

Supplemental Material

A. Data sources for treatment levels by Country

EUROSTAT Data

Eurostat provides data about the level of wastewater treatment in European countries. The different levels of treatment are primary, secondary, tertiary and untreated. Eurostat also gives the proportion of wastewater treated by independent treatment plants. The countries, for which this data is provided, are: Austria, Belgium, Bulgaria, Czech Republic, Estonia, Finland, France, Germany, Greece, Hungary, Iceland, Ireland, Italy, Latvia, Lithuania, Luxembourg, Macedonia, Malta, Netherlands, Poland, Portugal, Romania, Slovenia, Spain, Sweden, Switzerland and United Kingdom.

Missing data or incoherent data:

- For Austria, the sum of the different treated wastewater plus the untreated wastewater did not equal the total connectivity rate. The total connectivity was kept and the amount of untreated water was increased from 0% to 4% of the total population.
- For Italy and Latvia, there was no total connectivity rate in Eurostat, thus this data was taken from the JMP dataset. The amount of untreated water was also missing; it was therefore calculated as the difference between the total connectivity and the percentage of treated wastewaters (primary + secondary + tertiary).
- For Macedonia, there was no tertiary treatment rate; it was assumed to be 0%. The untreated wastewater percentage was also missing; it was thus calculated in the same way than for Italy and Latvia.
- For Malta, there were no primary or secondary treatment percentages. They were assumed to be 0%.

Other sources

Albania

Albania is one of the rare countries in the world to have no sewage treatment works (STW). Indeed all the wastewater collected is discharged into the environment without any kind of treatment.

Source: United Nations Economic Commission for Europe (UNECE)

http://www.unece.org/env/epr/epr_studies/albania.pdf

Algeria

On the Algerian Water Resource Ministry website some data about STWs are available. This document states that $600 \cdot 10^6 \text{ m}^3 \text{ y}^{-1}$ of wastewater are produced and that only 14 STWs are currently working with a total treatment capacity of $58 \cdot 10^6 \text{ m}^3 \text{ y}^{-1}$. So, only 10% of the wastewater is treated. Unfortunately we weren't able to find any information on the level of treatment. It was therefore decided to apply the same treatment as in Morocco where the wastewater has secondary treatment. So for Algeria we estimated 10% is treated with a secondary treatment and 58% is untreated. There is no primary or tertiary treatment in Algeria.

It must be highlighted that the Algerian Water Resource Ministry does not indicate whether the volume of wastewater produced is only the domestic production or if it includes industrial production as well.

Source: Algerian Water Resource Ministry

http://www.mre.gov.dz/eau/assinissement_mre.htm

Belarus

According to the European Environment Agency, 46% of the wastewater is treated with a biological treatment (secondary treatment). Moreover municipal and industrial wastewaters are treated together.

Source: European Environment Agency

http://themes.eea.europa.eu/Specific_media/water/indicators/WEU16,2003.1015/44_UW_WT_151003rc.pdf

Bosnia and Herzegovina

According to the UNECE, 95% of the municipal waste water is discharged directly into water bodies without any kind of treatment. For the other 5% the treatment included biological treatment.

Source: United Nations Economic Commission for Europe (UNECE)

http://www.unece.org/env/epr/epr_studies/bosnia_and_herzegovina.pdf

Croatia

According to the UNECE, in 1997 only 21% of the wastewater was treated. Industrial waste water is often discharged into the sewer system, in many cases without adequate pre-treatment. The bulk of the wastewaters (81% in 1997) were treated only mechanically (primary treatment), 6% of waste waters were biologically treated and 13% are subject to combined treatment (secondary).

Source: United Nations Economic Commission for Europe (UNECE)

http://www.unece.org/env/epr/epr_studies/croatia.pdf

Cyprus

According to MEDAWARE, a European project, 12% of the rural population and 45% of the urban population are connected to a STW, thus 35% of the Cyprian population is connected to a wastewater treatment plant. Moreover around 25% of the water is treated at a secondary level and 75% at a tertiary level. This means that 9% of the population is connected to a secondary treatment plant and 26% to a tertiary treatment plant.

Source: MEDAWARE

<http://www.uest.gr/medaware/reports/report1c.doc>

http://www.uest.gr/medaware/reports/Report_t2.doc

Egypt

According to the WHO Regional Office for the Eastern Mediterranean 37% of the wastewater produced is treated. Moreover 19% of the total of wastewater treated is done by primary treatment and 81% by secondary. This means that 2% of the population is connected to a primary treatment plant and 9% to a secondary treatment.

Source: WHO Regional Office for the Eastern Mediterranean

<http://www.emro.who.int/ceha/pdf/A%20regional%20overview%20of%20wastewater%202005.pdf>

Eritrea

For Eritrea, it was previously decided that 0% of the population is served by sewerage systems. We did not find any information to contradict this assumption.

Ethiopia

The JMP states that 0% of the rural population and 2% of the urban population is connected to a sewage network. Moreover the WHO Regional Office for Africa indicates that only 0.5% of the urban population is connected to a wastewater treatment plant. The majority of the population being rural we will retain that 0% of the population have access to a treatment facility.

Source: WHO Regional Office for Africa

<http://www.afro.who.int/wsh/countryprofiles/ethiopia.pdf>

Georgia

According to the UNECE, only 5 out of 23 municipal STWs are operational and only with a mechanical treatment (primary). So only 0.3% of the population are connected to a STW.

Source: United Nations Economic Commission for Europe (UNECE)

http://www.unece.org/env/epr/epr_studies/georgia.pdf

Iraq

For Iraq we have the ratios of urban wastewater treated to urban wastewater generated and the types of treatment applied by administrative regions in Iraq. So $2.3 \cdot 10^6 \text{ m}^3 \text{ d}^{-1}$ is produced, $81 \cdot 10^3 \text{ m}^3 \text{ d}^{-1}$ (3.5%) undergo primary treatment, $195 \cdot 10^3 \text{ m}^3 \text{ d}^{-1}$ (8.4%) undergo secondary treatment and $2 \cdot 10^6 \text{ m}^3 \text{ d}^{-1}$ (88.1%) isn't treated. There is no tertiary treatment plant in Iraq. With those ratios the rates of the domestic wastewater treated by primary plants (2%), secondary plants (5%) and untreated (50%) with the following equation:

$$n\% = \frac{\sum \text{WW generated} \times \text{rate of } n \text{ level treatment}}{\text{Total WW generated}} \times \text{connectivity rate}$$

Source: WHO Regional Office for the Eastern Mediterranean

<http://www.emro.who.int/ceha/pdf/A%20regional%20overview%20of%20wastewater%202005.pdf>

Israel

The Ministry of Environment Protection provides data on the effluent quality: the percentage of wastewaters treated by primary, secondary, tertiary treatment or is untreated. By multiplying those figures with the total connectivity rate (96%), we found that 22% of the population is connected to a primary treatment plant, 33% to a secondary treatment plant, 28% to a tertiary treatment plant and 13% is untreated.

Source: Israel Ministry of Environment Protection

http://english.sviva.gov.il/bin/en.jsp?enPage=e_BlankPage&enDisplay=view&enDispWh at=Object&enDispWho=Articals^12087&enZone=Wastewater_Treatment

Jordan

The WHO Regional Office for the Eastern Mediterranean provides the amount of wastewater produced ($232 \cdot 10^6 \text{ m}^3 \text{ yr}^{-1}$) and treated ($79 \cdot 10^6 \text{ m}^3 \text{ yr}^{-1}$). Thus we determined that 20% of the

wastewater ($\frac{WW_{treated}}{WW_{produced}} \times \text{connectivity rate}$) is treated with secondary treatment (there are only secondary treatment plant in Jordan).

It is important to highlight that industrial wastewater is also discharged in the sewers although there are pre-treatment regulatory requirements for the industrial effluents.

Source: WHO Regional Office for the Eastern Mediterranean

<http://www.emro.who.int/ceha/pdf/A%20regional%20overview%20of%20wastewater%202005.pdf>

Lebanon

According to the WHO Regional Office for the Eastern Mediterranean, Lebanon produces $165.10^6 \text{ m}^3 \text{ yr}^{-1}$ of wastewater but the amount treated is only $4.10^6 \text{ m}^3 \text{ yr}^{-1}$. About $130.10^6 \text{ m}^3 \text{ yr}^{-1}$ were classified as of domestic origin and the rest comprised industrial waste. According to the Efficient Management of Wastewater (Emwater) project, there is only one large-scale STW in Lebanon, it is equipped with primary treatment. Therefore, only 3% of the population is connected to a primary STW.

Sources: WHO Regional Office for the Eastern Mediterranean

<http://www.emro.who.int/ceha/pdf/A%20regional%20overview%20of%20wastewater%202005.pdf>

EMWATER

http://www.emwater.org/activities/final_cs_lebanon.pdf

Libyan Arab Jamahiriya

No information was found about wastewater treatment in Libya. It was decided to apply the same ratios as for Algeria where 15% is treated at a secondary level and 85% is not treated. Therefore, 8% of the population is connected to secondary STWS and 46% is not connected to any STW.

Republic of Moldova

The annual quantity of residual domestic waste water was 280 million m^3 in 1993. Annually, about 50 million m^3 of this water is purified, so 18% of the population is connected to a treatment plant. No information was found on the level of treatment. Considering that in Ukraine there is only secondary treatment plant we assumed that it is the same in Moldova.

Source: United Nations Economic Commission for Europe (UNECE)

http://www.unece.org/env/epr/epr_studies/moldova.pdf

Morocco

According to the UNECE, only 8% of the urban population (5% of the total population) is connected to STWs. All the STWs in Morocco purify the wastewater at a secondary level.

Source: WHO Regional Office for the Eastern Mediterranean

<http://www.emro.who.int/ceha/pdf/A%20regional%20overview%20of%20wastewater%202005.pdf>

Russian Federation

According to the European Environment Agency 76% of the water discharged is treated but the treatment efficiency is low: only 10.8% is treated to the required standards. The levels of treatment are respectively 4%, 94% and 2% for primary, secondary and tertiary. So, it means

that 2% of the population is connected to primary treatment, 54% to secondary treatment, 1% to tertiary treatment and 18% of the domestic wastewater is not treated.

Source: European Environment Agency

http://themes.eea.europa.eu/Specific_media/water/indicators/WEU16,2003.1015/44_UW_WT_151003rc.pdf

Saudi Arabia

We know that the water use in Saudi Arabia is $214 \text{ L cap}^{-1} \text{ d}^{-1}$ (source: FAO), so there are $5.3 \cdot 10^6 \text{ m}^3 \text{ d}^{-1}$ of wastewater produced in Saudi Arabia. According to the WHO Regional Office for the Eastern Mediterranean, there are $1.8 \cdot 10^6 \text{ m}^3 \text{ d}^{-1}$ of wastewater treated, i.e. 34% of the potential waste. So 19% of the population is connected to secondary treatment plants, 9% to tertiary treatment plants.

Source: WHO Regional Office for the Eastern Mediterranean

<http://www.emro.who.int/ceha/pdf/A%20regional%20overview%20of%20wastewater%202005.pdf>

Slovakia

According to the Slovak Ministry of Environment all the domestic wastewater collected is treated. Moreover the government indicates that 61% (87% of the water produced) of the population is connected to a secondary treatment plant. We also know that all the urban wastewater produced is treated. Considering the worst case scenario it was decided that the rest (9% of the population or 13% of the wastewater produced) is treated by primary treatment.

Source: Slovak Ministry of Environment

http://www.sazp.sk/slovak/periodika/sprava/sprava_2003_en/kapitoly/2_2_Water.pdf

Sudan

According to the WHO Regional Office for the Eastern Mediterranean the only people connected to a sewage network are in the urban part of Khartoum where the wastewater is treated by a stabilization pond. So only 0.7% of the population is connected to secondary STWs.

Source: WHO Regional Office for the Eastern Mediterranean

<http://www.emro.who.int/ceha/pdf/A%20regional%20overview%20of%20wastewater%202005.pdf>

Syrian Arab Republic

According to the WHO Regional Office for the Eastern Mediterranean 16% of the total population is connected to STWs. And all STWs have secondary treatment (activated sludge, wastewater stabilization pond and aerated lagoons)

Source: WHO Regional Office for the Eastern Mediterranean

<http://www.emro.who.int/ceha/pdf/A%20regional%20overview%20of%20wastewater%202005.pdf>

Tunisia

According to the WHO Regional Office for the Eastern Mediterranean the quantity of wastewater collected in 1999 was estimated at $152 \cdot 10^6 \text{ m}^3$, of which $145 \cdot 10^3 \text{ m}^3$ were treated (95%). All the treatment plants in Tunisia apply a secondary treatment. So 47% of the

population is connected to secondary treatment plants and 2% discharge its wastewater without treatment.

Source: WHO Regional Office for the Eastern Mediterranean

<http://www.emro.who.int/ceha/pdf/A%20regional%20overview%20of%20wastewater%202005.pdf>

Turkey

According to MEDAWARE, a European project, the amount of wastewater collected in Turkey is about $2,737 \cdot 10^6 \text{ m}^3 \text{ yr}^{-1}$, and only $1,245 \cdot 10^6 \text{ m}^3 \text{ yr}^{-1}$ are treated (45%). In terms of treatment, 38% of the total treated amount is subjected to primary treatment, whereas 50% to secondary treatment and the remaining 12% to tertiary treatment. So we were then able to estimate that 10% of the population is connected to primary treatment plant, 13% to a secondary treatment plant, 3% to a tertiary treatment plant and 32% of the domestic wastewater is not treated.

Source: MEDAWARE

<http://www.uest.gr/medaware/reports/report1c.doc>
http://www.uest.gr/medaware/reports/Report_t2.doc

Ukraine

According to the Ukrainian government, a domestic wastewater volume of $3.5 \cdot 10^9 \text{ m}^3 \text{ yr}^{-1}$ is collected, of which $3.2 \cdot 10^9 \text{ m}^3 \text{ yr}^{-1}$ is treated and $3.1 \cdot 10^9 \text{ m}^3 \text{ yr}^{-1}$ is treated at a secondary level. So we will consider that 2% of the population is connected to a primary treatment plant, 50% to a secondary treatment plant and 5% of the domestic wastewater is not treated.

Source: Derzhbud - the State Committee for Construction Architecture and Housing Policy (now Derzhtylokomungosp - the State Committee for Housing-Municipal Economy)

Western Sahara

Western Sahara is a dependent of Morocco. So it was decided to use Morocco's data. So 5% of the population is connected to a secondary treatment and 95% of the population are not connected to STWs.

Serbia and Montenegro, former Yugoslavia

According to the UNECE there are no STWs in Montenegro and in Serbia 16% of the population is connected to a STW. So that, 15% of the population of the former Yugoslavia is connected to a STW. There are 20 treatment plants, amongst which 15 have secondary treatment and 5 have only primary treatment. So 4% of the population is connected to primary treatment plant, 11% to secondary and 34% is untreated.

Sources: United Nations Economic Commission for Europe (UNECE)

http://www.unece.org/env/epr/epr_studies/serbiaII.pdf
http://www.unece.org/env/epr/epr_studies/montenegro.pdf

Table A1 Percentage values for total, rural and urban populations connected to a sewerage system for 1990. The percentage of the effluent treated at a particular level is also shown.

COUNTRY	Connected (%)	Rural (%)	Urban (%)	Prim.	Second	Tert.	Not Treated	Source
Albania	34	81	93	0	0	0	34	JMP*
Algeria	87	36	90	0	7	0	80	Eurostat
Austria	72	18	100	4	51	18	0	Eurostat
Belarus	65	0	98	1	34	0	30	As 1995
Belgium	67	0	70	1	11	6	50	Eurostat* UN Environm ent
Bosnia and Herzegovina	38	0	97	0	5	0	33	Statistics* Eurostat and 1995
Bulgaria	67	3	100	1	35	0	31	As 2000
Croatia	67	28	100	9	1	0	57	Eurostat
Cyprus	6	0	9	0	6	0	0	Eurostat
Czech Republic	72	0	96	14	35	3	21	Eurostat*
Denmark	87	13	100	12	42	31	1	Eurostat
Egypt	19	4	39	0	2	0	17	JMP*
Eritrea	0			0	0	0	0	As 2000
Estonia	77	21	100	37	32	0	8	Eurostat
Ethiopia	0	0	0	0	0	0	0	As 2000
Faroe Islands	0	0	0	0	0	0	0	As 2000
Finland	77	41	100	0	2	74	1	Eurostat
France	67	0	91	2	36	19	9	Eurostat*
Georgia	39	3	69	0	0	0	39	JMP*
Germany	90	63	100	7	32	48	2	Eurostat
Greece	50	0	85	1	11	0	39	Eurostat
Hungary	39	0	59	5	13	1	21	Eurostat
Iceland	90	0	99	2	0	0	88	Eurostat
Iraq	57	0	81	2	5	0	50	As 2000
Ireland	66	21	100	23	21	0	22	Eurostat
Israel	39	0	47	0	27	0	12	As 1995
Italy	75	24	100	3	36	24	12	JMP*
Jordan	55	6	74	0	52	0	3	JMP Dobris - Stat Env.
Latvia	68	0	99	20	48			Eurostat*
Lebanon	63	0	76	3	0	0	60	
Libyan Arab Jamahiriya	54	55	54	0	4	0	50	JMP*
Lithuania	60	0	88	30	6	13	11	As 1995
Luxembourg	90	47	100	3	82	5	0	Eurostat
Macedonia, former Yugoslav republic	100	100	100	5	5	0	95	Eurostat
Malta	100	100	100	0	0	13	87	Eurostat
Moldova, republic of	56	17	100	0	18	0	38	As 2000
Morocco	38	0	79	0	3	0	35	Eurostat*
Netherlands	96	87	100	2	83	10	2	Eurostat

Norway	76	14	100	13	1	42	23	Eurostat
Poland	49	0	80	8	26	6	9	Eurostat
Portugal	55	13	100	10	11	0	34	Eurostat
Romania	51	0	94	1	26	0	24	Eurostat and 1995
Russian Federation	70	30	84	1	37	0	32	JMP and 1995
Saudi Arabia	28	0	36	0	19	9	0	As 2000
Slovakia	55	0	98	12	31	2	9	Eurostat*
Slovenia	22	0	44	6	4	11	1	Stat Env.
Spain	55	0	73	9	36	2	13	Eurostat
Sudan	2	0	6	0	0	0	2	JMP*
Sweden	96	76	100	0	9	86	2	Eurostat
Switzerland	91	72	100	0	28	63	0	Eurostat
Syrian Arab Republic	54	10	100	0	4	0	50	Eurostat*
Tunisia	48	24	66	0	4	0	44	JMP*
Turkey	44	1	74	6	3	0	35	JMP*
Ukraine	57	0	85	2	50	0	5	As 2000
United Kingdom	96	64	100	11	61	12	14	Eurostat
Western Sahara	38			0	3	0	35	As Morocco
Yugoslavia/Serbia and Montenegro	49	16	80	4	9	0	31	JMP

¹ Values in red were estimated using the equation given in the text.

* Data mainly from this source, but some needed to be estimated by the authors.

“As Year” - Data taken from the year stated (no other reasonable way to estimate the value).

Table A2 Percentage values for total, rural and urban populations connected to a sewerage system for 1995. The percentage of the effluent treated at a particular level is also shown.

COUNTRY	Connected (%)	Rural (%) ¹	Urban (%) ¹	Prim.	Second	Tert.	Not Treated	Source
Albania	59	38	93	0	0	0	59	JMP*
Algeria	86	38	89	1	0	0	85	Eurostat
Austria	76	30	100	1	26	48	1	Eurostat
Belarus	65	22	86	1	34	0	30	JMP*
Belgium	81	0	84	0	16	15	50	Eurostat*
Bosnia and Herzegovina	55	38	80	0	5	0	50	JMP*
Bulgaria	67	24	92	1	35	0	31	Eurostat
Croatia	67	25	100	9	1	0	57	As 2000
Cyprus	9	13	35	0	7	2	0	Eurostat
Czech Republic	73	0	97	10	45	3	15	Eurostat*
Denmark	87	14	100	3	14	70	0	Eurostat
Egypt	25	7	50	0	4	0	21	JMP
Eritrea	0	0	0	0	0	0	0	As 2000
Estonia	77	51	88	11	38	29	5	Eurostat
Ethiopia	0	0	0	0	0	0	0	As 2000
Faroe Islands	0	0	0	0	0	0	0	As 2000
Finland	78	44	100	0	0	77	0	Eurostat

France	79	16	100	4	46	27	2	JMP*
Georgia	40	4	70	0	0	0	40	JMP*
Germany	92	68	100	4	12	72	4	Eurostat
Greece	65	14	100	33	14	7	11	Eurostat
Hungary	48	0	74	4	17	1	23	Eurostat
Iceland	90	0	98	4	0	0	86	Eurostat
Iraq	57	0	83	2	5	0	50	As 2000
Ireland	78	48	100	24	32	2	20	Eurostat
Israel	39	0	46	0	27	0	12	Eurostat
Italy	75	24	100	3	36	24	12	Eurostat
Jordan	52	0	67	0	52	0	0	Eurostat
Latvia	65	0	94	8	30	23	4	Eurostat*
Lebanon	88	22	100	3	0	0	85	JMP*
Libyan Arab Jamahiriya	54	0	67	0	1	0	53	Eurostat*
Lithuania	60	0	89	30	6	13	11	JMP*
Luxembourg	90	41	100	19	61	10	0	Eurostat
Macedonia, former Yugoslav republic	100	100	100	5	5	0	90	Eurostat
Malta	100	100	100	0	0	13	87	Eurostat
Moldova, republic of	56	18	100	0	18	0	38	As 2000
Morocco	38	4	70	0	3	0	35	JMP*
Netherlands	97	89	100	0	51	46	1	Eurostat
Norway	80	24	100	16	1	50	13	Eurostat
Poland	53	0	87	8	30	6	9	Eurostat
Portugal	61	21	100	4	16	1	35	Eurostat
Romania	49	8	83	1	26	0	23	JMP*
Russian Federation	70	30	85	1	37	0	32	JMP*
Saudi Arabia	28	0	36	0	19	9	0	As 2000
Slovakia	53	0	93	8	38	2	4	Eurostat*
Slovenia	44	0	86	9	15	3	17	UNEP/ Tech Pub15*
Spain	61	0	80	11	34	3	13	Eurostat
Sudan	1	0	4	0	0	0	1	JMP*
Sweden	93	56	100	0	6	87	0	Eurostat
Switzerland	97	90	100	0	24	71	0	Eurostat
Syrian Arab Republic	59	19	100	0	10	0	49	Eurostat
Tunisia	40	0	66	0	20	0	20	Eurostat*
Turkey	55	0	89	8	3	0	44	Eurostat
Ukraine	57	0	85	2	50	0	5	As 2000
United Kingdom	97	73	100	9	64	14	12	Eurostat
Western Sahara	38			0	3	0	35	As Morocco
Yugoslavia/Ser bia and Motenegro	49	16	80	6	9	0	34	JMP

¹ Values in red were estimated using the equation given in the text.

* Data mainly from this source, but some needed to be estimated by the authors.

“As Year” - Data taken from the year stated (no other reasonable way to estimate the value).

Table A3 Percentage values for total, rural and urban populations connected to a sewerage system for 2000. The percentage of the effluent treated at a particular level is also shown.

COUNTRY	Connected (%)	Rural (%) ¹	Urban (%) ¹	Prim.	Second	Tert.	Not Treated	Source
Albania	61	38	93	0	0	0	61	JMP*
Algeria	68	45	84	0	10	0	58	Eurostat
Austria	85	56	100	0	17	64	4	Eurostat
Belarus	67	22	86	0	46	0	21	JMP*
Belgium	81	0	84	0	22	16	43	Eurostat*
Bosnia and Herzegovina	56	38	80	0	5	0	51	JMP*
Bulgaria	67	0	97	1	36	0	30	Eurostat
Croatia	67	25	100	9	1	0	57	As 2000
Cyprus	42	13	55	0	9	26	7	Eurostat
Czech Republic	72	0	97	0	14	55	8	Eurostat*
Denmark	89	27	100	2	3	84	0	Eurostat
Egypt	32	10	60	2	9	0	20	JMP
Eritrea	0	0	0	0	0	0	0	As 2000
Estonia	70	3	100	1	28	40	1	Eurostat
Ethiopia	0	0	2	0	0	0	0	As 2000
Faroe Islands	0	0	0	0	0	0	0	As 2000
Finland	80	49	100	0	0	80	0	Eurostat
France	82	25	100	2	51	27	2	JMP*
Georgia	41	7	73	1	0	0	40	JMP*
Germany	95	80	100	1	6	86	2	Eurostat
Greece	67	20	100	32	14	10	11	Eurostat
Hungary	53	0	82	13	23	6	11	Eurostat
Iceland	90	0	98	33	0	0	57	Eurostat
Iraq	57	0	84	2	5	0	50	As 2000
Ireland	93	83	100	40	21	5	27	Eurostat
Israel	96	74	100	22	33	28	13	Eurostat
Italy	75	24	100	3	36	24	12	Eurostat
Jordan	59	6	73	0	20	0	39	Eurostat
Latvia	67	0	99	2	26	36	3	Eurostat*
Lebanon	90	29	100	3	0	0	87	JMP*
Libyan Arab Jamahiriya	54	55	54	0	8	0	46	Eurostat*
Lithuania	68	3	100	33	6	18	11	JMP*
Luxembourg	87	19	100	19	57	11	0	Eurostat
Macedonia, former Yugoslav republic	100	100	100	5	5	0	90	Eurostat
Malta	100	100	100	0	0	13	87	Eurostat
Moldova, republic of	56	19	100	0	18	0	38	As 2000
Morocco	41	4	70	0	5	0	36	JMP*
Netherlands	99	96	100	0	17	82	0	Eurostat
Norway	80	17	100	22	1	50	7	Eurostat
Poland	59	0	95	4	30	20	5	Eurostat
Portugal	61	15	100	13	23	5	20	Eurostat
Romania	40	0	73	10	17	0	13	JMP*

Russian Federation	75	7	100	2	54	1	18	JMP*
Saudi Arabia	28	0	35	0	19	9	0	As 2000
Slovakia	55	0	98	7	48	0	0	Eurostat*
Slovenia	53	4	100	15	9	9	20	UNEP/ Tech Pub15*
Spain	100	100	100	8	65	15	12	Eurostat
Sudan	1	0	2	0	1	0	0	JMP*
Sweden	88	25	100	0	5	83	0	Eurostat
Switzerland	96	85	100	0	22	74	0	Eurostat
Syrian Arab Republic	69	41	96	0	16	0	53	Eurostat
Tunisia	42	0	67	0	40	0	2	Eurostat*
Turkey	62	0	95	9	13	2	38	Eurostat
Ukraine	57	21	74	2	50	0	5	As 2000
United Kingdom	98	82	100	9	64	14	11	Eurostat
Western Sahara	4		0	0	1	0	3	As Morocco
Yugoslavia/Serbia and Montenegro	49	16	80	4	11	0	34	JMP

¹ Values in red were estimated using the equation given in the text.

* Data mainly from this source, but some needed to be estimated by the authors.

"As Year" - Data taken from the year stated (no other reasonable way to estimate the value).

Section B – Catchment data used in the diffuse BOD regression equations.

Table B1. Catchment data available from 1990 for the BOD regression model.

Basin	River	Country	Area (km ²)	Lake- %	Cropland (km ²)	Livestock (LSU)	Temperature (°C)	Runoff (m ³ s ⁻¹)	Total Point BOD (t y ⁻¹)	BOD concentration. (mg L ⁻¹ O ₂)	BOD flux (t y ⁻¹)
Bodrog	Bodrog	HU	8649	0.6	2887	237037	9.0	292	6082	4.4	11115
Danube1	Bodrog	SK	8535	0.6	2837	232730	8.7	388	6040	3.8	12583
Danube3	Sebes- Körös	HU	3431	0.5	1066	141666	9.5	93	4447	3.9	1242
Drava	Drava	SI	13363	0.8	1049	289470	4.6	666	3007	1.6	14229
Drava3	Drava3	SI	16667	0.7	1992	429942	5.6	611	6608	2.5	25465
Foyle4	Mourne river	GB	1036	0.1	0	154769	8.4	1702	265	2.2	3879
Gyongyos	Balaton	HU	13049	0.1	2269	431319	7.7	377	6193	4.6	22630
Hornad3	Hornad	SK	4152	0.3	1156	241865	8.5	156	5056	5.2	3378
Kolpa	Kolpa	SI	3120	0.1	231	52103	8.6	700	1274	2.2	4808
Lagan	Lagan	UK-IRL	899	0.6	71	181699	8.9	260	1155	3.1	723
Moselle	Moselle	FR	11928	0.6	4141	679700	10.2	325	9181	3.6	13964
Mura	Mura	SI	10099	0.1	835	338573	6.6	409	3523	5.2	21468
Mures	Maros	HU	30144	0.1	7502	1164554	9.0	99	26834	9.4	28162
Raba	Raba	HU	1403	0.4	648	40037	11.4	82	1777	5.4	623
Reka	Reka	SI	540	0.2	51	6402	8.4	492	215	3.4	903
Rhein	Lustenauer	AT	6315	0.3	726	152665	4.9	1086	1225	1.8	12343
Ringkob	Skern Å	DK	1872	0.3	1170	77856	8.2	365	299	2.3	1572
Sava	Sava	SI	8642	0.1	1712	364059	9.7	941	8961	4.2	34172
Sava2	Sava2	SI	531	0.4	28	10829	5.8	3154	336	1.6	2679
Soca	Soca	SI	2124	0.2	60	33693	7.7	1329	1207	1.6	4516

Vipava	Vipava	SI	717	0.1	105	21010	10.6	809	629	1.9	1102
Zala	Zala	HU	986	0.0	356	25557	10.1	38	261	8.3	311
Århus Amt	Guden Å	DK	2519	2.3	1553	204465	8.1	353	975	3.2	2843

Table B2. Catchment data available from 1995 for the BOD regression model.

Basin	River	Country	Area (km ²)	Lake-%	Cropland (km ²)	Livestock (LSU)	Temperature (°C)	Runoff (m ³ s ⁻¹)	Total Point BOD (t y ⁻¹)	BOD concentration (mg L ⁻¹ O ₂)	BOD flux (t y ⁻¹)
Danube1	Bodrog	SK	8535	0.6	2837	146078	8.4	417	4392	3.7	13162
Danube2	Inn	AT/GE	26444	0.7	3587	912246	6.5	844	10194	2.6	58051
Danube3	Sebes-Körös	HU	3431	0.5	1066	90580	9.1	248	4081	3	2554
Danube4	Danube4	HU	135111	0.7	47859	6733927	7.7	509	94139	2.2	151247
Danube5	Danube5	SK	133971	0.7	47088	6687310	7.7	548	92790	1.6	117516
Danube6	Danube6	SK	25847	0.5	13346	853597	8.4	131	23195	3.1	10500
Drava3	Drava3	SI	16667	0.7	1992	385853	6.0	496	8133	2	16525
Drava4	Drava4	HU	39850	0.5	9340	932249	7.8	398	29377	3.5	55567
Gyongyos	Balaton	HU	13049	0.1	2269	389753	7.4	413	6355	2.2	11864
Kolpa	Kolpa	SI	3120	0.1	231	40122	9.0	832	1357	2.1	5450
Labe	Labe	CZ	51714	0.9	22095	1654439	9.0	170	47265	5.1	44712
Lagan	Lagan	UK-IRL	899	0.6	71	178001	9.4	293	1083	2.9	765
Merkys	Merkys	LT	3300	1.6	832	51755	6.7	334	923	4.1	4512
Meuse2	Semois	FR/BE	1320	0.1	238	29023	9.5	904	1863	2.8	3340
Mures	Mures	HU	30144	0.1	7502	748766	8.5	190	25118	3.7	21236
Nemunas10	Jura	LT	1832	0.6	814	23694	7.0	453	604	3.7	3069
Nemunas11	Sventoji	LT	3600	4.7	1360	39414	6.5	282	1303	1.6	1625
Nemunas6	Sesuvlis	LT	1171	1.0	636	15712	7.2	547	409	3.2	2049
Nemunas9	Streva	LT	296	5.3	114	5377	6.6	200	129	1.3	77
Neris	Neris	LT	10840	2.1	1919	279257	6.7	173	4518	2.2	4135
Nordjylland2	Uggerby Å	DK	460	0.0	316	36223	8.4	343	57	2.6	411

Nordjylland3	Ry Å	DK	368	0.0	342	28724	8.0	275	78	2.8	283
Rhine2	Mosel	FR/GE	11928	0.6	4141	660108	10.1	534	5644	3.3	21022
Sava	Sava	SI	8642	0.1	1712	302322	9.4	1091	13702	2.5	23573
Sava2	Sava2	SI	531	0.4	28	8978	6.3	2091	572	1.6	1776
Soca	Soca	SI	2124	0.2	60	27951	8.1	1255	1226	1.2	3198
Soenderjylland	Groenå	DK	1078	0.4	810	57523	8.6	229	220	1.4	346
Vestsjaelland	Tude Å	DK	673	3.1	487	56960	8.6	99	146	1.8	120
Vipava	Vipava	SI	717	0.1	105	17442	10.9	976	806	2.6	1820
Zala	Zala	HU	986	0.0	356	22788	9.4	77	263	3.1	237
Århus Amt	Guden Å	DK	2519	2.3	1553	215007	8.5	515	725	2.2	2852

Table B3. Catchment data available from 2000 for the BOD regression model.

Basin	River	Country	Area (km ²)	Lake- %	Cropland (km ²)	Livestock (LSU)	Temperature (°C)	Runoff (m ³ s ⁻¹)	Total Point BOD (t y ⁻¹)	BOD concentratio n(mg L ⁻¹ O ₂)	BOD flux (t y ⁻¹)
Barta	Barta	LV	2273	0.3	1010	21740	8.1	211	338	1.9	911
Danube1	Bodrog	SK	8535	0.6	2837	126546	9.2	505	3070	2	8627
Danube2	Inn	AT/GE	26444	0.7	3587	1126427	5.5	1043	10343	1.8	49669
Danube3	Sebes-Körös	HU	3431	0.5	1066	77068	10.0	259	3542	2.7	2401
Danube4	Danube4	HU	135111	0.7	47859	6713490	7.6	499	83327	1.8	121477
Danube5	Danube5	SK	133971	0.7	47088	6695003	8.5	550	82425	2	147462
Danube6	Danube6	SK	25847	0.5	13346	845774	9.1	150	17246	2.3	8888
Daugava	Daugava	LV	70953	3.1	7305	791640	6.8	245	13133	1.9	33075
Drava3	Drava3	SI	16667	0.7	1992	501220	6.8	560	9179	2.2	20536
Drava4	Drava4	HU	39850	0.5	9340	1003260	8.4	428	28918	2.9	49447
Ebro	Ebro	ES	84265	0.4	34328	2764315	12.2	91	15768	5	38368
Escaut	Escaut	BE	4213	0.4	2971	403338	10.6	359	7713	4.3	6509
Foyle4	Mourne River	GB	1036	0.1	0	144668	8.4	1991	243	2.1	4331
Guadalquivir	Guadalquivir	ES	47799	0.5	16387	676720	16.2	22	13343	5.4	5664

Guadiana	Guadiana	ES	46742	0.9	24130	998908	15.8	25	6806	3.6	4173
GulfOfFinland	Keila	EE	1012	0.3	274	18671	6.1	214	234	2.2	477
GulfOfRiga	Pärnu	EE	5486	0.1	1182	28191	6.1	296	214	2.3	3735
GulfOfRiga4	Pärnu	EE	2204	0.0	544	13784	6.1	336	92	2.3	1705
GulfRiga2	Kasari	EE	2913	0.1	680	19779	6.3	294	102	2.2	1887
Gyongyos	Balaton	HU	13049	0.1	2269	498611	7.6	305	7084	3.2	12715
Hornad3	Hornad	SK	4152	0.3	1156	127356	8.2	137	2456	3.6	2046
Kolpa	Kolpa	SI	3120	0.1	231	56437	9.5	853	1342	1.8	4791
Labe	Labe	CZ	51714	0.9	22095	1666796	8.0	192	35024	3.1	30795
Lagan	Lagan	UK-IRL	899	0.6	71	169721	9.1	382	1067	3.1	1066
Merkys	Merkys	LT	3300	1.6	832	42564	7.5	288	725	3.7	3512
Meuse1	Sambre	FR/BE	1485	0.1	443	176769	10.7	356	1494	4.8	2535
Mures	Mures	HU	30144	0.1	7502	637956	9.0	190	23097	5.4	30977
narva1	Narva	EE	46329	9.6	6068	279017	5.8	206	4842	2	19111
narva4	Väike- Emajõgi	EE	906	1.2	185	6689	6.0	291	155	2	527
narva5	Võhandu	EE	1221	1.2	260	9173	5.7	207	86	1.7	429
Nemunas10	Jura	LT	1832	0.6	814	22091	7.5	363	498	2.5	1664
Nemunas11	Sventoji	LT	3600	4.7	1360	36101	7.2	256	1112	1.5	1381
Nemunas6	Sesuvīs	LT	1171	1.0	636	14546	7.3	490	333	2.3	1320
Nemunas8	Susve	LT	1299	2.0	778	20241	7.3	33	781	1.8	77
Nemunas9	Streva	LT	296	5.3	114	7432	7.4	177	107	2.1	110
Neris	Neris	LT	10840	2.1	1919	245340	7.5	149	3246	5.1	8251
Nordjylland2	Uggerby Å	DK	460	0.0	316	42075	8.1	394	67	2.8	508
Nordjylland3	Ry Å	DK	368	0.0	342	36745	8.0	382	85	2.9	408
Ringkobing	Storå	DK	1137	0.2	813	84322	8.7	605	358	1.3	894
Sava	Sava	SI	8642	0.1	1712	369069	9.5	1000	15048	2.8	24194
Sava2	Sava2	SI	531	0.4	28	36511	7.0	2281	639	1.6	1938
Savinja2	Savinja2	SI	1239	0.3	161	89641	8.5	1128	1565	2.4	3353
Soca	Soca	SI	2124	0.2	60	49046	7.1	1391	1229	1.1	3250

Soenderjylland	Groenå	DK	1078	0.4	810	56671	8.5	245	219	1.6	423
Thames1	Thames	GB	10197	0.7	6000	482694	10.8	310	29725	2.4	7591
Thames2	Lee (R.Ash)	GB	689	0.2	607	11149	11.1	343	1408	1.2	284
Vestsjaelland	Tude Å	DK	673	3.1	487	56849	8.7	109	160	1.8	132
Vipava	Vipava	SI	717	0.1	105	29692	10.7	625	859	1.7	761
Zala	Zala	HU	986	0.0	356	32522	10.1	77	264	2.9	219
Århus Amt	Guden Å	DK	2519	2.3	1553	214558	8.3	468	771	2.2	2591

Section B – Results from years 1990s, 1995s and 2000s

Table B1 Loadings of BOD in each country by source in the 1990s (tonnes/year)

Country	Manufacturing	Domestic	Urban	Scattered Settlements	Diffuse	Total
Albania	2267	24400	18	47366	21598	95654
Andorra	nd ¹	nd	nd	nd	nd	nd
Azerbaijan	2138	0	0	10452	62273	74863
Austria	11189	14551	69	5955	66067	100975
Armenia	1029	0	0	5176	16714	22919
Belgium	8761	117696	623	62866	90582	275959
Bosnia and Herzegovina	792	32648	4	53267	19717	106428
Bulgaria	2766	66022	125	33409	75882	178258
Belarus	4714	75674	220	40569	179256	300400
Croatia	1380	64390	248	31714	23738	121517
Cyprus	25	60	5	935	3577	4603
Czech Republic	2803	71333	151	28606	93209	195273
Denmark	589	16668	196	3236	75891	95975
Estonia	341	10203	117	3048	20553	34231
Faroe Islands	nd	nd	nd	nd	200	200
Finland	8389	9041	23	8141	35510	55738
France	23593	193598	891	120332	534722	850928
Georgia	6464	31089	370	48627	35046	121642
Germany	78583	242663	1433	41956	559897	861675
Greece	1438	85820	205	82454	51885	221910
Hungary	2100	56435	328	88327	70450	215793
Iceland	181	4942	10	580	4302	10014
Iran	1505	0	0	19756	80232	101494
Iraq	3816	135688	167	102361	65262	307369
Ireland	1865	27334	1075	14081	139843	184177
Israel	1074	14230	242	22257	9184	47142
Italy	95395	242223	807	104123	269078	688199
Jordan	291	3606	5	2950	3223	10077
Kuwait	nd	nd	nd	1	477	478
Lebanon	126	32639	145	19169	4443	56651
Latvia	952	8657	176	4074	38389	52206
Liechtenstein	nd	nd	nd	nd	165	165
Lithuania	580	22595	92	18334	58566	96881
Malta	5	6962	22	0	1003	7988
Moldova	27670	38020	145	29873	35170	130948
Netherlands	34273	41449	184	1225	155913	233033
Norway	8265	31530	1187	15478	27162	76272
Poland	6010	138331	339	155988	319915	607480
Portugal	1797	86906	342	71105	55454	215639
Romania	10261	136834	304	134662	241810	524002
Russian Federation	28520	316274	3918	134901	520248	1003535
Saudi Arabia	7	89	0	229	350	676
Slovakia	2629	21797	16	18360	47770	89977
Slovenia	1225	2407	8	13652	15412	27585

Spain	14295	182393	304	121944	249318	564917
Sweden	12675	26429	677	2229	47101	87811
Switzerland	2933	13318	48	1382	45390	63072
Syrian Arab Republic	1101	86380	75	73583	45896	207080
Turkey	9883	300199	1201	382071	397322	1090774
Ukraine	206464	125003	1372	94301	641484	922500
Macedonia	968	38758	31	0	15665	55445
Egypt	67	366	0	1559	916	2907
United Kingdom	6187	330268	6388	13002	376945	732124
Yugoslavia	2612	79260	110	100061	80271	262353
Total	642989	3607177	24414	2389726	6030446	12395912

1. Not enough data to calculate a value

Table B2 Loadings of BOD in each country by source in the 1995s (tonnes/year)

Country	Manufacturing	Domestic	Urban	Scattered Settlements	Diffuse	Total
Albania	1765	41153	23	28598	27942	99959
Andorra	nd	nd	nd	nd	nd	nd
Azerbaijan	513	0	0	11220	50255	62032
Austria	9889	15684	82	6193	62213	95817
Armenia	370	0	0	5490	12474	18376
Belgium	8371	122686	609	34321	95976	256042
Bosnia and Herzegovina	92	37823	6	30946	13319	83992
Bulgaria	2145	63613	227	32190	34650	132087
Belarus	2154	75675	179	40569	135861	254757
Croatia	777	62528	350	30797	17449	113419
Cyprus	23	94	6	975	4145	5238
Czech Republic	2366	56149	156	21331	58842	138327
Denmark	562	11736	123	2629	79857	93983
Estonia	90	5355	52	1420	10871	17557
Faroe Islands	nd	nd	nd	nd	202	202
Finland	7891	8659	19	2528	31778	50850
France	22025	143768	685	43953	531439	735437
Georgia	681	31635	403	47453	23488	103736
Germany	63332	266042	1657	53208	434106	746748
Greece	1356	64089	157	38119	50313	150735
Hungary	1724	59594	443	75438	40299	176247
Iceland	163	5177	8	575	4194	10022
Iran	1906	0	0	22081	88457	111625
Iraq	1494	155958	144	117653	47865	318569
Ireland	2241	27925	874	8038	151310	190060
Israel	1309	17044	263	26658	10351	54674
Italy	84565	244273	724	105004	231442	642161
Jordan	366	3000	3	2769	4919	10896
Kuwait	nd	nd	nd	1	474	475
Lebanon	128	50579	162	6897	4223	60626

Latvia	281	7342	115	5048	14172	25977
Liechtenstein	nd	nd	nd	nd	157	157
Lithuania	293	22192	74	18007	28852	66385
Malta	5	7310	23	0	960	8223
Moldova	7019	37820	232	29715	26059	100892
Netherlands	32126	35076	193	986	153372	221184
Norway	9298	24826	820	13368	29097	69820
Poland	5840	143586	351	135569	254426	529315
Portugal	1648	84134	371	67134	55657	206211
Romania	6911	126756	492	131930	153083	419417
Russian Federation	15638	314905	3931	134317	370042	839918
Saudi Arabia	8	101	0	260	405	768
Slovakia	2674	14696	12	13318	29402	59714
Slovenia	865	10154	25	13691	12824	36780
Spain	13638	190256	250	126202	262069	587571
Sweden	13595	22482	512	1692	49392	87551
Switzerland	2517	14572	56	848	42730	60490
Syrian Arab Republic	967	100926	67	70135	40992	210612
Turkey	10811	403771	1436	331695	368981	1109785
Ukraine	74724	124136	1723	93646	484468	726693
Macedonia	440	40042	66	0	13268	53172
Egypt	77	552	0	1655	1068	3232
United Kingdom	5605	302334	5670	8486	370024	691328
Yugoslavia	1436	87566	170	91140	67897	247928
Total	424714	3685773	23942	2085895	5088112	11097776

1. Not enough data to calculate a value

Table B3 Loadings of BOD in each country by source in the 2000s (tonnes/year)

Country	Manufacturing	Domestic	Urban	Scattered Settlements	Diffuse	Total
Albania	1618	41867	22	26767	30194	100469
Andorra	nd	nd	nd	nd	nd	nd
Azerbaijan	288	0	0	11752	65592	77632
Austria	13821	21491	118	3792	67620	106842
Armenia	402	0	0	5552	13785	19740
Belgium	8071	109544	513	25696	112555	256378
Bosnia and Herzegovina	312	44854	5	35243	17852	98266
Bulgaria	1403	61013	175	30051	42443	135085
Belarus	2649	56121	138	27642	128246	214795
Croatia	726	59088	295	29103	21508	110720
Cyprus	25	1160	18	1603	6220	9025
Czech Republic	2512	33512	83	10010	59821	105939
Denmark	533	11722	118	1449	98727	112549
Estonia	97	2490	27	1067	8673	12354
Faroe Islands	nd	nd	nd	nd	nd	nd
Finland	9089	9061	19	2265	34240	54675

France	22137	139287	590	30575	620301	812890
Georgia	1445	31723	411	45650	32425	111655
Germany	21597	217669	1128	11456	481843	733693
Greece	1328	64592	172	31814	69303	167210
Hungary	1936	45212	226	40094	55678	143146
Iceland	156	4506	8	501	4652	9822
Iran	1919	0	0	23846	27	25791
Iraq	2389	174571	242	131694	66694	375589
Ireland	3450	41212	1041	3102	177372	226178
Israel	1430	40427	330	1684	16784	60655
Italy	75276	246365	762	82122	268113	672638
Jordan	392	27555	29	19149	1	47125
Kuwait	nd	nd	nd	nd	nd	nd
Lebanon	150	55922	277	6214	11208	73770
Latvia	216	5299	93	2610	12228	20446
Liechtenstein	nd	nd	nd	nd	nd	nd
Lithuania	306	22958	72	10804	26195	60335
Malta	6	7542	18	0	1186	8752
Moldova	3469	37288	215	29298	19386	89655
Netherlands	30722	34516	157	349	175780	241523
Norway	7835	22718	732	5680	32870	69834
Poland	5887	101572	239	70584	259285	437568
Portugal	1606	64231	249	41066	68660	175812
Romania	2871	96813	402	145220	158107	403412
Russian Federation	15012	207693	2253	69231	276411	570600
Saudi Arabia	8	115	0	296	0	419
Slovakia	2387	9817	8	8032	26759	47004
Slovenia	941	12763	20	11318	15481	40523
Spain	14616	212449	220	0	374176	601461
Sweden	13833	21365	504	2913	51240	89856
Switzerland	2353	15095	50	629	45391	63518
Syrian Arab Republic	1550	125479	102	56375	62021	245527
Turkey	8827	398452	1052	244213	431567	1084111
Ukraine	9683	119245	1573	89957	322124	542582
Macedonia	402	41365	54	0	12797	54620
Egypt	98	621	0	1382	2530	4630
United Kingdom	4854	299630	5906	6115	413452	729957
Yugoslavia	1169	86449	146	89977	69996	247737
Total	303802	3484441	20812	1525939	5369524	10704518

1. Not enough data to calculate a value

Table B4 Loadings of TDS in each country by source in the 1990s (10³ tonnes/year)

Country	Manufacturing	Domestic	Urban	Scattered Settlements	Irrigation	Total
Albania	444.6	50.8	0.5	98.7	257.0	851.6
Andorra	0.0	0.0	0.0	0.0	0.0	0.0

Azerbaijan	419.3	0.0	0.0	326.7	3081.9	3827.9
Austria	2862.5	253.8	17.2	98.7	25.4	3257.6
Armenia	201.8	0.0	0.0	161.8	508.3	871.9
Belgium	1717.8	315.9	18.5	156.3	2.1	2210.5
Bosnia and Herzegovina	155.2	77.2	0.1	125.9	3.5	361.9
Bulgaria	542.3	264.1	7.2	133.6	220.2	1167.5
Belarus	924.2	302.7	7.5	162.3	27.4	1424.1
Croatia	270.5	145.9	6.7	71.9	1.0	496.0
Cyprus	4.8	1.9	1.5	29.2	23.3	60.6
Czech Republic	549.7	340.3	9.0	132.3	8.2	1039.5
Denmark	115.5	202.4	22.6	32.1	28.0	400.7
Estonia	66.8	55.1	4.7	16.5	0.3	143.4
Faroe Islands	0.0	0.0	0.0	0.0	0.0	0.0
Finland	1644.9	174.0	4.0	53.5	4.0	1880.4
France	4626.0	1718.9	93.3	869.8	1227.4	8535.5
Georgia	1267.4	97.2	8.7	152.0	349.5	1874.6
Germany	5438.1	3225.4	190.8	398.6	96.3	9349.2
Greece	282.0	236.4	8.2	227.1	981.1	1734.8
Hungary	411.7	186.9	12.2	286.2	83.0	980.1
Iceland	35.5	10.4	0.2	1.2	0.0	47.3
Iran	295.2	0.0	0.0	617.5	6477.4	7390.0
Iraq	748.3	469.3	5.6	354.0	4379.2	5956.4
Ireland	365.8	105.6	40.7	54.4	0.7	567.1
Israel	210.7	118.0	21.9	184.5	90.1	625.2
Italy	18704.8	1940.9	61.1	647.0	1802.4	23156.2
Jordan	57.1	75.6	0.9	61.8	73.7	269.1
Kuwait	0.0	0.0	0.0	0.0	0.0	0.0
Lebanon	24.7	104.5	5.9	61.4	211.4	407.8
Latvia	186.6	82.9	12.8	39.0	0.2	321.4
Liechtenstein	0.0	0.0	0.0	0.0	0.0	0.0
Lithuania	113.8	101.2	3.4	67.5	0.9	286.8
Malta	1.0	16.4	0.4	0.0	1.4	19.2
Moldova	5425.5	111.4	6.3	87.6	1422.7	7053.5
Netherlands	6720.2	663.0	32.6	19.1	41.4	7476.3
Norway	1620.6	153.5	52.8	40.1	5.9	1872.8
Poland	1178.4	855.7	24.4	883.5	44.1	2986.1
Portugal	352.3	248.3	10.8	203.2	583.1	1397.7
Romania	2011.9	533.7	17.0	525.2	1032.6	4120.5
Russian Federation	5592.1	1264.8	143.7	539.5	786.8	8326.8
Saudi Arabia	1.5	2.8	0.0	7.2	1.9	13.4
Slovakia	515.4	132.8	1.1	108.2	105.9	863.5
Slovenia	240.3	20.1	0.7	71.1	0.6	332.8
Spain	2802.8	1072.0	19.1	697.0	2312.2	6903.2
Sweden	2485.2	376.1	105.0	14.4	9.4	2990.1
Switzerland	575.0	277.4	10.3	28.8	2.9	894.5
Syrian Arab Republic	215.9	290.8	2.7	247.7	7201.4	7958.4
Turkey	1937.8	1126.8	30.9	1434.1	11913.0	16442.6
Ukraine	11792.0	1349.5	169.8	1018.0	1749.9	16079.2
Macedonia	189.8	86.8	1.2	0.0	43.5	321.3
Egypt	13.1	1.4	0.0	6.2	76.4	97.1
United	1213.2	2534.3	517.5	91.9	71.5	4428.4

Kingdom						
Yugoslavia	512.1	212.4	4.0	268.1	58.4	1054.9
Total	88083.6	21987.1	1715.5	11912.3	47428.9	171127.4
1. Not enough data to calculate a value						

Table B5 Loadings of TDS in each country by source in the 1995s (10³ tonnes/year)

Country	Manufacturing	Domestic	Urban	Scattered Settlements	Irrigation	Total
Albania	346.0	86.3	0.5	60.0	157.5	650.3
Andorra	0.0	0.0	0.0	0.0	0.0	0.0
Azerbaijan	100.6	0.0	0.0	352.0	2939.7	3392.4
Austria	2529.8	278.6	17.2	88.0	18.6	2932.2
Armenia	72.5	0.0	0.0	172.9	478.0	723.5
Belgium	1641.3	389.0	18.5	91.2	2.2	2142.3
Bosnia and Herzegovina	18.1	88.1	0.1	72.1	2.9	181.3
Bulgaria	420.6	252.6	7.2	127.8	145.4	953.7
Belarus	422.4	303.5	7.5	162.7	52.3	948.4
Croatia	152.3	144.1	6.7	71.0	0.7	374.7
Cyprus	4.6	2.9	1.5	30.3	12.1	51.4
Czech Republic	463.9	344.3	9.0	127.3	5.2	949.7
Denmark	110.3	206.7	22.6	30.9	48.4	419.0
Estonia	17.7	55.0	4.7	11.4	0.3	89.1
Faroe Islands	0.0	0.0	0.0	0.0	0.0	0.0
Finland	1547.3	180.0	4.0	52.6	4.0	1787.8
France	4318.6	2082.5	93.3	550.2	879.8	7924.5
Georgia	133.6	98.9	8.7	148.4	336.0	725.6
Germany	4382.7	3423.1	190.8	297.7	123.1	8417.3
Greece	265.8	308.3	8.2	168.2	742.6	1493.0
Hungary	338.0	208.6	12.2	259.1	72.1	889.9
Iceland	31.9	10.8	0.2	1.2	0.0	44.2
Iran	373.7	0.0	0.0	664.5	5616.2	6654.4
Iraq	292.8	530.3	5.6	400.0	4886.6	6115.3
Ireland	439.5	127.5	40.7	36.0	1.2	644.9
Israel	256.7	137.8	21.9	215.5	97.9	729.9
Italy	16581.3	1955.5	61.1	651.8	1258.4	20508.1
Jordan	71.7	91.1	0.9	84.1	85.6	333.4
Kuwait	0.0	0.0	0.0	0.0	0.0	0.0
Lebanon	25.1	156.7	5.9	21.4	244.3	453.3
Latvia	55.1	75.3	12.8	40.5	0.2	183.9
Liechtenstein	0.0	0.0	0.0	0.0	0.0	0.0
Lithuania	57.5	99.9	3.4	66.6	1.5	229.0
Malta	1.0	17.1	0.4	0.0	1.5	20.0
Moldova	1376.3	111.0	6.3	87.2	1314.5	2895.3
Netherlands	6299.3	677.6	32.6	18.1	50.8	7078.4
Norway	1823.1	156.9	52.8	39.2	8.6	2080.7
Poland	1145.2	939.5	24.4	819.8	54.9	2983.8
Portugal	323.1	250.8	10.8	197.0	373.4	1155.2
Romania	1355.0	507.7	17.0	528.4	728.7	3136.8
Russian	3066.3	1263.3	143.7	538.8	910.8	5922.8

Federation						
Saudi Arabia	1.6	3.1	0.0	8.0	0.8	13.6
Slovakia	524.4	129.7	1.1	114.6	81.9	851.7
Slovenia	169.6	39.9	0.7	50.8	0.6	261.8
Spain	2674.1	1087.8	19.1	695.5	1685.4	6162.0
Sweden	2665.7	372.9	105.0	28.1	10.4	3182.1
Switzerland	493.5	299.1	10.3	17.4	2.9	823.3
Syrian Arab Republic	189.6	366.7	2.7	254.8	5601.3	6415.1
Turkey	2119.7	1504.2	30.9	1235.7	11046.3	15936.8
Ukraine	4267.8	1346.9	169.8	1016.1	1851.5	8652.1
Macedonia	86.3	88.3	1.2	0.0	29.4	205.2
Egypt	15.1	2.2	0.0	6.7	43.1	67.2
United Kingdom	1099.0	2587.7	517.5	66.4	96.2	4366.7
Yugoslavia	281.5	235.5	4.0	245.1	43.8	809.9
Total	65449.0	23625.1	1715.5	11023.2	42149.7	143962.5

1. Not enough data to calculate a value

Table B6 Loadings of TDS in each country by source in the 2000s (10³ tonnes/year)

Country	Manufacturing	Domestic	Urban	Scattered Settlements	Irrigation	Total
Albania	317.2	87.2	0.5	55.8	193.7	654.3
Andorra	0.0	0.0	0.0	0.0	0.0	0.0
Azerbaijan	56.6	0.0	0.0	367.3	2855.2	3279.0
Austria	2709.9	314.5	17.2	55.5	19.9	3117.0
Armenia	78.9	0.0	0.0	173.5	561.7	814.1
Belgium	1582.5	395.0	18.5	92.7	1.0	2089.6
Bosnia and Herzegovina	61.1	101.6	0.1	79.8	3.6	246.3
Bulgaria	275.2	249.7	7.2	123.0	243.1	898.2
Belarus	519.3	306.0	7.5	150.7	38.6	1022.1
Croatia	142.3	133.9	6.7	65.9	1.0	349.9
Cyprus	4.9	14.5	1.5	20.0	16.8	57.7
Czech Republic	492.6	360.8	9.0	107.8	5.6	975.7
Denmark	104.4	216.8	22.6	26.8	27.6	398.3
Estonia	19.1	43.7	4.7	18.7	0.1	86.4
Faroe Islands	0.0	0.0	0.0	0.0	0.0	0.0
Finland	1782.3	188.8	4.0	47.2	1.5	2023.8
France	4340.7	2203.2	93.3	483.6	853.3	7974.1
Georgia	283.4	100.4	8.7	144.4	455.1	991.9
Germany	4234.6	3563.3	190.8	187.5	55.9	8232.1
Greece	260.4	322.8	8.2	159.0	698.6	1449.0
Hungary	379.7	244.7	12.2	217.0	101.2	954.8
Iceland	30.7	11.5	0.2	1.3	0.0	43.6
Iran	376.2	0.0	0.0	745.3	5653.6	6775.1
Iraq	468.4	603.8	5.6	455.5	3154.4	4687.6
Ireland	676.5	161.0	40.7	12.1	0.1	890.4
Israel	280.4	402.9	21.9	16.8	59.7	781.7
Italy	14760.0	1974.1	61.1	658.0	1397.6	18850.8
Jordan	76.9	123.9	0.9	86.1	86.8	374.5
Kuwait	0.0	0.0	0.0	0.0	0.0	0.0
Lebanon	29.3	177.7	5.9	19.7	178.8	411.5
Latvia	42.3	72.5	12.8	35.7	0.1	163.5
Liechtenstein	0.0	0.0	0.0	0.0	0.0	0.0
Lithuania	60.1	108.8	3.4	51.2	0.8	224.2
Malta	1.1	17.8	0.4	0.0	1.7	21.1
Moldova	680.1	109.3	6.3	85.9	1044.5	1926.1
Netherlands	6023.9	719.1	32.6	7.3	30.5	6813.4
Norway	1536.2	163.9	52.8	41.0	6.3	1800.2
Poland	1154.4	1040.4	24.4	723.0	27.8	2970.1
Portugal	315.0	278.6	10.8	178.1	612.9	1395.4
Romania	562.8	409.5	17.0	614.3	1093.2	2696.9
Russian Federation	2943.6	1324.6	143.7	441.5	867.9	5721.3
Saudi Arabia	1.7	3.6	0.0	9.2	1.4	15.9
Slovakia	468.0	135.5	1.1	110.9	88.8	804.4
Slovenia	184.5	48.1	0.7	42.7	0.7	276.8
Spain	2865.9	1844.2	19.1	0.0	2162.3	6891.4

Sweden	2712.3	356.1	105.0	48.6	4.6	3226.6
Switzerland	461.4	314.5	10.3	13.1	2.1	801.5
Syrian Arab Republic	303.9	495.5	2.7	222.6	5580.6	6605.3
Turkey	1730.9	1846.9	30.9	1132.0	11477.9	16218.5
Ukraine	1898.6	1287.3	169.8	971.1	1453.7	5780.5
Macedonia	78.9	92.7	1.2	0.0	49.3	222.1
Egypt	19.2	3.2	0.0	7.2	115.8	145.5
United Kingdom	951.9	2625.5	517.5	53.6	51.9	4200.4
Yugoslavia	229.2	237.9	4.0	247.6	64.2	782.9
Total	59569.1	25837.4	1715.5	9607.7	41403.8	138133.4

1. Not enough data to calculate a value

Section C – Maps of BOD and TDS loadings from 1990, 1995 and 2000.

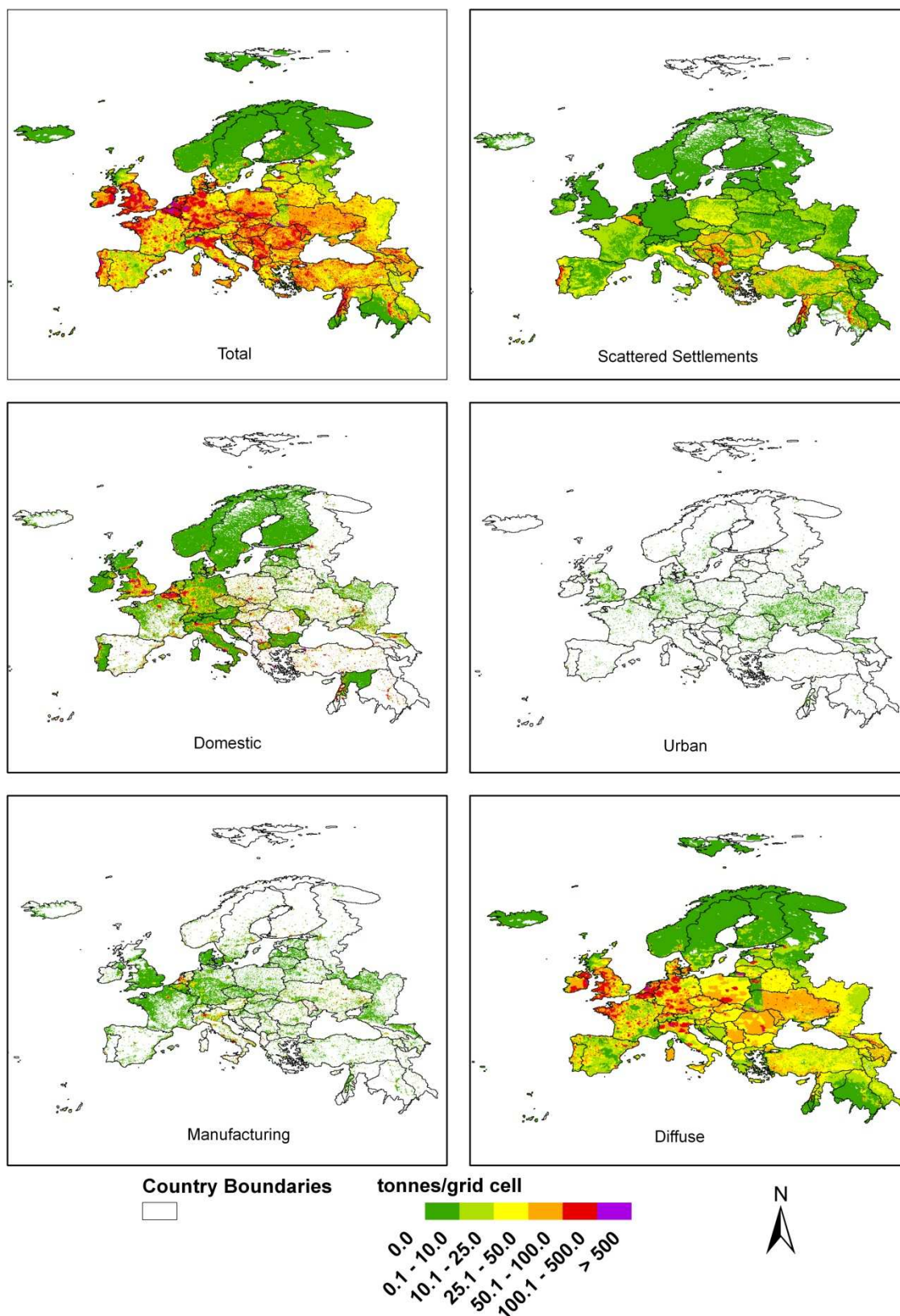


Figure C1 BOD loadings per grid square for all sources in 1990.

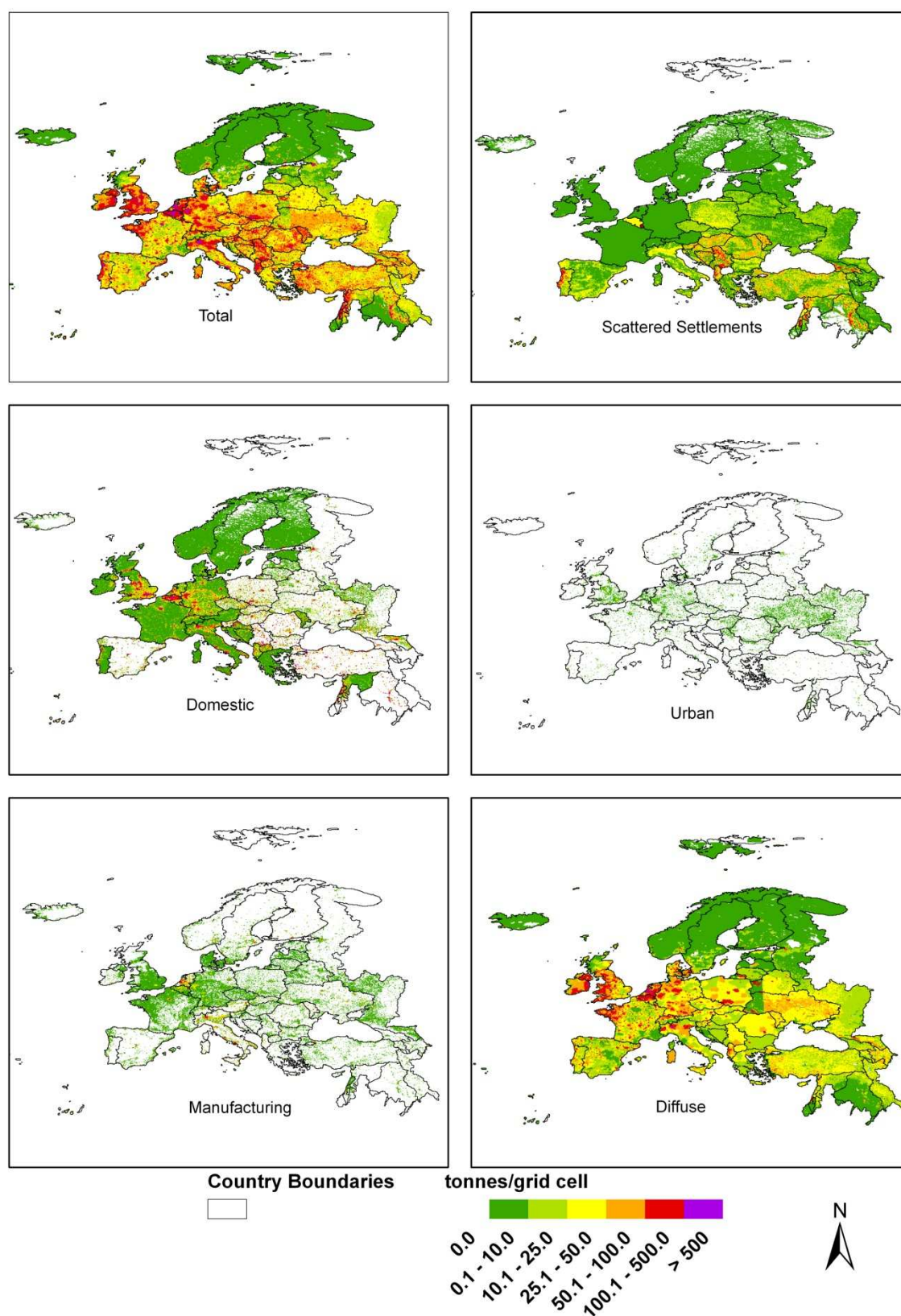


Figure C2 BOD loadings per grid square for all sources in 1995.

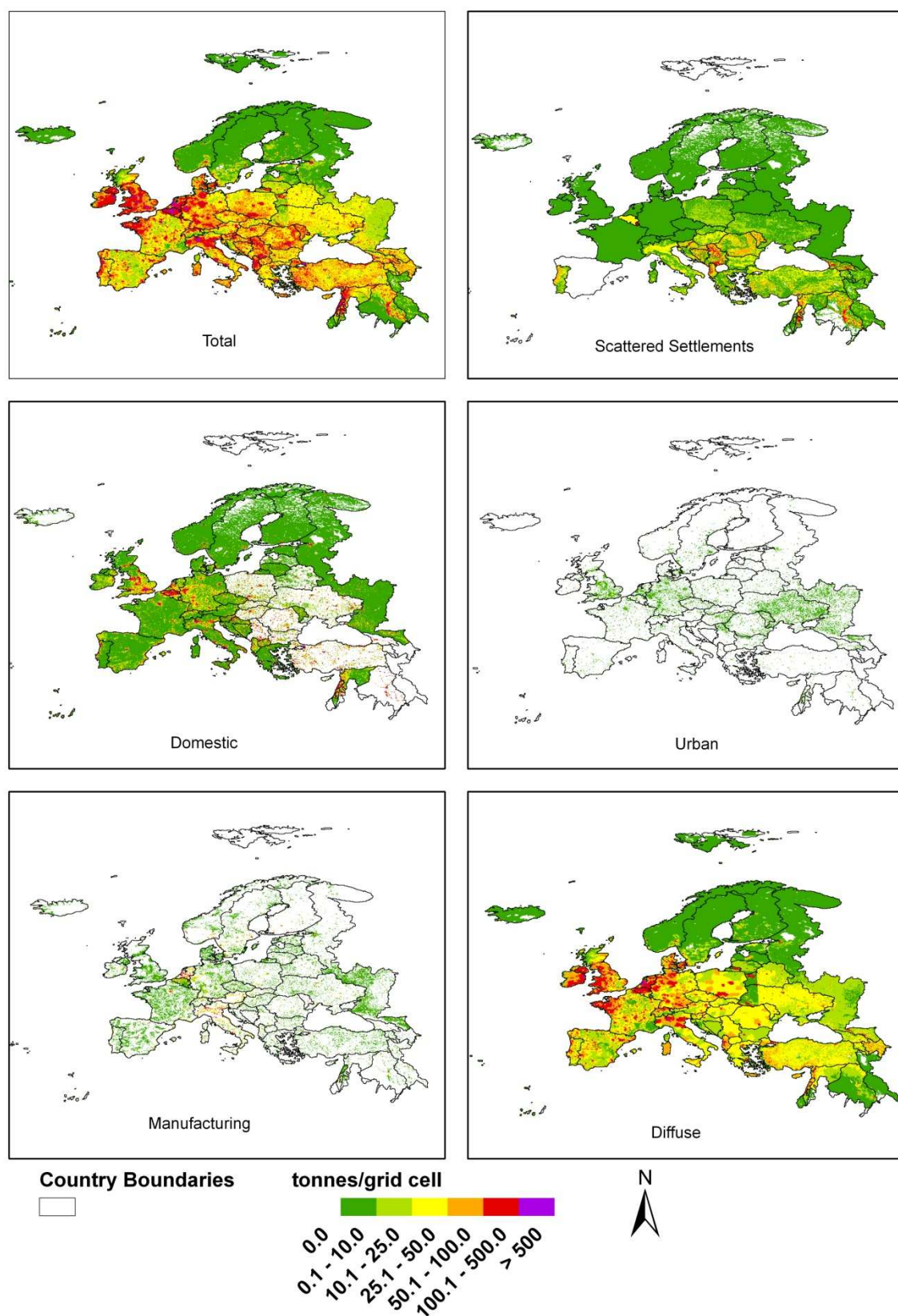


Figure C3 BOD loadings per grid square for all sources in 2000.

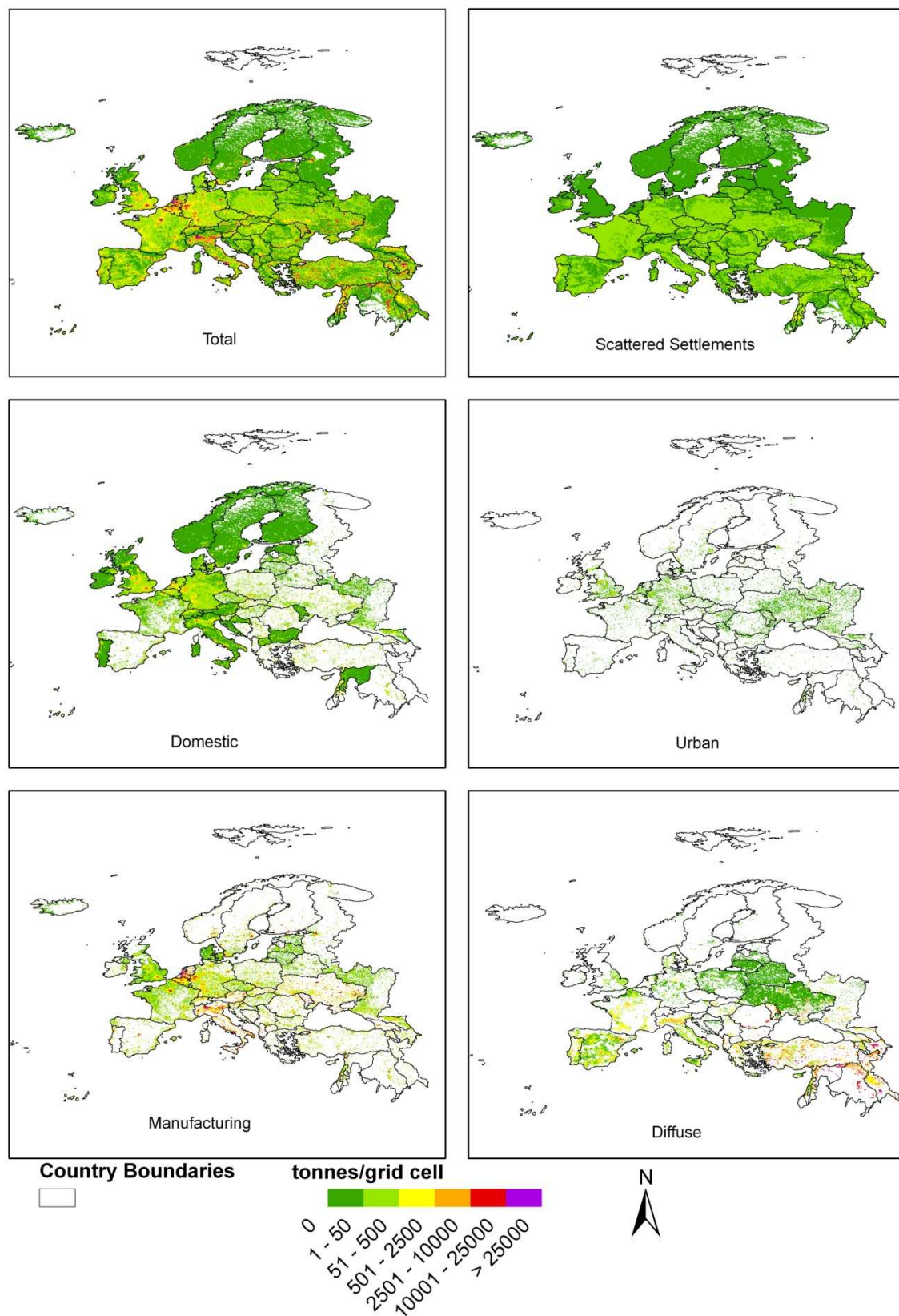


Figure C4 TDS loadings per grid square for all sources in 1990.

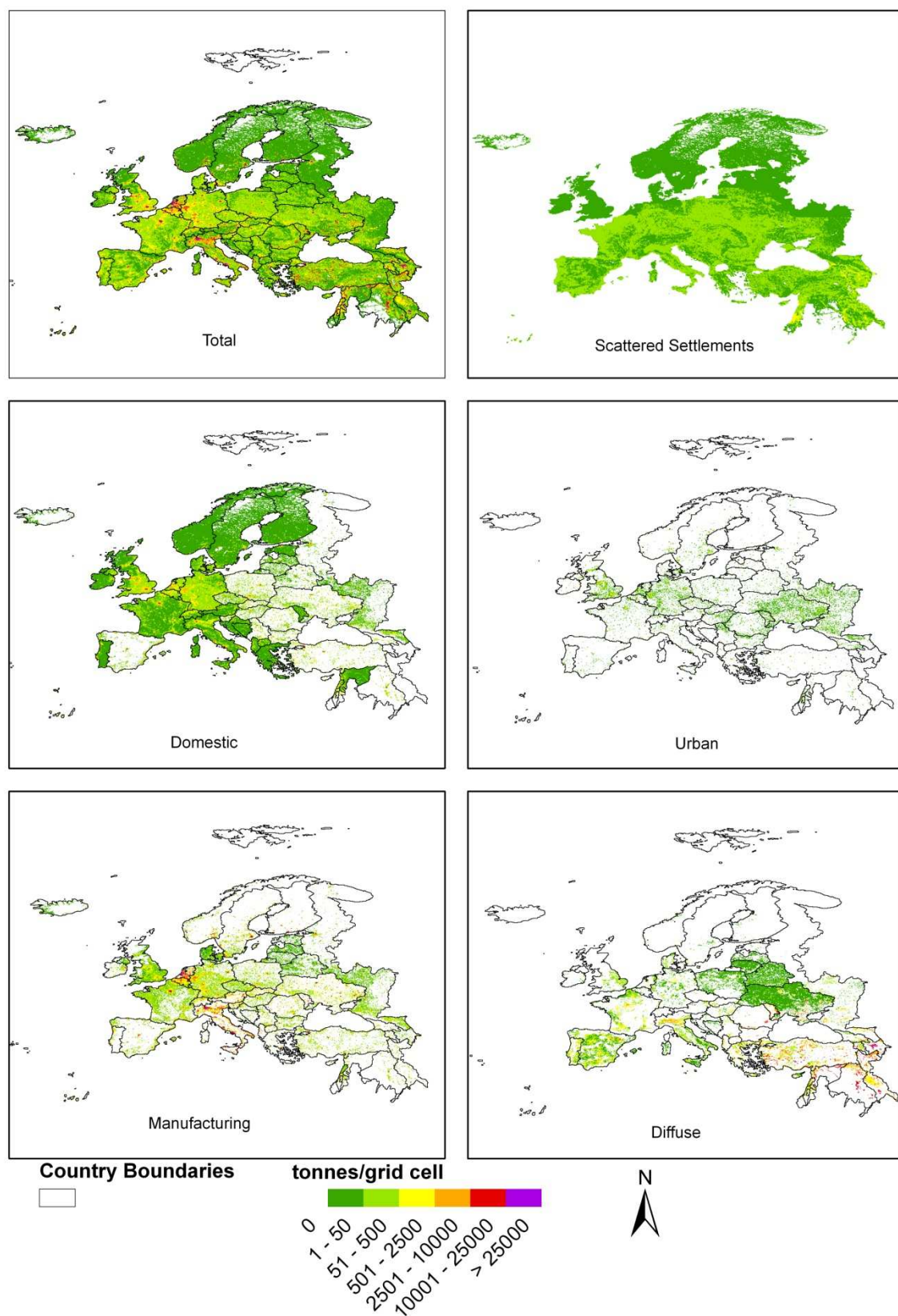


Figure C5 TDS loadings per grid square for all sources in 1995.

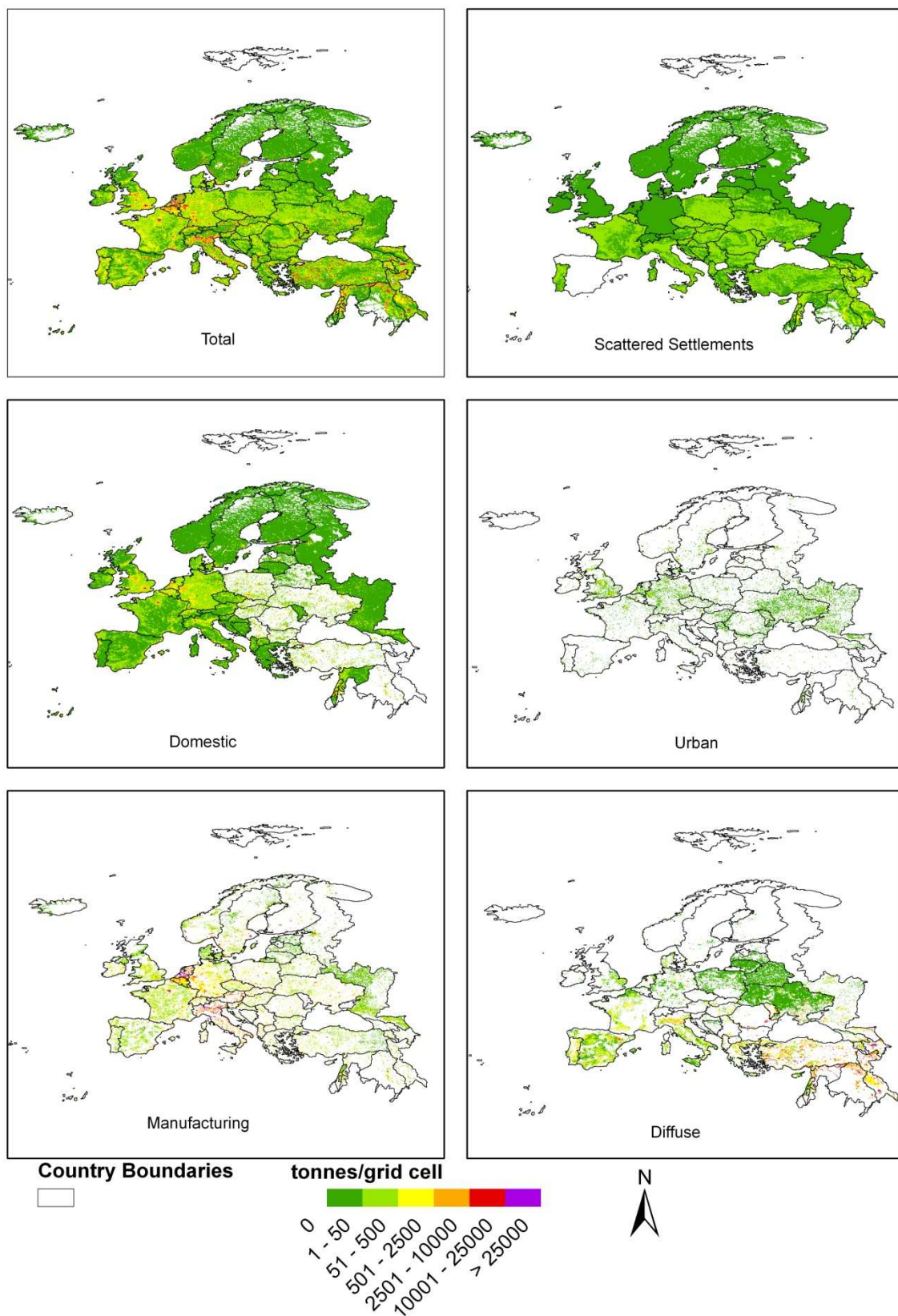


Figure C6 TDS loadings per grid square for all sources in 2000.