment of new or revitalization of old wetlands in Republika Srpska.		
ME	-	-	-	-	-	-
RS	Area of organic production covers about 0,5%, or 11.000 ha of total 5.000.000 ha of agricultural lands.	Measures against erosion are organised locally. Buffer strips are not regulated by low.	Technical measures against erosion are applied on ~ 160000 ha/year and biological measures on ~120000 ha/year. Due to extremely developed erosion, every biological work was done simultaniously with the technical work and administrative measures against erosion are applied on ¼ of Serbian territory.	There is no organized establishment of new, or revitalization of old wetlands in Serbia.	About 150 farmers (who owns at the most 50 000 ha and 18 to 1000 cows) went through training for nutrient balances implementation. The number of farmers who went through the training is presented in promiles.	In accordance with the Low on the performance of advisory and professional work in the field of agriculture (OG.RS 30/10) agricultural advisory and extension services are organised in 34 municipalities.

COUNTRY	MEASURES					
	Area with organic production (ha)	Measures against erosion: buffer stripes (river in km, m of width)	Erosion-minimizing cultivation systems (catch crops) (ha of arable land)	Establishment of wetlands (ha of new wetlands or rehabilitated ones)	Nutrient Balances (% of farmers obliged to do the nutrient balances)	On Farm Advice/Extension Services (no of farmers trained)
RO	In 2013, the area of organic production covered 301148 ha, representing over 2% of the agricultural area. (source: Ministry of Agriculture and Rural Development)	The third AP requires additional buffer strips besides the ones stipulated in Romanian Water Law 107/1996 with further amendments (where the buffer strips must have a width between 2 m to 50 m, depending by the width of water courses, type and use of water resources or hydrotechnical works). The additional buffer strips must have a width: a) 1 m for land with slope < 12%; b) 3 m for land with slope > 12%.	Applied being considered an important measure for prevention of soil erosion	There are measures and studies proposed in the Program of Measures of the River Basin Management Plan, which will be implemented particularly in the second and the third planning cycle.	100 % according to the tird AP	In Romania there are 2 main institutions which conduct training for farmers, Ministry of Environment and Climate Change (MECC) and Ministry of Agriculture and Rural Development (MARD). From 2012 - middle 2014 MECC trained 6020 farmers, 2415 specialists who work in the structures and organizations involved in environmental issues, 1452 people from several institutions such as local authorities, agronomists, doctors and veterinarians, teachers and others. In the same period, MARD trained 1301 young farmers in 50 training sessions and 17307 farmers who practice subsistence agriculture in 692 sessions. In parallel County Agricultural Chambers, which are under the technical coordination of MARD, conducted in 2012 - middle 2014 over 3900 information/training sessions in 1700 localities with the participation of over 60000 farmers.

COUNTRY	MEASURES					
	Area with organic production (ha)	Measures against erosion: buffer stripes (river in km, m of width)	Erosion-minimizing cultivation systems (catch crops) (ha of arable land)	Establishment of wetlands (ha of new wetlands or rehabilitated ones)	Nutrient Balances (% of farmers obliged to do the nutrient balances)	On Farm Advice/Extension Services (no of farmers trained)
BG	At the end of 2013 the total number of organic products registered in the Ministry of Agriculture and Food, organic producers, processors and retailers was 3123, in 2012 the number is 2016, in 2011 the number is 1054. In 2013, the areas with organic production in the National system of control (areas in transition period and areas passed the transition period) reached 56 287.05 ha. *Source: Ministry of Agriculture and Food, based on data from annual reports of the controlling persons of organic production.*	National standards introducing Conditions for keeping land in good agricultural and environmental condition (GAEC) are obligatory for all farmers, owners and / or users of agricultural land, which receive support under various schemes of the CAP, complementary national payments and the following measures from the Programme for Rural Development: payments to farmers for environmental constraints in mountain areas; Agricultural environmental payments; Natura 2000 payments for lands; forests, etc. It is mandatory the establishment of buffer strips with a minimum width of 5 meters along the surface water bodies (rivers, reservoirs, lakes, sea), with the exception of rice cells by natural vegetation (grass, trees, shrubs) or maintained in sod. The application of mineral and organic N fertilizers in the buffer strips is prohibited.	Measures include the enforcement of the implementation of the National standards to protect the soil from erosion. The feature 'catch crops' is not observed in arable land. Associated crops "meadows - orchards" in the utilized agricultural area: during 2011- 19 196 ha of meadows, orchards; Vegetables' production areas are 872 ha. during 2012 - 19 097 ha of meadows, orchards; during 2013 - 15 945 ha of meadows, orchards; during 2014 - 15 868 ha of meadows, orchards. *Source: Ministry of Agriculture and Food, Department "Agricultural Statistics", based on data from Survey "Production of vegetables"*	In 2011 the National list of wetlands with International importance was extended with "Karst Dragoman marsh complex" with a total area of 14,967 ha, which includes some of the last preserved karst marshes in Bulgaria. A project for two wetlands Restoration (activities on physical restoration of the wetlands in the two protected areas) was implemented and completed. Three projects are under implementation, financed by the Operational Programme Environment 2007-2013, Priority Axis 3: Biodiversity - habitat restoration through the hydraulic measures, restoration of priority habitats type wetlands.	The National Agricultural Advisory Service (NAAS) conducts regular free information and training seminars for agricultural producers. Part of the measures include training of the agricultural producers on fertilizer rates. Rates should be determined based on the collected and analyzed soil samples for soils' reserves with nitrogen, phosphorus and potassium, organic carbon, etc., which will help to determine the amount of imported fertilizers.	The National Agricultural Advisory Service (NAAS) implemeneted 4 projects, financed by Operational Programme Rural Development 2007 - 2013, Measure 111 "Professional training, information activities and dissemination of knowledge". The aim of the projects is to provide consulting, training and information services to farmers. In the frame of the project a total of 1784 farmers were trained.

COUNTRY	MEASURES					
	Area with organic production (ha)	Measures against erosion: buffer stripes (river in km, m of width)	Erosion-minimizing cultivation systems (catch crops) (ha of arable land)	Establishment of wetlands (ha of new wetlands or rehabilitated ones)	Nutrient Balances (% of farmers obliged to do the nutrient balances)	On Farm Advice/Extension Services (no of farmers trained)
MD	Inn 2006, the organically farmed area amounted from 11000 to 12.392 hectares. By 2015, area under organic farming has to increased up to 31.100 ha. The production volume shall be increased to about 75.000 tons (mainly, wine, sunflower oil, walnuts, lavender oil, honey, and dried and frozen fruits) – these data were provided by three certification bodies.	From 2009 till 2012, area under forest ptotection strips has decreased by 3%. In August 2014, GoM ratified Program for Soil Ferility Improvement and Increase 2011-2020 which stipulates applying of mitigation measures against erosion. In January 2014, GoM approved National Plan on extending the forest vegetation areas for 2014-2018. The proposed measures provide for afforestation of the degraded lands, the strips for the protection of rivers and water basins, as well as the strips for protection of farmlands over an area of at least 13,000 hectares. The national plan also aims at protecting the soil against erosion and improving the water balance. The estimated cost of the actions envisaged in the plan amounts to about 295 million lei, with the money earmarked from the state budget, National Ecological Fund and external donations	Systems are being appled, but precise data are unavailabe. Estimate data 433000 ha of arable land in the MD part of the Put River basin)	Ca. 200 ha (Middle & Low Prut)	There exists no legal provisions to keep the Nutrient Balance by farmers.	Agricultural extension services are well developed through a network of non-state institutions, private companies, technical assistance projects, and farmer organizations. The foundations for the extension system are offered by the non-governmental organization National Rural Development Agency (ACSA), which includes a network of 35 Regional Centres Service Providers, 425 consultants (350 local, and 75 – regiona). On an annual basis, the network provides over 250 thousand advisory services, including around 3500 seminars and training programs, approximately 3000 written recommendations, 2500 round tables and meetings, over 45 thousand on-site visits and approximately 200 thousand individual consultations. From 2010 till 2014, total number of trained farmers is ca. 4000 (all MD)

COUNTRY	MEASURES					
	Area with organic production (ha)	Measures against erosion: buffer stripes (river in km, m of width)	Erosion-minimizing cultivation systems (catch crops) (ha of arable land)	Establishment of wetlands (ha of new wetlands or rehabilitated ones)	Nutrient Balances (% of farmers obliged to do the nutrient balances)	On Farm Advice/Extension Services (no of farmers trained)
UA	According to various estimates the organically farmed area amounted 280 000 hectares. The Law on organic manufacture is accepted on April, 21st 2011. Besides, the Law about safety and quality of food operates in the country. The Government Programme on development of organic farming is accepted. According the Programme area under organic farming has to take 2% of arable lands in 2012 and 7% – in 2015. Ukraine took 20 place in the world on manufacture of organic products. Certification bodies have been created with the help of Switzerland. Three fairs on organic products have taken place in Lviv during years 2009–2011.	According the Item 87 of the Water Code buffer stripes for small rivers are 2.5 m of width, for middle rivers– 50 m, for big rivers – 100 m. On slopes the width of buffer strips doubles. Other measures against erosion: crop rotation, crop nutrient management with soil testing, the use of organic fertilizer, avoiding of deep plowing, contour plowing, strip cropping, livestock grazing practices, etc.	Environment-friendly practices which included erosion-minimizing cultivation system (crop rotation, crop nutrient management with soil testing, the use of organic fertilizer, avoiding of deep plowing, contour plowing, strip cropping,) are stimulated by State (financial support).	Black See region of Ukraine has 600 thousand ha of wetlands. One has the status of the international importance (Danube plavni). Programs of rehabilitated systems in Lower Danube (irelands Tatarin, Ermakov, lakes Katlabukh, Saf'yany) are ongoing in cooperation with Wild World Fund. About 12 000 ha (33 objects) will be restored at performance of the Tizsa RBMP.	There exists no legal provisions to keep the Nutrient Balance	The Low on Farm Advice activity has been adopted on 17.06.2004, some changes have been brought in 2010. The three-level system of advisory services is created. Public National association of Advisory services has been registered: www.dorada.org.ua. Agricultural extension services are well developed through a network of non-state institutions, private companies, technical assistance projects, and farmer organizations. The foundations for the extension system were established with the technical assistance of a number of the European countries. In Tisza basin (Zakarpatska region) operate 3 Regional Centres, in Prut basin - 7 Regional Centres, in Lower Danube part – 2 Regional Centres.

Progress on measures addressing hydromorphological alterations

icpdr iksd
International Commission for the Protection of the Danube River
Internationale Kommission zum Schutz der Donau

ANNEX 14

DRBM Plan – Update 2015

Deutschland //// Österreich //// Česká republika //// Slovensko //// Magyarország //// Slovenija //// Hrvatska //// Bosna i Hercegovina //// Србија //// Crna Gora //// România //// България //// Moldova //// Україна

This Annex includes information on progress in measures implementation for the following hydromorphological alterations for each country and on the basin-wide scale:

- Interruption of river and habitat continuity
- Disconnection of adjacent floodplains / wetlands
- Impoundments
- Water abstractions

It provides further detailed information on data already provided in the JPM Chapter 8.1.4 of the DRBM Plan – Update 2015. The data on the implementation status is largely referring to the end of 2012, updated by AT, DE, HU and RO with latest information from 2015.

Measures on restoration of river continuity for fish migration

COUNTRY	NUMBER OF MEASURES TO BE IMPLEMENTED BY 2015		IMPLEMENTATION STATUS (reference to measures as agreed on national level)							
	As indicated the 1st DRBM Plan	Updated information as agreed on national level	Not started		Planning on-going		Construction on-going		Completed	
			[No.]	[%]	[No.]	[%]	[No.]	[%]	[No.]	[%]
DE	8	24	0	0	13	54	3	13	8	33
AT	71	103	0	0	0	0	40	39	63	61
CZ[1]	2	5	2	40	2	40	0	0	1	20
SK	16	16	0	0	16	100	0	0	0	0
HU	9	9	2	22	1	11	1	11	5	55
SI	0	6	3	50	2	33	1	17	0	0
HR	0	0	0	-	-	-	-	-	-	-
BA	0	0	0	-	-	-	-	-	-	-
ME	-	-	-	-	-	-	-	-	-	-
RS	1	1	0	0	0	0	0	0	1	100
RO[2]	1	4	0	0	2	50	0	0	2	50
BG	0	0	0	-	-	-	-	-	-	-
MD	0	0	0	-	-	-	-	-	-	-
UA	0	0	0	-	-	-	-	-	-	-
TOTAL	**108**	**168**	**7**	**4**	**36**	**21**	**45**	**27**	**80**	**48**

[1] Czech Republic, a national prioritisation concept for river continuity restoration was under development and further decisions on concrete measures therefore took place at a later stage of the planning process. Three continuity interruptions were displayed in the national RBM Plan and will be made passable for fish by 2015. Two of them on the Morava River are according to the Conception of River Continuity Restoration except the completed measure on the Dyje River.

[2] The measure proposed in the DRBMP was consisting in checking the functionality of the existing fish pass located on the water body Medias-Copsa Mica sector - Tarnava River, with the goal of establishing the necessary measures. After that, the monitoring results showed the presence of migratory species in the both sides of the dam (upstream and downstream), therefore the conclusion was that the fish pass is functionally and there was not necessary to include this measure in the Mures River Basin Management Plan which is part of the National Management Plan. Also, additionally, there are other 4 measures for ensuring the longitudinal continuity, which were proposed after the DRBMP data collection process finalisation and were included in the Banat River Basin Management Plan. These measures are consisting in removing obstacles located on Bega and Timis River.

Measures on disconnected adjacent floodplains / wetlands - NUMBER													
COUNTRY	NUMBER OF AGREED MEASURES TO BE IMPLEMENTED BY 2015		IMPLEMENTATION STATUS (reference to measures as agreed on national level)										
	As indicated in the 1st DRBM Plan	Updated information as agreed on national level	Not started		Planning on-going		Construction on-going		Completed				
									partially re-connected		totally re-connected		
	[No.]		[No.]	[%]	[No.]	[%]	[No.]	[%]	[No.]	%	[No.]	%	
DE	2	2	0	0	0	0	0	0	1	50	1	50	
AT	1	1	0	0	0	0	0	0	1	100	0	0	
CZ	0	0	-	-	-	-	-	-	-	-	-	-	
SK	0	0	-	-	-	-	-	-	-	-	-	-	
HU	3	3	0	0	0	0	1	33	2	66	0	0	
SI	1	1	0	0	0	0	0	0	0	0	1	100	
HR	0	0	-	-	-	-	-	-	-	-	-	-	
BA	0	0	-	-	-	-	-	-	-	-	-	-	
ME	-	-	-	-	-	-	-	-	-	-	-	-	
RS	4	4	0	0	0	0	1	25	2	50	1	25	
RO	0	0	-	-	-	-	-	-	-	-	-	-	
BG	0	0	-	-	-	-	-	-	-	-	-	-	
MD	0	0	-	-	-	-	-	-	-	-	-	-	
UA	0	0	-	-	-	-	-	-	-	-	-	-	
TOTAL	**11**	**11**	**0**	**0**	**0**	**0**	**2**	**18**	**6**	**55**	**3**	**27**	

Measures on disconnected adjacent floodplains / wetlands - AREA												
COUNTRY	AREA OF FLOODPLAINS / WETLANDS TO BE ADDRESSED BY MEASURES UNTIL 2015		IMPLEMENTATION STATUS (reference to measures as agreed on national level)									
	As indicated in the 1st DRBM Plan	Updated information as agreed on national level	Not started		Planning on-going		Construction on-going		Completed			
									partially re-connected		totally re-connected	
	[ha]		[ha]	[%]	[ha]	[%]	[ha]	[%]	[ha]	%	[ha]	%
DE	5,964	5,964	0	0	0	0	0	0	2,926	49	3,038	51
AT	9,554	9,554	0	0	0	0	0	0	9,554	100	0	0
CZ	0	0	-	-	-	-	-	-	-	-	-	-
SK	0	0	-	-	-	-	-	-	-	-	-	-
HU	13,330	13,330	0	0	0	0	330	2	13,000[3]	98	0	0
SI	1,520	1,520	0	0	0	0	0	0	0	0	1,520	100
HR	0	0	-	-	-	-	-	-	-	-	-	-
BA	0	0	-	-	-	-	-	-	-	-	-	-
ME	-	-	-	-	-	-	-	-	-	-	-	-
RS	31,932	31,932	0	0	0	0	9,895	31	21,064	66	973	3
RO	0	0	-	-	-	-	-	-	-	-	-	-
BG	0	0	-	-	-	-	-	-	-	-	-	-
MD	0	0	-	-	-	-	-	-	-	-	-	-
UA	0	0	-	-	-	-	-	-	-	-	-	-
TOTAL	**62,300**	**62,300**	**0**	**0**	**0**	**0**	**10,225**	**16**	**46,544**	**75**	**5,531**	**9**

[3] Measures for 13,000ha of floodplains / wetlands were started to be implemented in HU, whereas the actually reconnected area is 2.888ha by end 2012.

Measures on impoundments										
COUNTRY	NUMBER OF IMPOUNDMENTS TO BE IMPROVED BY 2015		IMPLEMENTATION STATUS (reference to measures as agreed on national level)							
	As indicated in the JPM of the 1st DRBM Plan	Updated information as agreed on national level	Not started		Planning on-going		Construction on-going		Completed	
			[No.]	[%]	[No.]	[%]	[No.]	[%]	[No.]	[%]
DE	1	1	0	0	0	0	0	0	1	100
AT	30	30	-	-	21	70	-	-	9	30
CZ	0	0	-	-	-	-	-	-	-	-
SK	2	0	-	-	-	-	-	-	-	-
HU	17	17	-	-	1	5	1	5	15	90
SI	0	6	0	0	5	83	1	17	0	0
HR	0	0	-	-	-	-	-	-	-	-
BA	0	0	-	-	-	-	-	-	-	-
ME	-	-	-	-	-	-	-	-	-	-
RS	0	0	-	-	-	-	-	-	-	-
RO[4]	2	0	-	-	-	-	-	-	-	-
BG	0	0	-	-	-	-	-	-	-	-
MD	0	0	-	-	-	-	-	-	-	-
UA	0	0	-	-	-	-	-	-	-	-
TOTAL	52	**54**	**0**	**0**	**27**	**52**	**2**	**4**	**25**	**44**

Measures on water abstractions										
COUNTRY	NUMBER OF WATER ABSTRACTIONS TO BE IMPROVED BY 2015		IMPLEMENTATION STATUS (reference to measures as agreed on national level)							
	As indicated in the 1st DRBM Plan	Updated information as agreed on national level	Not started		Planning on-going		Implementation on-going		Completed	
			[No.]	[%]	[No.]	[%]	[No.]	[%]	[No.]	[%]
DE	2	2	0	0	0	0	0	0	2	100
AT	21	16	0	0	-	-	-	-	16	100
CZ	0	1	0	0	0	0	0	0	1	100
SK	6	6	0	0	6	100	0	0	0	0
HU	12	12	0	0	2	17	2	17	8	67
SI	0	0	-	-	-	-	-	-	-	-
HR	0	0	-	-	-	-	-	-	-	-
BA	0	0	-	-	-	-	-	-	-	-
ME	-	-	-	-	-	-	-	-	-	-
RS	0	0	-	-	-	-	-	-	-	-
RO[5]	1	0	-	-	-	-	-	-	-	-
BG	0	0	-	-	-	-	-	-	-	-
MD	0	0	-	-	-	-	-	-	-	-
UA	0	0	-	-	-	-	-	-	-	-
TOTAL	**42**	**37**	**0**	**0**	**8**	**22**	**2**	**5**	**27**	**73**

[4] The measures proposed in the DRBMP were related to the establishment of the hydrological regime for Fantanele –Belisand Gilau dams. In the period between the elaboration of the DRBMP (2009) and the finalization of the Somes - Tisa River Basin Management Plan (2010), the water bodies have been analysed taking into consideration the HMWB designation test and ecological potential assessment. The analysis shows that the good ecological potential has been achieved for both water bodies and therefore the measures were not included in the Somes – Tisa River Management Plan and further in the National Management Plan.

[5] The measure of ensuring the minimum ecological flow downstream Tileagd dam (Crisul Repede River) proposed in the DRBMP was not included as such in the National Management Plan due to the fact that the good ecological status of the downstream water body was achieved. However, the condition of ensuring the ecological flow is included in the water management permit, issued in 2013 according to the Water Law 107/1996 with subsequent amendments.

Update of the ecological prioritization of measures to restore river and habitat continuity in the DRBD

icpdr iksd
International Commission for the Protection of the Danube River
Internationale Kommission zum Schutz der Donau

ANNEX 15

DRBM Plan – Update 2015

Stefan Schmutz & Carina Seliger

Table of Contents

1. Introduction

In order to enable a sound estimation of where to target measures most effectively at the basin-wide scale, an ***ecological prioritisation of measures to restore river and habitat continuity*** in the DRBD has been carried out. A respective study has already been performed for the first DRBM Plan in 2009 which was now further developed and updated.
At the Danube Ministerial Meeting 2010, the Danube Declaration was adopted, inter alia reconfirming the commitment "to further develop and make full use of the ecological prioritisation approach for measures to restore river and habitat continuity in order to ensure that they are ecologically most efficient". In order to take a step in the further development of the approach, discussions have been conducted in the frame of the ICPDR, considering different criteria and rankings. Following data provisions for the DRBM Plan – Update 2015 and further input from Danube countries, the prioritisation index was updated.

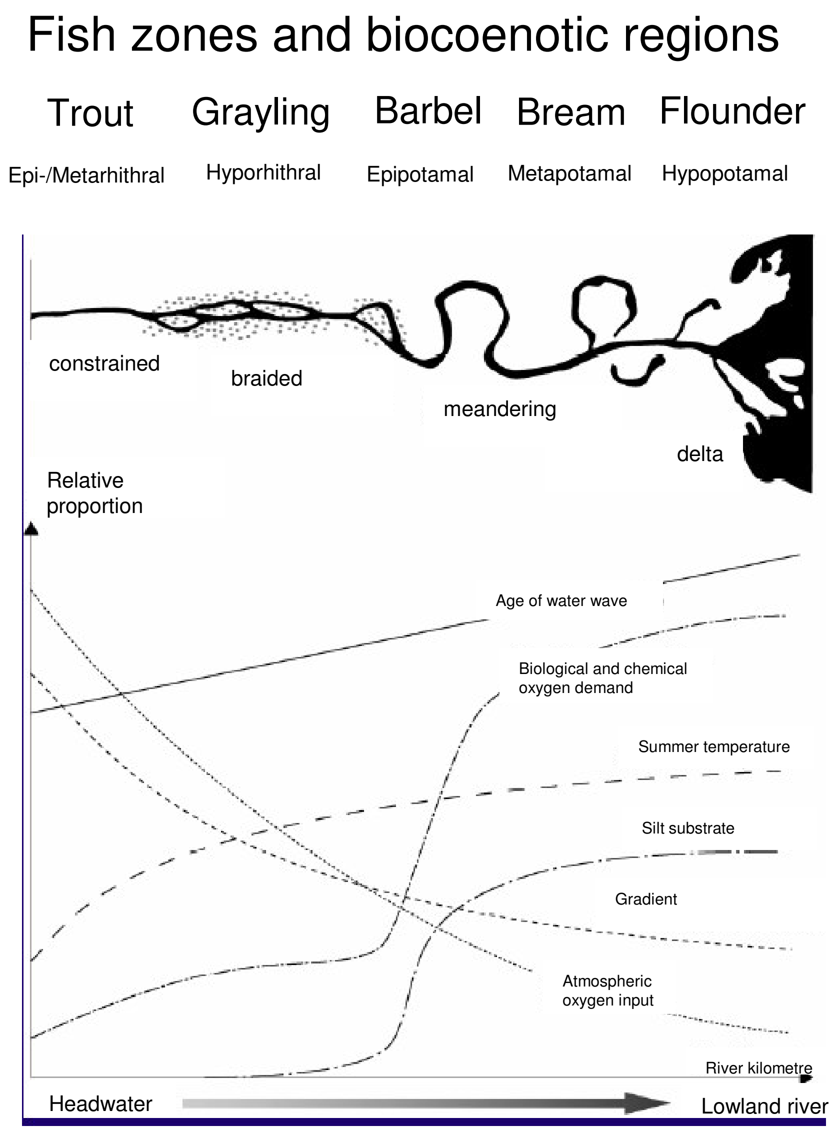
2. Objective

All fish species of the Danube River Basin (DRB) are migratory to some extent, however, the importance of migrations for the viability of fish populations considerable vary among species. Migrations are different in terms of migration distances, migration direction (upstream, downstream, lateral), spawning habitats, seasons, life stages, etc.. In general, in the DRB migratory requirements are more distinct in lowland than in head water fish communities (Figure 1).

Long-distance-migrants (LDM) such as the Beluga sturgeon (*Huso huso*) migrated up to several thousand kilometres from the Black Sea to the Barbel zone in the DRB. Medium-distance-migrants (MDM, so called potamodromous fish species) like nase (*Chondrostoma nasus*) and barbel (*Barbus barbus*) migrate within the river over distances of 30 to 200 km (Waidbacher & Haidvogl 1998). A significant number of lowland fish species depend on floodplain spawning habitats during spring season. Contrarily, headwater fish species migrate comparable short distances as living and spawning habitats are mostly not far away. To ensure the achievement or the maintenance of the good ecological status on a long term, all species need an open continuum for e.g. recolonization after catastrophic events and genetic exchange.

With reference to the Vision stated in the DRBM Plan – Update 2015 that "anthropogenic barriers and habitat deficits do not hinder fish migration and spawning anymore", the overall goal of continuity restoration in the DRBD should be free fish migration routes within the entire DRB. However, due to the high number of barriers and limited resources a prioritisation of measures is necessary. The ecological prioritisation approach provides indications on a step-wise and efficient implementation of restoration measures on the basin-wide scale. The approach provides useful information on the estimated effects of the national measures in relation to their ecological effectiveness and could serve as a supportive tool for future measure implementation. Therefore, it also supports the feedback from the international to the national level and vice versa in the DRB. The ecological prioritisation approach represents an important component for River Basin Management Planning and could constitute an important basis for discussions on measures addressing river and habitat continuity interruptions within the Joint Programmes of Measures (JPM).

Figure 1: Fish zones and abiotic conditions in running waters (adapted from Jungwirth et al. 2003)



3. Distribution of long- and medium-distant migrants in the DRB

3.1 Methodology (LDM and MDM in the DRB)

Historic upstream occurrence of long-distance migrants (LDM) in the DRB is dominated by sturgeon species as those species are known to have migrated long distances within the Danube catchment. A sturgeon migration map provided by the ICPDR was compared and updated with recent literature reviews and results of the EU-project EFI+ (Evaluation and improvement of the European Fish Index, http://efi-plus.boku.ac.at) (Schmutz & Trautwein 2009).

The potential distribution (habitat) of MDM was modelled using data from the EU-project EFI+ including data from the DRB and other catchments in Europe.

Within the frame of the EU-project EFI+ most of the European fish species have been classified according to their migratory behaviour, i.e. long-distance-migrants (LDM see Table 1), medium-distance-migrants (MDM see Table 2) and resident species (RS). Out of the 58 fish species classified as MDM 9 key species were selected occurring in the DRB (Tab. 2) (Schmutz & Trautwein 2009).

Table 1: Examples for long distance migrants (LDM) in the DRB (based on EFI+ guild classification, see http://efi-plus.boku.ac.at)

Nr.	Sientific name	English name
1	*Huso huso*	Great stugeon, beluga
2	*Acipenser guldenstaedti*	Russian sturgeon
3	*Acipenser nudiventris*	Ship sturgeon
4	*Acipenser stellatus*	Stellate sturgeon
5	*Alosa caspia*	Caspian shad
6	*Alosa immaculate (pontica)*	Pontic shad

Table 2: List of medium-distance migrants (MDM) in the DRB (based on EFI+ guild classification, see http://efi-plus.boku.ac.at) used for modelling habitat of MDM in the DRB

Nr.	Scientific name	English name
1	*Abramis brama*	Common bream
2	*Abramis sapa*	Danubian bream
3	*Acipenser ruthenus*	Sterlet
4	*Aspius aspius*	Asp
5	*Barbus barbus*	Barbel
6	*Chondrostoma nasus.*	Nase
7	*Hucho hucho*	Danube salmon
8	*Lota lota*	Burbot
9	*Vimba vimba*	Vimba

The consolidated EFI+ database comprises about 10,000 sites all over Europe. About 1,000 sites are located in the DRB. Unfortunately, the number of sites from the Danube catchment with occurrence of MDM is small (379 sites) and not sufficient for model calibration. Therefore, data from additional European catchments comparable with the DRB was used. By restricting the selection of data to Illies's ecoregions 3 to 16 we tried to avoid a bias from Mediterranean (Iberian) and Nordic (Scandinavia) influences, as the distribution of MDM might follow different rules in those areas. Out of the resulting 3,800 sites we selected all sites (1,268 sites) where MDM were recorded and randomly a similar sized set of data from sites where MDM did not occur. In total, about 2,500 sites were used to calibrate the model.

Regression Tree techniques were used for modelling MDM occurrence as this technique allows using also non-normally distributed data. All modelling was done with the open source software R®. The Regression Tree function of R® (rpart) includes an internal validation as the variable selection and splitting process is repeated 500 times. The results were additionally validated by using only data from the DRB.

For calculating predictive environmental variables such as catchment size, elevation and river gradient the CCM river model was used developed by the JRC in Ispra (Vogt et al. 2007) which had been also used for the EFI+ project. The CCM is a modelled river network and hence there are slight deviations between the modelled river courses and the real ones. This is mainly true in the headwaters where the CCM sometimes selects different tributaries compared to other maps. Another problem may occur in lowland rivers with very low gradient in plain terrain where the actual and modelled river course may deviate. The deviations do not significantly affect the results as environmental variables used for the modelling are quite stable against river course deviations.

3.2 Results (LDM and MDM in the DRB)

Information on the natural distribution of LDM sturgeon species in the DRB served as a basis (Hensel & Holcik, 1997). According to additional data from the EFI+ project and information received from national fish experts of the DRB contacted via the ICPDR slight changes of the original ICPDR maps have been made for the first approach in 2009: The occurrence of sturgeon species in the Isar river (Bavaria) was restricted to the lower part of the river. LDM sturgeons occurrence has been added to the lower Inn river and lower Salzach river (Austria).

The modelled distribution of the MDM in the DRB using Regression-Tree analyses shows that the presence and absence of medium-distance migrants (MDM) is mainly determined by the size of the catchment (Figure 2). River segments with upstream catchment areas (AREA_ctch) less than 284 km^2 have a very low probability of MDM. In addition, river segments with an upstream catchment size of less than 1,401 km^2 and a mean elevation of the upstream catchment (ELEV_MN_du) of more than 819 m have also a low probability of MDM. All other river segments have a high probability of occurrence of MDM. The model explains the variability of probability of occurrence by about 42 %. Applying the model to the data, presence and absence can be explained by about 82 % and 78 %. Applying the model to the data from the DRB reveals similar predictions of presence (78 %) and absence (81 %) approving the applicability of the model to the DRB. Figure 2 clearly shows the separation between the habitat of the LDM, MDM and the head waters above the MDM in the DRB (Schmutz & Trautwein 2009).

Results of modelled MDM habitat were checked by the countries of the DRB and only minor deviations from the real conditions were reported and included in the final map.

The MDM habitat, however, was only modelled for rivers with a catchment >4000 km^2. It is most likely that the MDM habitat extends also in smaller rivers. Therefore, if this criterion is applied on a national level considering also smaller rivers, all MDM-habitats have to be identified.

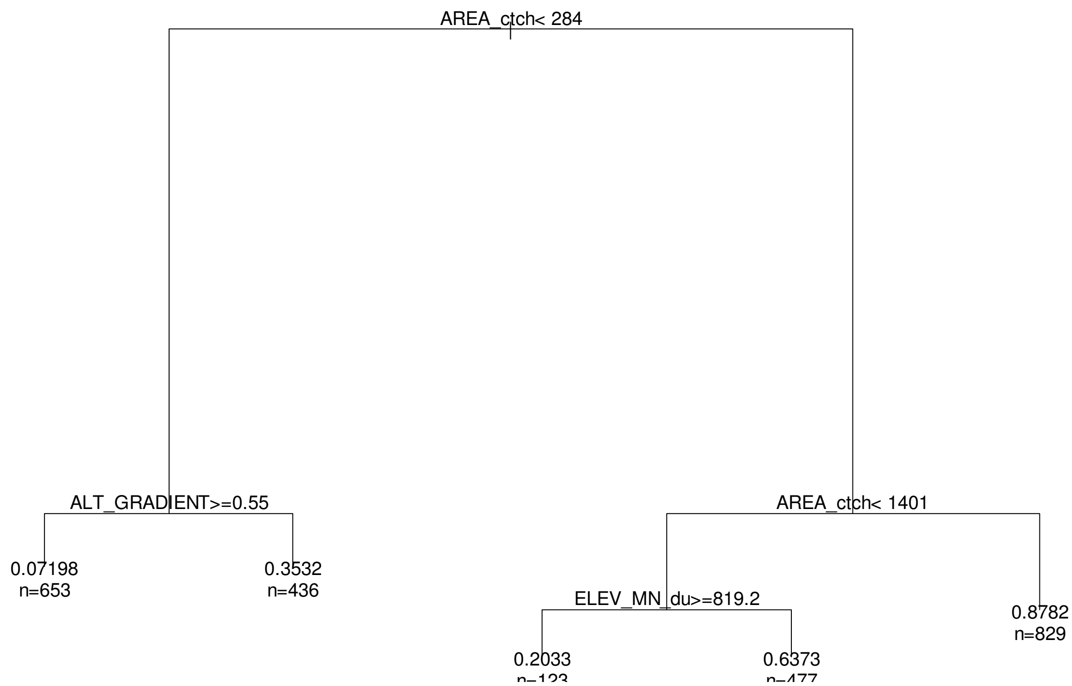


Figure 2: Regression-Tree model for medium-distance migrants using data from the EFI+ project: Probability of occurrence and number sites of each branch (upstream catchment areas: AREA_ctch, mean elevation of the upstream catchment: ELEV_MN_du, gradient of river segment: ALT_GRADIENT) (Schmutz & Trautwein 2009).

4. Update of the Prioritisation approach of the Danube river basin

Although the application of different methodologies (GIS approach, optimisation approach) was discussed, the scoring and ranking method (as used in the 1st DRBM Plan 2009; Schmutz & Trautwein 2009) was again applied in the updated version. It has the advantage of transparency and comprehensibility and allows a direct comparison with the results included in the 1st DRBM Plan.

For the updated version, several new criteria were discussed with regard to their availability and suitability. Besides ecological criteria, also other economically / technical criteria were discussed with the result, that such criteria can be incorporated on a national level but the basin-wide prioritisation approach should focus on ecological criteria.

In general, criteria used in the first approach were adopted and recalculated on the basis of updated data. Furthermore, the set of criteria was extended by anthropogenic pressures (waterbodies impacted by impoundments, hydropeaking and water abstraction).

For the new PI, several versions with different pressure-scorings were calculated to check the sensibility of the index, serving for the decision on the final method. Since the results indicated that small modifications of individual ratings cause only minor changes to the overall results, the same ratings as already applied in the first approach were used.

4.1 Methodology

The following chapters describe the process of barrier selection and the calculation of individual criteria for considered barriers. The following datasets were used for the updated approach.

Table 3: Used criteria and datasets

Used data	Dataset (name)
Continuity interruptions Barriers*	longcontinterr
River network river water bodies >4000km²* LDM-/MDM-habitat*	rw-body4000
Protected areas water-relevant habitat protection areas (FFH)* water-relevant bird protection areas* other Nature protection areas for water-dependent species and water-related habitats (WFD Art. 5)*	pa_habitat pa_bird pa_oth_a
Hydro-morphological pressures (new!) segment with impoundment** segment with hydro peaking** segment with water abstraction**	RWBody4000_HydroAltImp RWBody4000_HydroAltPeak RWBody4000_HydroAltAbs

* Original criteria already used for the DRBM Plan 2009
** Additional criteria

4.1.1 Continuity interruptions

The dataset (longcontinterr) includes a total of 1,068 barriers. However, only barriers relevant for the level A (rivers with catchment areas larger than 4,000 km²) were considered (i.e. 1,030 barriers) while smaller catchments are subject for the national level.

At the moment, barriers within the LDM-habitat are, if at all, only equipped with fish passes supporting migrations of MDM-species. While these barriers are passable for MDM-species, it has to be assumed that they are still impassable for large sturgeons. Therefore, these barriers were included in the PI calculation and highlighted in the map to show their current status (i.e. MDM-fish pass in LDM-habitat). Since there are no standardised fish pass solutions for LDM-species, individual measures have to be taken. The adaptation of existing fish passes in Austria and Germany to allow the passage of large sturgeons will be necessary when these species are able to reach the respective barriers, which means, when the Iron Gates and Gabcikovo are passable. A respective step-wise approach for continuity restoration is described in the DRBM Plan – Update 2015.

Consequently, all barriers within the LDM-habitat (i.e. 97) and all impassable barriers (i.e. without fish pass) within the MDM (407) were defined as relevant for the prioritisation approach (see Table 4).

Table 4: Identification of barriers relevant for PI-calculation

	No fish aid (0; 8; G, N, U)	Fish aid (Y)	Total
LDM Danube	15*	7*	22
LDM tributary	62*	13*	75
MDM	407*	284	691
headwater	210	32	242
total	**694**	**336**	**1,030**

* barriers relevant for PI calculation (n = 504)

4.1.2 Main migration routes

The main migration routes of long and medium-distant migratory species as modelled for the prioritisation approach included in the 1st Danube River Basin Management Plan (see chapter 3) were adopted for the updated version. The LDM- and MDM-habitat information was furthermore transferred to the river body network of the ICPDR (RW-Body4000).

The prioritisation principle follows the idea that LDM within the Danube receive the highest priority followed by LDM within the tributaries. MDM receive less priority and head waters which are typical habitats for short distance migrators are excluded from the prioritisation process. Therefore, priorities are considered as follows:

- Long distance migrants habitat in Danube (rating = 4)
- Long-distance migrants habitat in Danube tributaries (rating = 2)
- Medium-distance migrants habitat (rating = 1)
- Short-distance migrants (head waters) (rating = 0)

4.1.3 Location of the barrier (distance from mouth)

Since long- and medium distance migratory fish usually migrate from downstream to upstream, obstacles at the mouth of a river receive higher priority than upstream obstacles and giving more emphasis on the main river (e.g. Danube) than on the tributaries. The more distant an obstacle is located from the river mouth the less priority is given to the obstacle. The two criteria "obstacle in first river segment upstream of river mouth" and "distance from mouth" were already included in the 1st approach. By adding up the individual rankings, the criteria were combined in the updated approach and show the following rankings:

- Obstacle in first river segment including barriers upstream of Danube delta (rating = 5)
- Obstacle in first river segment upstream of mouth (rating = 4)
- Obstacle in second river segment upstream of mouth (rating = 2)
- Obstacle in third river segment upstream of mouth (rating = 1)
- Obstacle in segment upstream of third river segment (rating = 0)

River segments are defined as the river stretch between two tributaries. Segments classification in the Danube-tributaries is based on the CCM-river network (Vogt et al. 2006). The highest priority is given to the barriers at Iron Gate, since these barriers represent the most downstream barriers within the Danube itself.

4.1.4 Reconnected habitat length

In order to achieve the highest ecological effects, higher weight is given to river stretches that are less fragmented by continuity interruptions. The reconnected habitat for each barrier was calculated by adding up the distance to the next up- and downstream barrier, whereby only relevant barriers (i.e. all barriers in the LDM- and all impassable barriers in the MDM-habitat) were considered. The distance was only calculated within the river, where the barrier was located. For the most downstream barrier within a tributary or the Danube (e.g. Iron Gate), the distance to the confluence/delta was used instead of the distance to the next downstream barrier.

For this criterion different river length classes for the Danube and the tributaries were defined. Based on experiences in the Danube, the following thresholds were defined by expert judgement:

- >50 km (>100 km Danube) (rating = 2)
- 20-50 km (40 – 100 km Danube) (rating = 1)
- <20 km (<40 km Danube) (rating = 0)

4.1.5 Protected site (Natura2000) or national protection site

Apart from the WFD relevant criteria, additional criteria stemming from EU legislation like Council Directive 92/43/EEC on the Conservation of natural habitats and of wild fauna and flora was used, requiring to achieve a favourable conservation status in Natura 2000 areas. Taking into account that fish species and habitats are also part of the Natura 2000 goals it is reasonable that the protection status also should be considered in the prioritisation approach.

Obstacles within a distance of 500 m of water-relevant Natura 2000 areas which are important for fish receive higher priority as it is more likely that those river segments are maintained in good habitat status and will be restored to a larger degree than unprotected river segments, thus providing good habitat quality. For non-EU member states, other protected areas are used as a substitute for Natura 2000 areas. Therefore, higher priority is given to barriers located within or close to a water-relevant protection site.

- Barrier within/close to water-relevant Natura 2000 or other protected area (rating = 1)
- Barrier with greater distance to protected areas (rating = 0)

4.1.6 Anthropogenic pressures

The updated prioritization approach was extended by an additional criterion representing anthropogenic pressures. With regard to impoundments, hydro peaking and water abstraction, data was used whether a water body is impacted by these pressures or not. Since more detailed information (e.g. the exact location and length of the respective pressures) was not available, the number of pressures were summed up per water body and then transferred to the barriers within the water body.

Although also "morphological alteration" were considered as relevant for the prioritisation approach, there is no uniform classification scheme in the Danube catchment at the moment. While some countries classified the hydro-morphological condition of their river water bodies with "1" (i.e. high) and "2-5" (i.e. good-bad) others used a more detailed classification of "1-2" (i.e. high-good), "3" (i.e. moderate) and "4-5" (i.e. poor-bad). Therefore, only three pressure types (i.e. impoundments, water abstraction and hydro peaking) were used for PI calculation.

In summary, the following criteria and ratings were used for the calculation of the new prioritisation index.

Table 5: Criteria and their ratings for PI calculation

Criteria	Rating
1. Migratory habitat	
- Long-distance migrants habitat (Danube)	4
- Long-distance migrants habitat (tributary)	2
- Medium-distance migrants habitat	1
- Short-distance migrants habitat (head waters)	0
2. River Segment	
- First river segment in Danube	5
- First river segment upstream of mouth (tributary)	4
- Second river segment upstream of mouth	2
- Third river segment upstream of mouth	1
- River segments upstream of third river segment	0
3. Length of reconnected habitat (Danube/tributary)	
- >100 km / >50 km (tributary)	2
- 40-100 km / 20-50 km (tributary)	1
- <40 km / <20 km (tributary)	0
4. Protected site	
- Yes	1
- No	0
5. Pressures*	
- 0 pressures	3
- 1 pressure	2
- 2 pressures	1
- 3 pressures	0

As in the first prioritisation approach, the selection of prioritisation criteria for continuity restoration was mainly based on the migratory behaviour of LDM and MDM in the DRB. The prioritisation principle follows the idea that LDM within the Danube receive the highest priority (weight 4) followed by LDM within the tributaries (weight 2). MDM receive less priority (weight 1) and head waters are excluded from the prioritisation process (weight 0). Within this prioritisation framework obstacles at the mouth of a river receive higher priority than upstream obstacles and giving more emphasis on the Danube than on the tributaries. The more distant an obstacle is located from the river mouth the less priority is given to the obstacle. In order to give higher weight to river segments that are less fragmented by continuity interruptions, the length of the reconnected habitat depending on the length of river segments was weighted. For this criterion different river lengths classes for the Danube and the tributaries were defined to consider the river size. The final criterion is related to the protection status. Obstacles within water-related protected areas of the NATURA2000 network and other protected areas for non-EU Member States receive higher priority as it is more likely that those river segments are maintained in good habitat status and will be restored to a larger degree than un-protected river segments. Finally, the new PI also considers anthropogenic pressures, whereby barriers in less impacted water bodies (0-1 pressures) received higher ratings than barriers in impacted water bodies (2-3 pressures).

Again, the criteria were combined by computing a prioritisation index (PI) by weighting the first criterion (migratory habitat) by the cumulated weight of the other criteria.

PI_{new} = migratory habitat x (1 + barrier location + reconnected habitat length + protected site + anthropogenic pressures)

4.2 Results

The downstream – upstream prioritisation concept is clear visible in the map of prioritisation (Figure 3). In total, out of 1,030 barriers, 526 were excluded since they were located in headwaters or already equipped with a suitable fish pass (i.e. MDM fish pass in MDM-habitat). The remaining 504 barriers were considered as relevant for PI calculation. Since some barriers (n=14) were reported twice (i.e. where the rivers represents the national border between countries), the barriers with the lower PI were excluded.

The results show that according to the defined prioritisation criteria continuity disruptions in the lower Danube (Iron Gates, 2 barriers) receive the highest priority with values ≥ 40. Those barriers are considered of utmost priority for LDM species. Also in the upper Danube three barriers with utmost priority for LDM- and MDM-species are found. Furthermore, 14 barriers are considered of very high priority, 24 of high priority, 113 of medium and 335 of low priority.

Figure 3: Updated Prioritisation Index

The following table shows the results of the classification. The maximum possible value of the PI is 48 and the minimum is 0 (for barriers in head waters or passable barriers). The PI was grouped into 6 classes: utmost priority for LDM (>30), utmost priority (21-30), very high priority (16-20), high priority (11-15), medium priority (6-10), low priority (1-5).

Table 6: Results of updated Prioritisation Index

Priority	PI	barriers (total)	(thereof with MDM-fish pass in LDM habitat)
utmost priority for LDM	44	2	
utmost priority	24	3	
very high priority	20	6	(1)
	18	1	
	16	7	(5)
high priority	14	6	(2)
	12	18	(2)
medium priority	10	28	(7)

	9	2	
	8	20	(2)
	7	12	
	6	51	(1)
low priority	5	92	
	4	135	
	3	59	
	2	45	
	1	4	
no priority	-	203	
not applicable	-	7	
with fish pass	-	315	
excluded double entries	-	14	
total		1,030	(20)

Table 7: Number of barriers per criterion (only barriers with PI > 0)

	Criteria rating					
	5	**4**	**3**	**2**	**1**	**0**
Habitat	-	LDM Danube	-	LDM Trib.	MDM	
number of barriers		19		70	402	
Segment	1 Danube	1 Trib.	-	2 Trib.	3 Trib.	>3 Trib.
number of barriers	2	11		4	19	455
Recnonnected length Danube	-	-	-	>100 km	40-100 km	<40 km
number of barriers				5	16	31
Reconnected length Tributary	-	-	-	>50 km	20-50 km	<20 km
number of barriers				84	118	237
Protected site	-	-	-		yes	no
number of barriers					281	210
Pressures	-	-	0	1	2	3
number of barriers			150	214	119	8

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Detailed list on hydrological alterations in the DRBD

ANNEX 16

DRBM Plan – Update 2015

Explanations

n.a. = Not Applicable

Hydrological alterations are listed separately. One water body can have more than one hydrological alterations.

List of impoundments

Country	River	RWB code	Length in km	Restored 2015	Measure 2021
AT	Donau	ATOK303070000	19.956	Not yet	Yes
AT	Donau	ATOK303070000, ATOK410360003	38.79	Not yet	Yes
AT	Donau	ATOK409040011, ATOK409040012	26.284	Not yet	No due to exemption Art 4.4
AT	Donau	ATOK409040011, ATOK409040013	30.315	Not yet	No due to exemption Art 4.4
AT	Donau	ATOK409040013	27.048	Not yet	No due to exemption Art 4.4
AT	Donau	ATOK410360002, ATOK410360012	21.935	Not yet	No due to exemption Art 4.4
AT	Donau	ATOK410360003, ATOK410360005	15.656	Not yet	Yes
AT	Donau	ATOK410360007	26.914	Not yet	Yes
AT	Donau	ATOK410360009	24.37	Not yet	Yes
AT	Donau	ATOK410360009, ATOK410360012	34.574	Not yet	No due to exemption Art 4.4
AT	Drau	ATOK900470003	10.27	Not yet	No due to exemption Art 4.4
AT	Drau	ATOK900470003	9.82	Not yet	No due to exemption Art 4.4
AT	Drau	ATOK900470003	6.3	Not yet	No due to exemption Art 4.4
AT	Drau	ATOK900470003, ATOK900470057	17.21	Not yet	No due to exemption Art 4.4
AT	Drau	ATOK900470055	14.31	Not yet	No due to exemption Art 4.4
AT	Drau	ATOK900470055	10.73	Not yet	No due to exemption Art 4.4
AT	Drau	ATOK900470055, ATOK900470057	20.78	Not yet	No due to exemption Art 4.4
AT	Drau	ATOK900470055, ATOK900470058	24.57	Not yet	No due to exemption Art 4.4
AT	Drau	ATOK900470058	16.52	Not yet	No due to exemption Art 4.4
AT	Drau	ATOK900470058	5.5	Not yet	No due to exemption Art 4.4
AT	Enns	ATOK400240106	0.1	Not yet	No due to exemption Art 4.4
AT	Enns	ATOK411250006, ATOK411250036	2.991	Not yet	No due to exemption Art 4.4
AT	Enns	ATOK411250008	1.317	Not yet	No due to exemption Art 4.4
AT	Enns	ATOK411250008, ATOK411250012	2.598	Not yet	No due to exemption Art 4.4
AT	Enns	ATOK411250012	3.064	Not yet	No due to exemption Art 4.4

Country	River	RWB code	Length in km	Restored 2015	Measure 2021
AT	Enns	ATOK411250012	2.827	Not yet	No due to exemption Art 4.4
AT	Enns	ATOK411250012, ATOK411250031	11.952	Not yet	Yes
AT	Enns	ATOK411250014	5.304	Not yet	Yes
AT	Enns	ATOK411250014, ATOK411250036	4.823	Not yet	Yes
AT	Enns	ATOK411250016	5.605	Not yet	Yes
AT	Enns	ATOK411250018, ATOK411250020	8.687	Not yet	Yes
AT	Enns	ATOK411250021	4.956	Not yet	Yes
AT	Enns	ATOK411250023	7.325	Not yet	Yes
AT	Enns	ATOK411250025	7.348	Not yet	Yes
AT	Enns	ATOK411250027	8.548	Not yet	Yes
AT	Enns	ATOK411250029	12.61	Not yet	Yes
AT	Enns	ATOK411250031	9.021	Not yet	Yes
AT	Inn	ATOK304980003	2.674	Not yet	No due to exemption Art 4.4
AT	Inn	ATOK304980003	6.431	Not yet	No due to exemption Art 4.4
AT	Inn	ATOK304980003, ATOK307030000	12.14	Not yet	No due to exemption Art 4.4
AT	Inn	ATOK305340005	16.346	Not yet	No due to exemption Art 4.4
AT	Inn	ATOK305340007	12.346	Not yet	No due to exemption Art 4.4
AT	Inn	ATOK305340009	12.075	Not yet	No due to exemption Art 4.4
AT	Inn	ATOK305340010	7.527	Not yet	No due to exemption Art 4.4
AT	Inn	ATOK305340012	14.336	Not yet	No due to exemption Art 4.4
AT	Inn	ATOK305850011	3.259	Not yet	No due to exemption Art 4.4
AT	Inn	ATOK307030000	7.311	Not yet	No due to exemption Art 4.4
AT	Inn	ATOK307210002	2.65	Not yet	No due to exemption Art 4.4
AT	Lech	ATOK302370010	1.761	Not yet	No due to exemption Art 4.4
AT	Mur	ATOK801180007	0.481	Not yet	No due to exemption Art 4.4
AT	Mur	ATOK801180008	0.32	Not yet	No due to exemption Art 4.4

Country	River	RWB code	Length in km	Restored 2015	Measure 2021
AT	Mur	ATOK801180029	1.594	Not yet	No due to exemption Art 4.4
AT	Mur	ATOK801180029	2.458	Not yet	No due to exemption Art 4.4
AT	Mur	ATOK802710002	1.148	Not yet	No due to exemption Art 4.4
AT	Mur	ATOK802710002	0.995	Not yet	No due to exemption Art 4.4
AT	Mur	ATOK802710002	1.175	Not yet	No due to exemption Art 4.4
AT	Mur	ATOK802710002	0.58	Not yet	No due to exemption Art 4.4
AT	Mur	ATOK802710002	0.691	Not yet	No due to exemption Art 4.4
AT	Mur	ATOK802710008, ATOK802710012	2.258	Not yet	No due to exemption Art 4.4
AT	Mur	ATOK802710009	3.053	Not yet	No due to exemption Art 4.4
AT	Mur	ATOK802710009	2.266	Not yet	No due to exemption Art 4.4
AT	Mur	ATOK802710009	1.587	Not yet	No due to exemption Art 4.4
AT	Mur	ATOK802710009	0.869	Not yet	No due to exemption Art 4.4
AT	Mur	ATOK802710009	3.033	Not yet	No due to exemption Art 4.4
AT	Mur	ATOK802710009	2.368	Not yet	No due to exemption Art 4.4
AT	Mur	ATOK802710009	4.999	Not yet	No due to exemption Art 4.4
AT	Mur	ATOK802710014	3.621	Not yet	Yes
AT	Mur	ATOK802710014	5.233	Not yet	Yes
AT	Mur	ATOK802710014	2.984	Not yet	No due to exemption Art 4.4
AT	Mur	ATOK802710014	5.29	Not yet	No due to exemption Art 4.4
AT	Mur	ATOK802710014	7.218	Not yet	Yes
AT	Mur	ATOK802710014	4.197	Not yet	No due to exemption Art 4.4
AT	Mur	ATOK802710015	2.688	Not yet	No due to exemption Art 4.4
AT	Mur	ATOK802710015	3.579	Not yet	No due to exemption Art 4.4
AT	Mur	ATOK802720001	0.812	Not yet	No due to exemption Art 4.4
AT	Mur	ATOK802720003	2.396	Not yet	No due to exemption Art 4.4
AT	Mur	ATOK802720005	0.567	Not yet	No due to exemption Art 4.4

Country	River	RWB code	Length in km	Restored 2015	Measure 2021
AT	Mur	ATOK802720005	3.132	Not yet	No due to exemption Art 4.4
AT	Mur	ATOK802720005	4.537	Not yet	No due to exemption Art 4.4
AT	Raab	ATOK1000960015	0.386	Not yet	No due to exemption Art 4.4
AT	Raab	ATOK1001040042	0.96	Not yet	No due to exemption Art 4.4
AT	Raab	ATOK1001040098	0.76	Not yet	No due to exemption Art 4.4
AT	Raab	ATOK1001040098	1.097	Not yet	No due to exemption Art 4.4
AT	Raab	ATOK1001040098	1.1	Not yet	No due to exemption Art 4.4
AT	Raab	ATOK1001040098	0.23	Not yet	No due to exemption Art 4.4
AT	Raab	ATOK1001040098	0.409	Not yet	No due to exemption Art 4.4
AT	Raab	ATOK1001040098	1.286	Not yet	No due to exemption Art 4.4
AT	Raab	ATOK1001040098	0.822	Not yet	No due to exemption Art 4.4
AT	Raab	ATOK1001040098	0.267	Not yet	No due to exemption Art 4.4
AT	Raab	ATOK1001040105	2.312	Not yet	No due to exemption Art 4.4
AT	Raab	ATOK1001040105	0.654	Not yet	No due to exemption Art 4.4
AT	Raab	ATOK1001040105	1.43	Not yet	No due to exemption Art 4.4
AT	Raab	ATOK1001040105	1.316	Not yet	No due to exemption Art 4.4
AT	Raab	ATOK1001040108	0.197	Not yet	No due to exemption Art 4.4
AT	Raab	ATOK1001040108	0.398	Not yet	No due to exemption Art 4.4
AT	Salzach	ATOK304690002	1.2	Not yet	No due to exemption Art 4.4
AT	Salzach	ATOK304690002, ATOK304690003	4.503	Yes	
AT	Salzach	ATOK305350001	4.3	Yes	
AT	Salzach	ATOK305350001	2.73	Yes	
AT	Salzach	ATOK305350001	4.07	Yes	
AT	Salzach	ATOK305350001, ATOK305360002	3.96	Yes	
AT	Salzach	ATOK305350003	1.63	Not yet	No due to exemption Art 4.4
AT	Salzach	ATOK305350003, ATOK305350006	2.39	Yes	

Country	River	RWB code	Length in km	Restored 2015	Measure 2021
AT	Salzach	ATOK305350004	4	Yes	
AT	Salzach	ATOK305350004	0.34	Not yet	No due to exemption Art 4.4
AT	Salzach	ATOK305350004, ATOK305350006	5.29	Yes	
AT	Salzach	ATOK305360002	3.07	Yes	
AT	Salzach	ATOK305360002	2.97	Not yet	No due to exemption Art 4.4
AT	Salzach	ATOK305360002	1.51	Not yet	No due to exemption Art 4.4
AT	Salzach	ATOK307200001	5.061	Not yet	No due to exemption Art 4.4
AT	Thaya	ATOK500010030	1.11	Not yet	No due to exemption Art 4.4
AT	Thaya	ATOK500010030	0.347	Not yet	No due to exemption Art 4.4
AT	Thaya	ATOK500010030	1.289	Not yet	No due to exemption Art 4.4
AT	Thaya	ATOK500010030	0.939	Not yet	No due to exemption Art 4.4
AT	Thaya	ATOK500010030	0.587	Not yet	No due to exemption Art 4.4
AT	Thaya	ATOK500010030	0.473	Not yet	No due to exemption Art 4.4
AT	Thaya	ATOK500010030	0.946	Not yet	No due to exemption Art 4.4
AT	Thaya	ATOK500010030	0.78	Not yet	No due to exemption Art 4.4
AT	Thaya	ATOK500010030	0.857	Not yet	No due to exemption Art 4.4
AT	Thaya	ATOK500010030	1.789	Not yet	No due to exemption Art 4.4
AT	Thaya	ATOK500010030	0.978	Not yet	No due to exemption Art 4.4
AT	Thaya	ATOK500010030	1.655	Not yet	No due to exemption Art 4.4
AT	Thaya	ATOK500010031	1.11	Not yet	No due to exemption Art 4.4
AT	Thaya	ATOK500010031	1.218	Not yet	No due to exemption Art 4.4
AT	Thaya	ATOK500010031	1.577	Not yet	No due to exemption Art 4.4
AT	Thaya	ATOK500010031	0.143	Not yet	No due to exemption Art 4.4
AT	Thaya	ATOK500010031, ATOK500010038	0.556	Not yet	No due to exemption Art 4.4
AT	Thaya	ATOK500010036	1.427	Not yet	No due to exemption Art 4.4
AT	Thaya	ATOK500010036	3.251	Not yet	No due to exemption Art 4.4

Country	River	RWB code	Length in km	Restored 2015	Measure 2021
AT	Thaya	ATOK500010036	0.203	Not yet	No due to exemption Art 4.4
AT	Thaya	ATOK500010036	0.821	Not yet	No due to exemption Art 4.4
AT	Thaya	ATOK500010036	0.844	Not yet	No due to exemption Art 4.4
AT	Thaya	ATOK500010036	0.476	Not yet	No due to exemption Art 4.4
AT	Thaya	ATOK500010036	0.29	Not yet	No due to exemption Art 4.4
AT	Thaya	ATOK500010036	1.287	Not yet	No due to exemption Art 4.4
AT	Thaya	ATOK500010036	1.085	Not yet	No due to exemption Art 4.4
AT	Thaya	ATOK500010036	1.464	Not yet	No due to exemption Art 4.4
AT	Thaya	ATOK500010036	0.999	Not yet	No due to exemption Art 4.4
AT	Thaya	ATOK500010036	1.424	Not yet	No due to exemption Art 4.4
AT	Thaya	ATOK500010036	0.995	Not yet	No due to exemption Art 4.4
AT	Thaya	ATOK500010038	0.157	Not yet	No due to exemption Art 4.4
AT	Thaya	ATOK500010038	0.636	Not yet	No due to exemption Art 4.4
AT	Thaya	ATOK500010038	0.544	Not yet	No due to exemption Art 4.4
AT	Thaya	ATOK500010038	1.065	Not yet	No due to exemption Art 4.4
AT	Thaya	ATOK500010038	0.089	Not yet	No due to exemption Art 4.4
AT	Thaya	ATOK500010038	0.104	Not yet	No due to exemption Art 4.4
AT	Thaya	ATOK500010038	0.178	Not yet	No due to exemption Art 4.4
AT	Thaya	ATOK500010038	0.483	Not yet	No due to exemption Art 4.4
AT	Thaya	ATOK500010038	0.637	Not yet	No due to exemption Art 4.4
AT	Thaya	ATOK500010038	0.15	Not yet	No due to exemption Art 4.4
AT	Thaya	ATOK500010038	0.191	Not yet	No due to exemption Art 4.4
AT	Thaya	ATOK500010043	1.541	Not yet	No due to exemption Art 4.4
AT	Thaya	ATOK500010043	0.334	Not yet	No due to exemption Art 4.4
AT	Thaya	ATOK500010043	0.117	Not yet	No due to exemption Art 4.4
AT	Thaya	ATOK500010043	0.547	Not yet	No due to exemption Art 4.4

Country	River	RWB code	Length in km	Restored 2015	Measure 2021
AT	Thaya	ATOK500010043	1.071	Not yet	No due to exemption Art 4.4
AT	Thaya	ATOK500010043	0.943	Not yet	No due to exemption Art 4.4
AT	Thaya	ATOK500010043	1.261	Not yet	No due to exemption Art 4.4
AT	Thaya	ATOK500010043	1.723	Not yet	No due to exemption Art 4.4
AT	Thaya	ATOK500010043	0.432	Not yet	No due to exemption Art 4.4
AT	Thaya	ATOK500010043	0.946	Not yet	No due to exemption Art 4.4
AT	Thaya	ATOK500010043	0.197	Not yet	No due to exemption Art 4.4
AT	Thaya	ATOK500010043	1.823	Not yet	No due to exemption Art 4.4
AT	Thaya	ATOK500010043	1.094	Not yet	No due to exemption Art 4.4
AT	Thaya	ATOK500010043	1.084	Not yet	No due to exemption Art 4.4
AT	Thaya	ATOK500010043	0.806	Not yet	No due to exemption Art 4.4
AT	Thaya	ATOK500010043	1.181	Not yet	No due to exemption Art 4.4
AT	Thaya	ATOK500010043	1.226	Not yet	No due to exemption Art 4.4
AT	Thaya	ATOK500040002	0.199	Not yet	No due to exemption Art 4.4
AT	Thaya	ATOK500040002	0.2	Not yet	No due to exemption Art 4.4
AT	Thaya	ATOK500040002	0.2	Not yet	No due to exemption Art 4.4
AT	Thaya	ATOK500040002	0.221	Not yet	No due to exemption Art 4.4
AT	Thaya	ATOK500040002	0.2	Not yet	No due to exemption Art 4.4
AT	Thaya	ATOK500040002	0.338	Not yet	No due to exemption Art 4.4
AT	Thaya	ATOK500040002	0.202	Not yet	No due to exemption Art 4.4
AT	Thaya	ATOK500040002	0.208	Not yet	No due to exemption Art 4.4
AT	Thaya	ATOK500040002	0.208	Not yet	No due to exemption Art 4.4
AT	Thaya	ATOK500040002	0.201	Not yet	No due to exemption Art 4.4
AT	Thaya	ATOK500040002	0.2	Not yet	No due to exemption Art 4.4
AT	Thaya	ATOK500040002	0.199	Not yet	No due to exemption Art 4.4
AT	Thaya	ATOK500040002	0.2	Not yet	No due to exemption Art 4.4

Country	River	RWB code	Length in km	Restored 2015	Measure 2021
AT	Thaya	ATOK500040002	0.198	Not yet	No due to exemption Art 4.4
AT	Thaya	ATOK500040002	0.203	Not yet	No due to exemption Art 4.4
AT	Thaya	ATOK500040002	0.21	Not yet	No due to exemption Art 4.4
AT	Traun	ATOK401220012, ATOK409920001	0.2	Not yet	Yes
AT	Traun	ATOK409920001	0.16	Not yet	Yes
AT	Traun	ATOK411970000	0.08	Not yet	No due to exemption Art 4.4
AT	Traun	ATOK411980001	0.417	Not yet	No due to exemption Art 4.4
AT	Traun	ATOK411980002	0.107	Not yet	No due to exemption Art 4.4
AT	Traun	ATOK412090013	5	Not yet	Yes
AT	Traun	ATOK412090014	9.942	Not yet	Yes
AT	Traun	ATOK412090016	7.603	Not yet	Yes
AT	Traun	ATOK412090020	0.779	Not yet	Yes
AT	Traun	ATOK412090027	3.499	Not yet	Yes
AT	Traun	ATOK412090030	1.072	Not yet	Yes
AT	Traun	ATOK412090031	3	Not yet	Yes
AT	Traun	ATOK412090032	1.191	Not yet	Yes
AT	Traun	ATOK412090042	0.344	Not yet	Yes
AT	Traun	ATOK412090042	0.15	Not yet	Yes
AT	Traun	ATOK412090042	1.383	Not yet	Yes
AT	Traun	ATOK412090042	0.614	Not yet	Yes
AT	Traun	ATOK412090042	1.467	Not yet	Yes
AT	Traun	ATOK412090042	0.236	Not yet	Yes
AT	Traun	ATOK412100002	1.7	Not yet	Yes
BG	Iskar	BG1IS135R1126	3.437	Not yet	No due to exemption Art 4.5
BG	Iskar	BG1IS135R1126	1.513	Not yet	No due to exemption Art 4.5
BG	Iskar	BG1IS135R1226	1.499	Not yet	No due to exemption Art 4.4

Country	River	RWB code	Length in km	Restored 2015	Measure 2021
BG	Iskar	BG1IS135R1226	1.062	Not yet	No due to exemption Art 4.4
BG	Iskar	BG1IS135R1226	2.513	Not yet	No due to exemption Art 4.4
BG	Iskar	BG1IS135R1226	1.282	Not yet	No due to exemption Art 4.4
BG	Iskar	BG1IS135R1326	1.955	Not yet	No implementation foreseen (only applicable for non-EU countries)
BG	Iskar	BG1IS135R1326	1.184	Not yet	No implementation foreseen (only applicable for non-EU countries)
BG	Iskar	BG1IS135R1326	2.126	Not yet	No implementation foreseen (only applicable for non-EU countries)
BG	Iskar	BG1IS135R1326	1.417	Not yet	No implementation foreseen (only applicable for non-EU countries)
BG	Ogosta	BG1OG307R1013	3.058	Not yet	No due to exemption Art 4.5
BG	Yantra	BG1YN900R1015	1.277	Not yet	No due to exemption Art 4.4
CZ	Dyje	CZDYJ_0155_J	27.8	Not yet	No due to exemption Art 4.4
CZ	Dyje	CZDYJ_0295_J	9.7	Not yet	No due to exemption Art 4.4
CZ	Dyje	CZDYJ_1195_J	4.1	Not yet	No due to exemption Art 4.4
CZ	Dyje	CZDYJ_1205_J	7.8	Not yet	No due to exemption Art 4.4
CZ	Svratka	CZDYJ_0345_J	8.1	Not yet	No due to exemption Art 4.4
CZ	Svratka	CZDYJ_0485_J	8.5	Not yet	No due to exemption Art 4.4
DE	Donau	DEDEBY_1_F030_BW		Not necessary	
DE	Donau	DEDEBY_1_F062		Not yet	No due to exemption Art 4.4
DE	Donau	DEDEBY_1_F074		Not yet	No due to exemption Art 4.4
DE	Donau	DEDEBY_1_F163		Not yet	No due to exemption Art 4.4
DE	Donau	DEDEBY_1_F223		Not yet	No due to exemption Art 4.4
DE	Donau	DEDEBY_1_F348		Not yet	No due to exemption Art 4.4
DE	Donau	DEDEBY_1_F478		Not yet	No due to exemption Art 4.4
DE	Donau	DEDEBY_1_F633		Not yet	No due to exemption Art 4.4
DE	Inn	DEDEBY_1_F509		Not necessary	
DE	Inn	DEDEBY_1_F556		Not yet	No due to exemption Art 4.4

Country	River	RWB code	Length in km	Restored 2015	Measure 2021
DE	Inn	DEDEBY_1_F557		Not yet	No due to exemption Art 4.4
DE	Inn	DEDEBY_1_F558		Not necessary	
DE	Inn	DEDEBY_1_F654		Not yet	No due to exemption Art 4.4
DE	Inn	DEDEBY_1_F656		Not yet	No due to exemption Art 4.4
DE	Inn	DEDEBY_1_F657		Not yet	No due to exemption Art 4.4
DE	Isar	DEDEBY_1_F375		Not yet	No due to exemption Art 4.4
DE	Isar	DEDEBY_1_F376		Not yet	No due to exemption Art 4.4
DE	Isar	DEDEBY_1_F429		Not yet	No due to exemption Art 4.4
DE	Isar	DEDEBY_1_F430		Not yet	No due to exemption Art 4.4
DE	Lech	DEDEBY_1_F122		Not yet	No due to exemption Art 4.4
DE	Lech	DEDEBY_1_F128		Not yet	No due to exemption Art 4.4
DE	Lech	DEDEBY_1_F131		Not yet	No due to exemption Art 4.4
DE	Lech	DEDEBY_1_F132		Not yet	No due to exemption Art 4.4
DE	Main-Donau-Kanal	DEDEBY_1_F226		Not yet	No due to exemption Art 4.4
DE	Naab	DEDEBY_1_F273		Not yet	Yes
HR	Drava	HRDDRI020005	8.91	Not necessary	
HR	Drava	HRDDRI020005	11.08	Not necessary	
HR	Drava	HRDDRI020007	3.62	Not necessary	
HR	Kupa	HRDSRN020002	0.59	Not necessary	
HU	Berettyó	HUAEP322	6	Not necessary	
HU	Duna	HUAEP443	18.5	Not necessary	
HU	Fehér-Körös	HUAEP471	10	Not necessary	
HU	Hármas-Körös	HUAOC779	68	Not necessary	
HU	Hernád	HUAEP579	6.5	Not necessary	
HU	Hernád	HUAEP580	5.3	Not necessary	
HU	Hernád	HUAEP580	4	Not necessary	

Country	River	RWB code	Length in km	Restored 2015	Measure 2021
HU	Hernád	HUAEP580	2	Not necessary	
HU	Kettős-Körös	HUAEP668	15	Not necessary	
HU	Mosoni-Duna	HUAEP812	5	Not necessary	
HU	Rába	HUAEP899	5	Not yet	Yes
HU	Rába	HUAEP900	4	Not necessary	
HU	Rába	HUAEP900	6	Not necessary	
HU	Rába	HUAEP903	1	Not necessary	
HU	Rába	HUAEP903	5	Not necessary	
HU	Rába	HUAEP903	3	Not necessary	
HU	Rábca	HUAEP904	6	Not necessary	
HU	Rábca	HUAEP904	6	Not necessary	
HU	Rábca	HUAEP904	5	Not necessary	
HU	Répce	HUAEP920	4.5	Not necessary	
HU	Sajó	HUAEP931	1.5	Not necessary	
HU	Sajó	HUAEP932	2	Not necessary	
HU	Sebes-Körös	HUAEP953	10	Not necessary	
HU	Sebes-Körös	HUAEP954	48	Not necessary	
HU	Sió	HUAEP958	2.1	Not necessary	
HU	Sió	HUAEP959	25.4	Not necessary	
HU	Tisza	HUAEQ059	75	Not necessary	
HU	Tisza	HUAIW389	115	Not necessary	
HU	Zagyva	HUAEQ139	3	Not necessary	
HU	Zagyva	HUAEQ139	3	Not necessary	
MD	Prut	MD0201/05, MD0201/06	54	Not necessary	
ME	Piva	MEPIV_2	34	Not yet	No implementation foreseen (only applicable for non-EU countries)
RO	Arges	ROLW10.1_B1	19	Not necessary	

Country	River	RWB code	Length in km	Restored 2015	Measure 2021
RO	Arges	ROLW10.1_B2	36	Not necessary	
RO	Arges	ROLW10.1_B3	16	Not necessary	
RO	Arges	ROLW10.1_B4	13	Not necessary	
RO	Arges	ROLW10.1_B5	6.56	Not necessary	
RO	Arges	ROLW10.1_B6	3.98	Not necessary	
RO	Arges	ROLW10.1_B7	13	Not necessary	
RO	Barcau	ROLW3.1.44.33_B4	4	Not yet	Yes
RO	Bega	RORW5.1_B2	2.361	Not necessary	
RO	Bega	RORW5.1_B3	5.334	Not necessary	
RO	Bega	RORW5.1_B3	8.43	Not necessary	
RO	Bega	RORW5.1_B3	0.942	Not yet	Yes
RO	Bega	RORW5.1_B4	14.533	Not necessary	
RO	Bega	RORW5.1_B4	15.117	Not necessary	
RO	Bega	RORW5.1_B4	15.063	Not necessary	
RO	Bistrita	ROLW12.1.53_B3	25.9	Not necessary	
RO	Bistrita	ROLW12.1.53_B5	9	Not necessary	
RO	Bistrita	ROLW12.1.53_B5	5	Not necessary	
RO	Bistrita	ROLW12.1.53_B5	6	Not necessary	
RO	Bistrita	ROLW12.1.53_B7	5	Not necessary	
RO	Bistrita	ROLW12.1.53_B7	5.1	Not necessary	
RO	Bistrita	ROLW12.1.53_B7	2.85	Not necessary	
RO	Bistrita	ROLW12.1.53_B7	2	Not necessary	
RO	Bistrita	ROLW12.1.53_B7	3.5	Not necessary	
RO	Buzau	ROLW12.1.82_B1	9.5	Not necessary	
RO	Buzau	ROLW12.1.82_B2	2	Not necessary	
RO	Crisul Repede	ROLW3.1.44_B5	7.5	Not necessary	

Country	River	RWB code	Length in km	Restored 2015	Measure 2021
RO	Crisul Repede	ROLW3.1.44_B5	7	Not necessary	
RO	Crisul Repede	RORW3.1.44_B7	1.5	Not necessary	
RO	Ialomita	ROLW11.1_B1	2.2	Not necessary	
RO	Ialomita	ROLW11.1_B2	2.3	Not necessary	
RO	Ialomita	ROLW11.1_B3	11	Not necessary	
RO	Jijia	ROLW13.1.15_B2	4	Not necessary	
RO	Jiu	ROLW7.1_B120	3.646	Not necessary	
RO	Jiu	ROLW7.1_B56	8.095	Not necessary	
RO	Jiu	RORW7.1_B4	0.779	Not necessary	
RO	Olt	ROLW8.1_B10	87	Yes	
RO	Olt	ROLW8.1_B11	40	Yes	
RO	Olt	ROLW8.1_B7	67	Not necessary	
RO	Olt	ROLW8.1_B9	81	Not necessary	
RO	Olt	RORW8.1_B2	1.2	Yes	
RO	Prut	ROLW13.1_B2	42	Not necessary	
RO	Siret	ROLW12.1_B1	13.2	Not necessary	
RO	Siret	ROLW12.1_B3	11.9	Not necessary	
RO	Siret	ROLW12.1_B6	29	Not necessary	
RO	Siret	ROLW12.1_B6	7	Not necessary	
RO	Siret	ROLW12.1_B6	13	Not necessary	
RO	Siret	ROLW12.1_B8	10.44	Not necessary	
RO	Somes	RORW2.1_B3	4.8	Not yet	Yes
RO	Timis	ROLW5.2_B1	1.93	Not necessary	
RO	Timis	RORW5.2_B5	2.987	Not necessary	
RO	Timis	RORW5.2_B5	2.318	Not necessary	
RO,RS	Dunarea,Dunav	RORW14.1_B1, RSD3	138.5	Not necessary	

Country	River	RWB code	Length in km	Restored 2015	Measure 2021
RO,RS	Dunarea,Dunav	RORW14.1_B2, RSD2	82.9	Not necessary	
RS	Begej	RSBEG	29.8	Not yet	No implementation foreseen (only applicable for non-EU countries)
RS	Drina	RSDR_2	20.3	Not yet	No implementation foreseen (only applicable for non-EU countries)
RS	Drina	RSDR_4	23.7	Not yet	No implementation foreseen (only applicable for non-EU countries)
RS	Dunav	RSD4	32.9	Not yet	No implementation foreseen (only applicable for non-EU countries)
RS	Dunav	RSD5	67.5	Not yet	No implementation foreseen (only applicable for non-EU countries)
RS	Dunav	RSD6	44.6	Not yet	No implementation foreseen (only applicable for non-EU countries)
RS	Dunav	RSD7	40.8	Not yet	No implementation foreseen (only applicable for non-EU countries)
RS	Ibar	RSIB_5	25.6	Not yet	No implementation foreseen (only applicable for non-EU countries)
RS	Lim	RSLIM_3	14.8	Not yet	No implementation foreseen (only applicable for non-EU countries)
RS	Sava	RSSA_1	98.9	Not yet	No implementation foreseen (only applicable for non-EU countries)
RS	Tamiš	RSTAM_1	41.5	Not yet	No implementation foreseen (only applicable for non-EU countries)
RS	Tamiš	RSTAM_1	38.8	Not yet	No implementation foreseen (only applicable for non-EU countries)
RS	Tamiš	RSTAM_2	36.4	Not yet	No implementation foreseen (only applicable for non-EU countries)
RS	Tisa	RSTIS_1	60.8	Not yet	No implementation foreseen (only applicable for non-EU countries)
RS	Tisa	RSTIS_2	99.5	Not yet	No implementation foreseen (only applicable for non-EU countries)
RS	Velika Morava	RSVMOR_1	13	Not yet	No implementation foreseen (only applicable for non-EU countries)
RS	Zapadna Morava	RSZMOR_3	30.6	Not yet	No implementation foreseen (only applicable for non-EU countries)

Country	River	RWB code	Length in km	Restored 2015	Measure 2021
SI	Drava	SISI3VT359	13	Not yet	Yet to be determined (only applicable for non-EU countries or preliminary uploads)
SI	Drava	SISI3VT359	8	Not yet	Yet to be determined (only applicable for non-EU countries or preliminary uploads)
SI	Drava	SISI3VT359	10	Not yet	Yet to be determined (only applicable for non-EU countries or preliminary uploads)
SI	Drava	SISI3VT359	12	Not yet	Yet to be determined (only applicable for non-EU countries or preliminary uploads)
SI	Drava	SISI3VT359	13	Not yet	Yet to be determined (only applicable for non-EU countries or preliminary uploads)
SI	Drava	SISI3VT359	16	Not yet	Yet to be determined (only applicable for non-EU countries or preliminary uploads)
SI	Drava	SISI3VT5172	6	Not yet	Yet to be determined (only applicable for non-EU countries or preliminary uploads)
SI	Drava	SISI3VT950	4	Not yet	Yet to be determined (only applicable for non-EU countries or preliminary uploads)
SI	Sava	SISI111VT7	5	Not yet	Yet to be determined (only applicable for non-EU countries or preliminary uploads)
SI	Sava	SISI1VT170	7	Not yet	Yet to be determined (only applicable for non-EU countries or preliminary uploads)
SI	Sava	SISI1VT170	6	Not yet	Yet to be determined (only applicable for non-EU countries or preliminary uploads)
SI	Sava	SISI1VT713	10	Not yet	Yet to be determined (only applicable for non-EU countries or preliminary uploads)
SI	Sava	SISI1VT739	10	Not yet	Yet to be determined (only applicable for non-EU countries or preliminary uploads)
SI	Sava	SISI1VT739	9	Not yet	Yet to be determined (only applicable for non-EU countries or preliminary uploads)
SI	Sava	SISI1VT739	9	Not yet	Yet to be determined (only applicable for non-EU countries or preliminary uploads)
SK	Dunaj	SKD0019	17.4	Not yet	No due to exemption Art 4.4
SK	Hornád	SKH0003	1.4	Not yet	No due to exemption Art 4.4
SK	Hornád	SKH0004	1.2	Not yet	No due to exemption Art 4.4
SK	Hornád	SKH1001	2.6	Not yet	No due to exemption Art 4.4

Country	River	RWB code	Length in km	Restored 2015	Measure 2021
SK	Hornád	SKH1001	20	Not yet	No due to exemption Art 4.4
SK	Hron	SKR0005	4	Not yet	No due to exemption Art 4.4
SK	Hron	SKR0005	2.5	Not yet	No due to exemption Art 4.4
SK	Hron	SKR0005	4	Not yet	No due to exemption Art 4.4
SK	Ipeľ	SKI0004	6	Not yet	No due to exemption Art 4.4
SK	Ipeľ	SKI0004	9.1	Not yet	No due to exemption Art 4.4
SK	Ipeľ	SKI0004	9.2	Not yet	No due to exemption Art 4.4
SK	Ipeľ	SKI0004	6.2	Not yet	No due to exemption Art 4.4
SK	Ipeľ	SKI0004	7	Not yet	No due to exemption Art 4.4
SK	Ipeľ	SKI0004	3.2	Not yet	No due to exemption Art 4.4
SK	Ipeľ	SKI0004	6.5	Not yet	No due to exemption Art 4.4
SK	Ipeľ	SKI0004	6.5	Not yet	No due to exemption Art 4.4
SK	Ipeľ	SKI1001	3.7	Not yet	No due to exemption Art 4.4
SK	Laborec	SKB0142	1.2	Not yet	No due to exemption Art 4.4
SK	Laborec	SKB0144	1.6	Not yet	No due to exemption Art 4.4
SK	Nitra	SKN0004	12.2	Not yet	No due to exemption Art 4.4
SK	Nitra	SKN0004	4	Not yet	No due to exemption Art 4.4
SK	Nitra	SKN0004	6.3	Not yet	No due to exemption Art 4.4
SK	Nitra	SKN0004	7.1	Not yet	No due to exemption Art 4.4
SK	Váh	SKV0006	3.7	Not yet	No due to exemption Art 4.4
SK	Váh	SKV0007	7.3	Not yet	No due to exemption Art 4.4
SK	Váh	SKV0007	7.8	Not yet	No due to exemption Art 4.4
SK	Váh	SKV0007	4.4	Not yet	No due to exemption Art 4.4
SK	Váh	SKV0007	10.1	Not yet	No due to exemption Art 4.4
SK	Váh	SKV0007	10	Not yet	No due to exemption Art 4.4
SK	Váh	SKV0027	19.3	Not yet	No due to exemption Art 4.4

Country	River	RWB code	Length in km	Restored 2015	Measure 2021
SK	Váh	SKV1001	8.4	Not yet	No due to exemption Art 4.4
SK	Váh	SKV1001	3.2	Not yet	No due to exemption Art 4.4
SK	Váh	SKV1002	5.9	Not yet	No due to exemption Art 4.4
SK	Váh	SKV1003	11.8	Not yet	No due to exemption Art 4.4

List of Water Abstractions

Country	River	RWB code	Residual water discharge	First usage	Second usage	Third usage	Restored 2015	Measure 2021
AT	Drau	ATOK903540003	Yes	Hydropower	n.a.	n.a.	Not yet	Yes
AT	Enns	ATOK400240106	Yes	Hydropower	n.a.	n.a.	Not yet	Yes
AT	Enns	ATOK411250012	Yes	Hydropower	n.a.	n.a.	Not yet	Yes
AT	Enns	ATOK411250012	Yes	Hydropower	n.a.	n.a.	Not yet	Yes
AT	Enns	ATOK411250012	Yes	Hydropower	n.a.	n.a.	Not yet	Yes
AT	Inn	ATOK304980003	Yes	Hydropower	n.a.	n.a.	Yes	
AT	Inn	ATOK304980010	Yes	Hydropower	n.a.	n.a.	Yes	
AT	Inn	ATOK305850011	Yes	Hydropower	n.a.	n.a.	Yes	
AT	Isar	ATOK301860008	Yes	Hydropower	n.a.	n.a.	Not yet	No due to exemption Art 4.4
AT	Lech	ATOK301500004	Yes	n.a.	n.a.	n.a.	Not yet	No due to exemption Art 4.4
AT	Lech	ATOK302370006	Yes	Hydropower	n.a.	n.a.	Yes	
AT	Lech	ATOK302370010	Yes	Hydropower	n.a.	n.a.	Yes	
AT	Lech	ATOK307080000	Yes	Hydropower	n.a.	n.a.	Yes	
AT	Mur	ATOK801180007	Yes	Hydropower	n.a.	n.a.	Not yet	No due to exemption Art 4.4
AT	Mur	ATOK801180008	Yes	Hydropower	n.a.	n.a.	Not yet	No due to exemption Art 4.4
AT	Mur	ATOK802710002	Yes	Hydropower	n.a.	n.a.	Yes	
AT	Mur	ATOK802710002	Yes	Hydropower	n.a.	n.a.	Not yet	No due to exemption Art 4.4
AT	Mur	ATOK802710008	Yes	Hydropower	n.a.	n.a.	Yes	
AT	Mur	ATOK802710009	Yes	Hydropower	n.a.	n.a.	Yes	
AT	Mur	ATOK802710009	Yes	Hydropower	n.a.	n.a.	Not yet	Yes
AT	Mur	ATOK802710009	Yes	Hydropower	n.a.	n.a.	Yes	
AT	Mur	ATOK802710009	Yes	Hydropower	n.a.	n.a.	Not yet	Yes
AT	Mur	ATOK802720005	Yes	Hydropower	n.a.	n.a.	Not yet	No due to exemption Art 4.4

Country	River	RWB code	Residual water discharge	First usage	Second usage	Third usage	Restored 2015	Measure 2021
AT	Mur	ATOK802720005	Yes	Hydropower	n.a.	n.a.	Not yet	No due to exemption Art 4.4
AT	Mur	ATOK802720005	Yes	Hydropower	n.a.	n.a.	Not yet	No due to exemption Art 4.4
AT	Mur	ATOK802720006	Yes	Hydropower	n.a.	n.a.	Not yet	No due to exemption Art 4.4
AT	Raab	ATOK1000960015	Yes	Hydropower	n.a.	n.a.	Not yet	Yes
AT	Raab	ATOK1000960019	Yes	Hydropower	n.a.	n.a.	Not yet	No due to exemption Art 4.4
AT	Raab	ATOK1000960019	Yes	Hydropower	n.a.	n.a.	Not yet	No due to exemption Art 4.4
AT	Raab	ATOK1000960020	Yes	Hydropower	n.a.	n.a.	Not yet	No due to exemption Art 4.4
AT	Raab	ATOK1001040108	Yes	Hydropower	n.a.	n.a.	Not yet	No due to exemption Art 4.4
AT	Raab	ATOK1001040108	Yes	Hydropower	n.a.	n.a.	Not yet	Yes
AT	Raab	ATOK1002160000	Yes	Hydropower	n.a.	n.a.	Not yet	Yes
AT	Salzach	ATOK304690001	Yes	Hydropower	n.a.	n.a.	Yes	
AT	Salzach	ATOK304690006	Yes	Hydropower	n.a.	n.a.	Not yet	No due to exemption Art 4.4
AT	Salzach	ATOK304690078	Yes	Hydropower	n.a.	n.a.	Not yet	No due to exemption Art 4.4
AT	Salzach	ATOK305360002	Yes	Hydropower	n.a.	n.a.	Yes	
AT	Thaya	ATOK500010030	Yes	n.a.	n.a.	n.a.	Not yet	Yes
AT	Thaya	ATOK500010030	Yes	Hydropower	n.a.	n.a.	Not yet	No due to exemption Art 4.4
AT	Thaya	ATOK500010031	Yes	Hydropower	n.a.	n.a.	Not yet	No due to exemption Art 4.4
AT	Thaya	ATOK500010036	Yes	Hydropower	n.a.	n.a.	Yes	
AT	Thaya	ATOK500010036	Yes	Hydropower	n.a.	n.a.	Not yet	No due to exemption Art 4.4
AT	Thaya	ATOK500010043	Yes	Hydropower	n.a.	n.a.	Yes	
AT	Thaya	ATOK500010043	Yes	Hydropower	n.a.	n.a.	Not yet	No due to exemption Art 4.4
AT	Traun	ATOK409920001	Yes	Hydropower	n.a.	n.a.	Not yet	Yes
AT	Traun	ATOK411980001	Yes	Hydropower	n.a.	n.a.	Not yet	Yes
AT	Traun	ATOK411980001	Yes	Hydropower	n.a.	n.a.	Not yet	No due to exemption Art 4.4
AT	Traun	ATOK411980002	Yes	Hydropower	n.a.	n.a.	Not yet	No due to exemption Art 4.4

Country	River	RWB code	Residual water discharge	First usage	Second usage	Third usage	Restored 2015	Measure 2021
AT	Traun	ATOK412090013	Yes	Hydropower	n.a.	n.a.	Not yet	Yes
AT	Traun	ATOK412090027	Yes	Hydropower	n.a.	n.a.	Not yet	Yes
AT	Traun	ATOK412090042	Yes	Hydropower	n.a.	n.a.	Yes	
AT	Traun	ATOK412090042	Yes	Hydropower	n.a.	n.a.	Yes	
BG	Dunav	BG1DU000R001	No	Manufacturing industry	n.a.	n.a.	Not necessary	
BG	Dunav	BG1DU000R001	No	Manufacturing industry	n.a.	n.a.	Not necessary	
BG	Dunav	BG1DU000R001	No	Manufacturing industry	n.a.	n.a.	Not necessary	
BG	Dunav	BG1DU000R001	No	Irrigation	n.a.	n.a.	Not necessary	
BG	Dunav	BG1DU000R001	No	Irrigation	n.a.	n.a.	Not necessary	
BG	Dunav	BG1DU000R001	No	Production of electricity (cooling)	n.a.	n.a.	Not necessary	
BG	Dunav	BG1DU000R001	No	Manufacturing industry	Production of electricity (cooling)	n.a.	Not necessary	
BG	Dunav	BG1DU000R001	No	Irrigation	n.a.	n.a.	Not necessary	
BG	Dunav	BG1DU000R001	No	Manufacturing industry	n.a.	n.a.	Not necessary	
BG	Dunav	BG1DU000R001	No	Irrigation	n.a.	n.a.	Not necessary	
BG	Dunav	BG1DU000R001	No	Manufacturing industry	n.a.	n.a.	Not necessary	
BG	Dunav	BG1DU000R001	No	Manufacturing industry	n.a.	n.a.	Not necessary	
BG	Dunav	BG1DU000R001	No	Manufacturing industry	n.a.	n.a.	Not necessary	
BG	Dunav	BG1DU000R001	No	Manufacturing industry	n.a.	n.a.	Not necessary	
BG	Dunav	BG1DU000R001	No	Manufacturing industry	n.a.	n.a.	Not necessary	
BG	Dunav	BG1DU000R001	No	Manufacturing industry	n.a.	n.a.	Not necessary	
BG	Dunav	BG1DU000R001	No	Manufacturing industry	n.a.	n.a.	Not necessary	
BG	Iskar	BG1IS100R1027	No	Irrigation	n.a.	n.a.	Not necessary	

Country	River	RWB code	Residual water discharge	First usage	Second usage	Third usage	Restored 2015	Measure 2021
BG	Iskar	BG1IS100R1027	No	Manufacturing industry	n.a.	n.a.	Not necessary	
BG	Iskar	BG1IS135R1026	No	Hydropower	n.a.	n.a.	Not necessary	
BG	Iskar	BG1IS135R1126	Yes	Hydropower	n.a.	n.a.	Not yet	No due to exemption Art 4.4
BG	Iskar	BG1IS135R1126	No	Agriculture, forestry and fishing (including fish farms) canals	n.a.	n.a.	Not necessary	
BG	Iskar	BG1IS135R1226	Yes	Hydropower	n.a.	n.a.	Not yet	No due to exemption Art 4.4
BG	Iskar	BG1IS135R1226	No	Hydropower	n.a.	n.a.	Not necessary	
BG	Iskar	BG1IS135R1226	No	Manufacturing industry	n.a.	n.a.	Not necessary	
BG	Iskar	BG1IS135R1226	Yes	Hydropower	n.a.	n.a.	Not yet	No due to exemption Art 4.4
BG	Iskar	BG1IS135R1226	No	Manufacturing industry	n.a.	n.a.	Not necessary	
BG	Iskar	BG1IS135R1226	Yes	Hydropower	n.a.	n.a.	Not yet	No due to exemption Art 4.4
BG	Iskar	BG1IS135R1426	No	Manufacturing industry	n.a.	n.a.	Not necessary	
BG	Iskar	BG1IS135R1726	No	Irrigation	n.a.	n.a.	Not necessary	
BG	Iskar	BG1IS789R1104	No	Agriculture, forestry and fishing (including fish farms) canals	n.a.	n.a.	Not necessary	
BG	Iskar	BG1IS900R1003	No	Agriculture, forestry and fishing (including fish farms) canals	Irrigation	n.a.	Not necessary	
BG	Ogosta	BG1OG307R1013	No	Irrigation	n.a.	n.a.	Not necessary	
BG	Ogosta	BG1OG307R1013	No	Irrigation	n.a.	n.a.	Not necessary	
BG	Ogosta	BG1OG307R1013	No	Irrigation	n.a.	n.a.	Not necessary	
BG	Ogosta	BG1OG307R1213	No	Manufacturing industry	n.a.	n.a.	Not necessary	
BG	Ogosta	BG1OG307R1213	No	Manufacturing industry	n.a.	n.a.	Not necessary	
BG	Yantra	BG1YN307R1027	No	Irrigation	n.a.	n.a.	Not necessary	
BG	Yantra	BG1YN307R1027	No	Irrigation	n.a.	n.a.	Not necessary	

Country	River	RWB code	Residual water discharge	First usage	Second usage	Third usage	Restored 2015	Measure 2021
BG	Yantra	BG1YN307R1027	No	Irrigation	n.a.	n.a.	Not necessary	
BG	Yantra	BG1YN307R1127	No	Manufacturing industry	n.a.	n.a.	Not necessary	
BG	Yantra	BG1YN307R1127	No	Manufacturing industry	n.a.	n.a.	Not necessary	
BG	Yantra	BG1YN700R1017	Yes	Hydropower	n.a.	n.a.	Not yet	No due to exemption Art 4.4
BG	Yantra	BG1YN900R1015	No	Manufacturing industry	n.a.	n.a.	Not necessary	
BG	Yantra	BG1YN900R1015	No	Hydropower	n.a.	n.a.	Not necessary	
BG	Yantra	BG1YN900R1015	Yes	Hydropower	n.a.	n.a.	Not yet	No due to exemption Art 4.4
BG	Yantra	BG1YN900R1015	No	Hydropower	n.a.	n.a.	Not necessary	
BG	Yantra	BG1YN900R1015	No	Hydropower	n.a.	n.a.	Not necessary	
BG	Yantra	BG1YN900R1015	No	Hydropower	n.a.	n.a.	Not necessary	
BG	Yantra	BG1YN900R1215	No	Public water supply	n.a.	n.a.	Not necessary	
BG	Yantra	BG1YN900R1415	No	Manufacturing industry	n.a.	n.a.	Not necessary	
BG	Yantra	BG1YN900R1415	No	Manufacturing industry	n.a.	n.a.	Not necessary	
DE	Donau	DEDEBW_6-01	Unknown	Hydropower	n.a.	n.a.	Not yet	Yes
DE	Donau	DEDEBW_6-02	Unknown	Hydropower	n.a.	n.a.	Not yet	Yes
DE	Donau	DEDEBW_6-03	Unknown	Hydropower	n.a.	n.a.	Not yet	Yes
DE	Donau	DEDEBW_6-04	Unknown	Hydropower	n.a.	n.a.	Not yet	Yes
DE	Donau	DEDEBW_6-05	Unknown	Hydropower	n.a.	n.a.	Not yet	Yes
DE	Isar	DEDEBY_1_F373	Unknown	Other major abstractions	n.a.	n.a.	Not necessary	
DE	Isar	DEDEBY_1_F402	Unknown	Other major abstractions	n.a.	n.a.	Not yet	Yes
DE	Lech	DEDEBY_1_F128	Unknown	Other major abstractions	n.a.	n.a.	Not yet	Yes
DE	Naab	DEDEBY_1_F273	Unknown	Other major abstractions	n.a.	n.a.	Not yet	Yes
HU	Duna	HUAEP443	No	Hydropower	n.a.	n.a.	Not necessary	
HU	Duna	HUAEP443	No	Other major	n.a.	n.a.	Not necessary	

Country	River	RWB code	Residual water discharge	First usage	Second usage	Third usage	Restored 2015	Measure 2021
				abstractions				
HU	Duna	HUAEP443	No	Production of electricity (cooling)	n.a.	n.a.	Not necessary	
HU	Duna	HUAOC753	No	Manufacturing industry	n.a.	n.a.	Not necessary	
HU	Duna	HUAOC754	No	Production of electricity (cooling)	n.a.	n.a.	Not necessary	
HU	Duna	HUAOC755	No	Agriculture, forestry and fishing (including fish farms) canals	Other major abstractions	n.a.	Not necessary	
HU	Duna, Szentendrei-Duna	HUAOC752	No	Irrigation	Agriculture, forestry and fishing (including fish farms) canals	Other major abstractions	Not necessary	
HU	Hármas-Körös	HUAOC779	No	Irrigation	Agriculture, forestry and fishing (including fish farms) canals	n.a.	Not necessary	
HU	Hernád	HUAEP579	No	Hydropower	n.a.	n.a.	Not necessary	
HU	Hernád	HUAEP580	No	Hydropower	Irrigation	n.a.	Not necessary	
HU	Maros	HUAEP784	No	Irrigation	n.a.	n.a.	Not necessary	
HU	Rába	HUAEP899	No	Irrigation	n.a.	n.a.	Not necessary	
HU	Sebes-Körös	HUAEP953	No	Other major abstractions	Agriculture, forestry and fishing (including fish farms) canals	n.a.	Not necessary	
HU	Sebes-Körös	HUAEP954	No	Other major abstractions	Irrigation	n.a.	Not necessary	
HU	Tisza	HUAEQ056	No	Irrigation	Agriculture, forestry and fishing (including fish farms) canals	n.a.	Not necessary	
HU	Tisza	HUAEQ059	No	Irrigation	Public water supply	Agriculture, forestry and fishing (including fish farms) canals	Not necessary	
HU	Tisza	HUAEQ059	No	Production of electricity (cooling)	n.a.	n.a.	Not necessary	

Country	River	RWB code	Residual water discharge	First usage	Second usage	Third usage	Restored 2015	Measure 2021
HU	Tisza	HUAIW389	No	Irrigation	Agriculture, forestry and fishing (including fish farms) canals	n.a.	Not necessary	
HU	Tisza	HUAIW389	No	Irrigation	Agriculture, forestry and fishing (including fish farms) canals	n.a.	Not necessary	
ME	Piva	MEPIV_2	Unknown	Hydropower	n.a.	n.a.	Not necessary	No implementation foreseen (only applicable for non-EU countries)
RO	Arges	ROLW10.1_B1	Yes	Hydropower	n.a.	n.a.	Not necessary	
RO	Arges	ROLW10.1_B2	No	Hydropower	Public water supply	n.a.	Not necessary	
RO	Arges	ROLW10.1_B3	No	Hydropower	Public water supply	n.a.	Not necessary	
RO	Arges	ROLW10.1_B4	No	Hydropower	Manufacturing industry	n.a.	Not necessary	
RO	Arges	ROLW10.1_B5	No	Public water supply	n.a.	n.a.	Not necessary	
RO	Arges	ROLW10.1_B6	No	Public water supply	n.a.	n.a.	Not necessary	
RO	Arges	ROLW10.1_B7	No	Hydropower	n.a.	n.a.	Not necessary	
RO	Arges	RORW10.1_B2	No	Hydropower	n.a.	n.a.	Not necessary	No due to exemption Art 4.5
RO	Crisul Repede	RORW3.1.44_B2	No	Hydropower	n.a.	n.a.	Not necessary	
RO	Crisul Repede	RORW3.1.44_B4	No	Hydropower	n.a.	n.a.	Not necessary	
RO	Crisul Repede	RORW3.1.44_B6	No	Hydropower	n.a.	n.a.	Not necessary	
RO	Olt	RORW8.1_B2	No	Public water supply	Agriculture, forestry and fishing (including fish farms) canals	Other major abstractions	Yes	
SK	Váh	SKV0006	Yes	Hydropower	Other major abstractions	n.a.	Not necessary	
SK	Váh	SKV0007	Yes	Hydropower	Other major abstractions	n.a.	Not necessary	
SK	Váh	SKV0007	Yes	Hydropower	Other major abstractions	n.a.	Not necessary	
SK	Váh	SKV0007	Yes	Hydropower	Other major abstractions	n.a.	Not necessary	
SK	Váh	SKV0007	Yes	Hydropower	Other major abstractions	n.a.	Not necessary	

Country	River	RWB code	Residual water discharge	First usage	Second usage	Third usage	Restored 2015	Measure 2021
SK	Váh	SKV0007	Yes	Hydropower	Other major abstractions	n.a.	Not necessary	
SK	Váh	SKV1002	Yes	Hydropower	Other major abstractions	n.a.	Not necessary	

List of Hydropeaking

Country	River	RWB Code	Water level fluctuation >1m/day	Restored 2015	Measure 2021
AT	Drau	ATOK900470022	Unknown	Not yet	No due to exemption Art 4.4
AT	Drau	ATOK903540001	Unknown	Not yet	No due to exemption Art 4.4
AT	Drau	ATOK903540002	Unknown	Not yet	No due to exemption Art 4.4
AT	Drau	ATOK903540003	Unknown	Not yet	No due to exemption Art 4.4
AT	Enns	ATOK409970000	Unknown	Not yet	No due to exemption Art 4.4
AT	Enns	ATOK411250010	Unknown	Not yet	No due to exemption Art 4.4
AT	Enns	ATOK411250020	Unknown	Not yet	No due to exemption Art 4.4
AT	Enns	ATOK411250021	Unknown	Not yet	No due to exemption Art 4.4
AT	Inn	ATOK304980003	Unknown	Not yet	No due to exemption Art 4.4
AT	Inn	ATOK304980006	Unknown	Not yet	No due to exemption Art 4.4
AT	Inn	ATOK304980006	Unknown	Not yet	No due to exemption Art 4.4
AT	Inn	ATOK304980009	Unknown	Not yet	No due to exemption Art 4.4
AT	Inn	ATOK304980009	Unknown	Not yet	No due to exemption Art 4.4
AT	Inn	ATOK304980009	Unknown	Not yet	No due to exemption Art 4.4
AT	Inn	ATOK304980010	Unknown	Not yet	No due to exemption Art 4.4
AT	Inn	ATOK305850011	Unknown	Not yet	No due to exemption Art 4.4
AT	Inn	ATOK305850011	Unknown	Not yet	No due to exemption Art 4.4
AT	Lech	ATOK307080000	Unknown	Not yet	No due to exemption Art 4.4
AT	Mur	ATOK801180004	Unknown	Not yet	No due to exemption Art 4.4
AT	Mur	ATOK801180006	Unknown	Not yet	No due to exemption Art 4.4
AT	Raab	ATOK1001040108	Unknown	Not yet	No due to exemption Art 4.4
AT	Raab	ATOK1002160000	Unknown	Not yet	No due to exemption Art 4.4
AT	Salzach	ATOK304690004	Unknown	Not yet	No due to exemption Art 4.4
AT	Salzach	ATOK304690005	Unknown	Not yet	No due to exemption Art 4.4
AT	Salzach	ATOK305350001	Unknown	Not yet	No due to exemption Art 4.4
AT	Salzach	ATOK305350001	Unknown	Not yet	No due to exemption Art 4.4
AT	Salzach	ATOK305350001	Unknown	Not yet	No due to exemption Art 4.4
AT	Salzach	ATOK305350001	Unknown	Not yet	No due to exemption Art 4.4
AT	Salzach	ATOK305350001	Unknown	Not yet	No due to exemption Art 4.4
AT	Salzach	ATOK305350003	Unknown	Not yet	No due to exemption Art 4.4
AT	Salzach	ATOK305350003	Unknown	Not yet	No due to exemption Art 4.4
AT	Salzach	ATOK305350004	Unknown	Not yet	No due to exemption Art 4.4
AT	Salzach	ATOK305350004	Unknown	Not yet	No due to exemption Art 4.4
AT	Salzach	ATOK305350006	Unknown	Not yet	No due to exemption Art 4.4
AT	Salzach	ATOK305350006	Unknown	Not yet	No due to exemption Art 4.4
AT	Salzach	ATOK305360002	Unknown	Not yet	No due to exemption Art 4.4

Country	River	RWB Code	Water level fluctuation >1m/day	Restored 2015	Measure 2021
AT	Salzach	ATOK305360002	Unknown	Not yet	No due to exemption Art 4.4
AT	Salzach	ATOK305360002	Unknown	Not yet	No due to exemption Art 4.4
AT	Salzach	ATOK305360002	Unknown	Not yet	No due to exemption Art 4.4
AT	Salzach	ATOK307200002	Unknown	Not yet	No due to exemption Art 4.4
AT	Salzach	ATOK307200003	Unknown	Not yet	No due to exemption Art 4.4
AT	Thaya	ATOK501870001	Unknown	Not yet	No due to exemption Art 4.4
DE	Donau	DEDEBY_1_F163	Unknown	Not yet	No due to exemption Art 4.4
DE	Isar	DEDEBY_1_F429	No	Not yet	No due to exemption Art 4.4
DE	Lech	DEDEBY_1_F122	Unknown	Not yet	No due to exemption Art 4.4
DE	Lech	DEDEBY_1_F124	Unknown	Not yet	No due to exemption Art 4.4
DE	Lech	DEDEBY_1_F125	Unknown	Not yet	Yes
DE	Lech	DEDEBY_1_F128	Unknown	Not yet	Yes
DE	Lech	DEDEBY_1_F131	Unknown	Not yet	Yes
DE	Lech	DEDEBY_1_F132	Unknown	Not yet	Yes
HR	Drava	HRDDRI020005	Yes	Yes	
HU	Dráva	HUAEP439	Yes	Not yet	No due to exemption Art 4.4
ME	Piva	MEPIV_1	Yes	Not yet	No implementation foreseen (only applicable for non-EU countries)

Financing the Joint Programme of Measures

International Commission for the Protection of the Danube River

Internationale Kommission zum Schutz der Donau

ANNEX 17

DRBM Plan – Update 2015

Deutschland //// Österreich //// Česká republika //// Slovensko //// Magyarország //// Slovenija //// Hrvatska //// Bosna i Hercegovina //// Србија //// Crna Gora //// România //// България //// Moldova //// Україна

Financing Program	Organisation	Description	(Main) Type of pressure (SWMIs)	Other eligibility criteria	Sources/further information regarding application
European Regional Development Fund (ERDF)	EU (European Structural and Investment Funds/ESIF)	The ERDF aims to strengthen economic, social and territorial cohesion in the EU by correcting imbalances between regions. The ERDF supports regional and local development to contribute to all of the thematic objectives, laid down in the CPR[1].	TO 5 (climate change adaptation, risk prevention): ecosystem-based approaches for hydromorphological alterations (reconnection of wetlands/floodplains), possibly nutrient pollution (diffuse pollution from agriculture). TO 6 (protecting the environment and promoting resource efficiency): organic pollution (UWWTP, industrial point sources), nutrient pollution (UWWTP, industrial point sources), hazardous substances pollution (UWWTP industrial point sources), hydromorphological alterations (reconnection of wetlands/floodplains).	Only EU Member States eligible MS/regions are classified according to "more developed regions/transition regions/less developed regions" (influencing minimum allocations set for a number of priority areas).	*Common Provisions Regulation[2]. *ESIF general: http://ec.europa.eu/contracts_grants/funds_en.htm *Project database: http://ec.europa.eu/regional_policy/index.cfm/en/projects/?LAN=EN&pay=ALL&region=ALL&the=97&type=ALL&per=2
European Social Fund (ESF)	EU (European Structural and Investment Funds/ESIF)	The European Social Fund (ESF) is the main financial instrument for investing in employment opportunities, better education, improvement of the situation of the most vulnerable people; capacity building in the environment is also being supported.	No direct linkage to the Danube SWMIs. Possible indirect linkages in all areas regarding capacity building, mainly BAT/BAP.	Only EU Member States eligible	*Common Provisions Regulation (see footnote 3 above) *ESIF general: http://ec.europa.eu/contracts_grants/funds_en.htm *Project database: see link under ERDF
Cohesion Fund	EU (European	The Cohesion Fund helps	Climate change adaptation and risk	Only EU Member	*Common Provisions

[1] The thematic objectives are: 1. research and development, and innovation; 2. information and communication technologies; 3.competitiveness of SMEs; 4. shift towards a low-carbon economy; 5. climate change adaptation, risk prevention; 6. protecting the environment and promotion resource efficiency; 7. promoting sustainable transport; 8. employment and labor mobility; 9. social inclusion and poverty; 10. education, and training; 11. institutional capacity and efficiency of public administration.
TO 5 and 6 are particularly relevant for water and marine policy.

[2] More detailed information on eligibility, financial instruments, ex-ante conditionalities and management and control principles, as well as common elements on strategic planning and programming, thematic objectives linked to the Europe 2020 Strategy and visions on the Common Strategic Framework and on the Partnership Agreements to be agreed between the Commission and each Member State can be found in the Common Provisions Regulation/CPR (No 1303/2013 OF THE EUROPEAN PARLIAMENT AND OF THE COUNCIL of 17 December 2013), to be found here: http://eur-lex.europa.eu/legal-content/EN/TXT/?uri=CELEX:32013R1303.

Financing Program	Organisation	Description	(Main) Type of pressure (SWMIs)	Other eligibility criteria	Sources/further information regarding application
(CF)	Structural and Investment Funds/ESIF)	Member States with a GNI[3] per capita of less than 90% of the EU-27 average to invest in TEN-T transport networks and the environment.	prevention: hydromorphological alterations (reconnection of wetlands/floodplains). Investment in the water and waste sectors, and the urban environment: organic pollution (UWWTP, industrial point sources), nutrient pollution (UWWTP, industrial point sources, urban run-off), hazardous substances pollution (UWWTP, industrial point sources, urban run-off). Investment in energy, provided it has positive environmental benefits: possibly all hydromorphological pressures if linked to hydropower.	States with a GNI per capita of less than 90% of the EU-27 average. For the 2014-2020 period, the Cohesion Fund concerns (in the Danube RB) Bulgaria, Croatia, the Czech Republic, Hungary, Romania, Slovakia and Slovenia (see map at the end of the table). Ex-ante conditionality: Existence of a water pricing policy (with adequate incentives and contributions of different users) Adoption of RBMP	Regulation (see footnote 3 above) *ESIF general: http://ec.europa.eu/contracts_grants/funds_en.htm *Project database: see link under ERDF
European Maritime and Fisheries Fund (EMFF)	EU (European Structural and Investment Funds/ESIF)	The EMFF is the primary financing instrument for the reformed Common Fisheries Policy (CFP) and the Integrated Maritime Policy (IMP), including the Marine Strategy Framework Directive (MSFD).	No direct linkage to the Danube SWMIs. Possible indirect linkages in transitional/coastal water, e.g. with regard to data collection on fish species, or the management, restoration and monitoring of coastal Natura2000 sites.	Only EU Member States eligible	*Common Provisions Regulation (see footnote 3 above) *ESIF general: http://ec.europa.eu/contracts_grants/funds_en.htm
CAP/European Agricultural Fund for Rural Development (EAFRD)	EU (European Structural and Investment Funds/ESIF)	The EAFRD is one of the primary financing instruments for the Pillar II of the CAP (Rural Development), which sets a number of environmental objectives, notably: 1: efficient, responsible and	1: efficient, responsible and sustainable use of water resources in agriculture: only indirect links to SWMIs; cooperation and irrigation/water savings possible (Art. 17 investments, linked to irrigation). 2: ensuring that agricultural activities help/do not represent a constraint/to achieve GES and	Only EU Member States eligible	*Common Provisions Regulation (see footnote 3 above) *ESIF general: http://ec.europa.eu/contracts_grants/funds_en.htm

[3] Gross National Income.

Financing Program	Organisation	Description	(Main) Type of pressure (SWMIs)	Other eligibility criteria	Sources/further information regarding application
		sustainable use of water resources in agriculture; 2: ensuring that agricultural activities help/do not represent a constraint/to achieve GES and goals of the WFD; 3: implementation of the ecosystem-based approach when addressing challenges linked to climate change; 4: restoration of natural water cycle and of fresh water ecosystems and ambient ecosystems. 30% of the 95 billion € in 2014-2020 are earmarked for environment and climate.	goals of the WFD: organic pollution (animal feeding/breeding lots), nutrient pollution (diffuse emissions from agriculture, animal feeding/breeding lots), hazardous substances pollution (diffuse sources from agriculture), hydromorphological alterations (reconnection of wetlands/floodplains). (Art. 28 agri-environment-climate payments and Art. 29 organic farming cover the complex issue of interlinked water, soil and biodiversity elements linked to agricultural diffuse sources; Art. 30 payments covered for areas under strict protection). 3: implementation of the ecosystem-based approach when addressing challenges linked to climate change: possibly hydromorphological alterations (reconnection of wetlands/floodplains), organic/nutrient/hazardous substances pollution (through changes in land use intensity or forest cover: Art. 18 "restoring agricultural production potential damaged by natural disasters and catastrophic events and introduction of appropriate prevention actions" and Art. 24 "prevention and restoration of damage to forests from forest fires and natural disasters and catastrophic events). 4: restoration of natural water cycle and of fresh water ecosystems and ambient ecosystems: possibly hydromorphological alterations (reconnection of wetlands/floodplains), organic/nutrient/hazardous substances pollution (through changes in land use		*Agriculture and Rural Development: http://ec.europa.eu/agriculture/rural-development-2014-2020/index_en.htm *Applications via the national ministries responsible for EAFRD implementation/funding (list of ministries: http://ec.europa.eu/agriculture/links-to-ministries/index_en.htm).

Financing Program	Organisation	Description	(Main) Type of pressure (SWMIs)	Other eligibility criteria	Sources/further information regarding application
			intensity or forest cover: Art. 17 investments in non-productive physical assets, such as achieving biodiversity conservation status of species and habitat as well as enhancing the public amenity value of a Natura 2000 area or other high nature value systems).		
LIFE	EU	LIFE is the EU's only financing program entirely devoted to environmental objectives. It has four general objectives: 1. contributing to the shift towards a sustainable, low-carbon and climate-resilient economy, as well as to the protection of the environment and of biodiversity; 2: improving the development, implementation and enforcement of EU environmental and climate policy and legislation; 3: improving environmental and climate governance at all levels, including better involvement of civil society, non-governmental organizations (NGOs) and local actors; and 4: supporting the implementation of the 7th Environment Action Programme. LIFE 2014-2020 also incorporates new "LIFE Integrated Projects", larger projects (an average EU contribution of 10 million €) aiming at contributing to the implementation of some	Potentially addresses all SWMIs through the "LIFE Integrated Projects" (organic pollution indirectly). Foci are ecosystem-based approaches: organic pollution (indirectly through natural buffer zones), nutrient pollution (diffuse sources from agriculture and agricultural atmospheric emissions, urban run-off), hazardous substances pollution (diffuse sources, mainly from agriculture, but potentially also from urban and landfill/mining sites), hydromorphological alterations (longitudinal river continuity, reconnection of wetlands/floodplains, hydrological alterations). Also measures targeting sediments (retention measures) and IAS. Through the many links to climate and resilience, synergy effects between climate change adaptation, mitigation and water/biodiversity protection (keywords: NWRM, green infrastructure).	EU and non-EU countries (candidate countries and the Western Balkan countries involved in the Stabilisation and Association Process, as well as countries to which the European Neighbourhood Policy applies). Projects must apply to "priority areas" and related specific objectives: Component Environment: "resource efficiency", "nature and biodiversity" and "environmental governance and information". Component Climate Action: climate change mitigation, adaptation and governance/ information.	*General information: http://ec.europa.eu/environment/life/ *LIFE regulation (english): http://eur-lex.europa.eu/legal-content/EN/TXT/PDF/?uri=CELEX:32013R1293&from=EN *COM Presentation on LIFE: http://ec.europa.eu/environment/life/about/documents/life2014-2020.pdf *National contact points: http://ec.europa.eu/environment/life/contact/nationalcontact/index.htm *EP Briefing: http://www.europarl.europa.eu/RegData/etudes/BRIE/2015/548992/EPRS_BRI%282015%29548992_REV1_EN.pdf

Financing Program	Organisation	Description	(Main) Type of pressure (SWMIs)	Other eligibility criteria	Sources/further information regarding application
		environmental EU policies, in particular the WFD and the MSFD.			
Horizon 2020	EU	Horizon 2020 is the funding program for research and innovation for the period 2014-2020. It is structured around tackling a series of "Societal Challenges" (SC), of which SC 2 on "Food security, sustainable agriculture and forestry, marine and maritime and inland water research, and the bioeconomy" and SC 5 on "Climate action, resource efficiency and raw materials" are of the greatest relevance for research linked to WFD implementation.	No direct link to Danube SWMIs, but research to support measures/knowledge on any SWMI is possible.	EU and non-EU countries (associated countries). Research program, SME participation possible. Most projects require at least three partners.	*Application process and help: http://ec.europa.eu/programmes/horizon2020/en/how-get-funding *National contact points: http://ec.europa.eu/research/participants/portal/desktop/en/support/national_contact_points.html
INTERREG V/European Territorial Cooperation (ETC)	EU	INTERREG programs are a specific strand of funding possibilities within the cohesion policy funding, under the European Territorial Cooperation (ETC) goal. INTERREG programs typically focus on cooperation between regions and Member States, and are generally aimed at enabling exchange of experience, knowledge and good practices among relevant stakeholders from different MS and/or regions.	No direct link to Danube SWMIs, but enabling exchange of experience, knowledge and good practices can benefit implementation of measures in all areas. Also, feasibility studies, socio-economic analyses and applied research can be funded.	EU and non-EU countries. Programs can be cross-border (along internal EU borders), transnational (cover larger areas of co-operation such as the Danube Basin), and interregional at EU-28 level (between regional and local bodies in different countries belonging also to different regions).	*Information on ETC and INTERREG V: http://ec.europa.eu/regional_policy/index.cfm/en/policy/cooperation/european-territorial/ *More information on Interreg V-A can be found in the WWF document (http://wwf.panda.org/what_we_do/where_we_work/black_sea_basin/danube_carpathian/media/publications/) *Project database: http://ec.europa.eu/regio

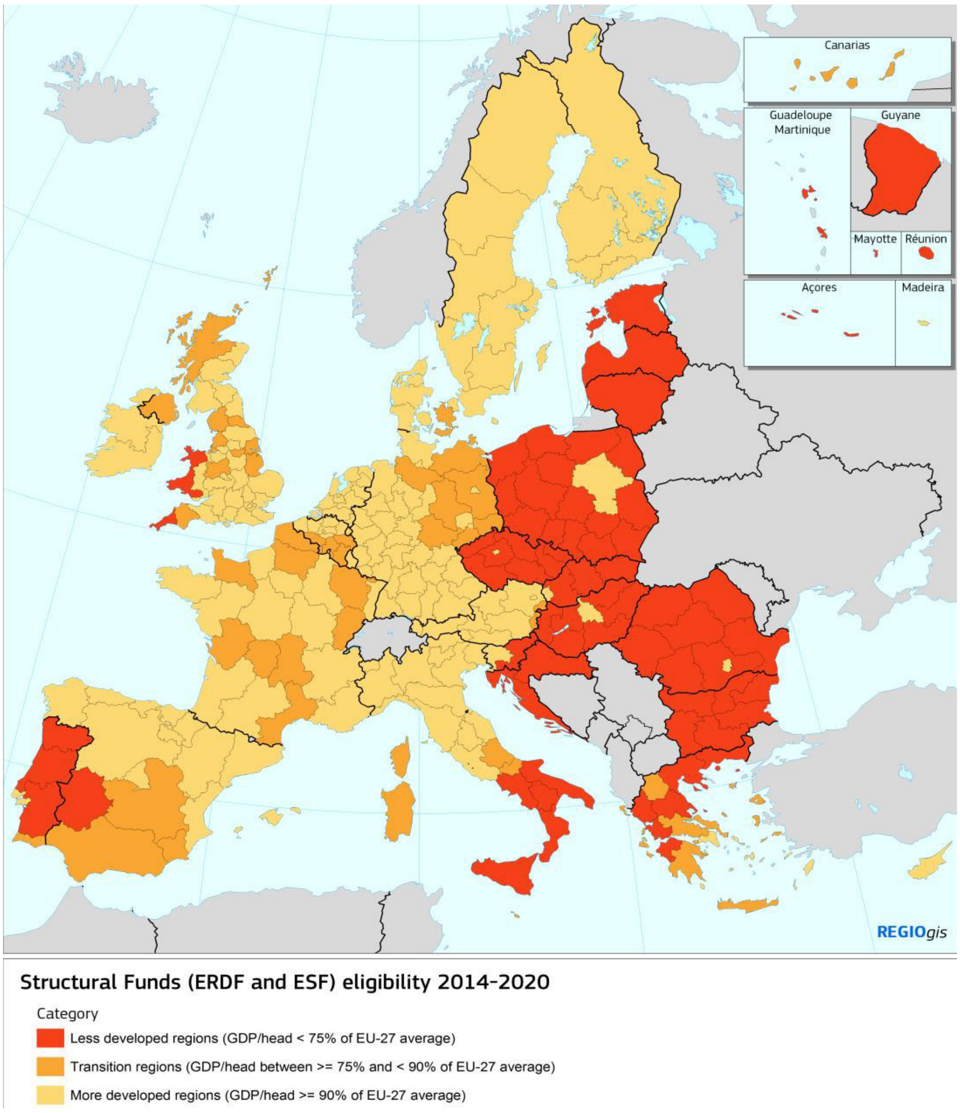
Financing Program	Organisation	Description	(Main) Type of pressure (SWMIs)	Other eligibility criteria	Sources/further information regarding application
					nal_policy/index.cfm/en/projects/?LAN=EN&pay=ALL&region=ALL&the=97&type=ALL&per=2 List of programs: http://www.danube-region.eu/2014-03-21-07-28-38/etc-ipa-cbc-and-enpi-cbc-programmes
European Neighbourhood Instrument (ENI)	EU	ENI is providing direct support for the EU´s external policies. For environmental actions, target 4 ("encouraging development, poverty reduction, internal economic, social and territorial cohesion, rural development, climate action and disaster resilience") can be of relevance.	Support for non-EU countries participating in cross-border ERDF/INTERREG programs possible. Otherwise, potential link to Danube SWMIs though various funding opportunities; see Handbook for details.	Non-EU (candidates, possible candidates and neighboring countries; in the Danube region: Moldova and Ukraine)	*EU Funding Handbook for the neighborhood: http://www.enpi-info.eu/files/publications/EU%20funding%20Handbook%20-%20Final%2026Feb.pdf *ENI Regulation: http://eur-lex.europa.eu/LexUriServ/LexUriServ.do?uri=OJ:L:2014:077:0027:0043:EN:PDF List of programs: http://www.danube-region.eu/2014-03-21-07-28-38/etc-ipa-cbc-and-enpi-cbc-programmes
Instrument for Pre-Accession Assistance (IPA II)	EU	Since 2007, the Instrument for Pre-Accession Assistance (IPA) replaces a series of EU programs and financial instruments for candidate countries or potential	In the Danube RB, only C1 and C2 are being funded: 1. assistance for transition and institution building; 2- cross-border cooperation (with EU MS and	EU candidate countries (Turkey and FYROM) are eligible for all five components of IPA, potential candidate	*More information: http://www.welcomeurope.com/european-funds/ipa-ii-instrument-pre-accession-

Financing Program	Organisation	Description	(Main) Type of pressure (SWMIs)	Other eligibility criteria	Sources/further information regarding application
		candidate countries (such as PHARE, ISPA, SAPRD etc.). It is organized along five components, which are: 1. assistance for transition and institution building; 2- cross-border cooperation (with EU MS and other countries eligible for IPA); 3. regional development (transport, environment, regional and economic development); 4. human resources (strengthening human capital and combating exclusion); 5. rural development.	other countries eligible for IPA). Hence, no direct link to Danube SWMIs, although institution building and cross-border cooperation can benefit implementation of measures in all areas.	countries in the Western Balkans (Albania, Bosnia-Herzegovina, Montenegro, Serbia, and Kosovo under UN Security Council Resolution 1244/99) are eligible only for the first two components.	assistance-2014-2020-838+738.html#tab=onglet_details *More information: http://ec.europa.eu/regional_policy/index.cfm/EN/funding/ipa/ List of programs: http://www.danube-region.eu/2014-03-21-07-28-38/etc-ipa-cbc-and-enpi-cbc-programmes
International Bank for Reconstruction and Development (IBRD) International Development Association (IDA)	World Bank (WB)	The World Bank is an international financial institution that provides loans to developing countries. It consists of two agencies (IBRD and IDA) and focuses on the following fields: - human development (e.g. education, health); - agriculture and rural development (e.g. irrigation and rural services); - environmental protection (e.g. pollution reduction, establishing and enforcing regulations); - infrastructure (e.g. roads, urban regeneration, and electricity); - large industrial construction projects; - governance (e.g. anti-corruption,	Ni direct link to Danube SWMIs, although a multitude of projects/measures benefitting WFD implementation can be financed by WB loans (see also the examples listed under GEF). It has to be remarked, however, that IBRD provides only loans (though at preferential rates), not grants. IDA also provides grants.	IBRD: middle income and creditworthy low-income countries (all Danube except DE and AT). IDA: Moldova (and Kosovo)	*Products and Services: http://www.worldbank.org/en/projects-operations/products-and-services *WB Country Reports: http://web.worldbank.org/WBSITE/EXTERNAL/PROJECTS/0,,menuPK:64383817~pagePK:64387457~piPK:64387543~theSitePK:40941,00.html

Financing Program	Organisation	Description	(Main) Type of pressure (SWMIs)	Other eligibility criteria	Sources/further information regarding application
		legal institutions development). The IBRD and IDA provide loans at preferential rates to member countries, as well as grants to the poorest countries.			
Global Environment Facility (GEF)	GEF	The Global Environment Facility is a partnership for international cooperation where 183 countries work together with international institutions, civil society organizations and the private sector, to address global environmental issues.	GEF provides grants to various types of projects (Climate Change Adaptation Projects and Small Grants Programme (SGP) most relevant) ranging from several thousand dollars to several million dollars. Projects are supported in several "focal areas", of which the most relevant are: Biodiversity, Climate Change, Chemicals and Waste. Financing is provided through grants and non-grants. Funding possible with regard to all Danube SWMIs.	Most countries should be eligible, depending on the focal area, eligibility criteria established by the relevant COP of the respective convention, and some others (see http://www.thegef.org/ gef/node/1432).	*Templates and guidelines available at: http://www.thegef.org/gef/guidelines_templates *Project types: http://www.thegef.org/gef/project_types *Example from Moldova: http://www.worldbank.org/projects/P075995/agricultural-pollution-control-gef-project?lang=en&tab=overview *Example from Romania: http://www.worldbank.org/projects/P093775/romania-integrated-nutrient-pollution-control-project?lang=en
European Investment Bank (EIB)	EU	The EIB is the EU's bank, offering loans (individual for projects over 25 Mio. €, intermediate to other banks/institutions for SME with projects under 25 Mio. €). The EIB finances a broad range of projects	No direct link to Danube SWMIs, but the EIB´s financing can help to unlock financing from other sources, particularly from the EU budget. It has to be remarked, however, that the EIB provides loans, not grants.	EU and non-EU countries (all Danube countries).	*Applying for a loan: http://www.eib.org/projects/cycle/applying_loan/index.htm *Detailed information on products: http://www.eib.org/projects/priorities/sme/prod

Financing Program	Organisation	Description	(Main) Type of pressure (SWMIs)	Other eligibility criteria	Sources/further information regarding application
		in all sectors of the economy, adhering to one of the six priority objectives, of which two are of special importance for WFD implementation in the Danube: - Environmental sustainability (climate action and urban/natural environment); - Sustainable, competitive and secure energy.			ucts/index.htm *For the Western Balkans, see Western Balkans Investment Framework: http://www.wbif.eu/
European Bank for Reconstruction and Development (EBRD)	International	The EBRD is a development bank offering loans and other financial products (like equities) in more than 30 countries from central Europe to Central Asia. Although the name suggests European ownership, the biggest shareholder are the United States. The EBRD supports private sector development (meeting the requirements, of which to "satisfy banking and environmental standards" is a part) in the relevant sectors agribusiness, energy efficiency & climate change (see Sustainable Energy Initiative), municipal & environmental infrastructure; power and energy.	No direct link to Danube SWMIs, although a multitude of (mostly private sector) projects/investments can be supported (such as improving animal feeding/breeding lots etc.). The "Sustainable Energy Initiative" (including renewable energy and adaptation projects) finances projects in energy efficiency, renewable energy and climate change adaptation/resilience. It has to be remarked, however, that the EIB provides loans, not grants.	All countries in the Danube RB - except Austria and Germany - are eligible for loans.	*Products and Services: http://www.ebrd.com/what-we-do/products-and-services.html *Sustainable Energy Initiative: www.ebrd.com/cs/Satellite?c=Content&cid=1395237439462&pagename=EBRD%2FContent%2FDownloadDocument

Structural Funds Eligibility



Source: EC Commission, DG REGIO (presentation at the 4th EU Water Conference 2015).