
ICPDR methodology for reporting on and assessing industrial wastewaters



Annex 5 of the DRBM Plan



Table of Contents

1. Introduction	2
2. EPER reporting requirements and ICPDR Emission Inventories	3
3. Data collection templates for industrial emissions to water (direct and indirect)	5
3.1. General information: report ID, reference date and contact person.	6
3.2. Facilities: name of the facility, ID of the facility, address, coordinates.	6
3.3. Direct releases to water	6
3.4. Indirect releases to water	6
3.5. Total emissions	7
4. Current results from data collection	7
5. Future activities in relation to E-PRTR implementation	16

1 Introduction

The purpose of this methodology is to provide a general overview of the industrial point sources of pollution within the Danube River Basin (DRB), as well as to present results from the assessment of the reported data needed for the development of the Danube River Basin District Management (DRBM) Plan.

Since 1997, the ICPDR has prepared Emission Inventories on municipal, agricultural and industrial emissions in the DRB, which contain basic information on pollution and supporting data such as the methods used for measurement, type of wastewater treatment and expected reduction in pollution. The industrial emission inventories deal with selected industries that are grouped into 11 sectors following a classification system developed for the inventory. Data from the inventory helped to identify industrial pollution sources in the Danube Basin by industrial sector, pollutant impact, location or other criteria.

Annex VI of the Water Framework Directive (WFD) stipulates that the Programmes of Measures should include measures under the 96/61/EC Integrated Pollution Prevention Control (IPPC) Directive. The EU set of common rules for permitting and controlling industrial installations in the IPPC Directive (Directive 1996/61/EC) aims to minimise pollution from various industrial sources throughout the EU. The permit conditions, including emission limit values, must be based on Best Available Techniques (BAT). This has resulted in the adoption and publication of the BAT Reference Documents (the so-called BREFs) by the ICPDR. The purpose of the Directive is to ensure a high level of protection of the environment taken as a whole.

The IPPC Directive is considered to be the most significant challenge facing the industrial sector in recent years and in the future. Pollution coming from point industrial units is partly addressed by the IPPC and partly by a number of specialised directives covering specific sectors. The IPPC Directive takes an integrated approach, which means that authorities need to take into account: transboundary effects, costs and advantages of pollution prevention and control and the best available techniques reference documents.

The main reporting requirement of the IPPC is the publication of an inventory of chemical emissions and sources called the European Pollutant Emission Register (EPER). It was established by Commission Decision 2000/479/EC to implement the provisions of article 15 (3) of the IPPC Directive on public accessibility of the results of monitoring. EPER requires reporting from all installations that fall under the IPPC. It covers 50 air and water pollutants and the data is reported on the basis of threshold limit values of parameters. In EPER, emission data reported by EU Member States (EU MS) are made accessible in a public register that is intended to provide environmental information on major industrial activities. As of 2007, EPER has been replaced by the European Pollutant Release and Transfer Register (E-PRTR).

The ICPDR Emission Inventory data from industry is currently updated using EPER II data and the EPER methodology in order to achieve more comparable results.

The tasks include:

- ⇒ identification of the data form required by the ICPDR;
- ⇒ integration of relevant EPER II data into the ICPDR database;
- ⇒ organisation of relevant EPER-like data collection activities for the Non EU countries.

2 EPER reporting requirements and ICPDR Emission Inventories

The EPER is considered to be an effective tool for monitoring releases from larger industrial facilities and for comparing releases from similar industrial sources or sectors. Not all existing industrial plants are considered for EPER reporting – only those activities which are listed in Annex A3 of the EPER Decision are included.

IPPC Annex I activities	
1.	Energy industries
1.1	Combustion installations > 50 MW
1.2	Mineral oil and gas refineries
1.3	Coke ovens
1.4	Coal gasification and liquefaction plants
2.	Production and processing of metals
2.1/2.2/2.3/ 2.4/2.5/2.6	Metal industry and metal ore roasting or sintering installations; installations for the production of ferrous and non-ferrous metals
3.	Mineral industry
3.1/3.3/3.4/ 3.5	Installations for the production of cement clinker (>500t/d), lime (>50t/d), glass (>20t/d), mineral substances (>20t/d) or ceramic products (>75t/d)
3.2	Installations for the production of asbestos or asbestos-based products
4.	Chemical industry and chemical installations for the production of:
4.1	Basic organic chemicals
4.2/4.3	Basic inorganic chemicals or fertilisers
4.4/4.6	Biocides and explosives
4.5	Pharmaceutical products
5.	Waste management
5.1/5.2	Installations for the disposal or recovery of hazardous waste (>10t/d) or municipal waste (>3t/h)
5.3/5.4	Installations for the disposal of non-hazardous waste (>50t/d) and landfills (>10t/d)
6.	Other Annex I activities
6.1	Industrial plants for pulp from timber or other fibrous materials and paper or board production (>20t/d)
6.2	Plants for the pre-treatment of fibres or textiles (>10t/d)
6.3	Plants for the tanning of hides and skins (>12t/d)
6.4	Slaughterhouses (>50t/d), plants for the production of milk (>200t/d), other animal raw materials (>75t/d) or vegetable raw materials (>300t/d)
6.5	Installations for the disposal or recycling of animal carcasses and animal waste (>10t/d)
6.6	Installations for poultry (>40,000), pigs (>2000) or sows (>750)
6.7	Installations for surface treatment or products using organic solvents (>200t/y)
6.8	Installations for the production of carbon or graphite

Table 1: List of activities with production capacity relevant for EPER reporting

According to the EPER Decision, there are 26 pollutants selected for reporting for water with a specified threshold value for each of the substances. The threshold values have been chosen in order to include about 90% of the emissions of the industrial facilities looked at, so as to prevent an unnecessarily high burden on all industrial facilities.

No.	Pollutant name	Threshold values for releases (in kg/y)
1	Total nitrogen (N)	50,000
2	Total phosphorus (P)	5000
3	Arsenic and compounds (as As)	5
4	Cadmium and compounds (as Cd)	5
5	Chromium and compounds (as Cr)	50
6	Copper and compounds (as Cu)	50
7	Mercury and compounds (as Hg)	1
8	Nickel and compounds (as Ni)	20
9	Lead and compounds (as Pb)	20
10	Zinc and compounds (as Zn)	100
11	Dichloroethane – 1,2 (DCE)	10
12	Dichloromethane (DCM)	10
13	Chloro-alkanes, C10-C13	1
14	Hexachlorobenzene (HCB)	1
15	Hexachlorobutadiene (HCBd)	1
16	Hexachlorocyclohexane(HCH)	1
17	Halogenated organic compounds (as AOX)	1000
18	Benzene, toluene, ethylbenzene, xylenes (as BTEX)	200
19	Brominated diphenylethers (PBDE)	1
20	Organotin compounds(as total Sn)	50
21	Polycyclic aromatic hydrocarbons (PAHs)	5
22	Phenols (as total C)	20
23	Total organic carbon (TOC) (as total C or COD/3)	50,000
24	Chlorides (as total Cl)	2,000,000
25	Cyanides (as total CN)	50
26	Fluorides (as total F)	2000

Table 2: List of pollutants to be reported if threshold values are exceeded

For the reference years 1997, 2000 and 2002, the ICPDR has prepared inventories on point source emissions including industrial and agro-industrial sources. The results show that the degree of industrial development and the amount of pollution caused by the industrial sector varies within every country in the DRB. All industrial branches are represented: chemical, electrical, engineering, metallurgical and galvanic, textile, sugar, papermaking and pulp-mills.

The inventories of 2004 served as the basis of pressures assessment for the Danube Analysis Roof Report 2004 (RR 2004). Within this report, the focus of analysis was on the significant point sources of pollution. The criteria for the identification of the significant point sources of pollution from industrial sites for the basin-wide overview are given in Table 3.

Industrial wastewater	Significant if at least one parameter is exceeded: – COD >2 t/d – pesticides >1 kg/a – heavy metals and compounds*: As total >5 kg/a Cd total >5 kg/a Cr total >50 kg/a Cu total >50 kg/a Hg total >1 kg/a Ni total >20 kg/a Pb total >20 kg/a Zn total >100 kg/a
Wastewater from agricultural point sources (livestock farms)	Significant if at least one parameter is exceeded: N total** >50,000 kg/a P total** >5000 kg/a

* Thresholds in water in kg/year as in the EPER.

** Threshold as given in the EPER.

Table 3: Definition of significant point source pollution on the basin-wide level

The ICPDR emission inventory for the reference year 2004 includes 1371 sources of pollution, of which 306 are industrial point sources. The overview per country is given in Table 4 along with a comparison of the identified significant point sources.

	DE	AT	CZ	SK	HU	SI	HR	BA	RS	BG	RO	MD	UA
Industrial point sources as from the Emission Inventory	11	13	3	7	50	9	29	62	8	22	87	0	5
Significant point sources (RR 2004)	5	10	9	6	24	2	10	5	14	4	49	0	5

Table 4: Point sources of pollution in the Danube River Basin District (2004)

As shown in Table 3 and Table 4, the ICPDR Emission Inventory and the identification of significant point sources of pollution from industry has been carried out taking into account the pollutants and threshold values for EPER.

3 Data collection templates for industrial emissions to water (direct and indirect)

In 2007, the ICPDR Municipal Emission Inventory was modified in a way to be consistent with the collection of data under the EPER Decision. The methodology for reporting on industrial discharges allowed the separation of reporting only to water (direct and indirect discharges) from the reporting for emissions into the air and land. Thus, the new database will allow the identification of how much of a certain chemical from a certain facility has been discharged into water.

For the purposes of identification of industrial point sources of pollution in the DRB, the data from EU MS and non Member States (non EU MS) should be collected in a harmonised way. New templates for data collection were prepared for all Danube countries, which cover most of the information required for the implementation of the IPPC Directive.

To facilitate reporting on the measures addressing industrial discharges, information on basic measures were included in the templates for data collection for the status of IPPC/BAT or ICPDR/BAT implementation.

Thus, a combined template was designed aiming to provide information on the sources of pollution from industrial facilities in Danube countries to water – both direct and indirect discharges are taken into account. Values indicated under “direct to water” are emissions by facilities directly into the water environment. Values indicated under “indirect to water” are releases by facilities via a sewerage system into an off-site municipal or industrial wastewater treatment plant (WWTP). The MS Excel file consists of 5 templates in which data were filled in.

3.1 General information: report ID, reference date and contact person

This sheet provided general, related information on competent authority and person responsible for reporting in the country and contact details.

In addition, in order to gain information on the required measures, a table was included with the aim of specifying the number of sites where measures are needed and their estimated costs.

Country-based (Danube part) information		
Number of facilities where measures are needed in compliance with the IPPC/BREF (where transitions periods exist)	Number	
Estimated overall costs associated with the measures at those facilities	Million Euro	

3.2 Facilities: name of the facility, ID of the facility, address, coordinates

The sheet contains full information on industrial facilities carrying out one or more of the E-PRTR activities. The parent company is a company that owns or controls the company operating the facility (for example by holding more than 50% of the company's share capital or a majority of voting rights of the shareholders or associates). Each facility is listed with its identification name and number. Address, coordinates of the location and main economic activity are listed, using a drop down list of NACE code activities.

In addition, for EU MS, information is included on the existence of an IPPC permit for the facility; whether the facility is in compliance with IPPC/BREF with regard to wastewater emissions; and if it is not BAT compliant within the reporting deadline, whether there are plans for the facility to be compliant with the IPPC/BREF by 2015.

For non EU MS, this template gives a general overview of whether the installation is in compliance with the ICPDR BAT recommendation and, if it is not compliant at the reporting deadline, information on whether it is planned that the facility be in compliance with the ICPDR BAT by 2015.

3.3 Direct releases to water

This sheet is connected with general information on the facilities via the facility ID code. The sheet indicates the value of loads due to direct discharges to water. Reported releases to water of any pollutant specified in Table 2 above, for which the applicable threshold value is exceeded, are reported. All releases are expressed in kg/year. The reported release data must include reference to the determination of methodology used for the reported release data: M (measured), C (calculated) or E (estimated).

Any data that relate to the accidental releases are also specified. The quantity of accidental releases is included in the total quantity of releases (example: accidental release = 1 kg/y, routine release = 10 kg/y, total release = 11 kg/y). In addition, information on the river basin district and ID of the receiving water body are requested.

3.4 Indirect releases to water

The off-site transfers of any pollutant specified in Table 2 for which the threshold value is exceeded are also reported. All facilities and pollutants emitted indirectly to water and exceeding threshold

values are listed in the table. An off-site transfer of pollutants in wastewater means the movement beyond the boundaries of a facility of pollutants in wastewater destined for wastewater treatment (including industrial wastewater treatment). The off-site transfer may be carried out via sewer or any other means such as containers or tankers.

3.5 Total emissions

In this sheet, all pollutants specified by the separate activities in the whole territory of the country within the DRB are summarised.

4 Current results from data collection

For the purpose of the development of a complete overview of emission inventories, data on industrial discharges for EU MS countries in the Danube Basin were downloaded from the EPER II web site in Access format for the years 2001 and 2004 respectively.

As only part of the territory of Germany and Czech Republic belong to the DRB, only the respective facilities located on the Danube part were included using GIS and the provided coordinates.

In June 2007, according to Article 1, 2 and 3 of the EPER Decision, Romania has voluntarily decided to provide a "National EPER Report 2005 of Romanian Emission Data for Individual Facilities", having in view the format of Annex 2 of the EPER Decision.

In addition, all other Danube countries were asked to fill in the designed templates with data on industrial facilities, emissions to water, compliance with the European legislation and ICPDR BAT.

Bulgaria reported data with a reference year of 2007. Non EU MS also reported on the main industrial point sources of pollution. Bosnia and Herzegovina (B&H) did not provide the information in the required format but sent an updated Emission Inventory with no information on the compliance of facilities with the ICPDR/BAT. For the purpose of an integrated overview of the results, the reported facilities are considered to have direct discharges to water. As the respective activities are not specified, the number of activities is not presented as a table. Only four pollutants are relevant for the overall analysis for B&H.

Table 5. presents the final results of the Danube countries reporting in line with the EPER Decision, on both direct and indirect discharges into water for the years 2001 to 2006. There are a total number of 253 facilities emitting directly into water and 215 facilities making indirect emissions to water.

	Direct emissions to water						Indirect emissions to water					
	2001			by 2006			2001			by 2006		
	No. of facilities	No. of activities	No. of pollutants	No. of facilities	No. of activities	No. of pollutants	No. of facilities	No. of activities	No. of pollutants	No. of facilities	No. of activities	No. of pollutants
AT	38	13	17	33	12	16	29	13	16	31	14	15
CZ				4	3	6				1	1	1
DE	17	7	13	14	4	13	41	9	9	48	9	10
HU	17	10	13	20	9	14	19	10	13	26	8	12
SK				17	10	18				12	9	9
SI				15	8	13				16	6	8
RO				46	13	20				32	14	12
BG				15	5	8				9	4	11

	Direct emissions to water						Indirect emissions to water					
	2001			by 2006			2001			by 2006		
	No. of facilities	No. of activities	No. of pollutants	No. of facilities	No. of activities	No. of pollutants	No. of facilities	No. of activities	No. of pollutants	No. of facilities	No. of activities	No. of pollutants
HR				6	4	4				1	1	1
MD				18	2	2				39	8	5
UA				4	2	10						
BA				61		4						
RS												
DRB	72	14	17	253	16	21	89	13	18	215	17	18

Table 5: Overview of the current status of EPER reporting in the DRB

The following tables present information on the Danube basin-wide scale for industrial activities and pollutant loads. Detailed information and assessments per country are also available.

Table 6: Direct emissions per activity and pollutant in the DRB for 2001

Danube Basin	Pollutants; loads (in t/a)																
	N total	P total	As and compounds	Cd and compounds	Cr and compounds	Cu and compounds	Hg and compounds	Ni and compounds	Pb and compounds	Zn and compounds	Halo-genated organic compounds (AOX)	Benzene, toluene, ethylbenzene, xylenes (as BTEX)	Phenols	Total organic carbon (TOC)	Cl	CN	F
Annex 1 activity																	
1.1 Combustion installations >50 MW			0.01			2.29				0.59							
1.2 Mineral oil and gas refineries	72.9	6.7	0.01			0.2806		0.26		2.22			1.54	664.2	3110		
1.3 Coke ovens	150												0.03	118			
2.1/2.2/2.3/2.4/2.5/2.6 Metal industry and metal ore roasting or sintering installations, installations for production of ferrous and non-ferrous metals	90.9				1.21	0.37		0.35	1.486	11.7			0.36	287.3		0.45	30.13
4.1 Basic organic chemicals	182.8	6.8				0.054	0.00169	0.0299		17.523	11.1	0.78	0.68	1362	29270	0.069	48.4
4.2/4.3 Basic inorganic chemicals or fertilisers	1506	159.3	0.018	0.63	0.77	0.862	0.1021	0.64	0.3081	0.672				423	155070	0.4	33.88
4.5 Pharmaceutical products		5.23						0.05		0.33			0.16	468.4			
5.1/5.2 Installations for the disposal or recovery of hazardous waste (>10t/d) or municipal waste (>3t/h)	612		0.32	0.17	0.32	0.5	0.16	0.2	0.35	0.35			0.06	216	2010		
5.3/5.4 Installations for the disposal of non-hazardous waste (>50t/d) and landfills (>10t/d)			0.01					0.12		3.21	3.42			474	3420		10.91
6.1 Industrial plants for pulp from timber or other fibrous materials and paper or board production (>20t/d)	58	39.8		0.02	0.25	0.477		0.4	0.16	5.39	82.8			13908.1	4480		2.13
6.2 Plants for the pre-treatment of fibres or textiles (>10t/d)					0.07									65.3			
6.3 Plants for tanning of hides and skins (>12t/d)					0.14									122			
6.4 Slaughterhouses (>50t/d), plants for the production of milk (>200t/d), other animal raw materials (>75t/d) or vegetable raw materials (>300t/d)	306	21.15								2.04				1297	5030	2.55	
6.6 Installations for poultry (>40000), pigs (>2000) or sows (>750)	118	37															
DRB	3096.6	275.98	0.3681	0.82	2.76	4.8336	0.2638	2.0499	2.304	44.025	97.32	0.78	2.83	19405.3	202390	3.469	125.5

Table 7: Indirect emissions per activity and pollutant in the DRB for 2001

Danube Basin	Pollutants; loads (in t/a)																		
	Annex 1 activity	N total	P total	As and compounds	Cd and compounds	Cr and compounds	Cu and compounds	Hg and compounds	Ni and compounds	Pb and compounds	Zn and compounds	Dichloromethane (DCM)	Halo-genated organic compounds (AOX)	Benzene, toluene, ethylbenzene, xylenes (as BTEX)	Phenols	Total organic carbon (TOC)	Cl	CN	F
2.1/2.2/2.3/2.4/2.5/2.6 Metal industry and metal ore roasting or sintering installations, production of ferrous and non-ferrous metals	387	7.64			3.08	0.8			0.37	3.06	1.92				227	578.7		24.3	12.51
3.1/3.3/3.4/3.5 Installations for production of cement klinker (>500t/day), glass (>20t/d), mineral substances (>20t/d) or ceramic products (>75t/d)										0.03									4.78
4.1 Basic organic chemicals	1110.9	144.3			0.15	0.41			0.2276		0.43		10.2	0.3	0.98	3088.7	4740		
4.2/4.3 Basic inorganic chemicals or fertilisers	311																		
4.4/4.6 Biocides and explosives													4.74	0.37		299	2880		
4.5 Pharmaceutical products	135.9			0.01	0.48	0.09		0.08	0.03	0.11	0.02				0.3	2498		0.16	
5.1/5.2 Installations for the disposal or recovery of hazardous waste (>10t/d) or municipal waste (>3t/h)			0.03	0.02		0.06	0.02		0.05	0.64					0.275				
5.3/5.4 Installations for the disposal of non-hazardous waste (>50t/d) and landfills (>10t/d)	278.6		0.012						0.106	0.03	0.12				3.78	336.5			
6.1 Industrial plants for pulp from timber or other fibrous materials and paper or board production (>20t/d)		16.6		0.02		0.4		0.03	0.03	2.21						7295			
6.2 Plants for the pre-treatment of fibres or textiles (>10t/d)						0.02		0.04		0.11						472			
6.4 Slaughterhouses (>50t/d), plants for the production of milk (>200t/d), other animal raw materials (>75t/d) or vegetable raw materials (>300t/d)	109	269.42				0.05		0.13	0.05	0.34						4910.3			
6.5 Installations for the disposal or recycling of animal carcasses and animal waste (>10t/d)																146			
6.7 Installations for surface treatment or products using organic solvents (>200t/y)			0.0077			0.053		0.0664		0.11						1113.6			31.3
DRB	2332.4	437.96	0.0497	0.05	3.71	1.883	0.02	1.05	3.28	5.99	0.02	14.94	0.67	232.335	20737.8	7620	24.46	48.59	

Table 8: Direct emissions per activity and pollutant in the DRB by 2006

Danube Basin	Pollutants; loads (in t/a)																				
Annex 1 activity	N total	P total	As and compounds	Cd and compounds	Cr and compound	Cu and compounds	Hg and compounds	Ni and compounds	Pb and compound	Zn and compounds	Dichloro-ethane-1,2 (DCE)	Dichloro-methane (DCM)	Hexachloro-benzene (HCB)	Halogenated organic compounds (AOX)	Benzene, toluene, ethylbenzene, xylenes (as BTEX)	PAHs	Phenols	Total organic carbon (TOC)	Cl	CN	F
1.1 Combustion installations >50 MW	0.68	0.08	0.0184	0.001	16.191	18.49	0.0023	0.017	0.011	67.021				0.017				56.14	9.17		6.34
1.2 Mineral oil and gas refineries	588.1	25.73	0.01	0.12	0.567	1.39	0.064	0.494	0.716	2.36				1.95	0.249	0.03	4.71	1094.6		0.362	
2.1/2.2/2.3/2.4/2.5/2.6 Metal industry and metal ore roasting or sintering installations, installations for the production of ferrous and non-ferrous metals	409	6.02	0.24	0.19	3.73	1.21	0.15	1.96	3.14	21.8						0.03	0.58	1696.8	4940	1.64	45.36
3.1/3.3/3.4/3.5 Installations for the production of cement klinker (>500 t/day), glass (>20t/d), mineral substances (>20t/d) or ceramic products (>75t/d)			0.01			0.06			0.13	0.19											
4.1 Basic organic chemicals	763	10.54		0.001	0.07	0.27	0.551	1.4739		14.493	30.9			111.87	0.85		0.46	6218.38	196000	0.269	43.66
4.2/4.3 Basic inorganic chemicals or fertilisers	3879.1	60.5	0.483	0.16	0.3992	0.82	0.22	0.94	0.8776	3.16				2.62		0.04	1.81	3158	338540	0.35	203.89
4.5 Pharmaceutical products	60	19	0.06			0.36		0.14	0.03	1.4								140.77			
5.1/5.2 Installations for the disposal or recovery of hazardous waste (>10t/d) or municipal waste (>3t/h)	721	169.6		32.7091	0.191	0.041		0.0372	0.114	17.254								366.1	6438.5		
5.3/5.4 Installations for the disposal of non-hazardous waste (>50t/d) and landfills (>10t/d)				0.927				0.11	0.08	7.99				3.07				539	3580		7.29
6.1 Industrial plants for pulp from timber or other fibrous materials and paper or board production (>20t/d)	491.203	70.8362		65.23	0.17	1.15		0.947	132.41	9.48	196	326	0.021	377.26			0.134	26918.4	8786		
6.2 Plants for the pre-treatment of fibres or textiles (>10t/d)	105				1.96	0.53				23.3								148.9			
6.3 Plants for tanning of hides and skins (>12t/d)					0.13													128			

Danube Basin	Pollutants; loads (in t/a)																				
Annex 1 activity	N total	P total	As and compounds	Cd and compounds	Cr and compound	Cu and compounds	Hg and compounds	Ni and compounds	Pb and compound	Zn and compounds	Dichloroethane-1,2 (DCE)	Dichloromethane (DCM)	Hexachlorobenzene (HCB)	Halogenated organic compounds (AOX)	Benzene, toluene, ethylbenzene, xylenes (as BTEX)	PAHs	Phenols	Total organic carbon (TOC)	Cl	CN	F
6.4 Slaughterhouses (>50t/d), plants for the production of milk (>200t/d), other animal raw materials (>75t/d) or vegetable raw materials (>300t/d)	337.105	0.555				0.32				1.35								875.2	3820	4.93	
6.5 Installations for the disposal or recycling of animal carcasses and animal waste (>10t/d)														4.34				200			
6.6 Installations for poultry (>40000), pigs (>2000) or sows (>750)	493	91.5															0.311	190			
6.7 Installations for surface treatment or products using organic solvents (>200t/y)		0.073	0.002	0.0002		0.004	0.0001	0.129		0.864				0.03				5.59	81.42		1.61
DRB	7855.5	454.43	0.8234	99.338	23.408	24.875	0.9874	6.2481	137.51	171.122	226.9	326	0.021	501.157	1.099	0.1	8.005	43951.68	562195.1	7.551	308.2

Table 9: Indirect emissions per activity and pollutant in the DRB by 2006

Danube Basin	Pollutants; loads (in t/a)																	
Annex 1 activity	N -total	P total	As and compounds	Cd and compounds	Cr and compounds	Cu and compounds	Ni and compounds	Pb and compounds	Zn and compounds	Dichloro-ethane-1,2 (DCE)	Dichloro-methane (DCM)	Halo-genated organic compounds (AOX)	Benzene, toluene, ethyl-benzene, xylenes (as BTEX)	Phenols	Total organic carbon (TOC)	Cl	CN	F
1.1 Combustion installations >50 MW		10.5										11.7						
1.2 Mineral oil and gas refineries	116													1.87	327			
2.1/2.2/2.3/2.4/2.5/2.6 Metal industry and metal ore roasting or sintering installations, installations for the production of ferrous and non-ferrous metals	557.211	45.514	0.08	0.02	10.82	10.01	0.32	1.21	920.11					341.53	718.4	2190	57.1	14.12
3.1/3.3/3.4/3.5 Installations for the production of cement klinker (>500 t/day), glass (>20t/d), mineral substances (>20t/d) or ceramic products (>75t/d)	0.006							0.63	0.22					0.04				
4.1 Basic organic chemicals	881	102.8			0.54	1.11	0.3205	0.39	0.48			6.38	0.87	108.64	4670.6	3650		5.82
4.2/4.3 Basic inorganic chemicals or fertilisers	0.731	0.007								70.4			0.25	0.03	807			
4.4/4.6 Biocides and explosives						0.31			0.13			5.01	11.79		425.1	3350		
4.5 Pharmaceutical products	310.21	14.52					0.004		0.62		0.04	0.031		0.03	4527.26	43.98	0.08	
5.1/5.2 Installations for the disposal or recovery of hazardous waste (>10t/d) or municipal waste (>3t/h)	82						0.0209		1.14					0.2658				2.15
5.3/5.4 Installations for disposal of non-hazardous waste (>50t/d) and landfills (>10t/d)	261.2		0.029				0.0539							0.425	461.7			
6.1 Industrial plants for pulp from timber or other fibrous materials and paper or board production (>20t/d)	53.851	19.101				0.158		0.02	1.79			1.56			10682.5			
6.2 Plants for the pre-treatment of fibres or textiles (>10t/d)	1.839	0.033				0.35			3.5						1196.2			
6.3 Plants for tanning of hides and skins (>12t/d)					0.35										304			

Danube Basin	Pollutants; loads (in t/a)																	
Annex 1 activity	N -total	P total	As and compounds	Cd and compounds	Cr and compounds	Cu and compounds	Ni and compounds	Pb and compounds	Zn and compounds	Dichloro-ethane-1,2 (DCE)	Dichloro-methane (DCM)	Halo-genated organic compounds (AOX)	Benzene, toluene, ethyl-benzene, xylenes (as BTEX)	Phenols	Total organic carbon (TOC)	Cl	CN	F
6.4 Slaughterhouses (>50t/d), plants for the production of milk (>200t/d), other animal raw materials (>75t/d) or vegetable raw materials (>300t/d)	242.446	343.61			0.0002	0.0502			0.0002					0.04	10488.4			
6.5 Installations for the disposal or recycling of animal carcasses and animal waste (>10t/d)	52.2											2.17			73.3			
6.6 Installations for poultry (>40000), pigs (>2000) or sows (>750)	816.014	314.00												0.15	216			
6.7 Installations for surface treatment or products using organic solvents (>200t/y)	2.268	16.546					0.0908							0.1101	427.6			9.67
DRB:	3377	866.64	0.11	0.02	11.71	11.99	0.81	2.25	927.99	70.4	0.04	26.85	12.91	453.13	35325.06	9233.98	57.18	31.76

5 Future activities in relation to E-PRTR implementation

For the third reporting year, EPER was replaced by the European Pollutant Release and Transfer Register (E-PRTR) in 2007. Since the E-PRTR Regulation includes more pollutants and activities than those contained in EPER and, since, in addition to releases into air and water, releases to land and off-site transfers of waste have to be reported by the facilities, it is necessary to upgrade and extend the EPER into a fully comprehensive E-PRTR.

For the development of industrial and agricultural wastewater treatment, the national PRTR systems compatible with the E-PRTR approach is the basis for future pressure analysis.

An update of the templates for data collection is needed in accordance with the new E-PRTR Regulation.

For most Danube countries, emission data is provided along with information on technical performance based on IPPC BAT (for EU MS) or ICPDR BAT Recommendations (for non EU MS). Most of the facilities are owned by private companies and it is difficult to obtain the information on possible measures and estimated costs.

Full compliance with IPPC/BREFs and ICPDR BAT; strengthening of self-monitoring and control by authorities, and full implementation of the “polluter pays principle” in all Danube countries are possible measure to reduce water pollution caused by industry.