E-PRTR Review Report 2010

covering the 2008 E-PRTR dataset

ETC/ACC Technical Paper 2010/05

October 2010

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Front page picture

waste incineration plant "Spittelau" © Umweltbundesamt/Gröger

Acknowledgements

This report was prepared by

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Executive Summary

The European Pollutant Release and Transfer Register (E-PRTR) has been established by Regulation 166/266/EC from 18 January 2006[1]. The register contains key environmental data from about 25,000 industrial facilities in 65 economic activities in 27 European Union Member States and in Iceland, Liechtenstein, Norway and Switzerland from 2007 onwards. Switzerland reported for the first time in 2010 and submitted datasets for 2007 and 2008. The register contains data on 91 pollutants released to air, water and soil and pollutants transferred in water. In addition, both domestic and transboundary waste transfers are included.

This is the report of the second informal E-PRTR data review that was carried out in 2010 and covers the reporting year 2008. It has to be pointed out that the second E-PRTR review does not constitute a formal review as required by Article 17 of the E-PRTR Regulation. While some of the data review checks performed may be useful as an input for the future review in accordance with Article 17, this informal review has not been specifically developed to serve this purpose. The main objective of the informal review organized by the European Environment Agency is to assist countries in the improvement of the E-PRTR data quality by providing feedback on potential data quality issues and inconsistencies with other reportings.

The main objective of this report is to provide a summary of information on the 2010 review process and on the review findings. Detailed results of automated stage 1 test were provided to countries on 30 July 2010 in form of country specific Excel tables and on 1 September in country specific Word files. All review results can be downloaded from CIRCA by authorized users[2] under the following link:
http://eea.eionet.europa.eu/Members/irc/eionet-circle/e-prtr/library?l=/e-prtr/country_feedback/2010_2008_dataset&vm=detailed&sb=Title
The more detailed results of the stage 2 review were provided to the EEA and all countries in form of Excel files.

The informal review was carried out on the dataset which was published on the E-PRTR website on 8 June 2010 and which included the official submissions of countries by 27/05/2010[3] and the resubmissions of the 2007 data (resubmitted by 01/03/2010).

Stage 1 review results

The stage 1 review aimed at providing detailed feedback to countries concerning potential quality issues in order to assist the countries with future data quality improvement of the E-PRTR dataset. The review was carried out on the 2008 dataset due for submission by 31 March 2010. The comparison data from 2007 is the dataset that was resubmitted by countries by 1 March 2010.

[1] http://eur-lex.europa.eu/LexUriServ/site/en/oj/2006/l_033/l_03320060204en00010017.pdf

[2] E-PRTR Regulatory Committee members and E-PRTR data reporters

[3] The dataset can be downloaded at the EEA dataservice: http://www.eea.europa.eu/data-and-maps/data/member-states-reporting-art-7-under-the-european-pollutant-release-and-transfer-register-e-prtr-regulation

Number of facilities

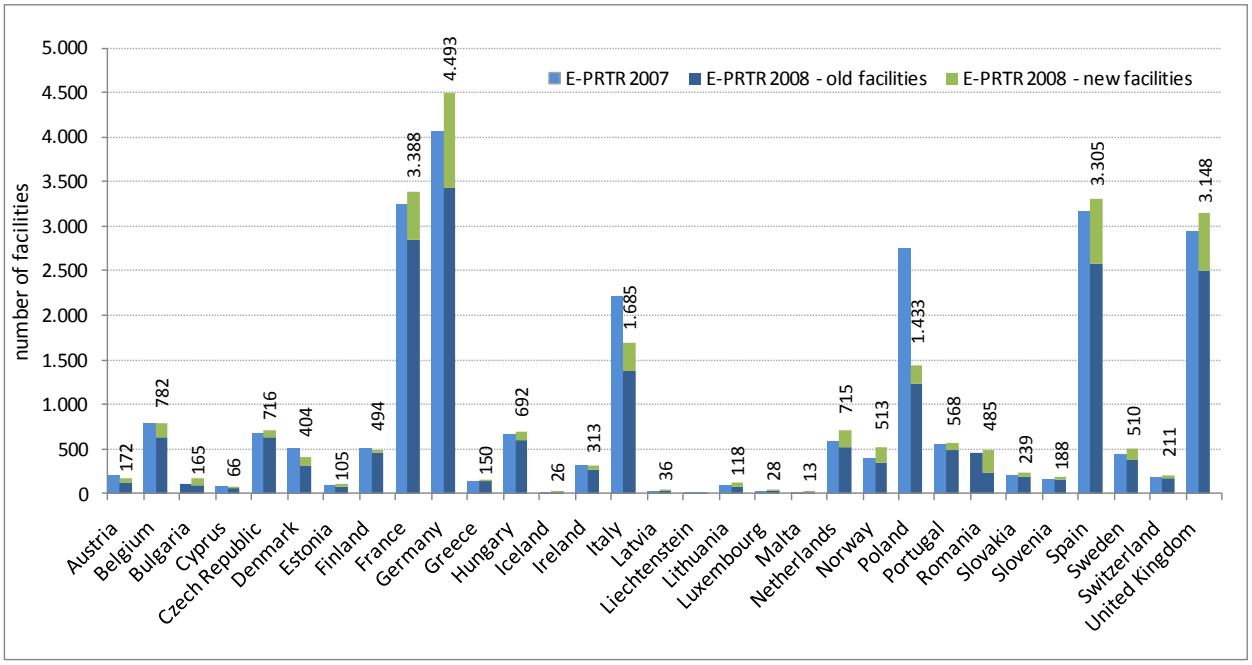
The total number of facilities reported under E-PRTR 2008 amounted to 25,162 (EU-27, Iceland, Liechtenstein, Norway, Switzerland). The total number of facilities reported by these countries in the resubmitted E-PRTR 2007 was slightly higher with 25,608[4] facilities. The reason for this decrease in the number of facilities of about 2 % in 2008 might be that the 2008 dataset is not yet fully complete. The experience from the resubmissions of the 2007 dataset has shown that the number of facilities increased by more than 1,000 facilities after the resubmissions.

Number of release/transfer reports

The total number of release/transfer reports reported under E-PRTR for the media air, water, transfer in water and soil amounted to 39,861 reports in E-PRTR 2008 compared to 38,328 E-PRTR 2007 reports submitted in 2009. This is an increase of about 4 %, which indicates improvement in reporting by countries.

However if we compare E-PRTR 2008 reports with resubmitted 2007 data in 2010 (40,984 release reports) than we see a decrease of about 3 %. The reason for difference in the number of release/transfer reports in 2010 might be that the 2008 dataset is not fully complete as of now and will be improved after the review results have been provided to countries. Another possible reason might be that more releases/transfers lie below the E-PRTR threshold than in 2007 data set.

Number of facilities reported by countries under E-PRTR 2008 and 2007



Note: *Numbers above bars indicate sum of E-PRTR 2008 - old facilities and E-PRTR 2008 - new facilities.*

[4] Total number of facilities reported in 2009 amounted to 24 313 after including Switzerland 24 524. This indicates that reporting under E-PRTR in 2010 slightly improved (3 %) comparing to 2009.

E-PRTR activities

Countries reported information on facilities altogether for 44 out of the 45 E-PRTR activities. In 2008 like in 2007 no facilities reported under activity 3.d "Installations for the production of asbestos and the manufacture of asbestos-based products". For all the subactivities (defined for 7 activities) facilities were reported (voluntary level of detail for reporting). All (31) but seven countries provided information on more than 20 activities. France, Germany, Poland and Spain submitted data for 40 or more activities (Appendix III).

Pollutants

61 pollutants were reported as **releases to air** for 2008 compared to only 54 pollutants in 2007. In general, countries reported between ten and 49 pollutants[5] as releases to air. Most countries (30) reported releases of CO_2, CH_4 and SO_2 , 29 countries of NO_x; 28 countries of NH_3, CO, Ni and NMVOC and 27 countries releases of As, N_2O, PM_{10} and Zn. On the other hand 6 pollutants (hexabromobiphenyl, asbestos, total nitrogen, benzo(g,h,i)perylene, xylenes and HCH) have been reported only by one facility.

All countries except for Liechtenstein submitted **release reports to water**. Releases of altogether 72 pollutants have been reported for 2008 compared to 69 pollutants for 2007. Total nitrogen, total phosphorus, total organic carbon and heavy metals were reported most frequently as releases to water. However releases of NH_3, HCl, SO_x, chlordecone, heptachlor and mirex were submitted only by one country each.

61 out of the 71 pollutants with a threshold for water in Annex II of the E-PRTR Regulation were reported as **transfers in water** for 2008 compared to 53 pollutants for 2007. Most countries (23) reported transfers in water on total nitrogen and total organic carbon followed by reporting of total phosphorus, phenols and heavy metals. Transfers in water of 19 different pollutants have been provided by one or two countries only.

Out of the 61 pollutants with a threshold for **soil** in Annex II of the E-PRTR Regulation only 21 were actually reported under E-PRTR 2008 compared to 20 pollutants under E-PRTR 2007.

There might be different reasons for the limited number of release/transfer reports for some pollutants. Either the E-PRTR threshold is too high or no estimation methodology exists for this pollutant or country data is incomplete (does not include all relevant E-PRTR facilities).

Waste

14,515 facilities reported domestic transfers of hazardous waste, 7,333 facilities reported transfers of non-hazardous waste and 1,234 facilities reported transboundary transfers of hazardous waste. The total quantity of waste reported under E-PRTR 2008 by all countries was about 415 million tonnes. Hazardous waste within country amounted to about 35.5 million tonnes per year (8.6 % of total) and hazardous waste outside country to about 7.9 million tonnes per year (1.9 % of total). The quantity of non-hazardous waste transfers accounted for 371.8 million tonnes per year (89.6 % of total).

[5] Except Liechtenstein which did not report any releases to air.

Confidentiality

Eight countries (Belgium, Bulgaria, Germany, Greece, Luxembourg, Romania, Sweden, Switzerland) reported confidential data elements for 2008. 71 facilities reported confidential data related to the facility report, whereas 110 facilities claimed confidentiality on data related to waste transfer reports.

Accidental releases

19 countries (out of 31) reported accidental releases for 2008 compared to nine countries (out of 30) for 2007. In total, 550 accidental releases of different pollutants for releases to air, water and soil were reported under E-PRTR in 2008. For 2007, the number of accidental release reports was also 550.

Top polluters

The top 5 polluters for releases to air, water and transfer in water and the top 10 polluters for waste transfers are presented in this report. For some pollutants and media, facilities with a very high share in total E-PRTR releases/transfers have been identified in the 2008 data set. Such anomalies might indicate potential inconsistencies and should be checked by countries.

Stage 2 review findings

The purpose of the stage 2 review was to put the data reported under E-PRTR into context with data reported under CLRTAP, UNFCCC and EU ETS and to highlight differences between data reported under different reporting obligations.

Air

Comparison of E-PRTR 2008 with EU ETS 2008

The number of facilities included in EU ETS is about five times higher than the number of facilities reported under E-PRTR but countries' total CO_2 emissions under both reporting obligations are comparable. For most of the countries the share of E-PRTR CO_2 emissions in the ETS CO_2 emissions ranges between 80 % and 97 %. Five countries, however, reported more emissions under E-PRTR than under the EU ETS. One of the potential reasons for this is probably that countries have included emissions from biomass combustion in E-PRTR reporting. Only two countries reported less than 40 % share of E-PRTR emissions.

Comparison of E-PRTR with CLRTAP/UNFCCC national totals

The releases reported under E-PRTR cover only (large) point sources and should not exceed national total emissions reported under CLRTAP or UNFCCC, which include all anthropogenic emissions occurring in the geographical area of the country (large point sources , linear and area sources). If the total E-PRTR emissions exceed CLRTAP/UNFCCC national total emissions (with or without transport) this indicates inconsistent reporting of countries under different reporting obligations.

The figures showing the share of different activities in the E-PRTR total releases reflect the structure of the economies in the individual countries and thus cannot be identical for all countries. The comparison

shows a number of common elements but stage 2 tests also highlighted inconsistencies in reporting under different obligations such as:

a. Twelve countries reported higher releases under E-PRTR 2008 than their national totals reported under CLRTAP (SO_x – Bulgaria; CO – Iceland; CO_2 –Finland, Iceland; HM – Germany, Netherlands, Portugal; HCB – Belgium, Germany; PCDD/PCDF – Denmark, Iceland, Poland, Portugal, Switzerland; PCBs – Italy; PAHs – Norway, Portugal, Iceland). In a number of cases the difference is bigger than 200 %.
b. Five countries reported higher emissions under E-PRTR 2008 than their national totals reported under UNFCCC (PFCs – Belgium, Greece, Norway, Sweden, UK).
c. Eleven countries[6], two more than in 2007, did not report emissions to air under CLRTAP 2008 (at least one pollutant) while reporting such emissions under E-PRTR 2008.

Comparison of E-PRTR with CLRTAP/UNFCCC on the activity level

The comparison of sectoral data has limitations because of the differences between the reporting obligations under E-PRTR, CLRTAP, UNFCCC and EU ETS. It has to be noted that a) not all E-PRTR pollutants are reported under CLRTAP/UNFCCC b) a significant share of E-PRTR in CLRTAP/UNFCCC emissions was observed only in the aggregated sectors A (energy, manufacturing industries and waste incineration) and C (agriculture) and only for some pollutants.

2008 data are rather comparable to 2007 data. It is a positive development that some inconsistencies identified in the 2007 datasets do not occur anymore; nevertheless some new anomalies have been identified in 2008.

SO_2, NO_x, PM_{10} and CO_2 E-PRTR emissions are occurring mainly in *Energy* followed by *Production of metals* and *Mineral industry*. Countries reported the highest share of **NMVOC** emissions from *Other activities*, *Energy* and *Chemical Industry.* **NH_3** emissions are reported mainly from *Livestock production and aquaculture* and *Chemical Industry* with the exception of Austria and Switzerland reporting a significant share of NH_3 emissions from *Mineral Industry* and Sweden from *Paper and wood production*.

Detailed comparisons on the sectoral level showed that in some cases releases were reported for an E-PRTR activity (e.g. Energy and heat production) but no emissions were reported under the corresponding CLRTAP category (in this case 1A1a).

PCDD/PCDF

Reporting of PCDD/PCFD under E-PRTR 2008 is extremely inconsistent between countries. Five countries have a share of E-PRTR emissions in the national total reported under CLRTAP far above 100 %, while most other countries have a share below 50 %. In total 212 release reports have been submitted in 2008.

PCDD/PCDF emissions derive from combustion processes. The highest emission factors are reported for combustion of solid fuels. The most relevant E-PRTR activities that involve releases of PCDD/PCFD are *Production of metals* followed by *Waste management* and *Energy.*

[6] Austria, Belgium, Denmark, France, Hungary, Iceland, Norway, Slovenia, Spain, Switzerland, and United Kingdom

Heavy metals

Reporting of heavy metals (HMs) under E-PRTR seems to be relatively frequent compared to other pollutants. Between 21 and 28 countries reported individual heavy metals in 2008. Reporting of HM under E-PRTR seems to be even more complete than reporting of HM under the CLRTAP. Germany (Hg), Malta and Portugal (Zn) reported significantly higher emissions under the E-PRTR than national totals under CLRTAP, this indicates either incomplete reporting under CLRTAP or errors in the E-PRTR data.

The magnitude of HM emissions in E-PRTR 2008 significantly differs among countries. Reported data indicate that (large) point sources produce in general between 25 % and 85% of national total HM emissions. In some cases the share of E-PRTR HM emissions on national totals is more than 90 %.

Waste

The stage 2 review of the E-PRTR dataset for 2008 has been constrained by the fact that other relevant EU data were not available at the time for the review was conducted. Therefore, the stage 2 review mainly comprises a comparison between the E-PRTR data for 2008 and 2007, as well as a number of checks regarding waste incineration plants and landfills.

Comparison of the E-PRTR 2008 data with the 2007 data

The comparison shows that Bulgaria, Denmark, Malta, Slovenia and Spain have, for domestic transfers of hazardous waste, percentage changes larger than +/-50 %. For transboundary transfers of hazardous waste Bulgaria, Cyprus, the Czech Republic, Greece, Hungary, Iceland, Italy, Latvia, Luxembourg, the Netherlands, Portugal, Romania, Spain and Switzerland have changes larger than +/-50 %. For non-hazardous waste Austria, Cyprus, France, Hungary, Iceland, Latvia, Lithuania, the Netherlands, Norway, Portugal, Spain and Switzerland have changes larger than +/- 50 %. These large changes in percentage values might indicate reporting errors in the indicated countries' reporting, particularly where the changes in percentage values are related to reasonable high amounts.

The amount of waste reported under most of the included E-PRTR activities has also undergone large percentage changes between 2007 and 2008. Out of the 44 E-PRTR activities included in the review, 33 reported percentage changes larger than +/-50 % for domestic or transboundary transfer of hazardous waste or transfer of non-hazardous waste.

A large change in the distribution between disposal and recovery (e.g. the majority of the waste suddenly goes for disposal in 2008 when in 2007 it was recovered), might also indicate a reporting error for one of the reporting years. 167 facilities have reported a change in distribution of non-hazardous waste between disposal and recovery of more than 50 percentage points and more than 5,000 tonnes. 199 facilities have reported a change in distribution of hazardous waste between disposal and recovery of more than 50 percentage points and more than 1,000 tonnes.

Comparison of E-PRTR data with other sources and estimates

The number of incineration plants of non-hazardous waste reporting to the E-PRTR has been compared with similar information from the International Solid Waste Association (ISWA). The E-PRTR includes 356 incineration plants and ISWA 377. The net difference of 21 hides a larger gross difference, because not all facilities reported according to the E-PRTR legislation are included in the ISWA survey and vice versa.

The number of incineration plants reporting CO_2 emissions from waste incineration plants has been compared with CO_2 emissions based on ISWA data. Under the E-PRTR only 123 plants reported CO_2 emissions, whereas the ISWA survey includes 230 municipal non-hazardous waste incineration plants with a capacity comparable to the threshold CO_2 emission value stipulated by the E-PRTR. This indicates that a significant number of incineration plants that one would expect to report CO_2 emissions under the E-PRTR are not doing so. This assessment is supported by another check; using the reported amounts of waste transfers from incineration plants according the E-PRTR to estimate how many incinerations plants can be expected to report CO_2 emissions. The calculation shows that 180 incineration plants should have reported.

All incineration plants generate hazardous waste from flue gas cleaning. However, 18 incineration plants have not reported any transfer of hazardous waste.

There is an indication that leachate from landfills has been reported as waste water transfer (reported as pollutant transfer in water) instead of waste transfer. 74 landfills have reported only waste water transfer and no waste transfer.

Water

Quality assurance tests were carried out, with the main focus to detect potentially missing urban waste water treatment plants and inconsistencies between reported UWWTPs in E-PRTR and UWWT Directive dataset.

Detailed analysis of urban waste water treatment plants for cities with more then 500.000 inhabitants

Detailed analysis of UWWTPs in big cities dealt with the number of reported plants in E-PRTR and UWWT Directive datasets in cities with more than 500,000 inhabitants. The results indicated that a number of UWWTPs could potentially be missing from the E-PRTR dataset for 9 out of the 18 countries covered by the analysis. Other countries either have no cities > 500.000 inhabitants according to the Urban Audit in the Large City Audit project or they did not report under the UWWT Directive or information about capacity in the UWWTD dataset was missing.

Identification of corresponding urban waste water treatment plants from E-PRTR and UWWT Directive datasets including comparison of nutrient release data

The comparison of UWWTPs reported to E-PRTR and UWWTD showed that approx. 42 % facilities with capacity > 100.000 p.e. reported under the UWWTD are not included in E-PRTR. Reasons for this low percentage could be that a number of the plants covered by the UWWT Directive have only releases below the pollutant thresholds. This could be due to actual entering loads being below the capacity and/or treatment efficiencies being higher than the European average.

For a number of countries there are clear indications that the data reported under the E-PRTR Regulation and the UWWT Directive are inconsistent. The highest inconsistencies can be found in the United Kingdom (no UWWTP reported under the UWWT Directive although it is covered by the reporting obligation) and Italy (for which no WWTP are reported under E-PRTR for certain regions).

To obtain a more accurate view, the results were put into context with nutrient release values reported by twelve countries into the UWWTD dataset. This showed that a large share of potentially missing facilities in Germany and Denmark and some facilities in Poland have nitrogen and phosphorus releases

below the E-PRTR reporting thresholds. However, as reporting of nutrient releases is voluntary under the UWWTD, most countries have not provided the data and could therefore not be included into the analysis.

Comparison of E-PRTR total emission load with emissions reported under State of Environment (SoE) emissions reporting

The comparison of the E-PRTR and the SoE dataset focused on total emission load of total nitrogen, total phosphorus and total organic carbon (TOC) on river basin district level.

Reported industrial releases of nitrogen and phosphorus showed to be significantly higher under E-PRTR for a number of RBD in Belgium, France, Switzerland and Lithuania. Also when looking at releases from all sources, a number of countries (Belgium, Bulgaria, France, Iceland and Switzerland) have significantly higher releases under E-PRTR compared to SoE reporting.

TOC releases were compared for the 4 countries which reported TOC under the SoE reporting. The comparison showed a high inconsistency for nearly all the RBDs in Belgium, France and Switzerland. For Austria the data reported under E-PRTR and SoE appear to be consistent.

Identification of potentially missing pollutants in the reported E-PRTR releases to water for urban waste water treatment plants

E-PRTR covers only urban waste water treatment plants (UWWTPs) with a capacity higher than 100.000 p.e. When using average EU treatment efficiencies for N, P and TOC; the total release on an annual basis of those pollutants will exceed the E-PRTR reporting thresholds if operating with an entering load of at least 100.000 p.e. and if the UWWTP does not have a significantly higher treatment efficiency than average efficiencies across Europe.

The evaluation shows that 21%, 30% and 26% of the UWWTP have not reported N, P and TOC releases, respectively. This is an indication of a potential under reporting of these pollutants.

A further assessment on country level is necessary since no information is available in the E-PRTR reporting on effective treatment efficiency and entering load (compared to the capacity).

Comparison of IDs reported in the UWWT Directive dataset with the reported E-PRTR IDs

The UWWT directive reporting allows for the reporting of the E-PRTR IDs on national level (voluntary reporting). For the 4 countries which used this option, the IDs where compared with the national IDs reported under E-PRTR. For three countries (Portugal, Romania and Slovenia) the reported IDs were shownto be helpful in the comparison of both datasets. The IDs could be used to confirm the outputs from the geographical analysis.

For Austria the IDs reported in the UWWT Directive reporting did not correspond to the IDs in the E-PRTR reporting.

Content

A Introduction

A.1 Background and objectives

A.1.1 Regulation

According to Regulation (EC) No 166/2006 concerning the establishment of a European Pollutant Release and Transfer Register[7] operators that undertake one or more activities specified in Annex I of the regulation above the capacity threshold have to report their releases to air, water, land, off-site transfers of waste and of pollutants in waste water if these releases and transfers exceed the thresholds specified in Annex II of the Regulation. Member States are obliged to submit this data to the European Commission. E-PRTR is an annual reporting obligation, 2008 was the second reporting year. As requested by Article 14 of Regulation the European Commission drew up a Guidance Document[8], which supports the implementation of the E-PRTR by addressing among other things the coding of activities, reporting procedures and the data to be reported. The full dataset is published on the E-PRTR website http://prtr.ec.europa.eu/.

The European PRTR (E-PRTR) implements at EU level the UNECE PRTR Protocol[9], which was signed by the European Community and 23 Member States in May 2003 in Kiev and which is a Protocol to the Aarhus Convention[10]. The E-PRTR succeeds the European Pollutant Emission Register (EPER[11]), under which data were reported for the years 2001[12] and 2004.

A.1.2 Data review

Article 17 of the E-PRTR Regulation[7] stipulates that the Commission shall review the data provided by Member States. However, the 2010 review of E-PRTR data from 2008 is not such a formal review as required by Article 17. While some of the data review checks performed may be useful as an input for the future review in accordance with Article 17 this informal review has not been specifically developed to serve this purpose. The main objective of the informal review organized by the European Environment Agency is to assist countries in the improvement of the E-PRTR data quality by providing feedback on potential data quality issues and inconsistencies with other reportings.

EEA has commissioned three of its European topic centers (ETC/ACC[13], ETC/SCP[14] and ETC/W[15]) with checking the E-PRTR data. The review was split up into stage 1 and stage 2. The stage 1 review was

[7] http://eur-lex.europa.eu/LexUriServ/site/en/oj/2006/l_033/l_03320060204en00010017.pdf

[8] http://prtr.ec.europa.eu/pgDownloadGuidance.aspx

[9] UNECE Pollutant Release and Transfer Register (PRTR) Protocol http://www.unece.org/env/pp/prtr.htm

[10] UNECE Convention on Access to Information, Public Participation in Decision-making and Access to Justice in Environmental Matters, Aarhus 1998, http://www.unece.org/env/pp/.

[11] OJ L 192, 28.7.2000, p. 36

[12] Data could, alternatively, be reported for 2000 or 2002 under EPER instead of for 2001.

[13] European Topic Centre on Air and Climate Change (ETC/ACC), http://air-climate.eionet.europa.eu/

[14] European Topic Centre on Sustainable Consumption and Production (ETC/SCP), http://scp.eionet.europa.eu/

[15] European Topic Centre on Water (ETC/W), http://water.eionet.europa.eu/

carried out by ETC/ACC for all media. For stage 2, ETC/ACC carried out the review of releases to air, whereas ETC/W and ETC/SCP reviewed releases to water and transfers of waste, respectively.

As indicated above, the main objective of the 2010 review performed by ETC ACC, ETC/W and ETC/SCP has been to improve E-PRTR data quality by providing feedback to the countries on their data submitted under E-PRTR. The E-PRTR data have been reviewed in two stages:

The **stage 1 review** aimed at providing detailed feedback to countries concerning the quality of the E-PRTR data reported. The checks cover an evaluation of the number of facilities and release reports, quantities of releases and transfers reported, confidentiality claims, accidental releases, etc.

The purpose of the **stage 2 review** was to put the data reported under E-PRTR into context with data reported under other official or voluntary reporting, and to highlight differences between data reported under different reporting obligations. The review covered the releases of pollutants to air and water as well as the waste transfers. The data used for the comparisons are the following:

- Stage 2 review covering the releases to air: data reported under CLRTAP, UNFCCC and EU ETS[16]
- Stage 2 review covering the releases to waste: data on transboundary shipments of waste and The ISWA study 'Energy from Waste. State-of-the-Art-Report' of 2006.
- Stage 2 review covering the releases to water: data reported under the UWWTP Directive reporting and the State of Environment (SoE) reporting.

It has to be pointed out that the stage 1 and 2 review can highlight potential inconsistencies and anomalies in reported data, but cannot check whether the data that have been submitted by the countries are correct or not. It is the responsibility of the country to check highlighted issues and improve submissions where needed.

The main objective of this report is to provide summary information on the review process and the review findings. Within the review process the following feedback was provided to the countries:

Excel sheets with pre-defined country-specific queries[17]

Country-specific feedback reports covering the stage 1 and stage 2 review[18]

Excel sheets and maps covering stage 2 checks for releases to air and water[19]

All the results can be downloaded from the Eionet CIRCA website by using the Eionet username.

[16] CLRTAP and UNFCCC inventories used for comparisons are the ones reported to EEA via CDR. EU ETS data are downloaded from the Community Independent Transaction Log (CITL).

[17] Published on 30 July on the Eionet CIRCA website at: http://eea.eionet.europa.eu/Members/irc/eionet-circle/e-prtr/library?l=/e-prtr/country_feedback/2010_2008_dataset/stage_stage_august_2010/e-prtr_stage1_uploaded&vm=detailed&sb=Title

[18] Published on 1 September on Eionet CIRCA website at: http://eea.eionet.europa.eu/Members/irc/eionet-circle/e-prtr/library?l=/e-prtr/country_feedback/2010_2008_dataset/stage_stage_august_2010/country-specific&vm=detailed&sb=Title

[19] Published on 1 September on Eionet CIRCA website at:http://eea.eionet.europa.eu/Members/irc/eionet-circle/e-prtr/library?l=/e-prtr/country_feedback/2010_2008_dataset/stage_stage_august_2010/e-prtr_stage_files&vm=detailed&sb=Title

A.2 Background and objectives

A.2.1 Dataset

The informal review was carried out on the dataset which was published on the E-PRTR website on 8 June 2010 and which included the official submissions of countries by 27/05/2010[20] and the resubmissions of the 2007 data (resubmitted by 01/03/2010).

A.2.2 Countries covered

The 2010 informal E-PRTR data review involved in total 31 countries compared to 30 countries in the 2009 review. Switzerland reported for the first time to E-PRTR in 2010, delivering data for 2007 and 2008 and was thus not covered in the 2009 E-PRTR review.

E-PRTR 2007 and 2008 includes now data from 31 countries; the EU-27 (Austria, Belgium, Bulgaria, Cyprus, Czech Republic, Denmark, Estonia, Finland, France, Germany, Greece, Hungary, Ireland, Italy, Latvia, Lithuania, Luxembourg, Malta, the Netherlands, Poland, Portugal, Romania, Slovakia, Slovenia, Spain, Sweden and the United Kingdom) plus Norway, Iceland, Liechtenstein and Switzerland.

A.2.3 Pollutants and waste included in E-PRTR reporting

The E-PRTR Regulation (No 166/2006/EC)[21], lists 91 pollutants in its Annex II; 59 of these concern emissions to air, 71 emissions to water and 61 emissions to soil. For each of these pollutants threshold values are defined. If a facility exceeds these threshold values, the release/transfer has to be reported. The pollutants are grouped as following:

chlorinated organic substances

greenhouse gases

heavy metals

inorganic substances

other gases

other organic substances

pesticides

For the full list of the E-PRTR pollutants including the respective thresholds see Appendix I of this report.

The reporting of carbon dioxide (CO_2) under E-PRTR requires the reporting of the total mass of CO_2 which indicates that CO_2 including releases from biomass have to be reported. In addition, countries have been given the possibility to report on a voluntary basis (not included in Annex II of the E-PRTR Regulation) CO_2 excluding biomass.

Facilities are required to report on off-side transfers of waste under the E-PRTR Regulation, when the total transfers of hazardous waste exceed two tonnes or the total transfer of non hazardous waste exceeds 2,000 tonnes.

[20] The dataset can be downloaded at the EEA data service: http://www.eea.europa.eu/data-and-maps/data/member-states-reporting-art-7-under-the-european-pollutant-release-and-transfer-register-e-prtr-regulation

[21] http://eur-lex.europa.eu/LexUriServ/site/en/oj/2006/l_033/l_03320060204en00010017.pdf

A.2.4 Activities included in E-PRTR reporting

E-PRTR includes 65 activities listed in Annex I of the PRTR Regulation[21]. An operator of a facility that undertakes one or more activities specified in Annex I of the Regulation above the capacity thresholds shall report the amounts annually. All releases occurring in individual facilities are recorded under the main activity. Other activities appearing in the facility are provided as additional information. For a full list of E-PRTR activities and thresholds see 'APPENDIX II- List of E-PRTR ANNEX I Activities' of this document.

A.3 Constraints on the Review

The stage 1 E-PRTR data review carried out in 2010 has been subject to the following constraints:

Incompleteness of the E-PRTR dataset

Some data were not imported in the E-PRTR register due to technical issues related to the data format, confidentiality claims or delays in data collection, validation and compilation. This has an effect on the completeness of the E-PRTR 2008 dataset and thus influences the results of the review. For the E-PRTR dataset of 8th June 2010, the Commission has received a list of facilities for which the reported data are incomplete from Germany and Italy[22].

Large number of pollutants and activities

Based on the large number of pollutants (91) and (sub-) activities (65) under E-PRTR it is difficult to follow up all findings highlighted by the automated tests because all pollutants would have to be selected and analyzed individually. The priority for air emissions has thus been given to the NECD pollutants, CO_2 and PM_{10}. Compared to 2009 review report in this report a few comparisons have been also performed for HMs and PCDD/PCDF. The priority for water releases has been given to heavy metals, total nitrogen, total phosphorus and total organic carbon.

[22] The overview is available on the Eionet CCIRCA website at: http://eea.eionet.europa.eu/Members/irc/eionet-circle/e-prtr/library?l=/e-prtr/country_feedback/2010_2008_dataset/stage_stage_august_2010/incompleteness_e-prtr/facilities_germanypdf/_EN_1.0_&a=d

B Results of Stage 1 Review

In this chapter selected findings of the stage 1 review are presented. Since there are 91 pollutants covered under E-PRTR not all findings from the stage 1 review at a pollutant level can be included in this report. Information on total E-PRTR releases/transfers in (kg/year) per pollutant and media in individual countries and regions can be found in the Excel files that were provided to the countries[23].

The presented figures for 2007 vary from those included in the E-PRTR Review report 2009 for two reasons. Firstly, data from Switzerland are included already from 2007 onwards and secondly E-PRTR countries have resubmitted their datasets for 2007 in the meantime and corrected data anomalies that were identified in last year's E-PRTR review.

B.1 Number of facilities/releases

A facility refers to one or more installations on the same site that are operated by the same natural or legal person. A pollutant release/transfer report is defined as a release or transfer reported for a specific pollutant by a specific facility in a specific year. For example facility 'A' reports in 2008 releases to air for CO_2, SO_2, NO_x and Cd. This means that it reports four pollutants, which equals four release reports for facility 'A' in 2008.

Figure B.1 shows the number of facilities reported by country for E-PRTR 2008 in comparison to E-PRTR 2007. The graph also illustrates the number of new facilities and the number of facilities that had already reported in previous reporting years.

A comparison of the number of facilities between years might serve as an indicator of completeness of reported data. The following issues can be observed:

The total number of facilities under E-PRTR 2008 amounted to 25,162 (EU-27, Iceland, Liechtenstein, Norway, Switzerland) compared to 25,608 facilities reported for 2007 resubmitted in 2010 (this would represent a decrease in the number of facilities of about 2 %). However, the total number of E-PRTR 2007 facilities initially reported in 2009 amounted to only 24 313 (including Switzerland the number would be 24,524). This indicates that, comparing the initial data sets, reporting under E-PRTR slightly improved (3 %) in 2010.

The situation in individual countries differs; seven countries reported fewer facilities in 2008 than in 2007, two countries reported the same number and 20 countries reported more facilities in 2008 than in 2007. The overall number of facilities has declined because the decrease in the number of facilities reported by the first group of countries is quite significant, e.g. 48 % in Poland and 24 % in Italy.

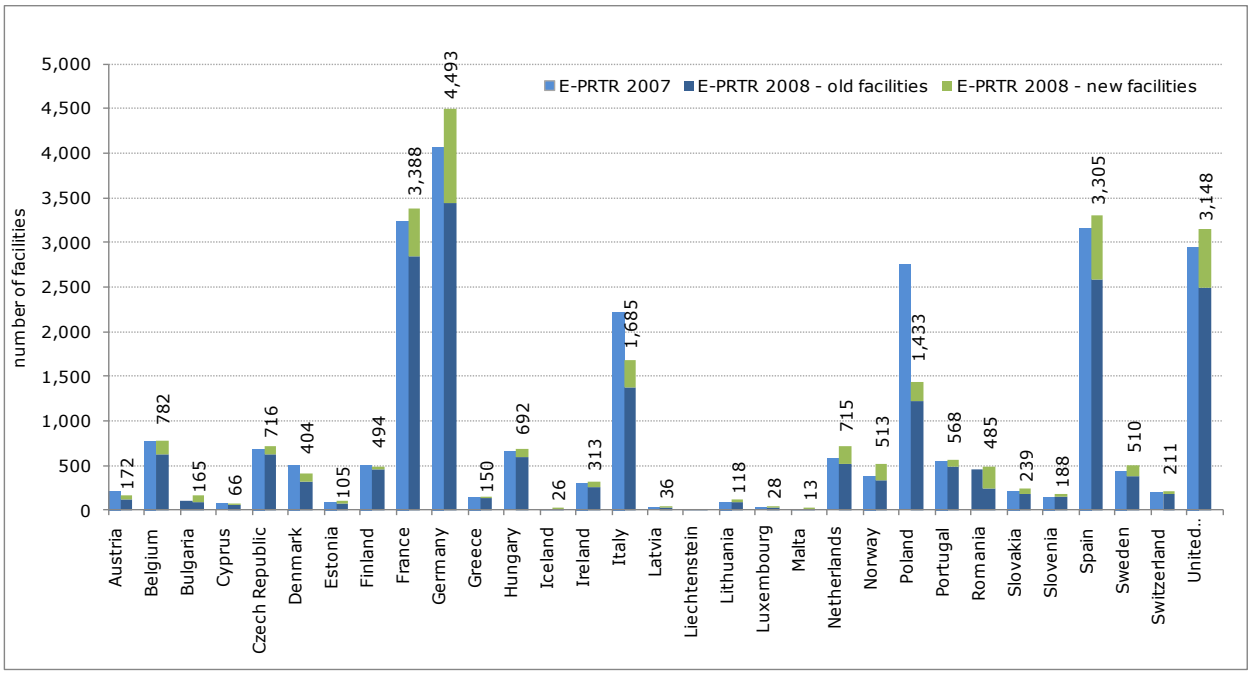
About 22 % of the facilities that were included under E-PRTR 2007 are not included anymore under E-PRTR 2008. The highest number of facilities disappeared in Poland with 1,528 facilities.

About 21 % of the facilities reporting in 2008 were reported as new compared to E-PRTR 2007.

[23] Published on 30 July on the Eionet CIRCA website at: http://eea.eionet.europa.eu/Members/irc/eionet-circle/e-prtr/library?l=/e-prtr/country_feedback/2010_2008_dataset/stage_stage_august_2010/e-prtr_stage1_uploaded&vm=detailed&sb=Title

B.1.1 Number of facilities

Figure B.1 Number of facilities reported by countries under E-PRTR 2007 and 2008



Note: *Numbers above bars indicate sum of E-PRTR 2008 - old facilities and E-PRTR 2008 - new facilities.*

Figure B.2 illustrates total changes in the number of facilities at the activity level. The following issues can be observed in relation to the number of facilities at activity level:

The number of facilities decreased for the activity groups *1. Energy sector, 3. Mineral industry, 4. Chemical industry, 5. Waste and wastewater management, 6. Paper and wood production and processing and 7. Intensive livestock production and aquaculture*.

The most *significant decline* in the number of facilities can be observed for the *mineral industry* sector with - 412 facilities in 2008 (a decrease of 17 %). The high decline in number of facilities for the mineral industry sector is mainly due to the decrease of facilities in Poland from 611 to 211 between 2007 and 2008.

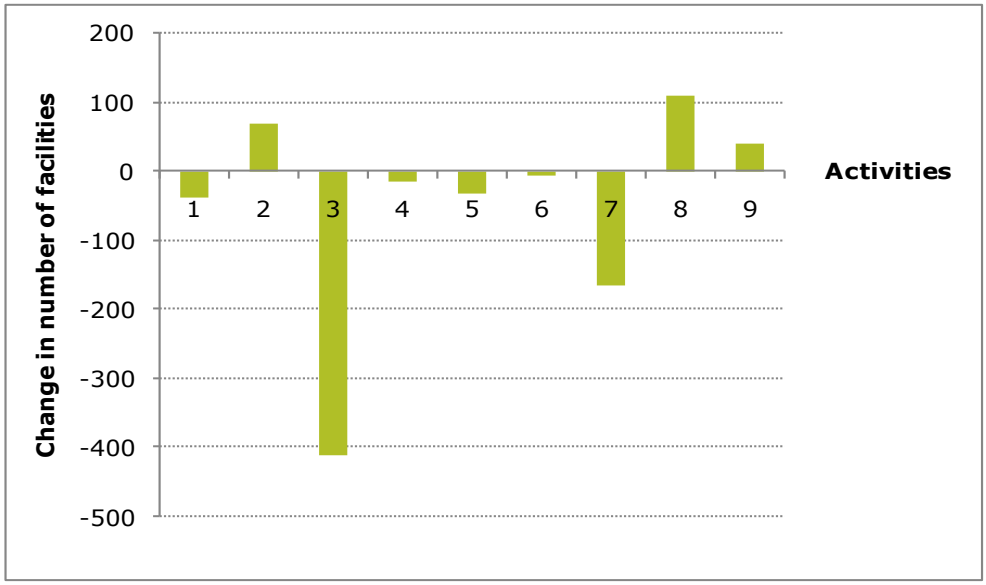
On the other hand, the number of facilities *increased* under the activity groups 2. Production and processing of metals, *8. Animal and vegetable products from the food and beverage* sector and *9. Other activities*.

A detailed table of the number of facilities that reported per country and per activity is included in **APPENDIX III**[24] of this report. Countries reported information on facilities altogether for 44 E-PRTR activities. All but seven countries provided information on more than 20 activities, out of which France, Germany, Poland and Spain submitted data for 40 or more activities (Appendix III). The highest number

[24] Information on number of facilities per country as reported in 2007 and 2008 is provided in separate excel file and can be downloaded at: http://eea.eionet.europa.eu/Members/irc/eionet-circle/e-prtr/library?l=/e-prtr/country_feedback/2010_2008_dataset/stage_stage_august_2010/e-prtr_stage_files/stage_air_data_file&vm=detailed&sb=Title

of countries (28 or more) reported facilities in *activities 1(c), 2 (e), 3(c), 4(a), 5(d) and 5(f*). On the other hand, less than five countries submitted data for *activity 1(b), 1(e) and 1(f*).

Figure B.2 Change in number of facilities per activity group between E-PRTR 2008 and 2007



Activities:

1 – Energy
2 – Production and processing of metals
3 – Mineral industry
4 – Chemical industry
5 – Waste and wastewater management
6 – Paper and wood production and processing
7 – Intensive livestock production and aquaculture
8 – Animal and vegetable products from the food and beverage sector
9 – Other activities

Another interesting finding concerning the number of facilities is that eight countries reported in total 433 facilities for 2008 without any release/transfer report attached to them (Table B.1). In 2007, the number of facilities without any release/transfer report attached to them was even higher with 1,530 facilities mostly reported by Poland. The reasons for this can be either that the facility actually did not report any release/transfer report or that the facility reported releases below the threshold. Only in the first case facilities without any release/transfer report attached to them are an issue that should be checked by countries because those facilities should not have been reported to E-PRTR.[25] Table illustrates the number of facilities without any release/transfer report attached to them by E-PRTR country.

[25] Since the E-PRTR review is carried out on the public E-PRTR database, which does not include releases/transfers below the threshold, it is not possible for the ETC/ACC to distinguish between facilities without any release/transfer report and facilities with releases/transfers below the threshold.

Table B.1 Number of facilities without any release/transfer report per country

Country	No of facilities without release/transfer report 2007	% of total no of facilities in 2007	No of facilities without release/transfer report 2008	% of total no of facilities in 2008
Hungary			1	0.1%
Iceland			4	15.4%
Netherlands			1	0.1%
Norway	15	3.9%	130	25.3%
Poland	1,510	54.8%	145	10.1%
Slovenia			10	5.3%
Switzerland	5	2.6%	7	3.3%
United Kingdom			134	4.3%
Total	1,530	6.0%	433	1.7%

B.1.2 Number of facilities reporting waste transfers

Figure B.3 Number of facilities reporting waste under E-PRTR 2008

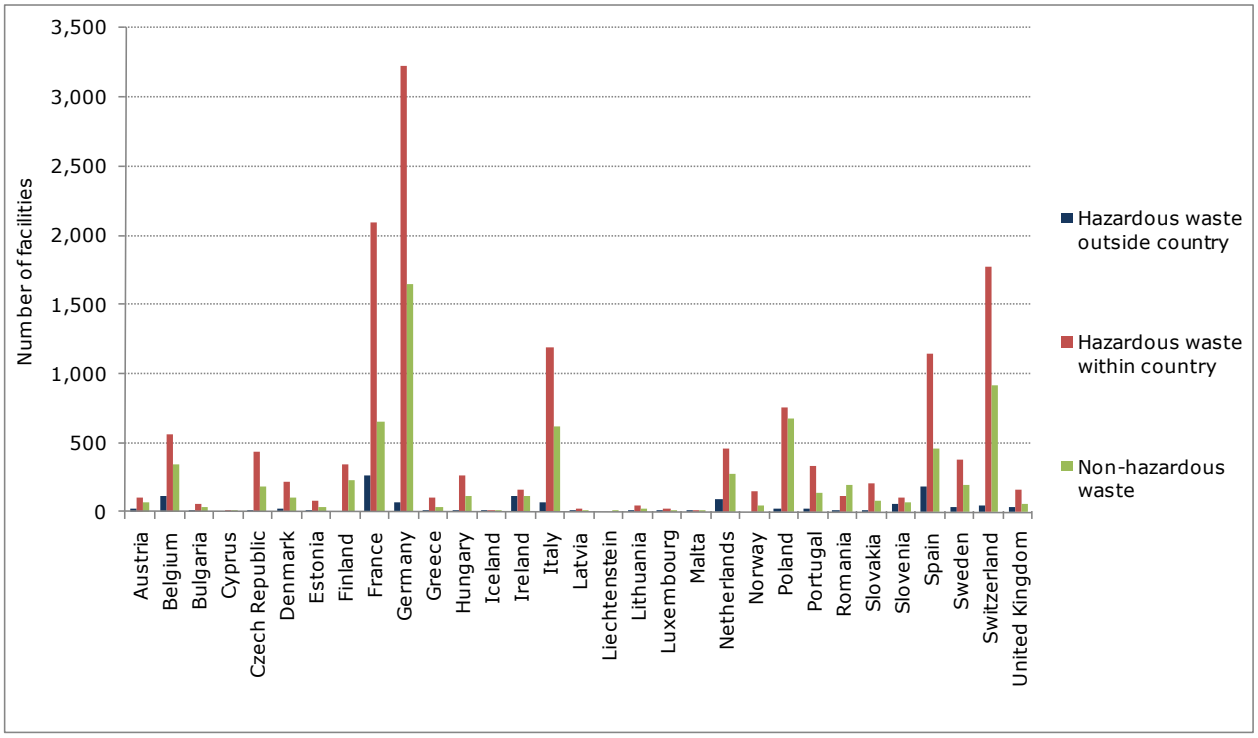
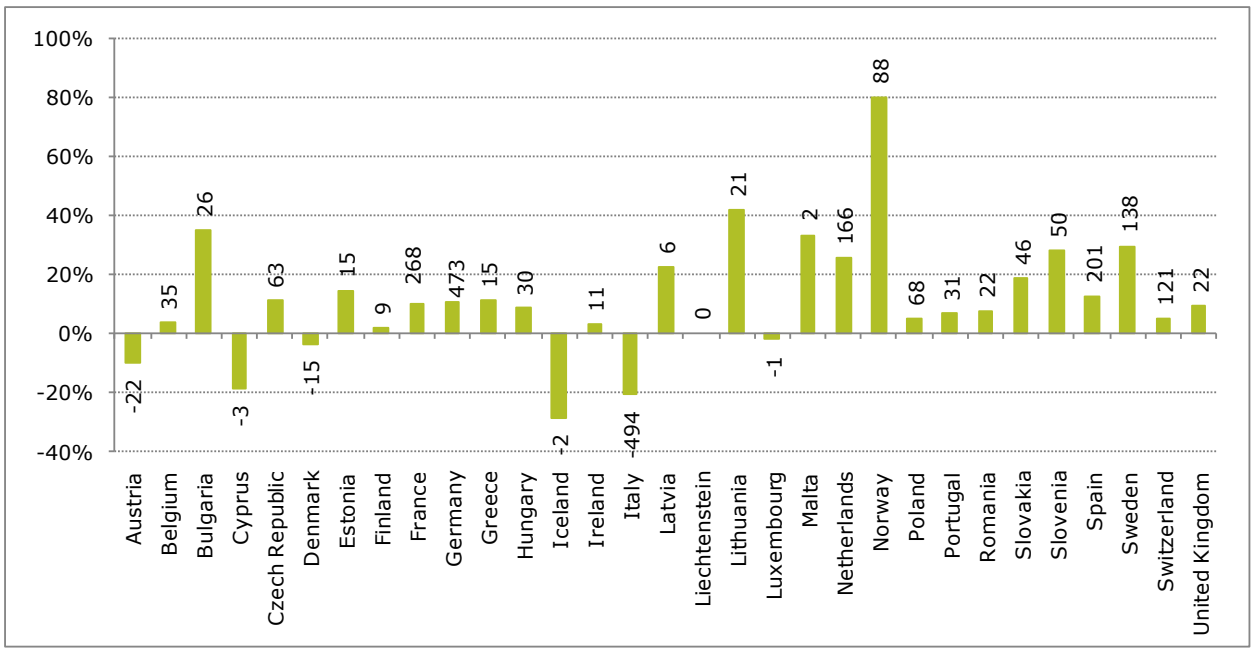


Figure B.3 presents the number of facilities reporting waste per country under E-PRTR 2008. The waste types are non-hazardous waste, hazardous waste within country and hazardous waste outside country. In total, 14,515 facilities reported transfers of hazardous waste within country, 7,333 facilities reported transfers of non-hazardous waste and only 1,234 facilities reported transfers of hazardous waste outside country.

The number of facilities reporting waste has changed considerably for some countries. For example, in Norway the number of facilities reporting waste increased by 80 % between 2007 and 2008. Figure B.4 illustrates the change in the number of facilities reporting waste between 2007 and 2008 for all countries. In most countries the changes are in the range of +/- 20 %. However, in 10 E-PRTR countries changes are higher.

Figure B.4 Change in number of facilities reporting waste between 2007 and 2008



Note: *The bars indicate the relative change in the number of facilities whereas the numbers attached to the bars indicate the absolute change in number of facilities reporting waste between 2007 and 2008.*

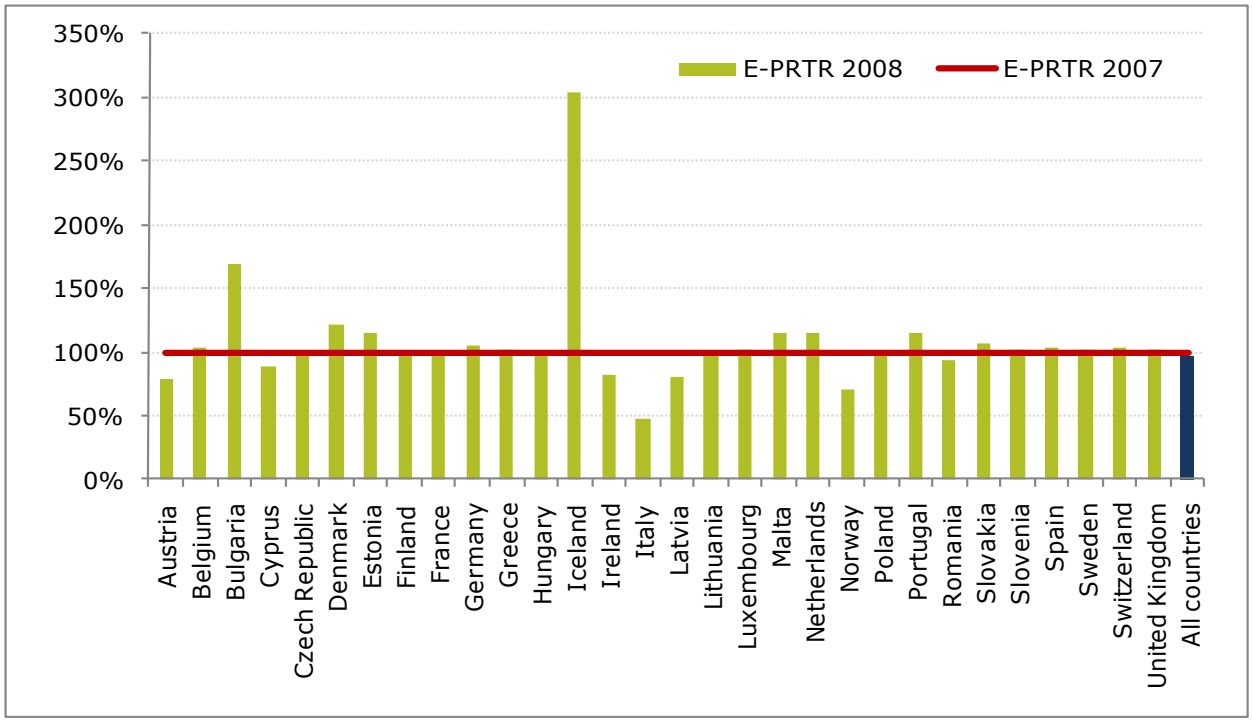
B.1.3 Number of release/transfer reports

The total number of release/transfer reports reported under E-PRTR for the media air, water, transfer in water and soil amounted to 39,861 reports in E-PRTR 2008 compared to 38,328 E-PRTR 2007 reports submitted in 2009. This is an increase of about 4 %, which indicates improvement in reporting by

Comparing E-PRTR 2008 reports with resubmitted 2007 data in 2010 (40,984 release reports), however, a decrease of about 3 % can be seen. Possible reasons for the difference in the number of release/transfer reports in 2010 are a potential lower level of completeness of the reporting in 2008, a higher number of releases/transfers below the E-PRTR threshold compared to in 2007, etc.

Figure B.5 illustrates the total number of release/transfer reports for air, water, transfer in water and soil under E-PRTR 2008 compared to E-PRTR 2007. Several countries, e.g. Iceland, Denmark, Estonia, Malta, the Netherlands and Portugal reported more release/transfer reports than under E-PRTR 2007. On the other hand, several countries reported fewer release/transfer reports under E-PRTR 2008, e.g. Ireland, Italy, Latvia and Norway. The number of release/transfer reports in Italy for 2008 fell under 50 % of the number of release/transfer reports for 2007.

Figure B.5 **Total number of release/transfer reports under E-PRTR 2008 compared to E-PRTR 2007 (air, water, transfer in water, soil)**



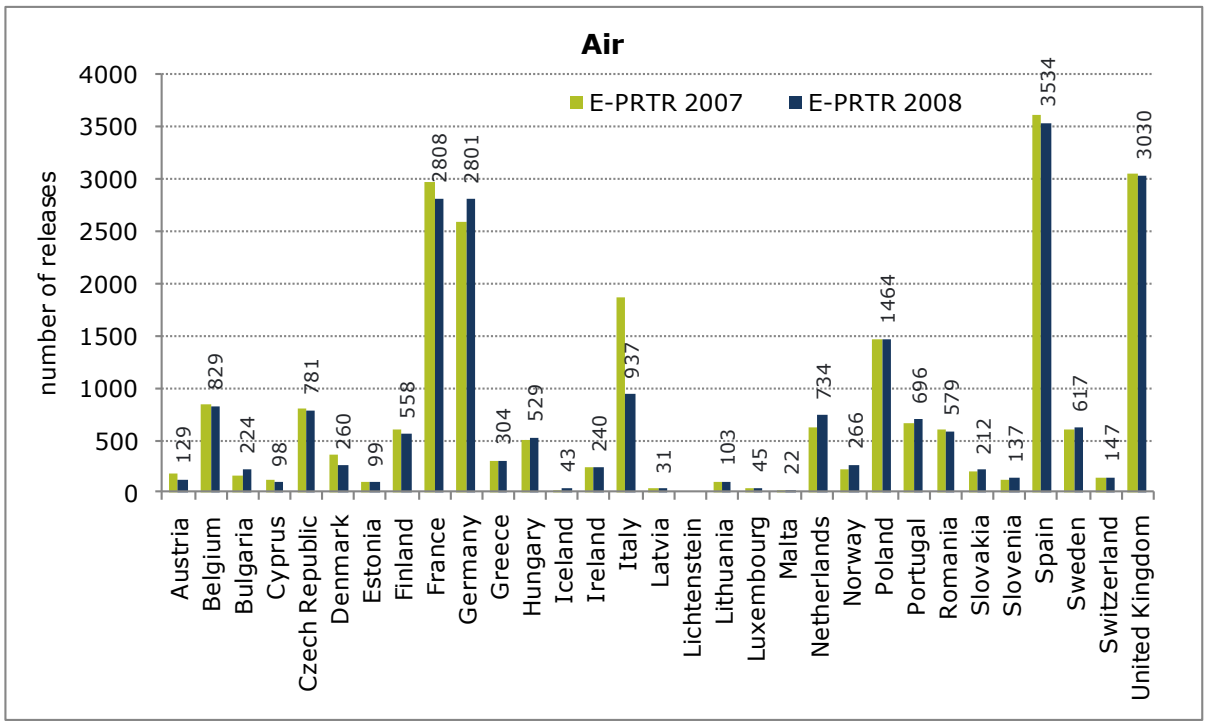
Note: *Due to the fact that Liechtenstein did not report any release/transfer reports to air, water, transfer in water or soil it is not included in this graph.*

B.1.3.1 Number of release reports to air

Figure B.6 presents the number of release reports to air per country for E-PRTR 2007 and E-PRTR 2008. The total number of release reports to air for all countries under E-PRTR 2008 amounted to 22,257 compared to 23,146 under E-PRTR 2007 indicating a decrease in release reports to air of about 4 %. The situation varies between individual countries – some submitted more release reports to air for 2008 and some fewer (see Figure B.6). The decrease in the number of release reports to air was most significant in Italy where the number of release reports to air in 2008 fell to only 50 % of the number in 2007.

A detailed table of the number of release reports to air per country and pollutant is included in **APPENDIX IV – E-PRTR 2008 Number of releases to air per pollutant and country** of this report.

Figure B.6 Number of release reports to air under E-PRTR 2008 and E-PRTR 2007



Note: *Liechtenstein did not report any release report to air and is thus not included in this graph.*

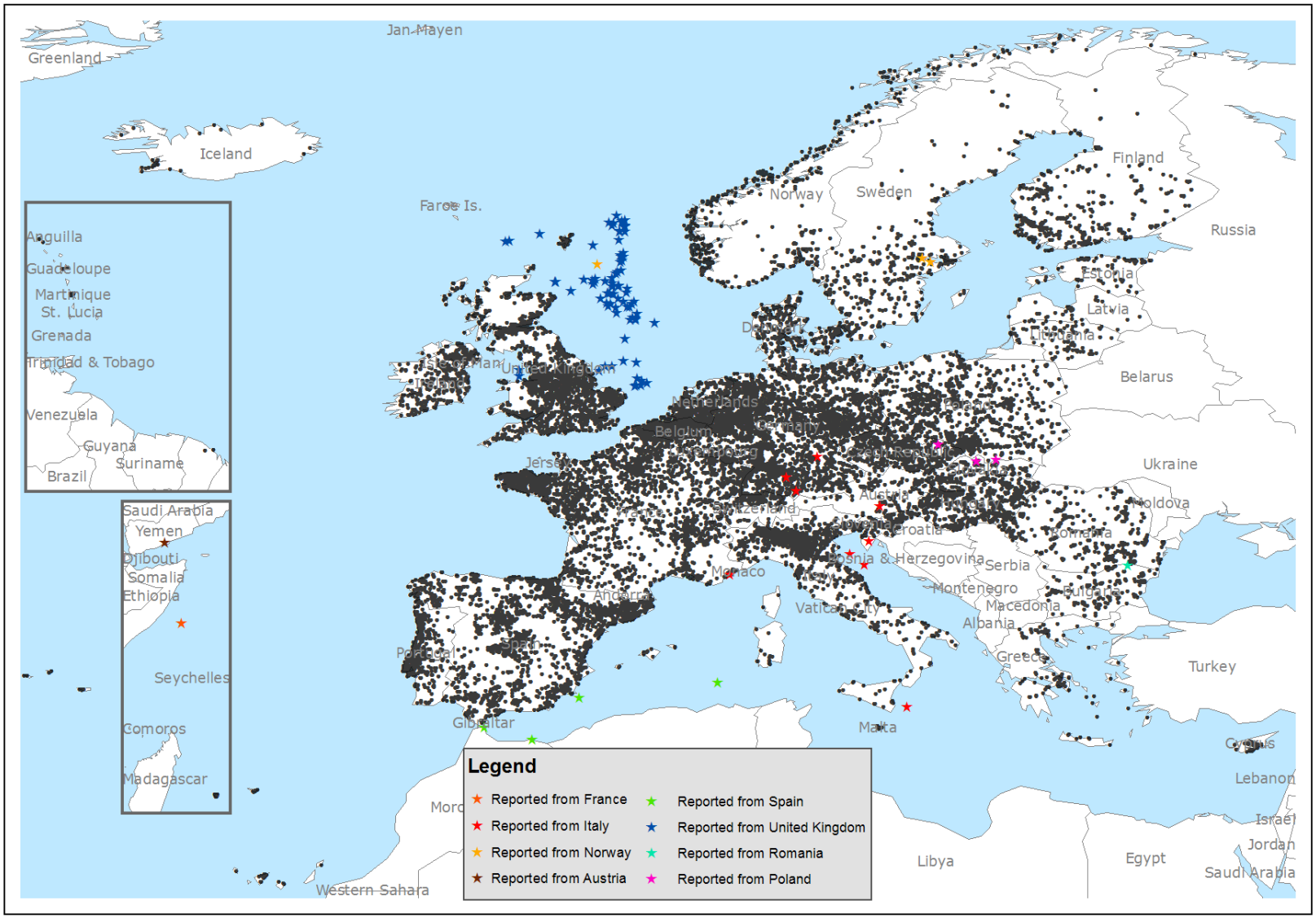
Individual countries provided release reports to air for ten to 49 pollutants with the exception of Liechtenstein, which did not report any releases to air. Most countries (30) reported releases of CO_2, CH_4 and SO_x; 29 countries of NO_x; 28 countries of NH_3, CO, Ni and NMVOC and 27 countries releases of As, N_2O, PM10 and Zn. Release reports for other heavy metals (Hg, Cd, Cr, and Cu) were also provided by more than 20 countries. On the other hand, ten pollutants (Aldrin, Chlordane, Chlordecone, DDT, Dieldrin, Endrin, Heptachlor, Lindane, Mirex, Toxaphene) out of the 60 with a threshold for releases to air in Annex II of the E-PRTR Regulation were not reported by any E-PRTR facility. Eight pollutants (Benzo(g,h,i)perylene, Chlorides, Fluorides, Phenols, Toluene, Total nitrogen, Total organic carbon (TOC), Xylenes) were reported as releases to air although there was no threshold to air included in Annex II of the E-PRTR Regulation for these pollutants. This might be a potential anomaly in data and should be checked by the countries concerned (Netherlands, Norway, United Kingdom).

Ten pollutants were reported by only one country in one or more release reports to air. The number in the brackets indicates the number of release reports: Belgium – Hexabromobiphenyl (1); France – HCH (1); Germany – Asbestos (1); Netherlands – Benzo(g,h,i)perylene (1); United Kingdom – Toluene (5), Xylenes (1); Norway - Chlorides (4), Fluorides (14), Total Nitrogen (1), Total Organic Carbon (19).

There might be different reasons for the limited number of release reports for some pollutants. Either the E-PRTR threshold is too high or no estimation methodology exists for this pollutant or country data is incomplete (does not include all relevant E-PRTR facilities or not all relevant releases for all E-PRTR facilities).

Detailed maps showing the distribution of facilities reported per country, per media, per activity or per pollutant can be visited at E-PRTR web site http://prtr.ec.europa.eu/MapSearch.aspx. The map in Figure C.7 illustrates the density of E-PRTR facilities (small black dots) with releases to air in individual countries. The map also indicates sources allocated outside country borders (bigger colorful dots). Most of the E-PRTR sources placed outside country borders seem to have correct coordinates (e.g. fisheries or drilling platforms) but some might be misplaced. However ETC/ACC does not have enough information to check the coordinates. Austria, France, Italy, Malta, Norway, Poland, Romania, Spain and United Kingdom might consider checking sources reported outside their borders.

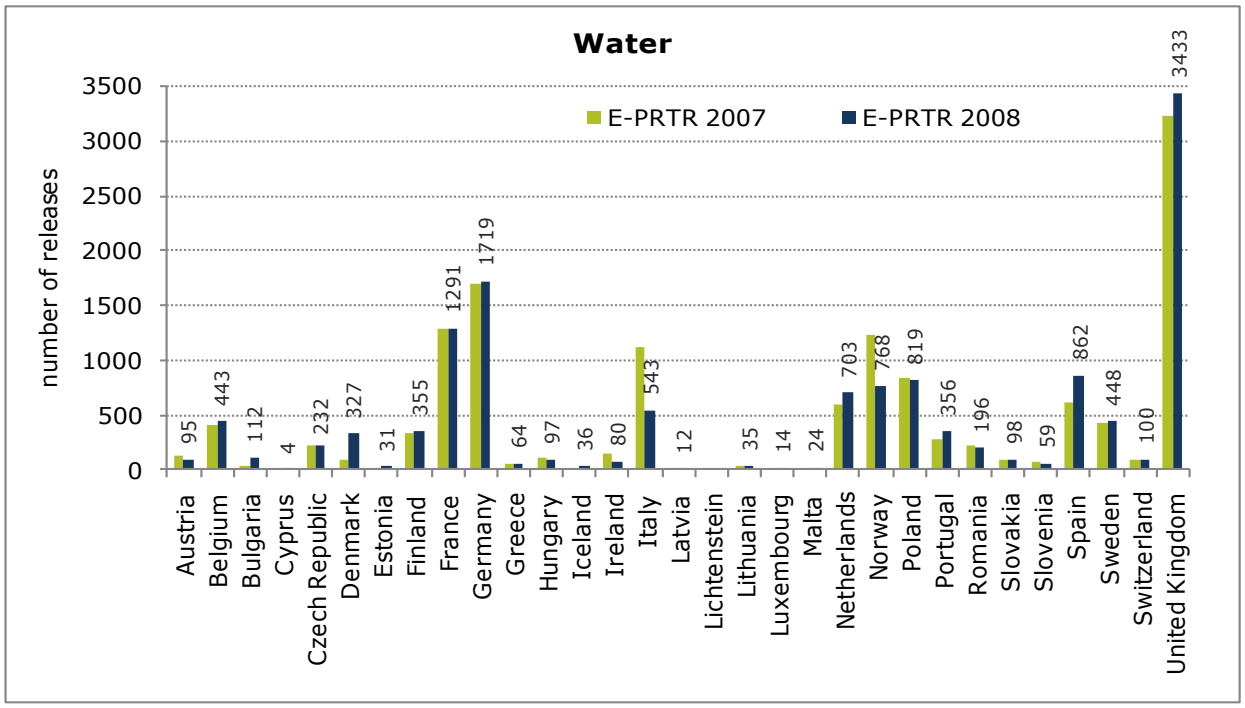
Figure B.7 Facilities with releases to air in E-PRTR 2008; inside country (small black dots) and outside county (see legend)



B.1.3.2 Number of release reports to water

Figure B.8 compares the number of release reports to water per country for E-PRTR 2007 and E-PRTR 2008. The total number of release reports to water for all countries under E-PRTR 2008 amounted to 13,356 compared to 13,497 under E-PRTR 2007 indicating a decrease in release reports of about 1 %. The countries with the most significant decreases were Ireland, Italy and Latvia (<55 %) whereas the countries with the most significant rise in the relative number of release reports to water were Bulgaria, Cyprus, Denmark and Iceland (≥ 200 %).

Figure B.8 Number of release reports to water under E-PRTR 2007 and E-PRTR 2008



Note: *Liechtenstein did not report any release report to water and is thus not included in this graph.*

A detailed table of the number of release reports to water per country and pollutant is included in **APPENDIX V** of this report. All countries except for Liechtenstein submitted release reports to water. Out of the 71 pollutants with a threshold for water in Annex II of the E-PRTR Regulation only two pollutants (Ethylene oxide and Toxaphene) were not reported by any facility. Three pollutants (Ammonia (NH_3), Chlorine and inorganic compounds (as HCl), Sulphur oxides (SO_x)) that have no threshold for water were reported as releases in water. All of the facilities concerned are located in Norway. This might be a potential anomaly in data and should be checked by the country.

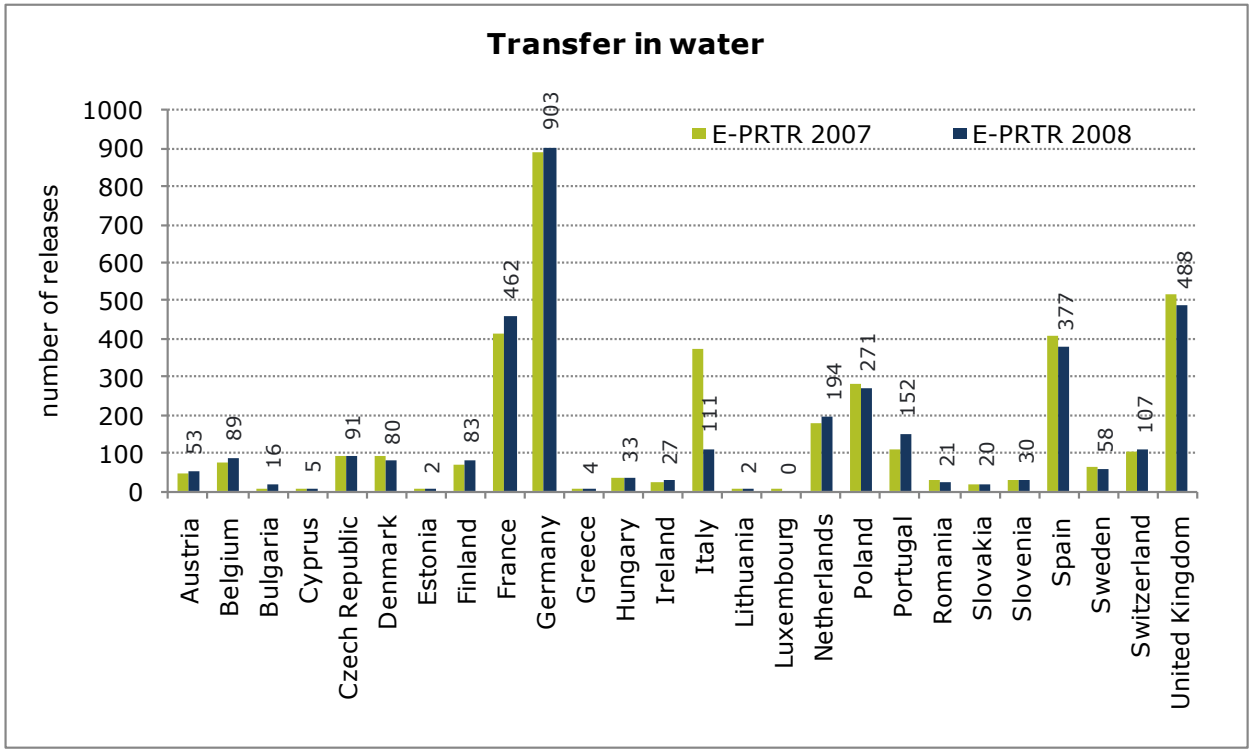
The pollutants that were reported by countries most frequently as releases to water were total nitrogen, total phosphorus (30 countries each) and total organic carbon (29 countries) alongside with heavy metals (Cu, Pb, Zn - 29; As, Ni - 28 and Cr - 27 countries).

B.1.3.3 Number of pollutant transfer reports in water

The total number of pollutant transfer reports for all countries under E-PRTR 2008 amounted to 3,679 compared to 3,865 under E-PRTR 2007 showing a decrease of about 5 %. 15 countries reported a higher

number of pollutant transfer reports under E-PRTR 2008, whereas 11 countries reported fewer pollutant transfer reports compared to 2007 (Figure B.9). The most significant decrease in the number of transfer reports has been observed for Italy with a drop of 30 % compared to the number of reports under E-PRTR 2007.

Figure B.9 Number of transfer reports in water under E-PRTR 2007 and E-PRTR 2008



Note: *Iceland, Latvia, Liechtenstein, Malta and Norway did not report any transfer report in water and are thus not included in this graph.*

A detailed table of the number of transfer reports in water per country and pollutant is included in **APPENDIX VI** of this report. Out of the 71 pollutants with a threshold for water in Annex II of the E-PRTR Regulation 12 were not reported by any E-PRTR facility. No pollutant without a threshold for water was reported as a transfer in water. Most countries (more than 23) reported transfers in water on total nitrogen and total organic carbon followed by reporting of total phosphorus (21), phenols and heavy metals. Iceland, Latvia, Liechtenstein, Luxembourg, Malta and Norway did not report any transfers in water. Several pollutants were reported by only one country. The reasons for this might be too high E-PRTR thresholds, missing estimation methods, incomplete reporting or the fact that this practice does not occur in these specific countries.

B.1.3.4 Number of release reports to soil

Only nine countries (out of 31) reported releases to soil for 2008 (Table B.2) compared to eight countries for 2007. The total number of release reports to soil under E-PRTR 2008 was 569 compared to 476 under E-PRTR 2007. This increase in the number or release reports of about 20 % could indicate more complete reporting of releases to soil for the year 2008. Out of the 61 pollutants with a threshold for soil in Annex II of the E-PRTR Regulation only 21 were actually reported for 2008 compared to 20 for 2007.

Table B.2 Number of facilities and release reports to soil under E-PRTR 2007 and 2008

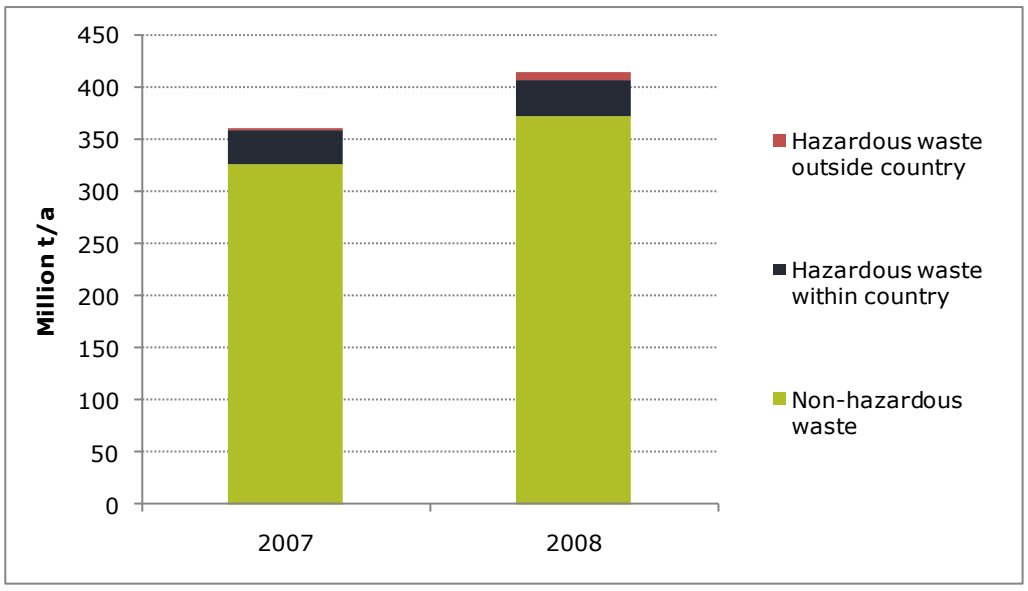
Country	Number of facilities 2007	Number of facility reports 2007	Number of facilities 2008	Number of facility reports 2008
Bulgaria	0	0	4	4
France	370	94	460	118
Germany	18	2	28	6
Ireland	2	2	0	0
Italy	3	1	4	1
Norway	1	1	7	3
Poland	0	0	1	1
Portugal	1	1	0	0
Slovakia	3	2	15	2
Spain	0	0	6	1
United Kingdom	78	19	44	9

Although only nine countries report releases to soil, is it not possible to draw any conclusions on the completeness of reporting across countries. In some countries releases to land as described in the E-PRTR Guidance document are namely not allowed under national legislation.

B.2 Quantity of waste transfers

The waste types that are reported under E-PRTR are hazardous waste within country, hazardous waste outside country (transboundary movement of hazardous waste) and non-hazardous waste. The waste treatment types are disposal and recovery.

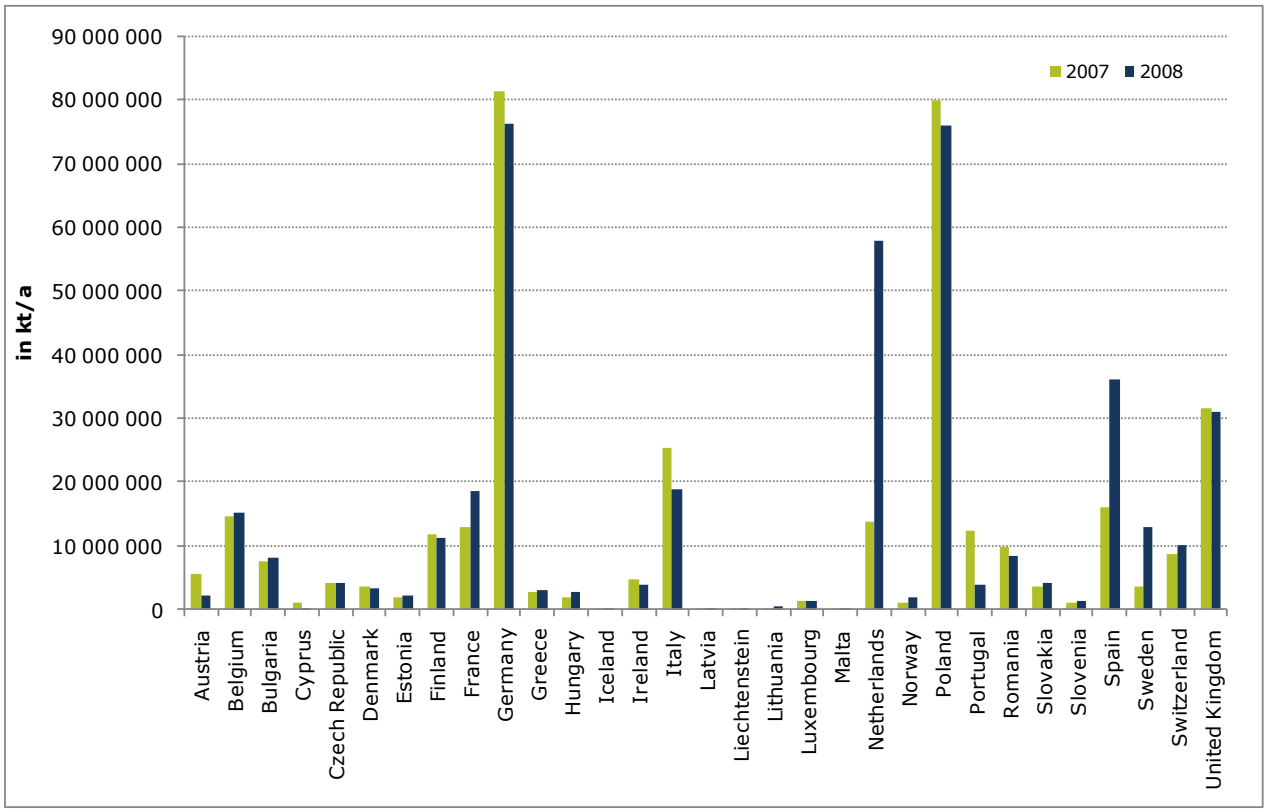
Figure B.10 Total quantity of waste by waste types under E-PRTR 2007 and 2008



The total quantity of waste reported under E-PRTR 2008 by all countries was about 415 million tonnes per year compared to 362 million tonnes under E-PRTR 2007 (Figure B.10). This represents an increase of about 15 % in the total quantity of reported waste. For 2008, hazardous waste within country amounted to about 35.5 million tonnes per year (8 % of total) and hazardous waste outside country to about 7.9 million tonnes per year (2 % of total). The quantity of non-hazardous waste transfers accounted for 371.8 million tonnes per year (90 % of total). Figure B.10 shows that the amount of non-hazardous waste and hazardous waste outside country increased significantly between 2007 and 2008.

The distribution between waste types differs between countries, but non-hazardous waste is generally the dominant waste type that has been reported by all countries (Figure B.10). Norway is the only country where non-hazardous and hazardous waste have about an equal share.

Figure B.11 Total quantity of waste reported by countries under E-PRTR 2007 and 2008



In most countries there was only little change in total quantity of waste between 2007 and 2008 (Figure B.11). In the Netherlands, Malta, Spain and Sweden, however, the total quantity of waste more than doubled in 2008 compared to 2007, whereas in Austria and Portugal it more than halved. Cyprus reported a decrease of nearly 100 % of total quantity of waste in 2008. These striking changes indicate potential inconsistencies in reporting and should be checked by countries.

Generally the quantity of hazardous waste transferred within the country is higher than the quantity transferred outside the country, except for the Netherlands (Figure B.12). This might indicate an inconsistency in reporting (mainly due to the transfer from one facility) and should be checked by the country. Hazardous waste within country has been reported by all countries except Liechtenstein,

whereas hazardous waste outside country was not reported by Finland, Liechtenstein and Norway. A more in-depth analysis is provided in the chapter on the stage 2 review on the waste data.

Figure B.12 Total quantity of hazardous waste reported by countries under E-PRTR 2008

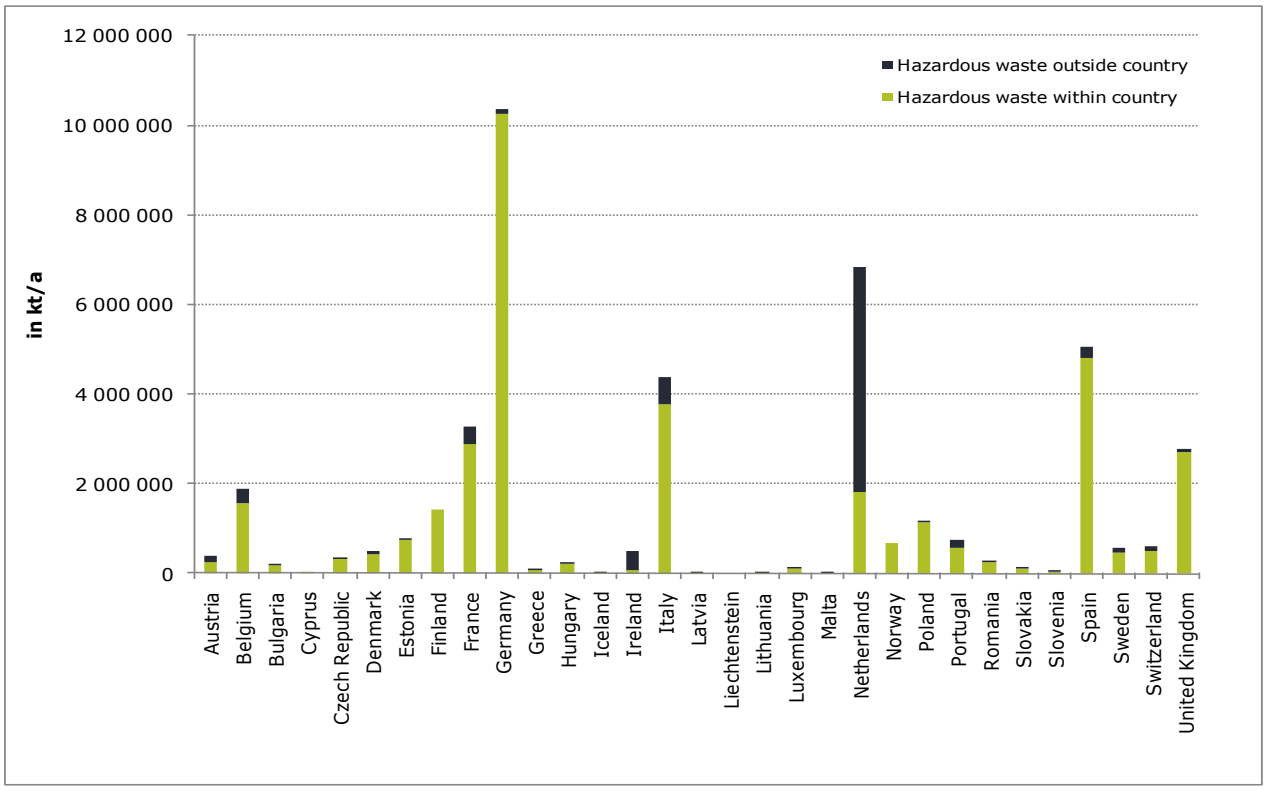
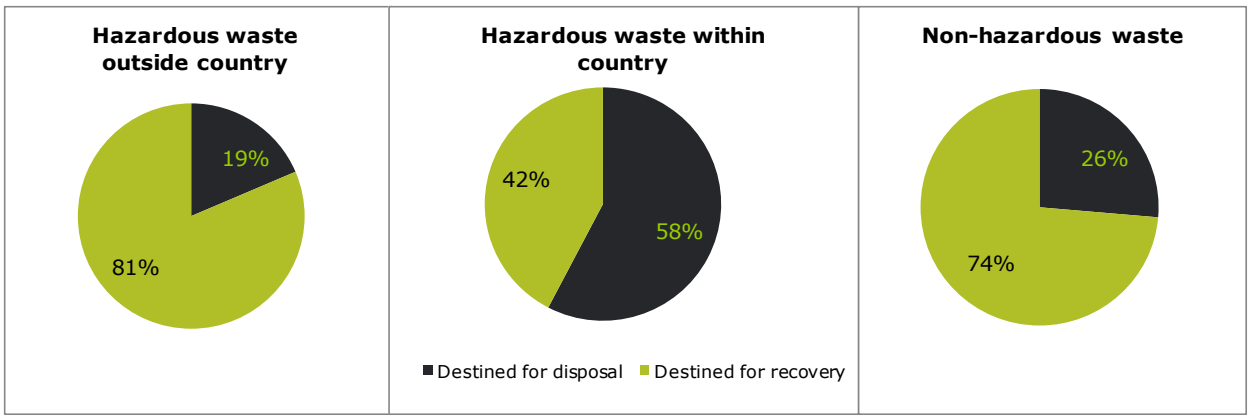


Figure B.13 shows the percentage of waste that has been disposed or recovered for the different waste types. 81 % of the hazardous waste transferred outside the country is destined for recovery under E-PRTR 2008 compared to 85 % under E-PRTR 2007 whereas hazardous waste transferred inside the country in 2008 is mainly disposed of (58 %). In 2008, recovery is the dominant waste treatment option for non-hazardous waste with 74 % of being recovered compared to only 66 % in 2007.

Figure B.13 Percentage of disposed or recovered waste for different waste types under E-PRTR 2008



Note: *Total amount of hazardous waste outside country: 7.9 million t/a, total amount of hazardous waste within country: 35.5 million t/a, total amount of non-hazardous waste: 371.8 million t/a*

B.3 Reporting of confidential data

Article 11 of the E-PRTR Regulation provides the option of claiming confidentiality for certain data elements in E-PRTR reports in accordance with Article 4 of Directive 2003/4/EC[26] of the European Parliament and of the Council of 28 January 2003 on public access to environmental information. If confidentiality is claimed the country has to indicate separately for each facility the type of information that has been withheld and the reason why it has been withheld.

Table B.3 Facilities reporting confidential data in E-PRTR 2008

	Facility Report		Pollutant Release Report		Pollutant Transfer Report		Waste Transfer Report	
Country	**2007**	**2008**	**2007**	**2008**	**2007**	**2008**	**2007**	**2008**
Belgium	63	63					94	79
Bulgaria				4				4
Germany	15	3	2	4	1	2	38	13
Greece	1	1						
Luxembourg							5	3
Romania		4						4
Sweden							1	1
Switzerland							6	6
All countries	**79**	**71**	**2**	**8**	**1**	**2**	**144**	**110**

Confidential data has been evaluated at four different levels: the level of the facility report, the pollutant release report, the pollutant transfer report and the waste transfer report. The review did not investigate which specific data element was kept confidential. Only eight countries reported confidential data referring either to the facility report, pollutant release report, pollutant transfer report or to the waste transfer report. Confidentiality related to the facility report refers to data elements that identify the facility (e.g. address). Confidentiality related to the pollutant release report, pollutant transfer report or waste transfer report refers to confidential data elements regarding the release/transfer reports, e.g. the pollutant.

Table B.3 illustrates the countries and number of facilities reporting confidential data on the level of the facility and the release/transfer report. 71 facilities reported confidential data related to the facility report, 8 facilities related to the pollutant release report, two facilities related to the pollutant transfer report and 110 facilities claimed confidentiality on data related to waste transfer reports.

Compared to E-PRTR 2007 the number of countries reporting confidential data has increased from six (Belgium, Germany, Greece, Luxembourg, Sweden, Switzerland) to eight countries (see Table B.3) for 2008. However, the number of confidentiality claims fell by 15% from 226 for 2007 to 191 for 2008. The most significant decline in confidentiality claims between 2007 and 2008 occurred related to the waste transfer report with 144 reports containing confidential elements in 2007 compared to only 110 in 2008.

B.4 Accidental releases

Under E-PRTR operators are required to report all releases and transfers resulting as totals of all deliberate, accidental, routine and non-routine activities. 19 countries (out of 31 countries) reported

[26] OJ L 41, 14.2.2003, p. 26

accidental releases under E-PRTR for 2008 compared to 17 countries for 2007. In total, 550 accidental releases to air, water and soil of different pollutants were reported under E-PRTR in 2008 compared to exactly the same number under E-PRTR 2007. Table B.4 illustrates the total number of accidental release reports by country for all media. Countries that are not included in this list did not report any accidental releases.

Table B.4 Number of accidental release reports (for all pollutants) by country in E-PRTR 2008

Country	Number of accidental release reports	Country	Number of accidental release reports
Netherlands	101	Ireland	5
Spain	146	Austria	1
France	72	Romania	6
Poland	65	Switzerland	2
United Kingdom	48	Bulgaria	3
Germany	30	Greece	2
Belgium	22	Sweden	2
Italy	28	Slovakia	1
Slovenia	7	Portugal	7
Norway	3	**All countries**	**550**

Countries can find detailed information on the quantity of the accidental releases for every pollutant and medium in the stage 1 Excel tool (Test 6).

Table B.5 provides an overview of the pollutants for which the highest accidental releases to air have been reported under E-PRTR 2008. All pollutants with a share in total E-PRTR releases to air of ≤ 1 % for the respective pollutant have been included in the table. The total number of accidental release reports to air amounted to 307 under E-PRTR 2008 compared to 322 under E-PRTR 2007.

Table B.5 Pollutants with high accidental quantity of releases to air

Pollutant	Quantity of accidental releases kg/a	Total quantity kg/a	Number of accidental releases	% share of accidental releases in total E-PRTR releases
Chlorofluorocarbons (CFC)	1,176	120,933	8	1.0 %
Hydrochlorofluorocarbons(HCFC)	105,228	974,359	104	10.8 %
Hydro-fluorocarbons (HFC)	29,657	956,683	31	3.1 %
Sulphur hexafluoride (SF6)	522	24,293	1	2.1 %

The share of accidental releases for these pollutants differs between countries but is very high for some countries. For example, Norway and Greece reported 100 % accidental releases for HFC; Italy and Poland reported more than 50 % accidental releases for HFC. For the pollutant HCFC Ireland, Italy, Poland and Switzerland reported accidental releases between 50 % and 95 % of their total HCFC releases.

Concerning accidental releases to water only one pollutant has a share in total E-PRTR releases to water of ≤ 1 % being 1,2-dichloroethane (DCE) with a share of accidental releases of 1.4 % coming from just

one release report. The total number of accidental release reports to water amounted to 243 for 2008 compared to 225 for 2007.

Concerning accidental release reports to soil there were none reported under E-PRTR 2008 compared to 3 accidental release reports to soil reported under E-PRTR 2007.

B.5 Top polluting facilities

The lists of top polluting facilities in this chapter identify those facilities which have the highest releases and/or transfers. The fact that a facility is amongst the highest polluters, does not provide any information concerning the environmental performance of those facilities. The necessary background information related to the facilities to perform such an assessment (e.g. capacity, fuel use, etc.) is not reported under E-PRTR.

B.5.1 Top polluting facilities for releases to air

Table B.6 below provides information for selected pollutants[27] on the five facilities with the highest share of total E-PRTR releases to air per pollutant. The selected pollutants are:
main GHGs reported also under UNFCCC; carbon dioxide (CO_2), methane (CH_4), nitrous oxide (N_2O)

acidifying pollutants and ozone precursors; ammonia (NH_3), carbon monoxide (CO), nitrogen oxides (NO_x/NO_2), non-methane volatile organic compounds (NMVOC), sulphur oxides (SO_x/SO_2) and

other pollutants reported under CLRTAP

- particulate matter (PM_{10})
- heavy metals; arsenic and compounds (as As), cadmium and compounds (as Cd), chromium and compounds (as Cr), copper and compounds (as Cu), lead and compounds (as Pb), mercury and compounds (as Hg), nickel and compounds (as Ni), zinc and compounds (as Zn), and
- persistent organic pollutants (POPs); polycyclic aromatic hydrocarbons (PAHs), hexachloro-benzene (HCB), PCDD/PCDF (dioxins /furans) (as Teq)

The complete list of facilities ranked among the E-PRTR top 20 polluting facilities including information on their share in total E-PRTR emission is provided in the stage 1 Excel tool, sheet “E-PRTR TOP20”.

Distribution of emissions for some pollutants like CO_2, and NO_x/NO_2 seem to be more or less evenly – the share of the top five polluting facilities in Europe is mostly around 1 % each. The situation for SO_2, CO, NMVOC and PM10 is slightly different; the share of the biggest sources in E-PRTR totals lies in a range from 2 % to 10 %. The share of the biggest sources for the pollutants N_2O and HM lies between 2 % and 17 %. The test also identified a number of potential anomalies, particularly in reporting of PCDD/PCDF, PAHs, HCB and CH_4, for which the share of some individual sources resulted to be higher than 20 % or sometimes even higher than 50 %. This findings should be further investigated by countries and data corrected where needed for the next resubmission. A possible reason for the anomalies could be wrong reporting units.

The test also identified that a number of pollutants is reported only by one facility or just by one country e.g. Hexabromobiphenyl, Asbestos, Chlorides and Fluorides. This might indicate that either the threshold for these pollutants is too high and/or the reporting of countries is not complete.

[27] The list of top 20 E-PRTR facilities for each pollutant (91 in total) can be produced with the *Stage1 tool* distributed to all countries on 30 July 2010 and available at the Eionet CIRCA website at: http://eea.eionet.europa.eu/Members/irc/eionet-circle/e-prtr/library?l=/e-prtr/country_feedback/2010_2008_dataset/stage_stage_august_2010/e-prtr_stage1_uploaded&vm=detailed&sb=Title

Table B.6 Facilities with the highest releases to air of selected pollutants under E-PRTR 2008

Pollutant group/ Pollutant	Facility ID	National ID	Country	Facility Name	Main Activity	Total Quantity kg/a	All countries share
Chlorinated organic substances							
Hexachlorobenzene (HCB)	65164	W197	Belgium	ARCELORMITTAL-STAINLESS BELGIUM Chatelet	2.(b)	477	64,82%
	73896	03-03-0303027358 0	Germany	DOW Deutschland Anlagengesellschaft Werk Stade mbH	4.(a).(viii)	212	28,81%
	9378	4168	Spain	MIVISA ENVASES	9.(c)	22	3,00%
	15036	W020	Belgium	CCB sa - site de GAURAIN-RAMECROIX	3.(c).(i)	15	1,97%
	67343	100186331	Finland	Yara Suomi Oy, Kokkolan tehtaat / Kaliumsulfaattitehdas	4.(b).(i)	10	1,40%
Hexachlorobenzene (HCB) total "top5"						**736**	**100,00%**
PCDD + PCDF (dioxins + furans) (as Teq)	81722	100001395	Portugal	Ambimed - Unidade de Tratamento de Resíduos Hospitalares do Barreiro	5.(a)	7,00	77,09%
	48966	570297-2609	Iceland	Norðurál Grundartanga	2.(e).(i)	0,44	4,85%
	6497	12S000298	Poland	Południowy Koncer Energetyczny S.A., Elektrownia Jaworzno III - Elektrownia III	1.(c)	0,26	2,86%
	4675	06K000440	Poland	Zakłady Azotowe w Tarnowie-Mościcach S.A.	4.(a)	0,20	2,20%
	85905	206	Switzerland	Les Cheneviers / UIOM	5.(b)	0,16	1,71%
PCDD + PCDF (dioxins + furans) (as Teq) total "top5"						**8,06**	**88,71%**
Greenhouse gases							
Carbon dioxide (CO2)	1298	05E000016	Poland	PGE Elektrownia Bełchatów S.A.	1.(c)	30.900.000.000	1,56%
	70824	06-05-300-0326774	Germany	RWE Power AG Kraftwerk Niederaußem	1.(c)	24.900.000.000	1,26%
	73175	12-4071001000 0	Germany	Vattenfall Europe Generation AG Kraftwerk Jänschwalde	1.(c)	23.500.000.000	1,19%
	13777	EW_EA-67	United Kingdom	Drax Power Limited, Drax Power Ltd	1.(c)	23.000.000.000	1,16%
	70870	06-05-300-0877384	Germany	RWE Power AG	1.(c)	21.600.000.000	1,09%
Carbon dioxide (CO2) total "top5"						**123.900.000.000**	**6,25%**
Methane (CH4)	68311	065.00370	France	COVED S.A.	5.(d)	722.000.000	23,31%
	7032	2007000340	Italy	MINERMIX Srl	3.(c)	118.000.000	3,81%

Pollutant group/ Pollutant	Facility ID	National ID	Country	Facility Name	Main Activity	Total Quantity kg/a	All countries share
	79563	12S000505	Poland	Jastrzębska Spółka Węglowa S.A. Kopalnia Węgla Kamiennego "Pniówek"	3.(a)	63.700.000	2,06%
	79564	12S000503	Poland	Jastrzębska Spółka Węglowa S.A. Kopalnia Węgla Kamiennego "Krupiński"	3.(a)	56.400.000	1,82%
	79548	06K000511	Poland	Kompania Węglowa S.A. Oddział Kopalnia Węgla Kamiennego "Brzeszcze-Silesia" - Ruch Brzeszcze	3.(a)	53.600.000	1,73%
Methane (CH4) total "top5"						**1.013.700.000**	**32,72%**
Nitrous oxide (N2O)	81024	01D001427	Poland	FERMY DROBIU WOŹNIAK Sp. z o.o.,Fermy drobiu w Gądkowie	7.(a)	19.600.000	13,17%
	80890	01D001426	Poland	FERMY DROBIU WOŹNIAK Sp. z o.o., Fermy drobiu w Bielanach	7.(a)	12.000.000	8,06%
	74403	13-30-1101002	Germany	YARA Rostock Zweigniederlassung der YARA GmbH & Co. KG	4.(c)	8.480.000	5,70%
	509	03L000438	Poland	Zakłady Azotowe "Puławy" S.A.	4.(c)	6.800.000	4,57%
	2	000000002	Lithuania	AB"Achema"	4.(c)	5.590.000	3,76%
Nitrous oxide (N2O) total "top5"						**52.470.000**	**35,25%**
Heavy metals							
Arsenic and compounds (as As)	5952	EE147275	Estonia	Eesti Energia Narva Elektrijaamad AS, Eesti Elektrijaam	1.(c)	7.240	16,85%
	4717	070.00621	France	ARC INTERNATIONAL.- Site industriel d'Arques	3.(e)	2.520	5,86%
	5951	EE051174	Estonia	Eesti Energia Narva Elektrijaamad AS, Balti Elektrijaam	1.(c)	1.780	4,14%
	8893	3421	Spain	FÁBRICA DE HUELVA	2.(e).(i)	1.580	3,68%
	14192	EL1201188	Greece	PPC S.A. SES MEGALOPOLIS A'	1.(c)	1.530	3,56%
Arsenic and compounds (as As) total "top5"						**14.650**	**34,09%**
Cadmium and compounds (as Cd)	8129	CZ33698019	Czech Republic	Elektrárna Mělník I - EMĚ I	1.(c)	1.270	6,69%
	10557	CZ95150686	Czech Republic	ArcelorMittal Ostrava a.s.	2.(c).(i)	1.060	5,59%
	81860	100003698	Portugal	Petróleos de Portugal-Petrogal, S.A. (Refinaria de Sines)	1.(a)	804	4,24%
	10218	56121	Netherlands	ThermPhos International BV	4.(b)	782	4,12%
	7974	23301	Netherlands	Corus Staal BV	2.(b)	730	3,85%
Cadmium and compounds (as Cd) total "top5"						**4.646**	**24,49%**

Pollutant group/ Pollutant	Facility ID	National ID	Country	Facility Name	Main Activity	Total Quantity kg/a	All countries share
Chromium and compounds (as Cr)	67133	2110	Finland	Outokumpu Chrome Oy, Outokumpu Stainless Oy, Tornion tehtaat	2.(b)	10.300	8,79%
	6811	1487-1120	Sweden	Vargön Alloys AB	2.(e).(ii)	6.500	5,55%
	5952	EE147275	Estonia	Eesti Energia Narva Elektrijaamad AS, Eesti Elektrijaam	1.(c)	6.440	5,50%
	72998	06-10-0033945	Germany	Saarstahl AG, Werk Völklingen	2.(b)	6.130	5,23%
	15021	W005	Belgium	ARCELORMITTAL UPSTREAM sa (COKE FONTE)	2.(b)	4.340	3,70%
Chromium and compounds (as Cr) total "top5"						**33.710**	**28,77%**
Copper and compounds (as Cu)	484	100423302	Hungary	ISD Dunaferr Zrt. Vasmű	2.(b)	19.300	12,20%
	8893	3421	Spain	FÁBRICA DE HUELVA	2.(e).(i)	10.700	6,76%
	73883	06-02-B2C100A009	Germany	Norddeutsche Affinerie AG	2.(e).(i)	8.430	5,33%
	71496	06-05-900-0877505	Germany	Aurubis AG Recyclingzentrum Lünen	2.(e).(i)	6.120	3,87%
	79571	01D002750	Poland	KGHM POLSKA MIEDŹ S.A., Zakłady Górnicze RUDNA	3.(a)	6.080	3,84%
Copper and compounds (as Cu) total "top5"						**50.630**	**32,00%**
Lead and compounds (as Pb)	10251	57002803	Slovakia	U.S.Steel s.r.o.	2.(b)	38.900	7,94%
	70572	06-05-100-0209686	Germany	ThyssenKrupp Steel AG Werk Schwelgern	2.(a)	37.600	7,68%
	15021	W005	Belgium	ARCELORMITTAL UPSTREAM sa (COKE FONTE)	2.(b)	28.600	5,84%
	5952	EE147275	Estonia	Eesti Energia Narva Elektrijaamad AS, Eesti Elektrijaam	1.(c)	24.100	4,92%
	6488	12S000241	Poland	ArcelorMittal Poland S.A., Oddział w Dąbrowie Górniczej	2.(a)	24.000	4,90%
Lead and compounds (as Pb) total "top5"						**153.200**	**31,27%**
Mercury and compounds (as Hg)	1298	05E000016	Poland	PGE Elektrownia Bełchatów S.A.	1.(c)	2.600	6,87%
	82918	RO4VL_41	Romania	SC OLTCHIM SA	4.(b).(iii)	1.410	3,73%
	85936	EW_EA-1451	United Kingdom	INEOS CHLOR LTD, Runcorn Halochemicals	4.(a)	950	2,51%
	14245	EL5800876	Greece	PPC S.A. SES AGIOY DHMHTRIOY	1.(c)	932	2,46%
	7119	16Z000477	Poland	PGE Zespół Elektrowni Dolna Odra S.A., Elektrownia Szczecin	1.(c)	859	2,27%
Mercury and compounds (as Hg) total "top5"						**6.751**	**17,84%**
Nickel and compounds (as Ni)	14245	EL5800876	Greece	PPC S.A. SES AGIOY DHMHTRIOY	1.(c)	19.100	4,98%
	6897	1527	Spain	REPSOL YPF REFINO ESPAÑA. COMPLEJO INDUSTRIAL DE TARRAGONA	1.(a)	13.500	3,52%
	88303	P0126/06A	United Kingdom	Coolkeeragh ESB Ltd	1.(c)	11.800	3,08%

Pollutant group/ Pollutant	Facility ID	National ID	Country	Facility Name	Main Activity	Total Quantity kg/a	All countries share
	13045	EW_EA-122	United Kingdom	Alcan Aluminium UK Ltd, ALCAN LYNEMOUTH SMELTER	2.(e)	10.900	2,84%
	6898	1528	Spain	REPSOL PETROLEO S.A.	1.(a)	10.400	2,71%
Nickel and compounds (as Ni) total "top5"						**65.700**	**17,14%**
Zinc and compounds (as Zn)	15027	W011	Belgium	DUFERCO LA LOUVIERE sa	2.(b)	37.800	3,50%
	77940	2008001123	Italy	ILVA S.P.A. Stabilimento di Taranto	2.(b)	36.000	3,34%
	5952	EE147275	Estonia	Eesti Energia Narva Elektrijaamad AS, Eesti Elektrijaam	1.(c)	33.000	3,06%
	9056	3641	Spain	SIDENOR INDUSTRIAL, S.L. (SIDENOR INDUSTRIAL (FABRICA DE BASAURI))	2.(b)	32.600	3,02%
	82929	RO5CS_203	Romania	SC DUCTIL STEEL SA - Punct de lucru Otelu Rosu	2.(b)	31.900	2,96%
Zinc and compounds (as Zn) total "top5"						**171.300**	**15,87%**
Inorganic substances							
Particulate matter (PM10)	65859	17000005	Bulgaria	TETs "Republika"	1.(c)	9.280.000	4,60%
	14246	EL5800902	Greece	PPC S.A. SES PTOLEMAIDAS	1.(c)	7.170.000	3,56%
	82931	RO5HD_11	Romania	SC ELECTROCENTRALE DEVA SA	1.(c)	6.640.000	3,29%
	14247	EL5800949	Greece	PPC S.A. SES KARDIAS	1.(c)	5.800.000	2,88%
	14192	EL1201188	Greece	PPC S.A. SES MEGALOPOLIS A'	1.(c)	4.660.000	2,31%
Particulate matter (PM10) total "top5"						**33.550.000**	**16,64%**
Other gases							
Ammonia (NH3)	77916	2008000717	Italy	IPPC - Allevamento suini	7.(a)	57.100.000	21,38%
	85091	4507	Spain	SELECCIONES AGROPECUARIAS, S.L.	7.(a).(iii)	22.700.000	8,50%
	82875	RO3IL_417	Romania	SC AMONIL SA SLOBOZIA	4.(c)	3.280.000	1,23%
	82981	RO7AB_41	Romania	SC GHCL UPSOM ROMANIA SA	4.(b).(iv)	2.510.000	0,94%
	13154	EW_EA-1567	United Kingdom	KEMIRA GROWHOW UK LTD, Ince Fertiliser Manufacturing Site	4.(c)	1.560.000	0,58%
Ammonia (NH3) total "top5"						**87.150.000**	**32,63%**
Carbon monoxide (CO)	77940	2008001123	Italy	ILVA S.P.A. Stabilimento di Taranto	2.(b)	248.000.000	6,42%
	70572	06-05-100-0209686	Germany	ThyssenKrupp Steel AG Werk Schwelgern	2.(a)	198.000.000	5,13%
	70532	06-05-100-0077961	Germany	Hüttenwerke Krupp Mannesmann GmbH	2.(b)	188.000.000	4,87%
	14567	vl00069475000114	Belgium	ARCELOR MITTAL GENT	2.(b)	173.000.000	4,48%
	8930	3486	Spain	ARCELORMITTAL ESPAÑA - PLANTA SIDERÚRGICA DE AVILÉS Y GIJÓN	2.(b)	113.000.000	2,93%
Carbon monoxide (CO) total "top5"						**920.000.000**	**23,82%**
Nitrogen oxides	1298	05E000016	Poland	PGE Elektrownia Bełchatów	1.(c)	40.900.000	1,46%

Pollutant group/ Pollutant	Facility ID	National ID	Country	Facility Name	Main Activity	Total Quantity kg/a	All countries share
(NOx/NO2)				S.A.			
	13777	EW_EA-67	United Kingdom	Drax Power Limited, Drax Power Ltd	1.(c)	38.600.000	1,37%
	73894	03-02-02221253020	Germany	Drewsen Spezialpapiere GmbH&Co. KG Papierfabrik	6.(b)	30.800.000	1,10%
	13368	EW_EA-2316	United Kingdom	RWE npower plc, Aberthaw Power Station	1.(c)	26.100.000	0,93%
	14245	EL5800876	Greece	PPC S.A. SES AGIOY DHMHTRIOY	1.(c)	22.600.000	0,80%
Nitrogen oxides (NOx/NO2) total "top5"						**159.000.000**	**5,66%**
Non-methane volatile organic compounds (NMVOC)	14463	Scotland-153	United Kingdom	Sullom Voe Terminal	1.(a)	11.800.000	2,18%
	14537	Scotland-73	United Kingdom	Glass Factory	3.(e)	11.200.000	2,07%
	18	000000019	Lithuania	AB "Mažeikių nafta"	1.(a)	11.100.000	2,05%
	78682	1263.0002.01	Norway	STATOIL ASA, Mongstad	1.(a)	9.520.000	1,76%
	14524	Scotland-52	United Kingdom	Ineos Manufacturing Scotland Ltd	1.(a)	7.520.000	1,39%
Non-methane volatile organic compounds (NMVOC) total "top5"						**51.140.000**	**9,45%**
Sulphur oxides (SOx/SO2)	65850	13000002	Bulgaria	"TETs Maritsa iztok 2" EAD	1.(c)	402.000.000	9,74%
	14192	EL1201188	Greece	PPC S.A. SES MEGALOPOLIS A’	1.(c)	210.000.000	5,09%
	82906	RO4GJ_11	Romania	COMPLEXUL ENERGETIC TURCENI	1.(c)	134.000.000	3,25%
	65771	13000004	Bulgaria	Gorivna instalatsias nominalna toplinna moshtnost 1020MWt	1.(c)	109.000.000	2,64%
	6995	15P000483	Poland	Zespól Elektrowni Pątnów-Adamów -Konin S.A., Elektrownia Pątnów	1.(c)	86.600.000	2,10%
Sulphur oxides (SOx/SO2) total "top5"						**941.600.000**	**22,81%**
Other organic substances							
Polycyclic aromatic hydrocarbons (PAHs)	78619	1149.0029.01	Norway	Hydro Aluminium AS Karmøy	2.(e).(i)	57.400	24,22%
	6961	15P000003	Poland	Impexmetal S.A. Zakład Aluminium Konin	2.(e)	38.100	16,08%
	6789	1478	Spain	ALCOA INESPAL, S.A. - LA CORUÑA	2.(e).(i)	18.700	7,89%
	81803	100005851	Portugal	Lisgráfica, Impressão e Artes Gráficas, S.A.	9.(c)	12.200	5,15%
	80120	12S002419	Poland	SITA Starol Sp. z o.o., Zakład Produkcji Paliw Alternatywnych	5.(a)	11.100	4,68%
Polycyclic aromatic hydrocarbons (PAHs) total "top5"						**137.500**	**58,03%**

Pollutant group/ Pollutant	Facility ID	National ID	Country	Facility Name	Main Activity	Total Quantity kg/a	All countries share
Heavy metals							
Arsenic and compounds (as As)	5952	EE147275	Estonia	Eesti Energia Narva Elektrijaamad AS, Eesti Elektrijaam	1.(c)	7,240.00	16.85%
	4717	070.00621	France	ARC INTERNATIONAL.- Site industriel d'Arques	3.(e)	2,520.00	5.86%
	5951	EE051174	Estonia	Eesti Energia Narva Elektrijaamad AS, Balti Elektrijaam	1.(c)	1,780.00	4.14%
	8893	3421	Spain	FÁBRICA DE HUELVA	2.(e).(i)	1,580.00	3.68%
	14192	EL1201188	Greece	PPC S.A. SES MEGALOPOLIS A'	1.(c)	1,530.00	3.56%
Arsenic and compounds (as As) total "top5"						**14,650**	**34.09%**
Cadmium and compounds (as Cd)	8129	CZ33698019	Czech Republic	Elektrárna Mělník I - EMĚ I	1.(c)	1,270.00	6.69%
	10557	CZ95150686	Czech Republic	ArcelorMittal Ostrava a.s.	2.(c).(i)	1,060.00	5.59%
	81860	100003698	Portugal	Petróleos de Portugal- Petrogal, S.A. (Refinaria de Sines)	1.(a)	804.00	4.24%
	10218	56121	Netherlands	ThermPhos International BV	4.(b)	782.00	4.12%
	7974	23301	Netherlands	Corus Staal BV	2.(b)	730.00	3.85%
Cadmium and compounds (as Cd) total "top5"						**4,646**	**24.49%**
Chromium and compounds (as Cr)	67133	2110	Finland	Outokumpu Chrome Oy, Outokumpu Stainless Oy, Tornion tehtaat	2.(b)	10,300.00	8.79%
	6811	1487-1120	Sweden	Vargön Alloys AB	2.(e).(ii)	6,500.00	5.55%
	5952	EE147275	Estonia	Eesti Energia Narva Elektrijaamad AS, Eesti Elektrijaam	1.(c)	6,440.00	5.50%
	72998	06-10-0033945	Germany	Saarstahl AG, Werk Völklingen	2.(b)	6,130.00	5.23%
	15021	W005	Belgium	ARCELORMITTAL UPSTREAM sa (COKE FONTE)	2.(b)	4,340.00	3.70%
Chromium and compounds (as Cr) total "top5"						**33,710**	**28.77%**
Copper and compounds (as Cu)	484	100423302	Hungary	ISD Dunaferr Zrt. Vasmű	2.(b)	19,300.00	12.20%
	8893	3421	Spain	FÁBRICA DE HUELVA	2.(e).(i)	10,700.00	6.76%
	73883	06-02-B2C100A009	Germany	Norddeutsche Affinerie AG	2.(e).(i)	8,430.00	5.33%
	71496	06-05-900-0877505	Germany	Aurubis AG Recyclingzentrum Lünen	2.(e).(i)	6,120.00	3.87%
	79571	01D002750	Poland	KGHM POLSKA MIEDŹ S.A., Zakłady Górnicze RUDNA	3.(a)	6,080.00	3.84%
Copper and compounds (as Cu) total "top5"						**50,630**	**32.00%**
Lead and compounds (as Pb)	10251	57002803	Slovakia	U.S.Steel s.r.o.	2.(b)	38,900.00	7.94%
	70572	06-05-100-0209686	Germany	ThyssenKrupp Steel AG Werk Schwelgern	2.(a)	37,600.00	7.68%
	15021	W005	Belgium	ARCELORMITTAL UPSTREAM sa (COKE FONTE)	2.(b)	28,600.00	5.84%
	5952	EE147275	Estonia	Eesti Energia Narva Elektrijaamad AS, Eesti Elektrijaam	1.(c)	24,100.00	4.92%
	6488	12S000241	Poland	ArcelorMittal Poland S.A., Oddział w Dąbrowie Górniczej	2.(a)	24,000.00	4.90%
Lead and compounds (as Pb) total "top5"						**153,200**	**31.27%**
Mercury and compounds (as Hg)	1298	05E000016	Poland	PGE Elektrownia Bełchatów S.A.	1.(c)	2,600.00	6.87%
	82918	RO4VL_41	Romania	SC OLTCHIM SA	4.(b).(iii)	1,410.00	3.73%
	85936	EW_EA-1451	United Kingdom	INEOS CHLOR LTD, Runcorn Halochemicals	4.(a)	950.00	2.51%
	14245	EL5800876	Greece	PPC S.A. SES AGIOY DHMHTRIOY	1.(c)	932.00	2.46%
	7119	16Z000477	Poland	PGE Zespół Elektrowni Dolna Odra S.A., Elektrownia Szczecin	1.(c)	859.00	2.27%
Mercury and compounds (as Hg) total "top5"						**6,751**	**17.84%**

Pollutant group/ Pollutant	Facility ID	National ID	Country	Facility Name	Main Activity	Total Quantity kg/a	All countries share
Nickel and compounds (as Ni)	14245	EL5800876	Greece	PPC S.A. SES AGIOY DHMHTRIOY	1.(c)	19,100.00	4.98%
	6897	1527	Spain	REPSOL YPF REFINO ESPAÑA. COMPLEJO INDUSTRIAL DE TARRAGONA	1.(a)	13,500.00	3.52%
	88303	P0126/06A	United Kingdom	Coolkeeragh ESB Ltd	1.(c)	11,800.00	3.08%
	13045	EW_EA-122	United Kingdom	Alcan Aluminium UK Ltd, ALCAN LYNEMOUTH SMELTER	2.(e)	10,900.00	2.84%
	6898	1528	Spain	REPSOL PETROLEO S.A.	1.(a)	10,400.00	2.71%
Nickel and compounds (as Ni) total "top5"						**65,700**	**17.14%**
Zinc and compounds (as Zn)	15027	W011	Belgium	DUFERCO LA LOUVIERE sa	2.(b)	37,800.00	3.50%
	77940	2008001123	Italy	ILVA S.P.A. Stabilimento di Taranto	2.(b)	36,000.00	3.34%
	5952	EE147275	Estonia	Eesti Energia Narva Elektrijaamad AS, Eesti Elektrijaam	1.(c)	33,000.00	3.06%
	9056	3641	Spain	SIDENOR INDUSTRIAL, S.L. (SIDENOR INDUSTRIAL (FABRICA DE BASAURI))	2.(b)	32,600.00	3.02%
	82929	RO5CS_203	Romania	SC DUCTIL STEEL SA - Punct de lucru Otelu Rosu	2.(b)	31,900.00	2.96%
Zinc and compounds (as Zn) total "top5"						**171,300**	**15.87%**
Inorganic substances							
Particulate matter (PM10)	65859	17000005	Bulgaria	TETs "Republika"	1.(c)	9,280,000.00	4.60%
	14246	EL5800902	Greece	PPC S.A. SES PTOLEMAIDAS	1.(c)	7,170,000.00	3.56%
	82931	RO5HD_11	Romania	SC ELECTROCENTRALE DEVA SA	1.(c)	6,640,000.00	3.29%
	14247	EL5800949	Greece	PPC S.A. SES KARDIAS	1.(c)	5,800,000.00	2.88%
	14192	EL1201188	Greece	PPC S.A. SES MEGALOPOLIS A'	1.(c)	4,660,000.00	2.31%
Particulate matter (PM10) total "top5"						**33,550,000**	**16.64%**
Other gases							
Ammonia (NH3)	77916	2008000717	Italy	IPPC - Allevamento suini	7.(a)	57,100,000.00	21.38%
	85091	4507	Spain	SELECCIONES AGROPECUARIAS, S.L.	7.(a).(iii)	22,700,000.00	8.50%
	82875	RO3IL_417	Romania	SC AMONIL SA SLOBOZIA	4.(c)	3,280,000.00	1.23%
	82981	RO7AB_41	Romania	SC GHCL UPSOM ROMANIA SA	4.(b).(iv)	2,510,000.00	0.94%
	13154	EW_EA-1567	United Kingdom	KEMIRA GROWHOW UK LTD, Ince Fertiliser Manufacturing Site	4.(c)	1,560,000.00	0.58%
Ammonia (NH3) total "top5"						**87,150,000.00**	**32.63%**
Carbon monoxide (CO)	77940	2008001123	Italy	ILVA S.P.A. Stabilimento di Taranto	2.(b)	248,000,000.00	6.42%
	70572	06-05-100-0209686	Germany	ThyssenKrupp Steel AG Werk Schwelgern	2.(a)	198,000,000.00	5.13%
	70532	06-05-100-0077961	Germany	Hüttenwerke Krupp Mannesmann GmbH	2.(b)	188,000,000.00	4.87%
	14567	vl0006947500 0114	Belgium	ARCELOR MITTAL GENT	2.(b)	173,000,000.00	4.48%
	8930	3486	Spain	ARCELORMITTAL ESPAÑA - PLANTA SIDERÚRGICA DE AVILÉS Y GIJÓN	2.(b)	113,000,000.00	2.93%
Carbon monoxide (CO) total "top5"						**920,000,000.00**	**23.82%**
Nitrogen oxides (NOx/NO2)	1298	05E000016	Poland	PGE Elektrownia Bełchatów S.A.	1.(c)	40,900,000.00	1.46%
	13777	EW_EA-67	United Kingdom	Drax Power Limited, Drax Power Ltd	1.(c)	38,600,000.00	1.37%
	73894	03-02-02221253020	Germany	Drewsen Spezialpapiere GmbH&Co. KG Papierfabrik	6.(b)	30,800,000.00	1.10%
	13368	EW_EA-2316	United Kingdom	RWE npower plc, Aberthaw Power Station	1.(c)	26,100,000.00	0.93%
	14245	EL5800876	Greece	PPC S.A. SES AGIOY DHMHTRIOY	1.(c)	22,600,000.00	0.80%
Nitrogen oxides (NOx/NO2) total "top5"						**159,000,000.00**	**5.66%**

Pollutant group/ Pollutant	Facility ID	National ID	Country	Facility Name	Main Activity	Total Quantity kg/a	All countries share
Non-methane volatile organic compounds (NMVOC)	14463	Scotland-153	United Kingdom	Sullom Voe Terminal	1.(a)	11,800,000.00	2.18%
	14537	Scotland-73	United Kingdom	Glass Factory	3.(e)	11,200,000.00	2.07%
	18	000000019	Lithuania	AB "Mažeikių nafta"	1.(a)	11,100,000.00	2.05%
	78682	1263.0002.01	Norway	STATOIL ASA, Mongstad	1.(a)	9,520,000.00	1.76%
	14524	Scotland-52	United Kingdom	Ineos Manufacturing Scotland Ltd	1.(a)	7,520,000.00	1.39%
Non-methane volatile organic compounds (NMVOC) total "top5"						**51,140,000.00**	**9.45%**
Sulphur oxides (SOx/SO2)	65850	13000002	Bulgaria	"TETs Maritsa iztok 2" EAD	1.(c)	402,000,000.00	9.74%
	14192	EL1201188	Greece	PPC S.A. SES MEGALOPOLIS A'	1.(c)	210,000,000.00	5.09%
	82906	RO4GJ_11	Romania	COMPLEXUL ENERGETIC TURCENI	1.(c)	134,000,000.00	3.25%
	65771	13000004	Bulgaria	Gorivna instalatsias nominalna toplinna moshtnost 1020MWt	1.(c)	109,000,000.00	2.64%
	6995	15P000483	Poland	Zespól Elektrowni Pątnów-Adamów -Konin S.A., Elektrownia Pątnów	1.(c)	86,600,000.00	2.10%
Sulphur oxides (SOx/SO2) total "top5"						**941,600,000.00**	**22.81%**
Other organic substances							
Polycyclic aromatic hydrocarbons (PAHs)	78619	1149.0029.01	Norway	Hydro Aluminium AS Karmøy	2.(e).(i)	57,400.00	24.22%
	6961	15P000003	Poland	Impexmetal S.A. Zakład Aluminium Konin	2.(e)	38,100.00	16.08%
	6789	1478	Spain	ALCOA INESPAL, S.A. - LA CORUÑA	2.(e).(i)	18,700.00	7.89%
	81803	100005851	Portugal	Lisgráfica, Impressão e Artes Gráficas, S.A.	9.(c)	12,200.00	5.15%
	80120	12S002419	Poland	SITA Starol Sp. z o.o., Zakład Produkcji Paliw Alternatywnych	5.(a)	11,100.00	4.68%
Polycyclic aromatic hydrocarbons (PAHs) total "top5"						**137,500.00**	**58.03%**

Note: *Contributions of single facilities of over 10 % to the total E-PRTR emissions are highlighted in blue. Contributions of single facilities of over 50 % to the total E-PRTR emissions are highlighted in red.*

B.5.2 Top polluting facilities for releases to water

Table B.7 below provides information for selected pollutants[28] on the five facilities with the highest share of total E-PRTR releases to water per pollutant. The selected pollutants are:

Heavy metals

Total nitrogen

Total phosphorus

Total organic carbon (TOC)

The complete list of facilities ranked among the E-PRTR top 20 polluting facilities including information on their share in total E-PRTR emission is provided in the stage 1 Excel tool, sheet "E-PRTR TOP20".

The top polluting facilities releasing heavy metals to water mostly have a share between 0 % and 15 % (Cadmium). However, there are outliers for Chromium and Lead and compounds with a share of 92 % and 54 %, respectively, of the top polluting facility. This high share of the top polluter could indicate an anomaly in data and should be checked by countries. For total nitrogen, total phosphorus and total

[28] The list of top 20 E-PRTR facilities for each pollutant (91 in total) can be produced with the *Stage1 tool* distributed to all countries on 30 July 2010 and available at the Eionet CIRCA website at: http://eea.eionet.europa.eu/Members/irc/eionet-circle/e-prtr/library?l=/e-prtr/country_feedback/2010_2008_dataset/stage_stage_august_2010/e-prtr_stage1_uploaded&vm=detailed&sb=Title

organic carbon (TOC) the share of the top five polluters are more evenly distributed in a range between 1 % and 6 %.

Table B.7 Facilities with the highest releases to water of selected pollutants under E-PRTR 2008

Pollutant group/ Pollutant	Facility ID	National ID	Country	Facility Name	Main Activity	Total Quantity kg/a	All countries share
Heavy metals							
Arsenic and compounds (as As)	76453	2007000688	Italy	Impianto di Depurazione di Merone (località Baggero)	5.(f)	3,640	7.91%
	65900	12000024	Bulgaria	Sofiyska prechistvatelna stantsia za otpadachni vodi Kubratovo	5.(f)	1,500	3.26%
	79524	06K001688	Poland	Zakłady Górniczo-Hutnicze BOLESŁAW S.A., Pion Górniczo - Przeróbczy - Kopalnia	3.(a)	1,240	2.70%
	12857	CZ39774818	Czech Republic	Sokolovská uhelná,právní nástupce,a.s.-zpracovatelská část	1.(c)	1,030	2.24%
	65668	BxI12	Belgium	Station d'épuration De Bruxelles Nord	5.(f)	996	2.17%
Arsenic and compounds (as As) total "top5"						**8,406**	**18.27%**
Cadmium and compounds (as Cd)	69191	759.17800	France	STEP - Douai	5.(f)	3,320	15.36%
	65900	12000024	Bulgaria	Sofiyska prechistvatelna stantsia za otpadachni vodi Kubratovo	5.(f)	2,530	11.71%
	80657	01D000706	Poland	Miejskie Przedsiębiorstwo Wodociągów i Kanalizacji Sp. z o.o., Wrocławska Oczyszczalnia Ścieków Janówek	5.(f)	1,740	8.05%
	82353	RO1IS_51	Romania	SC APAVITAL SA IASI-STATIA DE EPURARE IASI	5.(f)	1,320	6.11%
	79524	06K001688	Poland	Zakłady Górniczo-Hutnicze BOLESŁAW S.A., Pion Górniczo - Przeróbczy - Kopalnia	3.(a)	991	4.59%
Cadmium and compounds (as Cd) total "top5"						**9,901**	**45.81%**
Chromium and compounds (as Cr)	65668	BxI12	Belgium	Station d'épuration De Bruxelles Nord	5.(f)	8,410,000	92.49%
	4200	064.00001	France	Aluminium Pechiney Usine de Gardanne	2.(e).(i)	446,000	4.90%
	69191	759.17800	France	STEP - Douai	5.(f)	75,900	0.83%
	4788	070.00922	France	TIOXIDE EUROPE S.A.S	4.(a).(x)	15,000	0.16%
	65771	13000004	Bulgaria	Gorivna instalatsias nominalna toplinna moshtnost 1020MWt	1.(c)	6,490	0.07%
Chromium and compounds (as Cr) total "top5"						**8,953,390**	**98.46%**
Copper and compounds (as Cu)	69191	759.17800	France	STEP - Douai	5.(f)	344,000	46.98%
	82688	RO7AB_313	Romania	SC ENERGO MINERAL SA - Depozite de sterile	3.(b)	20,800	2.84%
	77940	2008001123	Italy	ILVA S.P.A. Stabilimento di Taranto	2.(b)	9,590	1.31%
	12893	DECCOffsh-Brent-Charlie	United Kingdom	Brent Charlie	1.(c)	9,310	1.27%
	4200	064.00001	France	Aluminium Pechiney Usine de Gardanne	2.(e).(i)	6,400	0.87%
Copper and compounds (as Cu) total "top5"						**390,100**	**53.27%**
Lead and compounds (as Pb)	69191	759.17800	France	STEP - Douai	5.(f)	159,000	54.24%
	79524	06K001688	Poland	Zakłady Górniczo-Hutnicze BOLESŁAW S.A., Pion Górniczo - Przeróbczy - Kopalnia	3.(a)	24,500	8.36%
	4200	064.00001	France	Aluminium Pechiney Usine de Gardanne	2.(e).(i)	16,300	5.56%
	65900	12000024	Bulgaria	Sofiyska prechistvatelna stantsia za otpadachni vodi Kubratovo	5.(f)	7,120	2.43%
	66241	CZ37836663	Czech Republic	Provoz ČOV	5.(f)	2,770	0.94%
Lead and compounds (as Pb) total "top5"						**209,690**	**71.53%**

Pollutant group/ Pollutant	Facility ID	National ID	Country	Facility Name	Main Activity	Total Quantity kg/a	All countries share
Inorganic substances							
Total nitrogen	81993	100016020	Portugal	ETAR de Ribeira de Moinhos	5.(f)	28,100,000	6.41%
	69778	778.00501	France	STEP - Seine Aval	5.(f)	21,400,000	4.88%
	88517	EW_EA-2677	United Kingdom	THAMES WATER UTILITIES LTD, BECKTON STW	5.(f)	9,530,000	2.18%
	83455	7489	Spain	EDAR DE BESÒS	5.(f)	6,310,000	1.44%
	75688	551298-3029x	Iceland	Fráveita - Veitur, Klettagörðum	5.(f)	4,760,000	1.09%
Total nitrogen total "top5"						**70,100,000**	**16.00%**
Total phosphorus	88517	EW_EA-2677	United Kingdom	THAMES WATER UTILITIES LTD, BECKTON STW	5.(f)	1,530,000	3.58%
	74920	ELA400912	Greece	EYDAP S.A. - PSYTTALIA WASTEWATER TREATMENT PLANT	5.(f)	1,100,000	2.57%
	75688	551298-3029x	Iceland	Fráveita - Veitur, Klettagörðum	5.(f)	801,000	1.87%
	87590	EW_EA-7258	United Kingdom	MOGDEN STW	5.(f)	749,000	1.75%
	75687	551298-3029	Iceland	Fráveita - Veitur, Ánanaust	5.(f)	744,000	1.74%
Total phosphorus total "top5"						**4,924,000**	**11.52%**
Other organic substances							
Total organic carbon (TOC) (as total C or COD/3)	65916	09000022	Bulgaria	MONDI STAMBOLIYSKI EAD	6.(b)	40,100,000	5.59%
	65833	04000004	Bulgaria	Instalatsia za proizvodstvo na sulfatno izbelena tseluloza ot shirokolistna darvesina (Zavod za tseluloza), Instalatsia za proizvodstvo na karboksimetil tseluloza i Depo za proizvodstveni otpadatsi-Sviloza AD	6.(a)	33,300,000	4.64%
	69778	778.00501	France	STEP - Seine Aval	5.(f)	11,900,000	1.66%
	81791	100017120	Portugal	ETAR da GUIA	5.(f)	11,800,000	1.64%
	86941	EW_EA-5284	United Kingdom	Portobello STW (Brighton)	5.(f)	11,300,000	1.57%
Total organic carbon (TOC) (as total C or COD/3) total "top5"						**108,400,000**	**15.11%**

Note: *Contributions of single facilities of over 10 % to the total E-PRTR emissions are highlighted in blue. Contributions of single facilities of over 50 % to the total E-PRTR emissions are highlighted in red.*

B.5.3 Top polluting facilities for transfers in water

Table B.8 below provides information for selected pollutants[29] on the five facilities with the highest share of total E-PRTR transfers in water per pollutant. The selected pollutants are:

Heavy metals

Total nitrogen

Total phosphorus

Total organic carbon (TOC)

The complete list of facilities ranked among the E-PRTR top 20 polluting facilities including information on their share in total E-PRTR emission is provided in the stage 1 Excel tool, sheet "E-PRTR TOP20".

[29] The list of top 20 E-PRTR facilities for each pollutant (91 in total) can be produced with the *Stage1 tool* distributed to all countries 30 July 2010 and available at the Eionet CIRCA website at: http://eea.eionet.europa.eu/Members/irc/eionet-circle/e-prtr/library?l=/e-prtr/country_feedback/2010_2008_dataset/stage_stage_august_2010/e-prtr_stage1_uploaded&vm=detailed&sb=Title

Table B.8 Facilities with the highest transfers to water of selected pollutants under E-PRTR 2008

Pollutant group/ Pollutant	Facility ID	National ID	Country	Facility Name	Main Activity	Total Quantity kg/a	All countries share
Heavy metals							
Arsenic and compounds (as As)	214	01D000168	Poland	KGHM POLSKA MIEDŹ S.A., Huta Miedzi GŁOGÓW	2.(e)	220,000	93.09%
	212	01D000166	Poland	KGHM POLSKA MIEDŹ S.A., Huta Miedzi LEGNICA	5.(d)	13,300	5.63%
	211	01D000161	Poland	Instytut Metali Nieżelaznych Oddział Legnica	2.(e)	384	0.16%
	70223	03-09-09090117300	Germany	Weser - Metall GmbH	2.(e).(i)	303	0.13%
	83541	7376	Spain	AQUALIA - EDAR TALAVERA DE LA REINA	5.(f)	287	0.12%
Arsenic and compounds (as As) total "top5"						**234,274**	**99.13%**
Cadmium and compounds (as Cd)	211	01D000161	Poland	Instytut Metali Nieżelaznych Oddział Legnica	2.(e)	2,520	45.67%
	70223	03-09-09090117300	Germany	Weser - Metall GmbH	2.(e).(i)	1,050	19.03%
	88304	P0127/06A	United Kingdom	Langford Lodge Engineering Co. Ltd	2.(f)	340	6.16%
	212	01D000166	Poland	KGHM POLSKA MIEDŹ S.A., Huta Miedzi LEGNICA	5.(d)	335	6.07%
	214	01D000168	Poland	KGHM POLSKA MIEDŹ S.A., Huta Miedzi GŁOGÓW	2.(e)	327	5.93%
Cadmium and compounds (as Cd) total "top5"						**4,572**	**82.85%**
Chromium and compounds (as Cr)	5209	09R000054	Poland	Delphi Poland S.A. Oddział Krosno	2.(f)	19,500	33.71%
	4131	063.01099	France	COMPAGNIE EUROPEENNE DE TANNAGE	9.(b)	7,920	13.69%
	87726	EW_EA-958	United Kingdom	DMI (UK) Ltd , North Shields Surface Treatment Plant	2.(f)	3,250	5.62%
	77908	2008000702	Italy	NUOVA CONCERIA PELLIZZARI SPA UNIPERSONALE	9.(c)	3,180	5.50%
	12860	CZ53884341	Czech Republic	Synthesia a. s.	4.(a).(x)	2,720	4.70%
Chromium and compounds (as Cr) total "top5"						**36,570**	**63.23%**
Copper and compounds (as Cu)	86427	EW_EA-2564	United Kingdom	St. Regis Paper Company Limited, Kemsley Paper Mill	6.(a)	25,900	22.74%
	214	01D000168	Poland	KGHM POLSKA MIEDŹ S.A., Huta Miedzi GŁOGÓW	2.(e)	23,900	20.98%
	212	01D000166	Poland	KGHM POLSKA MIEDŹ S.A., Huta Miedzi LEGNICA	5.(d)	10,600	9.31%
	9031	3615	Spain	FINITEXTIL, S.L.	9.(a)	9,230	8.10%
	70960	06-05-300-9047821	Germany	Saltigo GmbH	4.(a)	3,410	2.99%
Copper and compounds (as Cu) total "top5"						**73,040**	**64.12%**
Lead and compounds (as Pb)	214	01D000168	Poland	KGHM POLSKA MIEDŹ S.A., Huta Miedzi GŁOGÓW	2.(e)	62,200	64.14%
	65875	12000014	Bulgaria	Kremikovtsi AD	2.(b)	15,100	15.57%
	212	01D000166	Poland	KGHM POLSKA MIEDŹ S.A., Huta Miedzi LEGNICA	5.(d)	4,140	4.27%
	70223	03-09-09090117300	Germany	Weser - Metall GmbH	2.(e).(i)	1,870	1.93%
	79969	02C 000447	Poland	Zakłady Chemiczne ZACHEM S.A.	4.(b)	1,050	1.08%
Lead and compounds (as Pb) total "top5"						**84,360**	**86.99%**

Pollutant group/ Pollutant	Facility ID	National ID	Country	Facility Name	Main Activity	Total Quantity kg/a	All countries share
Mercury and compounds (as Hg)	70223	03-09-09090117300	Germany	Weser - Metall GmbH	2.(e).(i)	712	33.52%
	71023	06-05-500-0152577	Germany	Infracor GmbH	1.(c)	504	23.73%
	212	01D000166	Poland	KGHM POLSKA MIEDŹ S.A., Huta Miedzi LEGNICA		314	14.78%
	87221	EW_EA-6111	United Kingdom	Novartis Vaccines and Diagnostics Limited, Chiron Vaccines Site 1,2,3,4	4.(e)	80	3.77%
	83135	77070511	Slovakia	Kia Motors Slovakia, s.r.o.	9.(c)	80	3.75%
Mercury and compounds (as Hg) total "top5"						**1,690**	**79.54%**
Nickel and compounds (as Ni)	214	01D000168	Poland	KGHM POLSKA MIEDŹ S.A., Huta Miedzi GŁOGÓW	2.(e)	13,800	24.50%
	74041	06-05-500-0053929	Germany	RUHR OEL GMBH Werk Scholven	1.(a)	3,820	6.78%
	12849	CZ86757407	Czech Republic	závod Mladá Boleslav	2.(e).(ii)	3,320	5.89%
	79969	02C 000447	Poland	Zakłady Chemiczne ZACHEM S.A.	4.(b)	2,160	3.83%
	70955	06-05-300-9047369	Germany	LANXESS Deutschland GmbH	4.(a)	2,080	3.69%
Nickel and compounds (as Ni) total "top5"						**25,180**	**44.70%**
Zinc and compounds (as Zn)	5763	20000.00002	Austria	Lenzing AG	4.(a)	1,290,000	69.73%
	214	01D000168	Poland	KGHM POLSKA MIEDŹ S.A., Huta Miedzi GŁOGÓW	2.(e)	204,000	11.03%
	66097	CZ56976407	Czech Republic	Glanzstoff - Bohemia s.r.o.	4.(a).(viii)	39,800	2.15%
	65902	04000028	Bulgaria	zavod za izkustvena koprina	4.(a).(viii)	34,400	1.86%
	212	01D000166	Poland	KGHM POLSKA MIEDŹ S.A., Huta Miedzi LEGNICA	5.(d)	33,100	1.79%
Zinc and compounds (as Zn) total "top5"						**1,601,300**	**86.56%**
Inorganic substances							
Total nitrogen	13144	EW_EA-1545	United Kingdom	Johnson Matthey plc, CLITHEROE CATALYST FACTORY	4.(a)	4,370,000	9.68%
	74175	07-04-6388757	Germany	Sutter	8.(b).(i)	2,180,000	4.83%
	13836	EW_EA-811	United Kingdom	Corus UK Limited, TEESSIDE INTEGRATED IRON AND STEELWORKS	2.(c)	1,730,000	3.83%
	73964	06-05-100-0006538	Germany	ThyssenKrupp Nirosta GmbH	2.(b)	1,490,000	3.30%
	13539	EW_EA-2791	United Kingdom	United Utilities Water Plc, Mersey Valley Processing Centre (MVPC)	5.(b)	1,390,000	3.08%
Total nitrogen total "top5"						**11,160,000**	**24.72%**
Total phosphorus	71787	06-70007370412	Germany	Clariant Produkte (Deutschland) GmbH, Standort Rhein-Main, Betriebsteil Frankfurt-Höchst	4.(a).(x)	505,000	6.52%
	5679	10006	Nether-lands	Shell Nederland Chemie BV (Hoogvliet)	4.(a)	353,000	4.56%
	69378	059.01243	France	EUROSERUM	8.(c)	268,000	3.46%
	74175	07-04-6388757	Germany	Sutter	8.(b).(i)	222,000	2.87%
	86386	EW_EA-2213	United Kingdom	Thermphos Ltd, Widnes Phosphates	4.(b)	205,000	2.65%
Total phosphorus total "top5"						**1,553,000**	**20.04%**

Pollutant group/ Pollutant	Facility ID	National ID	Country	Facility Name	Main Activity	Total Quantity kg/a	All countries share
Other organic substances							
Total organic carbon (TOC) (as total C or COD/3)	87338	EW_EA-6457	United Kingdom	WEETABIX LTD, Weetabix Burton Latimar Site	8.(b)	176,000,000	31.72%
	5893	20000.00377	Austria	Sappi Austria Produktions-GmbH & Co. KG	6.(b)	11,900,000	2.14%
	73804	16-86-02000010000	Germany	Papierfabrik Adolf Jass Schwarza GmbH	6.(b)	11,000,000	1.98%
	5763	20000.00002	Austria	Lenzing AG	4.(a)	7,350,000	1.32%
	71779	06-59940040414	Germany	SE Tylose GmbH & Co. KG	4.(a).(ii)	4,990,000	0.90%
Total organic carbon (TOC) (as total C or COD/3) total "top5"						**211,240,000**	**38.07%**

Note: *Contributions of single facilities of over 10 % to the total E-PRTR emissions are highlighted in blue. Contributions of single facilities of over 50 % to the total E-PRTR emissions are highlighted in red.*

For the heavy metals the share of the top polluters lies in a wide range between 1 % and 93 %. For Arsenic and compounds the top polluting facility from Poland accounts for 93 %, for Lead and compounds another Polish facility accounts for 64 % and for Zinc and compounds one Austrian facility accounts for 70 % of the total E-PRTR releases of the respective pollutant. For total phosphorus and total nitrogen the shares of the top five polluters are distributed more evenly between 3 % and 10 %. For total organic carbon, however, the top polluter has a share of 32 % (United Kingdom). The high share of the top polluters for heavy metals and total organic carbon could indicate an anomaly in data and should be checked by countries.

B.5.4 Top polluting facilities for waste transfers

Table B.9 below provides information on the top ten facilities with the highest share of total E-PRTR waste transfers by waste type:

Hazardous waste outside country

Hazardous waste transferred within the country

Non hazardous waste

For hazardous waste transferred outside country one facility in the Netherlands accounts for 59 % of the total E-PRTR hazardous waste transfers outside country. This is possibly an anomaly that has to be investigated by the Netherlands. For the other facilities the share in total E-PRTR waste transfers of hazardous waste outside country ranges between 0.5 % and 3 %. The share of the top polluters transferring hazardous waste within country range between 0.5 % and 10 % with the top facility from Spain accounting for nearly 10 % of the total E-PRTR transfers of hazardous waste within country. For non hazardous waste the top ten facilities account for 2 % to 8 % of total E-PRTR transfers of non hazardous waste.

Table B.9 Top 10 facilities with the highest waste transfers per waste type under E-PRTR 2008

WasteType	Facility ID	National ID	Country	Facility Name	Main Activity	Total Quantity [t/a]	All countries share [%]
Hazardous waste outside country	9538	44009	Netherlands	NV Afvalverbranding Zuid-Nederland	5.(b)	4,638,000	59.06%
	75733	P0164	Ireland	Becbay Limited	3.(e)	224,400	2.86%
	68145	062.01748	France	URSA FRANCE	3.(e)	123,000	1.57%
	77796	2008000490	Italy	AZ. AGRICOLA BOLDINI ALBINO E ALBERTO SS	7.(a)	112,009	1.43%
	77774	2008000447	Italy	Systema Ambiente unità operativa ex Ecoservizi	5.(a)	111,380	1.42%
	82056	100004258	Portugal	Central Termoeléctrica de Sines	1.(c)	80,100	1.02%
	5868	20000.00256	Austria	voestalpine Stahl GmbH	2.(b)	79,000	1.01%
	78468	41521	Netherlands	Afvalstoffen Terminal Moerdijk BV (ATM)	5.(a)	67,642	0.86%
	65403	vl0060679500 0156	Belgium	APPAREC	5.(a)	59,100	0.75%
	75828	W0050	Ireland	Veolia Environmental Services Technical Solutions Ltd	5.(a)	49,420	0.63%
Hazardous waste outside country - top 10 total						**5,544,051**	**70.60%**
Hazardous waste within country	84713	5272	Spain	ECOCAT (ANTIGUO CESPA CONTEN)	5.(a)	3,471,460	9.78%
	77750	2008000372	Italy	SMORLESI GAETANA, CECILIA & C SPA	3.(g)	1,316,517	3.71%
	5953	EE147276	Estonia	Eesti Energia Õlitööstus AS, Õlitehas	1.(a)	647,200	1.82%
	67285	1376	Finland	Boliden Kokkola Oy, Sinkkitehdas	2.(a)	593,570	1.67%
	72418	06-08-9483519	Germany	Albert Huthmann GmbH & Co. KG Spezialbaustoffe	5.(a)	542,000	1.53%
	77322	2007001989	Italy	LAGOR SPA	4.(a)	489,900	1.38%
	67155	1152	Finland	Boliden Harjavalta Oy, Harjavallan tehtaat	2.(e).(ii)	379,005	1.07%
	82301	100004423	Portugal	Gamil - Galvanização do Minho, Lda.	2.(f)	340,000	0.96%
	498	03L000044	Poland	Krajowa Spółka Cukrowa S.A., Oddział Cukrownia Krasnystaw	8.(b)	264,570	0.75%
	78537	0106.0083.01	Norway	KRONOS TITAN AS	4.(a).(x)	222,010	0.63%
Hazardous waste within country - top 10 total						**8,266,232**	**23.29%**
Non-hazardous waste	78448	203417	Netherlands	Van Rooi Meat BV (Helmond)	8.(a)	28,600,000	7.69%
	79399	01D002751	Poland	KGHM POLSKA MIEDŹ S.A., Zakłady Wzbogacania Rud - Rejon RUDNA	3.(a)	13,730,000	3.69%
	78459	220480	Netherlands	RWZI Zwanenburg	5.(f)	9,460,000	2.54%
	85772	187	Switzerland	DSM Nutritional Products AG - Werk Lalden / Zweigniederlassung Werk Lalden	4.(a).(i)	8,510,000	2.29%
	8857	3367	Spain	AZUCARERA DE LA BAÑEZA	8.(b).(ii)	8,420,000	2.26%
	85610	2313-60-001	Sweden	Lidens avfallsanläggning	5.(a)	7,780,000	2.09%
	213	01D000167	Poland	KGHM POLSKA MIEDŹ S.A., Zakłady Wzbogacania Rud - Rejon POLKOWICE	5.(a)	7,480,000	2.01%
	84946	2081	Spain	INDUSTRIAS HERGOM	2.(d)	7,096,400	1.91%
	79523	01D001462	Poland	KGHM POLSKA MIEDŹ S.A., Zakłady Wzbogacania Rud - Rejon Lubin	3.(a)	6,490,000	1.75%
	65850	13000002	Bulgaria	"TETs Maritsa iztok 2" EAD	1.(c)	3,340,000	0.90%
Non-hazardous waste - top 10 total						**100,906,400**	**27.14%**

Note: *Contributions of single facilities of over 50 % to the total E-PRTR emissions are highlighted in red.*

B.6 Contribution of individual facilities to E-PRTR emissions to air for 2008 – sector/activity level

This section shows top three E-PRTR 2008 facilities for selected pollutants (CO_2, SO_x, NO_x, NMVOC, NH_3 and PM_{10}) for each of the E-PRTR activities plus the list of facilities which contribute more than 20 % to total E-PRTR emissions of other pollutants.

B.6.1 Energy (E-PRTR activity 1)

Table B.10 shows three facilities with the highest releases to air for CO_2, NO_x/NO_2, SO_x/SO_2 and PM_{10} reported in Sector 1 (Energy). For CO_2 and NO_x/NO_2 individual facilities contribute to activity 1 E-PRTR emissions with less than 2 % ('all countries share').

For SO_2 and PM_{10} the top three facilities produce together almost 18 % and 14 % respectively of total SO_2 and PM_{10} E-PRTR Energy emissions. Releases of 1,1,2,2-tetrachloroethane in activity 1 are reported by only one facility in the United Kingdom.

Table B.10 Facilities with the highest releases to air of selected pollutants reported in E-PRTR Activity 1 - Energy under E-PRTR 2008

Pollutant	Facility ID	National ID	Country	Facility Name	Main Activity	Total Quantity kg/a	All countries share
Carbon dioxide (CO2)	1298	05E000016	Poland	PGE Elektrownia Bełchatów S.A.	1.(c)	30.900.000.000,000	1,56%
	70824	06-05-300-0326774	Germany	RWE Power AG Kraftwerk Niederaußem	1.(c)	24.900.000.000,000	1,26%
	73175	12-40710010000	Germany	Vattenfall Europe Generation AG Kraftwerk Jänschwalde	1.(c)	23.500.000.000,000	1,19%
Nitrogen oxides (NOx/NO2)	1298	05E000016	Poland	PGE Elektrownia Bełchatów S.A.	1.(c)	40.900.000,000	1,46%
	13777	EW_EA-67	United Kingdom	Drax Power Limited, Drax Power Ltd	1.(c)	38.600.000,000	1,37%
	13368	EW_EA-2316	United Kingdom	RWE npower plc, Aberthaw Power Station	1.(c)	26.100.000,000	0,93%
Particulate matter (PM10)	65859	17000005	Bulgaria	TETs "Republika"	1.(c)	9.280.000,000	6,85%
	14246	EL5800902	Greece	PPC S.A. SES PTOLEMAIDAS	1.(c)	7.170.000,000	3,56%
	82931	RO5HD_11	Romania	SC ELECTROCENTRALE DEVA SA	1.(c)	6.640.000,000	3,29%
Sulphur oxides (SOx/SO2)	65850	13000002	Bulgaria	"TETs Maritsa iztok 2" EAD	1.(c)	402.000.000,000	9,74%
	14192	EL1201188	Greece	PPC S.A. SES MEGALOPOLIS A'	1.(c)	210.000.000,000	5,09%
	82906	RO4GJ_11	Romania	COMPLEXUL ENERGETIC TURCENI	1.(c)	134.000.000,000	3,25%
Other pollutants							
1,1,2,2-tetrachloroethane	88468	EW_EA-10174	United Kingdom	Total Uk Ltd, Lindsey Oil Refinery	1.(a)	16.000,000	58,85%
oxide	9119	37012102	Slovakia	Slovnaft, a.s.	1.(a)	21.200,000	27,02%

Note: *Contributions of over 50 % to the total E-PRTR emissions are highlighted in red, those over 2 % are highlighted in blue.*

B.6.2 Production and processing of metals (E-PRTR activity 2)

Table B.11 shows the three facilities with the highest releases to air for CO_2, NO_x/NO_2, CO, heavy metals and other selected pollutants reported in Sector 2 – Production and processing of metals. For CO_2 and NO_x/NO_2 the share of the top three polluters lies below 1 %. For CO and heavy metals the share of the top polluters lies in the range between 1 % and 6 %. The pollutants Chlorides (as total Cl), Hexabromobiphenyl and Hexachlorobenzene (HCB) are only reported by one facility each.

Table B.11 Facilities with the highest releases to air of selected pollutants reported in Activity 2 - Production and processing of metals under E-PRTR 2008

Pollutant	Facility ID	National ID	Country	Facility Name	Main Activity	Total Quantity kg/a	All countries
Arsenic and compounds (as As)	8893	3421	Spain	FÁBRICA DE HUELVA	2.(e).(i)	1.580	3,68%
	71035	06-05-500-0279116	Germany	Ruhr-Zink GmbH Zinkhütte	2.(a)	1.290	3,00%
	10251	57002803	Slovakia	U.S.Steel s.r.o.	2.(b)	1.240	2,89%
Cadmium and compounds (as Cd)	10557	CZ95150686	Czech	ArcelorMittal Ostrava a.s.	2.(c).(i)	1.060	5,59%
	7974	23301	Netherland	Corus Staal BV	2.(b)	730	3,85%
	6488	12S000241	Poland	ArcelorMittal Poland S.A., Oddział w Dąbrowie Górniczej	2.(a)	684	3,60%
Carbon dioxide (CO2)	4797	070.00956	France	ARCELORMITTAL SITE DE	2.(c).(i)	11.500.000.000	0,58%
	77940	2008001123	Italy	ILVA S.P.A. Stabilimento di	2.(b)	10.700.000.000	0,54%
	10251	57002803	Slovakia	U.S.Steel s.r.o.	2.(b)	8.960.000.000	0,45%
Carbon monoxide (CO)	77940	2008001123	Italy	ILVA S.P.A. Stabilimento di	2.(b)	248.000.000	6,42%
	70572	06-05-100-0209686	Germany	ThyssenKrupp Steel AG Werk Schwelgern	2.(a)	198.000.000	5,13%
	70532	06-05-100-0077961	Germany	Hüttenwerke Krupp Mannesmann GmbH	2.(b)	188.000.000	4,87%
Mercury and compounds (as Hg)	66379	CZ40779097	Czech	ŽELEZÁRNY Hrádek a. s.	2.(b)	381	1,01%
	10557	CZ95150686	Czech	ArcelorMittal Ostrava a.s.	2.(c).(i)	330	0,87%
	7974	23301	Netherland	Corus Staal BV	2.(b)	258	0,68%
Nitrogen oxides (NOx/NO2)	77940	2008001123	Italy	ILVA S.P.A. Stabilimento di	2.(b)	12.500.000	0,44%
	13045	EW_EA-122	United Kingdom	Alcan Aluminium UK Ltd, ALCAN LYNEMOUTH SMELTER	2.(e)	7.800.000	0,28%
	8930	3486	Spain	ARCELORMITTAL ESPAÑA - PLANTA SIDERÚRGICA DE AVILÉS	2.(b)	6.920.000,00	0,25%
Anthracene	7917	2281-103	Sweden	Kubikenborg Aluminium AB	2.(e).(i)	3.990,00	42,00%
	15021	W005	Belgium	ARCELORMITTAL UPSTREAM sa (COKE FONTE)	2.(b)	2.890,00	30,42%
	15022	W006	Belgium	CARSID S.A. (coke-fonte	2.(b)	1.850,00	19,47%
Fluorides (as total F)	78619	1149.0029.01	Norway	Hydro Aluminium AS Karmøy	2.(e).(i)	131.000,00	25,26%
	78752	1563.0008.01	Norway	Hydro Aluminium AS Sunndal	2.(e).(i)	114.000,00	21,98%
	78647	1224.0008.01	Norway	Sør-Norge Aluminium	2.(e).(i)	70.700,00	13,63%
Pentachlorobenzene	15104	W092	Belgium	ARCELORMITTAL UPSTREAM LIEGE sa - Chertal (Acierie, CC, Laminoir a chaud)	2.(b)	981	53,07%
	67074	1257	Finland	Ovako Bar Oy Ab, Imatran	2.(b)	640	34,62%
	15021	W005	Belgium	ARCELORMITTAL UPSTREAM sa (COKE FONTE)	2.(b)	158	8,55%
Pentachlorophenol (PCP)	15104	W092	Belgium	ARCELORMITTAL UPSTREAM LIEGE sa - Chertal (Acierie, CC, Laminoir a chaud)	2.(b)	981	53,69%
	65164	W197	Belgium	ARCELORMITTAL-STAINLESS BELGIUM Chatelet	2.(b)	685	37,49%
	15021	W005	Belgium	ARCELORMITTAL UPSTREAM sa (COKE FONTE)	2.(b)	113	6,19%
Other pollutants							
1,1,2,2-tetrachloroethane	15021	W005	Belgium	ARCELORMITTAL UPSTREAM sa (COKE FONTE)	2.(b)	7.640,0	28,10%
Chlorides (as total Cl)	78584	1001.0099.01	Norway	Xstrata Nikkelverk	2.(e).(i)	5.500,0	99,32%
Hexabromobiphenyl	65204	Bxl02	Belgium	Fonderie et Manufacture des Métaux	2.(e).(i)	2,9	100,00%
Hexachlorobenzene (HCB)	65164	W197	Belgium	ARCELORMITTAL-STAINLESS BELGIUM Chatelet	2.(b)	477,0	64,82%
Polychlorinated biphenyls (PCBs)	77940	2008001123	Italy	ILVA S.P.A. Stabilimento di Taranto	2.(b)	30,8	21,46%
Polycyclic aromatic hydrocarbons (PAHs)	78619	1149.0029.01	Norway	Hydro Aluminium AS Karmøy	2.(e).(i)	57.400,0	24,22%
Tetrachloroethylene (PER)	15119	W113	Belgium	SONACA sa	2.(f)	234.000,0	37,45%

Note: *Contributions of over 50 % to the total E-PRTR emissions are highlighted in red, those over 2 % are highlighted in blue.*

B.6.3 Mineral Industry (E-PRTR activity 3)

E-PRTR 2008 releases from CO_2, NMVOC and PM_{10} are distributed evenly between the number of facilities with a share of top three of a maximum of 2.1 %. However, 1,2,3,4,5,6-hexachlorocyclohexane (HCH) was only reported by one facility in France and all top polluters for Phenols and Total organic carbon (TOC) were reported by Norway.

Table B.12 Facilities with the highest releases to air of selected pollutants reported in Activity 3 – Mineral industry under E-PRTR 2008

Pollutant	Facility ID	National ID	Country	Facility Name	Main Activity	Total Quantity kg/a	All countries share
Carbon dioxide (CO2)	14213	EL4301082	Greece	HERACLES G.C.Co, VOLOS PLANT	3.(c)	2.630.000.000	0,13%
	70595	06-05-100-0238246	Germany	Rheinkalk GmbH Werk Flandersbach	3.(c).(ii)	2.330.000.000	0,12%
	7040	162	Denmark	Aalborg Portland	3.(c)	2.240.000.000	0,11%
Non-methane volatile organic compounds (NMVOC)	14537	Scotland-73	United Kingdom	Glass Factory	3.(e)	11.200.000	2,07%
	6908	1535	Spain	CASTELLAR VIDRIO, S.A. (ABANS VALVITRUM S.A.)	3.(e)	2.480.000	0,46%
	13067	EW_EA-1269	United Kingdom	Hanson Building Products Limited, WHITTLESEY BRICKWORKS	3.(g)	1.190.000	0,22%
Particulate matter (PM10)	9891	50	Cyprus	VASSILIKO CEMENT WORKS PUBLIC COMPANY LTD, Vassilikos Plant	3.(c).(i)	1.260.000	0,63%
	9968	51	Cyprus	VASSILIKO CEMENT WORKS PUBLIC COMPANY LTD, Moni Plant	3.(c).(i)	652.000	0,32%
	83955	2624	Spain	CERÁMICAS ALONSO, S.L. CASTELLO DE RUGAT	3.(g)	462.000	0,23%
Phenols (as total C)	78540	0124.0008.01	Norway	GLAVA AS, Askim	3.(e)	24.000	69,93%
	78808	1714.0031.01	Norway	GLAVA AS, Stjørdal	3.(e)	3.900	11,36%
	78765	1601.0117.01	Norway	ROCKWOOL AS, Trondheim	3.(f)	3.060	8,92%
Total organic carbon (TOC) (as total C or COD/3)	78568	0805.0028.01	Norway	Norcem A.S, Brevik	3.(c)	29.700	63,41%
	78867	1850.0002.01	Norway	NORCEM AS, Kjøpsvik	3.(c)	6.630	14,16%
	79057	1729.0010.01	Norway	Verdalskalk A.S	3.(c).(ii)	639	1,36%
Other pollutants							
1,2,3,4,5,6-hexachlorocyclohex	4823	070.01209	France	IMERYS TC - SITE DE PHALEMPIN	3.(g)	100	100,00%

Note: *Contributions of over 50 % to the total E-PRTR emissions are highlighted in red, those over 2 % are highlighted in blue.*

B.6.4 Chemical Industry (E-PRTR activity 4)

The share of the releases of the top three facilities from the *chemical industry* in total E-PRTR releases ('All countries share') for the pollutants NH_3, NMVOC, NO_x/NO_2 and SO_x/SO_2 is distributed evenly and lies in a range from 0.15 % to 1.3 %. However, facilities/pollutants with an all countries share above 20 % are listed in Table B.13. The top polluter for Xylenes (United Kingdom) and Total nitrogen (Norway) had both a share of 100 % of the in total E-PRTR emissions to air for the respective pollutant. These pollutants are not included in the E-PRTR Regulation as pollutants which are normally released to air and these releases could therefore be reporting mistakes.

Table B.13 Facilities with the highest releases to air of selected pollutants reported in Activity 4 – Chemical industry under E-PRTR 2008

Pollutant	Facility ID	National ID	Country	Facility Name	Main Activity	Total Quantity kg/a	All countries share
Ammonia (NH3)	82875	RO3IL_417	Romania	SC AMONIL SA SLOBOZIA	4.(c)	3.280.000	1,23%
	82981	RO7AB_41	Romania	SC GHCL UPSOM ROMANIA SA	4.(b).(iv)	2.510.000	0,94%
	13154	EW_EA-1567	United Kingdom	KEMIRA GROWHOW UK LTD, Ince Fertiliser Manufacturing Site	4.(c)	1.560.000	0,58%
Nitrogen oxides (NOx/NO2)	4675	06K000440	Poland	Zakłady Azotowe w Tarnowie-Mościcach S.A.	4.(a)	6.320.000	0,22%
	6838	CZ17751142	Czech Republi	CHEMOPETROL	4.(a).(i)	5.690.000	0,20%
	83004	RO7MS_43	Romania	SC AZOMURES SA	4.(c)	5.280.000	0,19%
Non-methane volatile organic compounds (NMVOC)	72840	06-09-676-0081-0001	Germany	Cordenka GmbH	4.(a).(viii)	7.170.000	1,32%
	82918	RO4VL_41	Romania	SC OLTCHIM SA	4.(b).(iii)	7.080.000	1,31%
	86052	E247_73	United Kingdom	Interfloor Ltd	4.(a).(v)	4.690.000	0,87%
Sulphur oxides (SOx/SO2)	509	03L000438	Poland	Zakłady Azotowe "Puławy" S.A.	4.(c)	8.300.000	0,20%
	80049	02C 000165	Poland	Soda Polska CIECH Sp. z o.o., Zakład Produkcyjny JANIKOSODA w Janikowie	4.(b)	6.300.000	0,15%
	6838	CZ17751142	Czech Republi	CHEMOPETROL	4.(a).(i)	6.140.000	0,15%
1,2-dichloroethane (DCE)	4260	064.00982	France	VINYLFOS	4.(a).(vi)	379.000	28,44%
	4256	064.00942	France	ARKEMA	4.(a).(vi)	236.000	17,71%
	85936	EW_EA-1451	United Kingdo	INEOS CHLOR LTD, Runcorn Halochemicals	4.(a)	166.000	12,46%
Chlorofluorocarbons (CFCs)	4462	066.01578	France	RHODIA OPERATIONS	4.(a).(vi)	42.900	35,47%
	13650	EW_EA-3070	United Kingdo	Syngenta Ltd, Huddersfield Chemical Industry	4.(d)	39.900	32,99%
	5741	10079	Netherlands	Du Pont de Nemours (Ned.) BV	4.(a)	6.280	5,19%
Halons	14597	vl0010645100 0188	Belgium	BP CHEMBEL Geel	4.(a)	5.790	67,09%
	3030	061.03685	France	ARKEMA Pierre-Bénite	4.(b).(i)	2.070	23,98%
	85879	56	Switzerland	Dottikon Exclusive Synthesis AG	4.(e)	7	0,08%
Other pollutants							
Di-(2-ethyl hexyl) phthalate (DEHP)	75120	100339472	Hungary	Graboplast Zrt.	4.(a).(viii)	5.460	33,91%
Ethylene oxide	83697	3205	Spain	COGNIS IBERIA, S.A.U.	4.(a).(ii)	19.300	24,60%
Hexachlorobenzene (HCB)	73896	03-03-03030273580	Germany	DOW Deutschland Anlagen-gesellschaft Werk Stade mbH	4.(a).(viii)	212	28,81%
Hydro-fluorocarbons (HFCs)	14650	vl0030299000 0147	Belgium	ABRISO Bevrijdingslaan	4.(a)	367.000	38,36%
Naphthalene	14158	CZ11453276	Czech Republic	DEZA, a.s., Valašské Meziříčí	4.(a).(i)	55.300	28,86%
Total nitrogen	78852	1837.0006.01	Norway	Yara Norge AS, Yara Glomfjord	4.(c)	39.700	100,00%
Trichlorobenzenes (TCBs) (all isomers)	14764	vl0178716400 0134	Belgium	VOPAK TERMINAL ACS	4.(a)	87	21,10%
Trichloroethylene	85936	EW_EA-1451	United Kingdom	INEOS CHLOR LTD, Runcorn Halochemicals	4.(a)	300.000	27,58%
Trichloromethane	4256	064.00942	France	ARKEMA	4.(a).(vi)	57.000	34,16%
Xylenes	88265	P0057/04A	United Kingdom	Michelin Tyre PLC	4.(a)	3.490	100,00%

Note: *Contributions of over 50 % to the total E-PRTR emissions are highlighted in red, those over 2 % are highlighted in blue.*

B.6.5 Waste and Waste Water Handling (E-PRTR Activity 5)

Releases reported to air from *Waste and waste water management* seem to be distributed evenly between facilities for the pollutants NH_3, NMVOC and the heavy metals Arsenic, Cadmium and Mercury. E-PRTR 2008 releases from the top three facilities do not exceed 1.25 % for these pollutants (Table B.14). However, the share of the top polluting facility for methane in France is as high as 23 %. Some other potential anomalies have been identified; e.g. one facility in Germany reported 100 % of asbestos releases and a facility in Bulgaria reported 97 % of 1,1,1-trichloro-ethane emissions.

Table B.14 Facilities with the highest releases to air of selected pollutants reported in Activity 5 – Waste and waste water management under E-PRTR 2008

Pollutant	Facility ID	National ID	Country	Facility Name	Main Activity	Total Quantity kg/a	All countries share
Ammonia (NH3)	10245	5698	Spain	DESIMPACTE DE PURINS ALCARRÀS S.A. (DDP-ALCARRÀS)	5.(c)	365.000	0,14%
	65819	10000013	Bulgaria	Regionalno depo za neopasni, inertnr i opasni otpadatsi za obshtinite Ruse, Vetovo, Ivanovo, Slivo pole i Tutrakan	5.(d)	241.000	0,09%
	65818	03000022	Bulgaria	Depo za neopasni otpadatsi na gr.Dobrich pri s.Bogdan	5.(d)	216.000	0,08%
Arsenic and compounds (as As)	212	01D000166	Poland	KGHM POLSKA MIEDŹ S.A., Huta Miedzi LEGNICA	5.(d)	88,00	0,20%
	81710	100005858	Portugal	Maxit, Argilas Expandidas, S.A.	5.(a)	86,00	0,20%
	6639	1380-60-001	Sweden	Avfallskraftvärmeverket Kristinehed	5.(b)	83,00	0,19%
Cadmium and compounds (as Cd)	81835	100003383	Portugal	Enviroil- Resíduos e Energia, Lda	5.(a)	238,00	1,25%
	65641	W001	Belgium	ICDI sc - Usine d'incineration	5.(b)	152,00	0,80%
	5734	10063	Netherlands	AVR NV (Rijnmond)	5.(b)	42,70	0,23%
Mercury and compounds (as Hg)	218	01D000268	Poland	PCC Rokita SA	5.(g)	106,00	0,28%
	4746	070.00750	France	RECYTECH sa	5.(a)	82,30	0,22%
	83187	77018511	Slovakia	A.S.A. Slovensko, spol.s.r.o., OZ Žilina	5.(a)	68,80	0,18%
Methane (CH4)	68311	065.00370	France	COVED S.A.	5.(d)	722.000.000	23,31%
	6888	1516	Spain	CENTRO DE ELIMINACION DE RESIDUOS "CER"	5.(c)	21.400.000	0,69%
	82648	RO6CJ_512	Romania	SC SALPREST RAMPA SA CLUJ-NAPOCA - Rampa de deseuri Pata Rat	5.(d)	17.700.000	0,57%
Non-methane volatile organic compounds (NMVOC)	81969	100005294	Portugal	Aterro de Palmela	5.(d)	2.580.000	0,48%
	13013	EW_EA-1089	United Kingdom	Esso Petroleum Company Ltd , Fawley Refinery	5.(a)	2.010.000	0,37%
	79022	1503.0029.01	Norway	GC Rieber Oils AS	5.(e)	342.000	0,06%
Other pollutants							
1,1,1-trichloroethane	65907	13000051	Bulgaria	depo za tvardi bitovi otpadatsi	5.(f)	2.680.000	97,31%
Asbestos	70476	06-04-11/ 2013754/1/0	Germany	ANO Abfallbehandlung Nord GmbH	5.(b)	2,00	100,00%
PCDD + PCDF (dioxins + furans) (as Teq)	81722	100001395	Portugal	Ambimed - Unidade de Tratamento de Resíduos Hospitalares do Barreiro	5.(a)	7,00	77,09%
Toluene	88849	WA_6435_2007	United Kingdom	Culmore WWTWs	5.(f)	7.900,00	30,28%

Note: *Contributions of over 50 % to the total E-PRTR emissions are highlighted in red, those over 2 % are highlighted in blue.*

B.6.6 Paper and Wood Production and Processing (E-PRTR Activity 6)

In general, the share of the releases of the top three E-PRTR 2008 facilities in *Paper and wood production* does not exceed 1 % (Table B.15). No data anomalies have been identified for this E-PRTR activity.

Table B.15 Facilities with the highest releases to air of selected pollutants reported in Activity 6 – Paper and wood production under E-PRTR 2008

Pollutant	Facility ID	National ID	Country	Facility Name	Main Activity	Total Quantity kg/a	All countries share
Ammonia (NH3)	5099	0861-101	Sweden	Södra Cell Mönsterås	6.(a)	202.000	0,08%
	7756	2180-103	Sweden	Korsnäsverken	6.(b)	200.000	0,07%
	7189	1764-101	Sweden	Gruvöns bruk	6.(a)	200.000	0,07%
Carbon dioxide (CO2)	67082	1254	Finland	Stora Enso Oyj, Imatran tehtaat	6.(a)	2.900.000.000	0,15%
	5099	0861-101	Sweden	Södra Cell Mönsterås	6.(a)	2.170.000.000	0,11%
	7924	2284-108	Sweden	M-real Sverige AB, Husums fabrik	6.(a)	1.850.000.000	0,09%
Nitrogen oxides (NOx/NO2)	73894	03-02-02221253020	Germany	Drewsen Spezialpapiere GmbH&Co. KG Papierfabrik	6.(b)	30.800.000	1,10%
	67082	1254	Finland	Stora Enso Oyj, Imatran tehtaat	6.(a)	1.940.000	0,07%
	6221	11G000163	Poland	INTERNATIONAL PAPER - KWIDZYN SP. Z O.O.	6.(b)	1.920.000	0,07%
Non-methane volatile organic compounds (NMVOC)	67082	1254	Finland	Stora Enso Oyj, Imatran tehtaat	6.(a)	4.860.000	0,90%
	7924	2284-108	Sweden	M-real Sverige AB, Husums fabrik	6.(a)	1.120.000	0,21%
	5099	0861-101	Sweden	Södra Cell Mönsterås	6.(a)	1.090.000	0,20%
Sulphur oxides (SOx/SO2)	6221	11G000163	Poland	INTERNATIONAL PAPER - KWIDZYN SP. Z O.O.	6.(b)	3.800.000	0,09%
	14532	Scotland-62	United Kingdom	Markinch Papermill	6.(b)	2.010.000	0,05%
	85909	3	Switzerland	Borregaard Schweiz AG	6.(a)	1.270.000	0,03%

B.6.7 Intensive livestock production and aquaculture (E-PRTR Activity 7)

The share of the NH_3 releases of the top three E-PRTR 2007 facilities in *Intensive livestock production and aquaculture* range from as low as 0.3 % for the third biggest polluter to as much as 21.4 % reported for a facility in Italy. The share of the top three facilities reporting N_2O lies in the range of 0.9 % to 13.2 % (Table B.16).

Table B.16 Facilities with the highest releases to air of selected pollutants reported in Activity 7 - Intensive livestock production and aquaculture under E-PRTR 2008

Pollutant	Facility ID	National ID	Country	Facility Name	Main Activity	Total Quantity kg/a	All countries share
Ammonia (NH3)	77916	2008000717	Italy	IPPC - Allevamento suini	7.(a)	57.100.000	21,38%
	85091	4507	Spain	SELECCIONES AGROPECUARIAS, S.L.	7.(a).(iii)	22.700.000	8,50%
	65813	13000008	Bulgaria	ploshtadka s.Rupkite	7.(a).(i)	735.000	0,28%
Nitrous oxide (N2O)	81024	01D001427	Poland	FERMY DROBIU WOŹNIAK Sp. z o.o.,Fermy drobiu w Gądkowie	7.(a)	19.600.000	13,17%
	80890	01D001426	Poland	FERMY DROBIU WOŹNIAK Sp. z o.o., Fermy drobiu w Bielanach	7.(a)	12.000.000	8,06%
	8048	2414	Spain	PROCOBER, S.A.	7.(a).(i)	1.290.000	0,87%

Note: *Contributions of over 2 % to the total E-PRTR emissions are highlighted in blue.*

B.6.8 Animal and vegetable products from the food and beverage sector (E-PRTR Activity 8)

In general, the share of the releases of the top three E-PRTR 2008 facilities in *Animal and vegetable products from the food and beverage sector* does not exceed 0.5 %. The maximum share is 1.5 % for Hydrofluorcarbons (HCFCs). Therefore, no table of the top polluting facilities is provided for this E-PRTR Activity.

B.6.9 Other activities (E-PRTR Activity 9)

In general, the share of the releases of the top three E-PRTR 2008 facilities in *Other activities* does not exceed 1.5 % (Table B.17). However, the review identified one facility with a share of 100 % for Benzo(g,h,i)perylene in the Netherlands and top polluting facilities with a share above 20 % for the pollutants Hydrogen cyanide (HCN), Toluene and Trichloroethylene.

Table B.17 Facilities with the highest releases to air of selected pollutants reported in Activity 9 – Other activities under E-PRTR 2008

Pollutant	Facility ID	National ID	Country	Facility Name	Main Activity	Total Quantity kg/a	All countries share
Hydrogen cyanide (HCN)	85063	7614	Spain	HEXCEL FIBERS S.L.	9.(d)	43.400	24,18%
	14461	Scotland-150	United Kingdom	Carbon Fibers Plant	9.(d)	5.470	3,05%
	65723	vl0033685600 0167	Belgium	DE WITTE-LIETAER INDUSTRIES	9.(a)	266	0,15%
Benzo(g,h,i) perylene	6020	10928	Netherlands	Aluminium & Chemie Rotterdam BV	9.(d)	23	100,00%
Toluene	88663	P0118/06A	United Kingdom	3M (UK) PLC	9.(c)	12.300	47,14%
Trichloroethylene	13432	EW_EA-247	United Kingdom	Allunna Tubes Limited, ALUnna Tubes Limited	9.(c)	236.000	21,70%
	5336	100.04249	France	HUTCHINSON SNC	9.(c)	23.300	2,14%
	9548	44162	Netherlands	Vlisco Helmond BV	9.(a)	18.300	1,68%

Note: *Contributions of over 50 % to the total E-PRTR emissions are highlighted in red, those over 2 % are highlighted in blue.*

C Stage 2 Review – AIR - Comparisons with other data on releases to air

The purpose of these tests is to put the data reported under E-PRTR into context and assess the comparability of reported E-PRTR data with other data officially reported by countries. Emissions reported under E-PRTR have been compared with emissions reported by countries under CLRTAP/NECD and under UNFCCC/EU MM. However, not all pollutants which are covered by E-PRTR are included under CLRTAP/UNFCCC. Also the direct comparison of these emissions is impossible because the structure of reported data under E-PRTR and both Conventions differs significantly. The national emission inventories are reported in source categories[30], whereas the E-PRTR system identifies individual facilities. Each individual facility might include several activities, which are in national inventories reported under different categories.

The reporting obligations under E-PRTR and the EU ETS overlap for CO_2 emissions. However, the capacity for combustion installations is 50 MW under E-PRTR and 20 MW under the ETS. In addition, the boundaries of an installation under E-PRTR do not always fully match the boundaries of the corresponding ETS installation. These differences constitute limitations when comparing E-PRTR to EU ETS data. Another difference between the two reporting obligations is that for the purposes of the EU ETS CO_2 emissions are reported excluding biomass emissions whereas under E-PRTR total CO_2 including emissions from biomass has to be reported.

To enable comparisons data reported under different obligations sectors/activities have been aggregated and these aggregated sectors have been linked. Afterwards, three types of comparisons could be performed:

a. Comparison of E-PRTR national totals with totals of EU ETS (CO2)

b. Comparison of E-PRTR emissions per country with national totals reported under CLRTAP/ NECD directive (NOx, SO_2, NMVOC, NH_3 ,CO, PM_{10}, POPs, HMs) and with national totals reported under UNFCCC/EU MM (CO_2, CH_4, N_2O, F-gases)

c. Comparison of E-PRTR emissions reported per aggregated activity with (aggregated) sectoral emissions reported under CLRTAP and UNFCCC (NOx, SO_2, NMVOC, NH_3 ,CO, PM_{10}, POPs, HMs, CO_2, CH_4, N_2O, F-gases)

CLRTAP emissions and UNFCCC emissions used in this report have been provided by EEA[31] (ETC/ACC database, task 1.2.1.1 and task 1.4.1.1). The EU ETS emissions have been downloaded from the Community Independent Transaction Log (CITL)[32].

The overview of differences in national total emissions reported under E-PRTR 2008 and CLRTAP/UNFCCC 2008 is presented in Table C.1 and Table C.2. These two tables show:

d. Eleven countries[33] (2 more than in the previous year) did not report emissions to air under CLRTAP 2008 (particularly HMs and POPs) but they report these emissions under E-PRTR 2008.

[30] Most disaggregated level in CLRTAP/UNFCCC is the one where emissions are calculated

[31] Inventories as submitted by countries can be downloaded from: http://cdr.eionet.europa.eu/, http://rod.eionet.europa.eu/obligations/357/deliveries and http://rod.eionet.europa.eu/obligations/384/deliveries?d-4014547-p=1

[32] http://ec.europa.eu/environment/ets/

e. Twelve countries reported higher emissions under E-PRTR 2008 than their national totals reported under CLRTAP (SOx – Bulgaria; CO – Iceland; CO_2 – Finland, Iceland; HM – Germany, Netherlands, Portugal; HCB – Belgium, Germany, PCDD/PCDF – Denmark, Iceland, Poland, Portugal, Switzerland; PCBs – Italy, PAHs –Norway, Portugal, Iceland). In a number of cases the difference is bigger than 200 %.

f. Five countries reported higher emissions under E-PRTR 2008 than their national totals reported under UNFCCC (PFCs – Belgium, Greece, Norway, Sweden, UK).

g. In most of the countries SO_2 and CO_2 E-PRTR emissions accounted for more than 50 % (up to 90 %) of the national total emissions. E-PRTR facilities also contribute significantly to national total emissions of NO_x and heavy metals.

h. Sources of NMVOC, NH_3, CH_4, and N_2O seem to be in general under the E-PRTR thresholds. Share of these E-PRTR emissions on national totals rarely exceeds 20%.

i. Reporting of POPs is rather incomplete, particularly under CLRTAP, therefore options for data comparisons are limited. Nevertheless the results indicate inconsistencies in reporting of number of countries.

[33] Austria, Belgium, Denmark, France, Hungary, Iceland, Norway, Slovenia, Spain, Switzerland, and United Kingdom

Table C.1 Share of E-PRTR 2008 releases in UNFCCC/CLRTAP totals 2008 (Main pollutants, PM and GHGs)

	Other						GHGs					
Country	NOx/ NO2	NM VOC	SOx/ SO2	NH3	CO	PM10	CO2	CH4	N2O	SF6	HFCs	PFCs
Austria	8%	1%	32%	0.2%	19%	2%	35%	5%	0.3%	0%	0%	0%
Belgium	29%	33%	73%	6%	68%	15%	44%	3%	33%	3%	32%	102%
Bulgaria	42%	3%	101%	11%	10%	30%	58%	11%	4%	0%	0%	0%
Cyprus	45%	1%	90%	38%	14%	61%	64%	3%	2%	0%	0%	0%
Czech Rep.	47%	4%	80%	11%	28%	15%	66%	0%	5%	0%	0%	0%
Denmark	19%	5%	65%	2%	1%	3%	43%	6%	1%	0%	0%	0%
Estonia	36%	6%	89%	5%	10%	21%	73%	7%	5%	0%	0%	0%
Finland	37%	10%	63%	6%	23%	5%	104%	18%	25%	0%	0%	0%
France	17%	7%	80%	2%	5%	1%	36%	33%	8%	23%	3%	52%
Germany	27%	4%	53%	3%	26%	6%	55%	14%	10%	3%	1%	44%
Greece	45%	2%	83%	0.4%	7%	0%	62%	8%	8%	0%	0%	100%
Hungary	15%	1%	18%	16%	6%	1%	47%	1%	0%	0%	0%	0%
Iceland	0%	0%	16%	EPRTR	165%	EPRTR	145%	21%	11%	0%	0%	71%
Ireland	32%	2%	69%	1%	2%	5%	41%	6%	2%	51%	1%	99%
Italy	9%	1%	18%	17%	9%	2%	18%	11%	0.4%	8%	0.1%	0%
Latvia	10%	0.3%	23%	3%	0%	6%	7%	0%	1%	0%	0%	0%
Lithuania	12%	16%	50%	13%	3%	8%	42%	4%	30%	0%	0%	0%
Luxembourg	0%	0%	0%	0%	0%	0%	18%	8%	0%	0%	0%	0%
Malta	49%	0%	64%	0%	0%	36%	76%	39%	0%	0%	0%	0%
Netherlands	21%	11%	85%	2%	25%	6%	51%	5%	10%	0%	5%	69%
Norway	9%	10%	58%	3%	1%	10%	29%	3%	25%	0%	0.1%	100%
Poland	37%	2%	57%	3%	10%	12%	59%	30%	46%	0%	1%	64%
Portugal	29%	6%	64%	15%	8%	4%	48%	11%	14%	0%	0.02%	0%
Romania	41%	4%	88%	13%	8%	19%	59%	9%	8%	0%	0%	2%
Slovakia	34%	5%	90%	3%	52%	0%	62%	2%	0%	0%	0%	0%
Slovenia	28%	8%	63%	4%	12%	3%	44%	20%	3%	0%	1%	100%
Spain	31%	8%	60%	18%	17%	13%	44%	11%	12%	0%	3%	50%
Sweden	19%	14%	49%	5%	8%	10%	95%	7%	8%	32%	1%	117%
Switzerland	6%	2%	22%	0%	3%	0%	16%	0%	3%	12%	0%	0%
UK	31%	15%	74%	5%	12%	12%	48%	23%	13%	14%	EPRTR	179%
All countries	**25%**	**6%**	**59%**	**7%**	**18%**	**10%**	**53%**	**11%**	**10%**	**5%**	**2%**	**38%**

E-PRTR	*Data reported under E-PRTR but not under CLRTAP/UNFCCC*
0%	*No data reported under E-PRTR (and under CLRTAP/UNFCCC).*
25%	*Neutral/unsuspicious: E-PRTR total contributes between > 0% and 50 % to protocol total.*
75%	*Significant: E-PRTR total contributes between 50 and 100 % to protocol total.*
150%	*Outlier: E-PRTR total is greater than CLRTAP/UNFCCC total*

Table C.2 Share of E-PRTR 2007 on UNFCCC/CLRTAP totals 2008 (Heavy meatls and POPs)

	HM								POPS				
Country	As	Cd	Pb	Hg	Ni	Cr	Cu	Zn	HCB	HCH	PCDD + PCDF	PCBs	PAHs
Austria	0%	0%	9%	21%	EPRTR	EPRTR	0%	EPRTR	0%	0%	0%	0%	0%
Belgium	58%	76%	93%	45%	46%	74%	27%	84%	6222%	0%	47%	EPRTR	11%
Bulgaria	6%	27%	8%	10%	2%	24%	5%	11%	0%	0%	0%	0%	0%
Cyprus	91%	57%	0%	92%	86%	0%	3%	73%	0%	0%	0%	0%	0%
Czech Rep.	74%	83%	66%	92%	63%	8%	36%	11%	0%	0%	54%	0%	11%
Denmark	17%	0%	0%	38%	6%	0%	0%	10%	0%	0%	138%	EPRTR	0%
Estonia	98%	84%	90%	91%	84%	92%	51%	88%	0%	0%	0%	0%	0%
Finland	21%	13%	7%	50%	29%	44%	3%	13%	40%	0%	31%	5%	3%
France	59%	57%	46%	76%	64%	53%	9%	80%	EPRTR	0%	35%	0%	42%
Germany	94%	42%	58%	195%	15%	46%	1%	5%	11011%	0%	81%	27%	3%
Greece	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	EPRTR	0%	0%
Hungary	1%	0%	8%	9%	2%	2%	88%	2%	0%	0%	10%	EPRTR	2%
Iceland	EPRTR	0%	0%	0%	0%	0%	0%	0%	0%	0%	11326%	0%	1040%
Ireland	3%	4%	1%	5%	5%	2%	0%	4%	0%	0%	9%	0%	31%
Italy	1%	2%	6%	2%	7%	2%	1%	5%	0%	0%	32%	15584%	1%
Latvia	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%
Lithuania	0%	0%	0%	0%	1%	0%	4%	0%	0%	0%	0%	0%	0%
Luxembourg	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	EPRTR	0%	0%
Malta	38%	6%	0%	0%	29%	0%	0%	271%	0%	0%	0%	0%	0%
Netherlands	40%	94%	59%	58%	89%	47%	2%	41%	0%	0%	20%	0%	2%
Norway	29%	19%	36%	20%	EPRTR	14%	11%	EPRTR	0%	0%	0%	EPRTR	453%
Poland	7%	3%	8%	35%	4%	19%	8%	7%	0%	0%	231%	0%	43%
Portugal	48%	56%	16%	41%	55%	35%	23%	129%	0%	0%	77703%	0%	143%
Romania	0%	3%	9%	22%	5%	5%	0%	52%	0%	0%	53%	0%	0%
Slovakia	10%	2%	50%	23%	13%	20%	16%	14%	0%	0%	0%	0%	0%
Slovenia	EPRTR	0%	6%	2%	EPRTR	EPRTR	EPRTR	EPRTR	0%	0%	5%	0%	1%
Spain	26%	12%	15%	35%	31%	23%	7%	22%	6%	0%	32%	EPRTR	13%
Sweden	61%	12%	31%	20%	18%	81%	3%	15%	0%	0%	13%	0%	37%
Switzerland	EPRTR	1%	13%	30%	EPRTR	0%	0%	EPRTR	0%	0%	870%	EPRTR	35%
UK	10%	16%	56%	50%	54%	28%	17%	16%	0%	0%	12%	1%	12%
All countries	**26%**	**22%**	**23%**	**35%**	**24%**	**21%**	**11%**	**32%**	**576%**	**0%**	**3023%**	**521%**	**63%**

E-PRTR	*Data reported under E-PRTR but not under CLRTAP/UNFCCC*
0%	*No data reported under E-PRTR (and under CLRTAP/UNFCCC).*
25%	*Neutral/unsuspicious: E-PRTR total contributes between > 0% and 50 % to protocol total.*
75%	*Significant: E-PRTR total contributes between 50 and 100 % to protocol total.*
150%	*Outlier: E-PRTR total is greater than CLRTAP/UNFCCC total*

C.1 Comparison of E-PRTR CO2 releases with emissions included in the EU ETS

A comparison of total CO_2 releases reported under E-PRTR with emissions reported under the EU ETS provides interesting information (Figure C.1, Figure C.3 and Figure C.4). The assessment of the results is however limited by the different definition of sectors (EU ETS) and activities (E-PRTR) (see Table C.3). Boundaries of facilities/installations differ under E-PRTR and ETS, capacity for combustion facilities/installations is 50 MW under E-PRTR and 20 MW under the ETS reporting. In addition, the E-PRTR reporting obligation requires CO_2 to be reported including releases from biomass whereas under the EU ETS only CO_2 emissions from fossil fuels have to be reported. A more detailed comparison (on the activity level) of CO_2 emissions is provided in stage 1 Excel files submitted to countries.

Table C.3 Sectors included in comparison of ETS and E-PRTR CO2 emissions

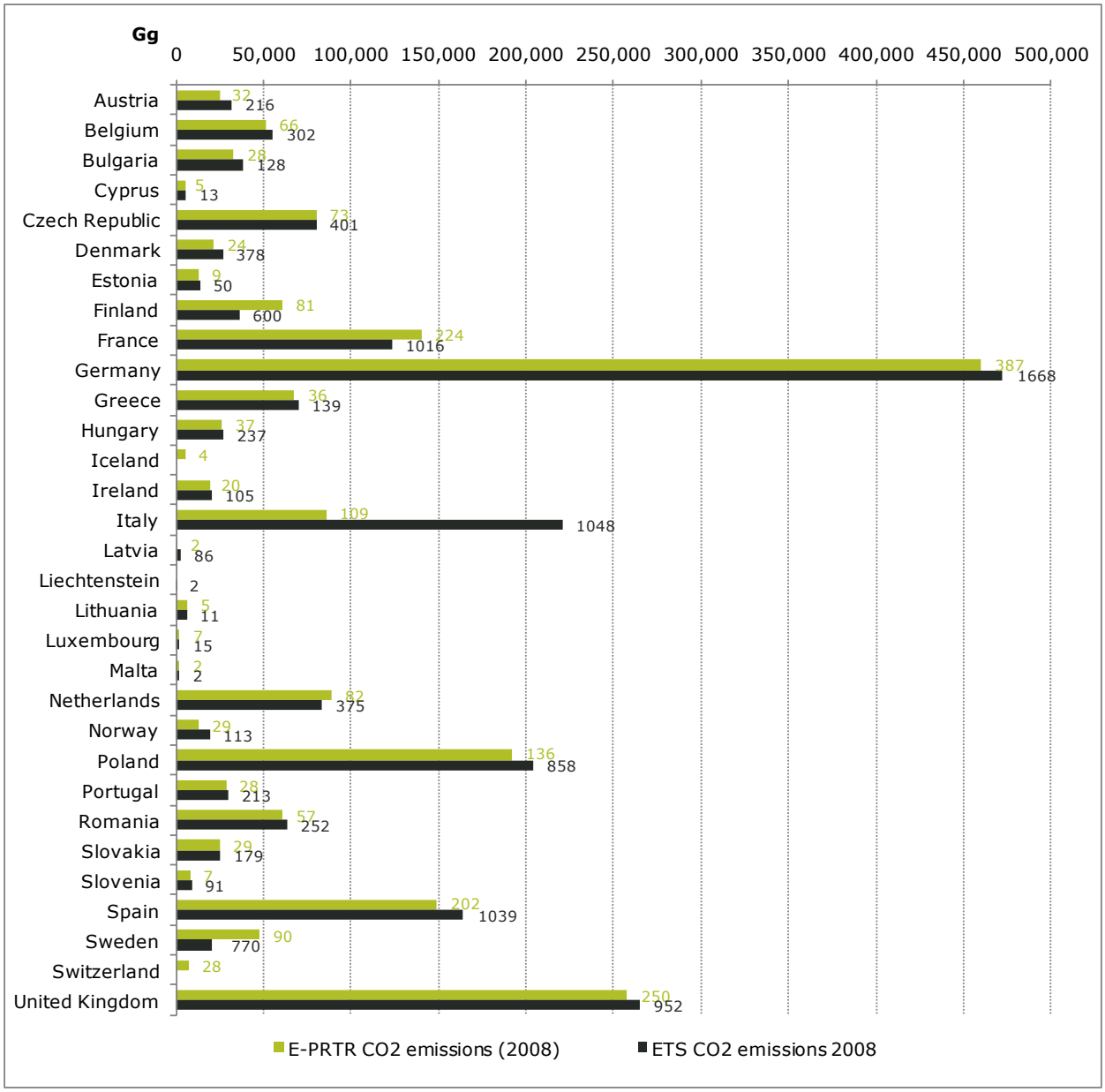
EU ETS sector	EU ETS sector description (Annex I)	E-PRTR activity codes	Description
1	Combustion installations	1.(c)	Thermal power stations and other combustion installations
2	Mineral oil refineries	1.(a)	Mineral oil and gas refineries
3	Coke ovens	1.(d)	Coke ovens
4	Metal ore roasting or sintering installations	2.(a)	Metal ore (including sulphide ore) roasting or sintering installations
5	Production of pig iron or steel	2.(b)	Installations for the production of pig iron or steel (primary or secondary melting) including continuous casting
6	Production of cement clinker or lime	3.(c)	Installations for the production of: Cement clinker in rotary kilns + Lime in rotary kilns + Cement clinker or lime in other furnaces
7	Manufacture of glass including glass fibre	3.(e)	Installations for the manufacture of glass, including glass fibre
8	Manufacture of ceramic products by firing	3.(g)	Installations for the manufacture of ceramic products by firing, in particular roofing tiles, bricks, refractory bricks, tiles, stoneware or porcelain
9	Production of pulp, paper and board	6.(a) + 6.(b)	Industrial plants for the production of pulp from timber or similar fibrous materials + production of paper and board and other primary wood products
99	Other activity opted-in	-	-

In general, the number of facilities included in E-PRTR is about five times lower than the number of installations in the EU ETS but countries' total CO_2 emissions under both reporting obligations are comparable. For most of the countries the share of E-PRTR CO_2 emissions compared to the ETS CO_2 emissions is between 80 % and 97 %. Only two countries (Italy and Latvia) reported less than 40 % share of E-PRTR emissions on EU ETS emissions. Five countries (France, Finland, Lithuania, the Netherlands and Sweden), reported more emissions under E-PRTR than under the EU ETS.

It is the responsibility of the countries to check whether such differences between the two sets of emission data are reasonable. One potential reason for higher E-PRTR emissions is the inclusion of emissions from biomass combustion in the reporting. However, there is no complete information

available for the 2008 E-PRTR dataset on which countries have reported CO_2 including releases from biomass and which ones reported CO_2 excluding releases from biomass. Nine countries (Cyprus, Estonia, Malta, Netherlands, Norway, Romania, Slovenia, Sweden, United Kingdom) have reported the voluntary pollutant CO_2 excluding biomass under E-PRTR 2008. For these countries there is certainty that they have reported the mandatory pollutant CO_2 as total CO_2 including biomass. Consequently, for the Netherlands, Sweden and the United Kingdom the reason for the higher E-PRTR CO_2 releases compared to the ETS CO_2 emissions is very likely to be the reporting of CO_2 from biomass combustion under E-PRTR.

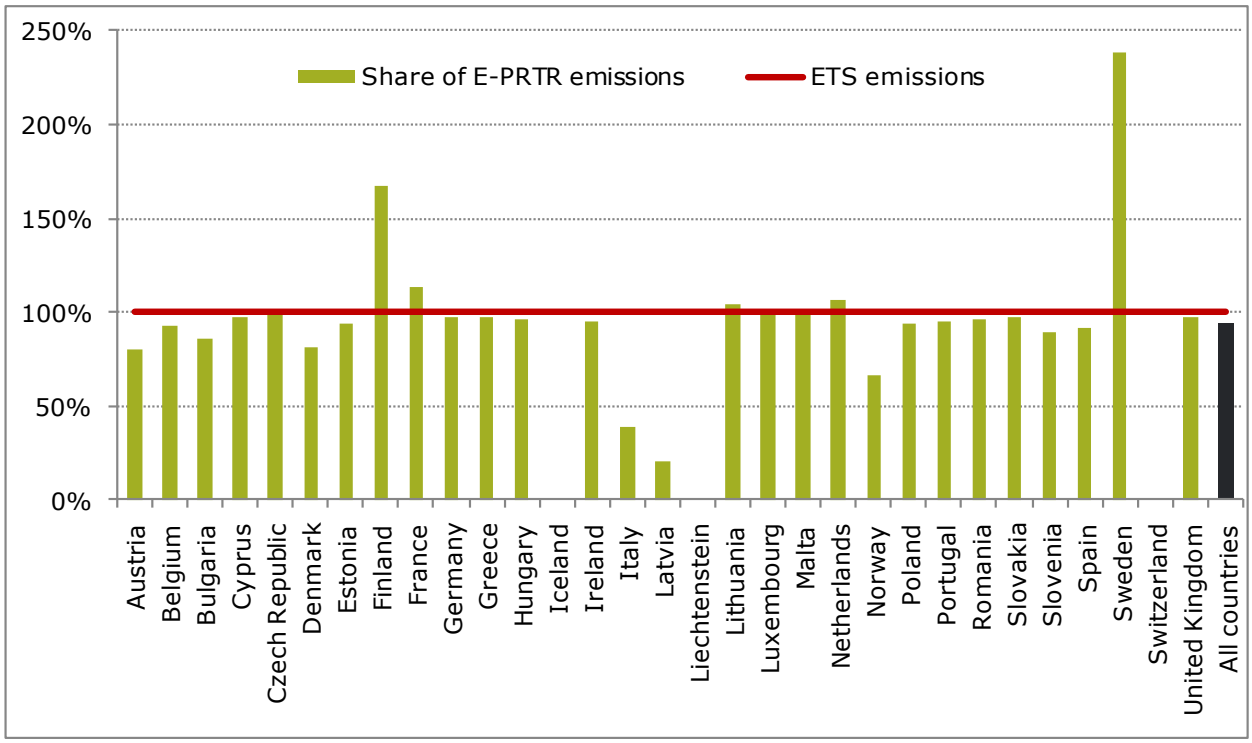
Figure C.1 Comparison of CO2 emissions and number of facilities reported under E-PRTR 2008 and ETS



Notes: *Iceland did not report CO_2 emissions under the EU ETS (Emissions Trading Scheme) and Switzerland is not included in EU ETS in 2008. Liechtenstein did not report CO_2 emissions under E-PRTR 2008.*

Numbers in green and blue indicate how many facilities were reported under E-PRTR 2008 and EU ETS 2008 respectively.

Figure C.2 Comparison of CO2 emissions reported under E-PRTR 2008 and ETS



Note: *Iceland did not report CO_2 emissions under the EU ETS (Emissions Trading Scheme) and Switzerland is not included in EU ETS in 2008. Liechtenstein did not report CO_2 emissions under E-PRTR 2008.*

C.2 Share of main E-PRTR activities in total E-PRTR emissions and comparison of E-PRTR data with national total and sectoral emissions reported under CLRTAP/ UNFCCC

The stage 2 review compared emissions of all E–PRTR pollutants which are reported under CLRTAP or UNFCCC. Summary results can be found in Table C.1 and Table C.2. However, the scope of this report does not allow presenting all the findings in detail. This chapter shows the results for selected pollutants[34] illustrated in figures.

Comparison of of E-PRTR and natonal total emissions reported under CLRTAP/UNFCCC

The releases reported under E-PRTR cover only (large) point sources and should not exceed national total emissions reported under CLRTAP or UNFCCC, which include all anthropogenic emissions occurring in the geographical area of the country (large point sources, linear and area sources). If the total E-PRTR emissions exceed CLRTAP/UNFCCC national total emissions (with or without transport) this indicates inconsistent reporting of countries under different reporting obligations.

The figures showing the share of different activities in the E-PRTR total releases reflect the structure of the economies in the individual countries and thus cannot be identical for all countries. In some cases, however, the comparison shows significant differences between countries and also a number of common elements.

[34] Gothenburg protocol pollutants: SOx, NOx, NMVOC, NH_3, most important GHG; CO_2, and PM_{10} as indicator of health impacts) and HMs

Comparison of aggregated sectoral data of E-PRTR and CLRTAP

The comparison of sectoral data has limitations because of the differences between the reporting obligations under E-PRTR, CLRTAP, UNFCCC and EU ETS as explained earlier in this report. It has to be noted that a) not all E-PRTR pollutants are reported under CLRTAP/UNFCCC and b) a significant share of E-PRTR in CLRTAP/UNFCCC was observed only in sectors A (Energy, manufacturing industries and waste incineration) and C (Agriculture (poultry, pigs) and only for some pollutants.

A list of the aggregated E-PRTR sectors used for comparison with the national totals reported under CLRTAP/ UNFCCC are shown in Table C.4

Table C.4 Aggregated E-PRTR sectors as used for comparison with national totals reported under CLRTAP/UNFCCC

Aggregated sector	Description	E-PRTR	CLRTAP/UNFCCC
A	Energy, manufacturing industries and waste incineration	1 (a-f), 2 (a-f), 3(c-g) 4 (a – f), 5 (a-b), 5 (e), 6 (a-c), 8(a-c), 9 (b-e)	1A1, 1A2, 1B1, 1B2, 2A – 2G, 3A, 3B, 3C, 3D1, 3D2, 6C
B	Fugitive emissions from mining	3(a), 3 (b)	1B1a, 2A7 a-d
C	Agriculture (poultry, pigs)	7(a) , 7(a) i-iii	4B8, 4B9 a-d
D1	Landfills/waste disposal	5 (c), 5 (d)	6A
D2	Waste water treatment	5 (f), 5 (g)	6B

The mapping of energy and industry sectors between E-PRTR and CLRTAP/UNFCCC is difficult because under the LRTAP/UNFCCC conventions emissions occurring in industrial processes are reported separately from combustion emissions in the industrial sector whereas under E-PRTR all emissions occurring in one facility are reported as sum under the main activity. To enable at least some comparisons, combined emissions of key pollutants from energy, manufacturing industries and waste incineration are compared (Figure C.10, For PM10 the results differ widely for individual countries. Only four countries (Cyprus, Latvia, Malta, Romania) have a share of PM10 E-PRTR releases in sectoral CLRTAP emissions between 80 % and 100 %; while in five countries the share accounted for less than 10 % (Figure C.18).

Figure C.18, Figure C.24). In addition, a few activities (e.g. Iron and steel, Refineries) for which the mapping was feasible are compared at a more disaggregated level.

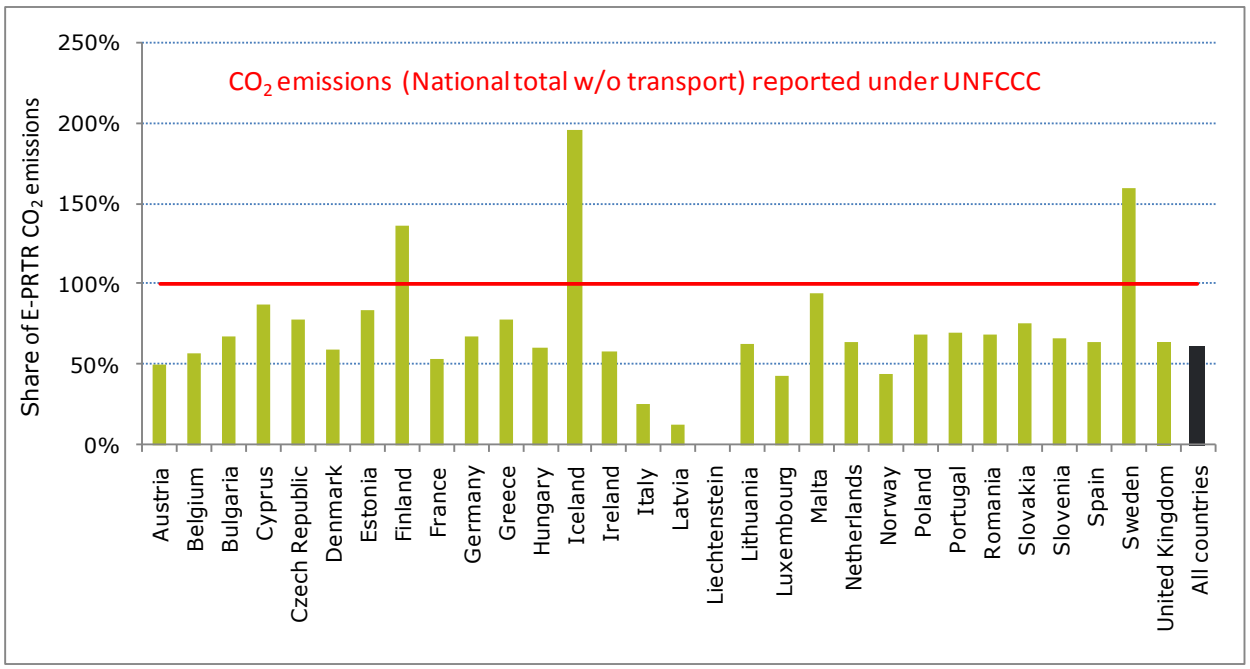
C.2.1 CO_2

The total CO_2 emissions reported by all countries under E-PRTR amount to 62 % of the sum of all national totals (without transport) reported under UNFCCC. Finland, Iceland and Sweden reported higher emissions under E-PRTR than national totals without transport under UNFCCC. This might indicate inconsistent reporting at national level. While E-PRTR releases do not include sources below the threshold such as residential heating, E-PRTR includes CO_2 emissions from biomass combustion for most countries, which might explain some of the anomalies (e.g. for Sweden). There is, however, no complete information available which countries included CO_2 from biomass combustion in E-PRTR 2008. Nine

countries (Cyprus, Estonia, Malta, Netherlands, Norway, Romania, Slovenia, Sweden, the United Kingdom) have reported the voluntary pollutant CO_2 excluding biomass under E-PRTR 2008. For these countries there is certainty that they have reported the mandatory pollutant CO_2 as total CO_2 including biomass.

For individual countries the total percentage of CO_2 emissions accounted for is on average 73 % (minimum 12 % for Latvia, maximum 195 % for Iceland, standard deviation 37 %) (Figure C.3). This confirms that most of the CO_2 emissions emitted in Europe come from large point sources.

Figure C.3 Share of E-PRTR CO2 releases in the national total reported under UNFCCC (national totals without transport)



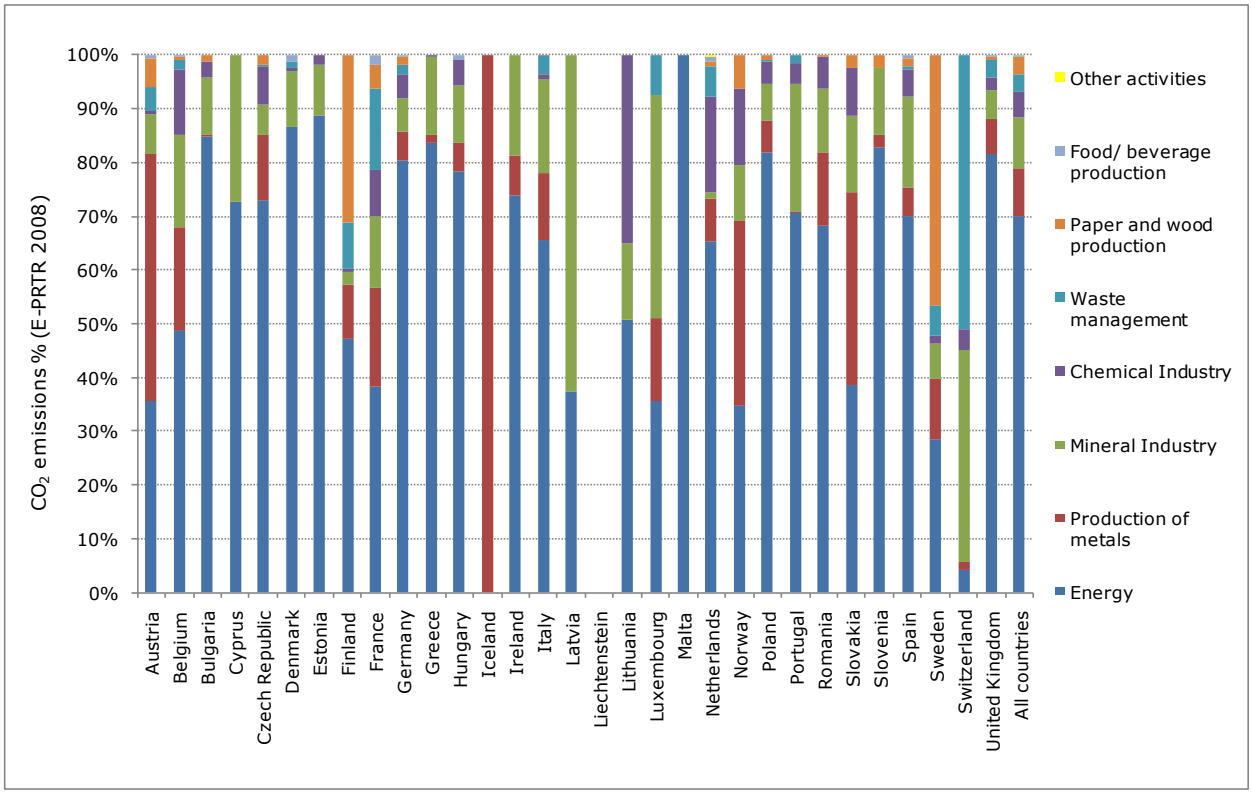
Note: *Cyprus, Estonia, Malta, Netherlands, Norway, Romania, Slovenia, Sweden, United Kingdom included CO_2 from biomass combustion in E-PRTR 2008. Information on inclusion/non-inclusion of CO_2 from biomass combustion in other countries is not available.*

Liechtenstein did not report CO_2 emissions under E-PRTR 2008.

In most countries the energy sector has the highest share on total CO_2 emissions reported under E-PRTR. In Austria and Iceland *Production of metals* has the highest share, in Latvia and Luxembourg *Mineral industry*, in Sweden *Paper and wood production* and in Switzerland *Waste management* (Figure C.4).

Iceland is the only country that did not report any CO_2 emissions in the E-PRTR *Energy sector*.

Figure C.4 Contribution of E-PRTR main activities to total CO2 emissions reported under E-PRTR 2008



Note: *Liechtenstein did not report CO_2 emissions under E-PRTR 2008.*

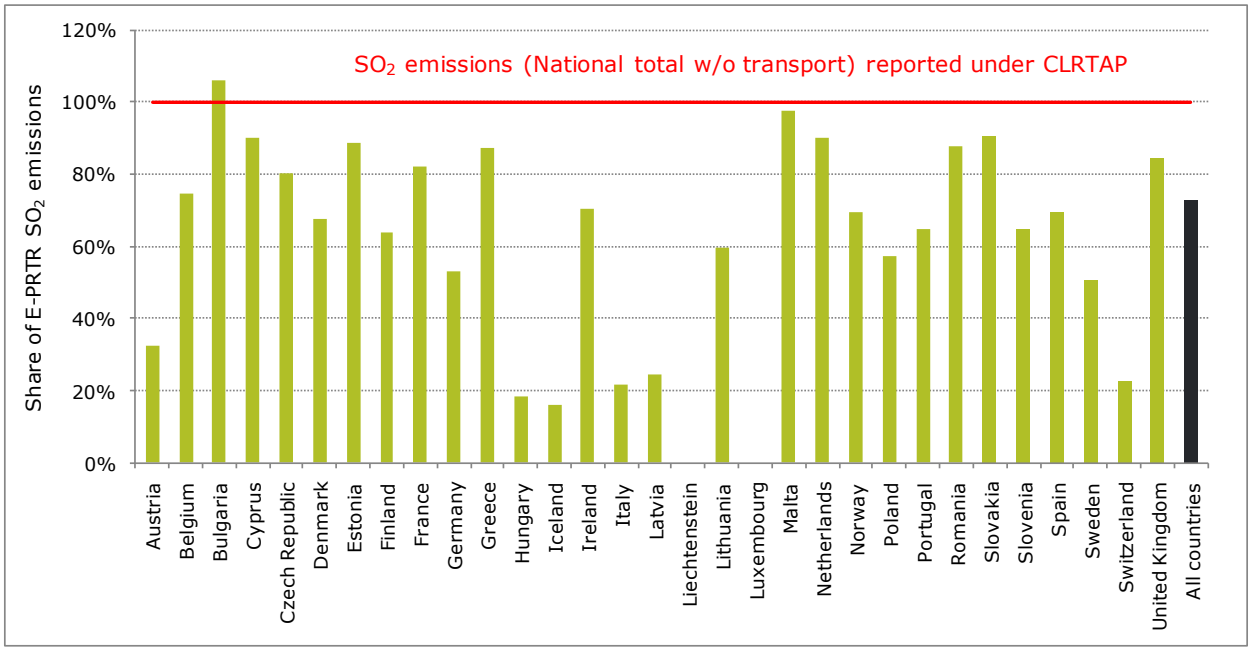
C.2.2 SO_2

The total SO_2 emissions reported by all countries under E-PRTR amount to 73 % of the sum of all national totals (without transport) reported under CLRTAP (Figure C.5). The results in Figure C.5 confirm that large facilities (e.g. power plants) are the main source of SO_2 emissions in Europe. The five facilities with the highest SO_2 releases under E-PRTR contributed altogether 23 % of total E-PRTR releases for SO_2 (Table B.6). For individual countries the total percentage of SO_2 emissions reported under E-PRTR is on average 63 % of the national CLRTAP total (minimum 18 % for Hungary, maximum 106 % for Bulgaria, standard deviation 28 %), with 11 countries reporting more than 80 % of SO_2 releases occurring in E-PRTR.

As indicated in the introduction, E-PRTR emissions should not exceed national total emissions, therefore the 106 % E-PRTR share of Bulgaria should be further investigated and a revision of either the CLRTAP or E-PRTR dataset should be considered by the country. Rather low E-PRTR shares compared to the average share of 63 % should be checked by the countries concerned (Austria, Hungary, Iceland, Italy, Latvia, Switzerland).

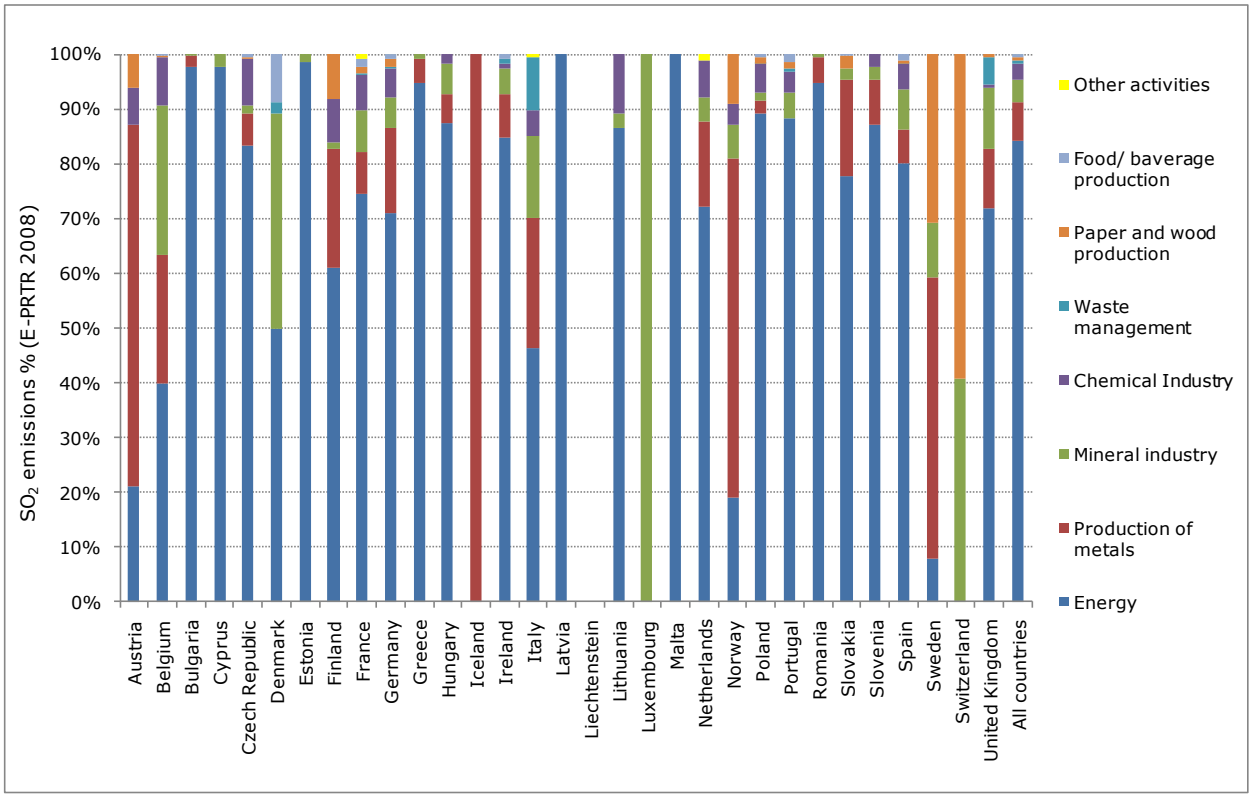
The main source of SO_2 emissions is *Energy*, followed by *Production of metals* and *Mineral industry* (Figure C.6). Sweden and Switzerland reported a significant share of SO_2 emissions from *Paper and wood production.*

Figure C.5 Share of E-PRTR SO2 releases in the national total reported under CLRTAP (total of all sources)



Note: *Liechtenstein did not report SO_2 emissions under E-PRTR 2008. Luxembourg did not submit emissions under CLRTAP 2008.*

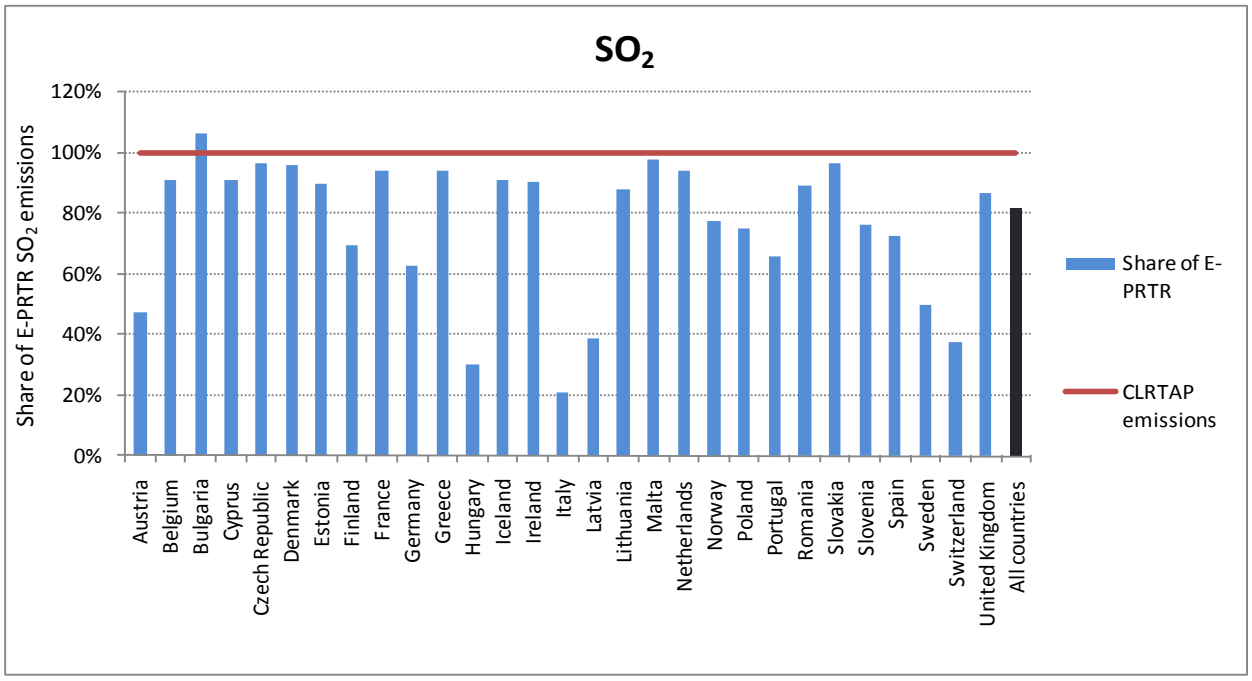
Figure C.6 Contribution of E-PRTR main activities to the total SO2 releases reported under E-PRTR 2008



Note: *Liechtenstein did not report SO_2 emissions under E-PRTR 2008.*

The comparison between SO_2 emissions of the aggregated sector A with sectoral CLRTAP emissions shows very similar results to the comparison of total SO_2 E-PRTR emissions with the national total (without transport) reported under CLRTAP. This confirms that most of the SO_2 emissions occur from combustion processes in large point sources. Fourteen countries have a share of E-PRTR releases of the aggregated sector A in sectoral emissions reported under CLRTAP between 80 % and 100 % (Figure C.7). Bulgaria is the only country that reported higher emissions under E-PRTR than their national total reported under CLRTAP (107 %).

Figure C.7 Share of E-PRTR SO2 releases (Energy, manufacturing industries and waste incineration) in sectoraL emissions reported under CLRTAP



Note: *Liechtenstein did not report SO_2 emissions under E-PRTR 2008.*

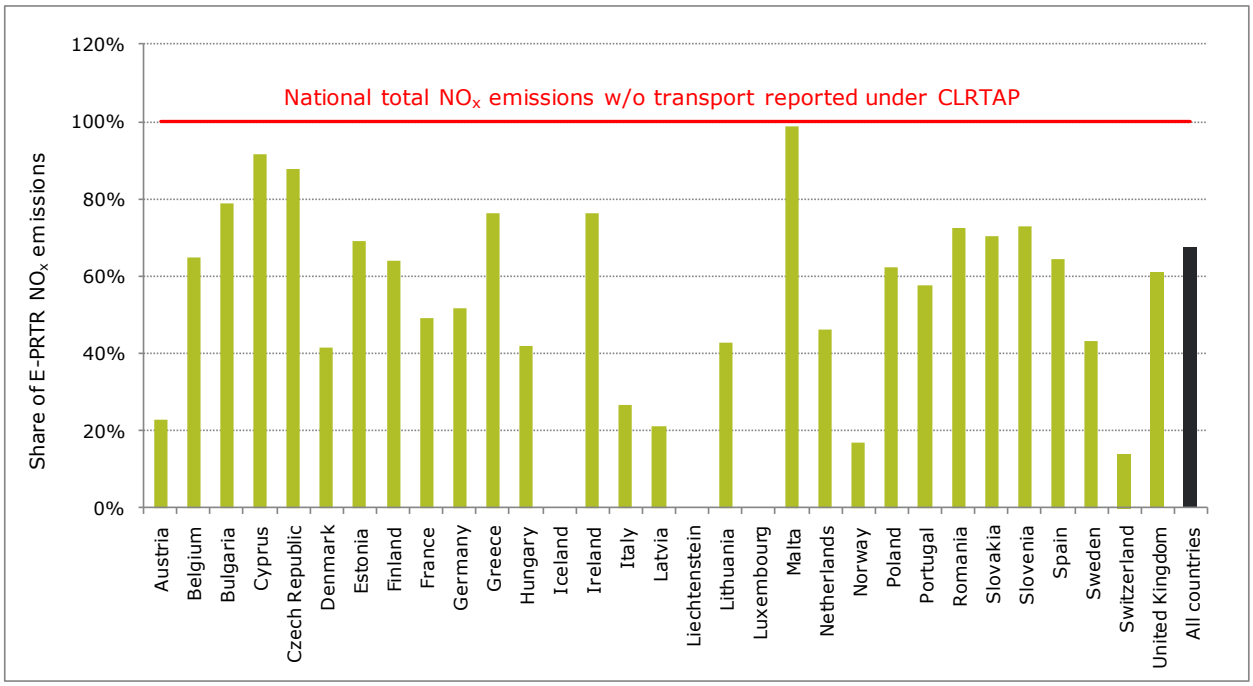
C.2.3 NO_x

The share of E-PRTR releases in the national total is significant for NO_x – the total percentage of NO_x emissions accounted for in E-PRTR reporting for all countries is 67 % of the national total without transport reported under CLRTAP (Figure C.8). For individual countries the total percentage of NO_x emissions accounted for is on average 57 % (minimum 14 % for Switzerland, maximum 99 % for Malta, standard deviation 23 %).

The very high share of E-PRTR NO_x releases of Cyprus and Malta may indicate that transport emissions under CLRTAP are overestimated and/or national total emissions are underestimated and/or E-PRTR releases are incorrect. On the other hand some countries have a very low share of E-PRTR NO_x emissions (Austria, Italy, Latvia, Norway, Switzerland). This indicates possible underreporting and should be checked by the countries concerned.

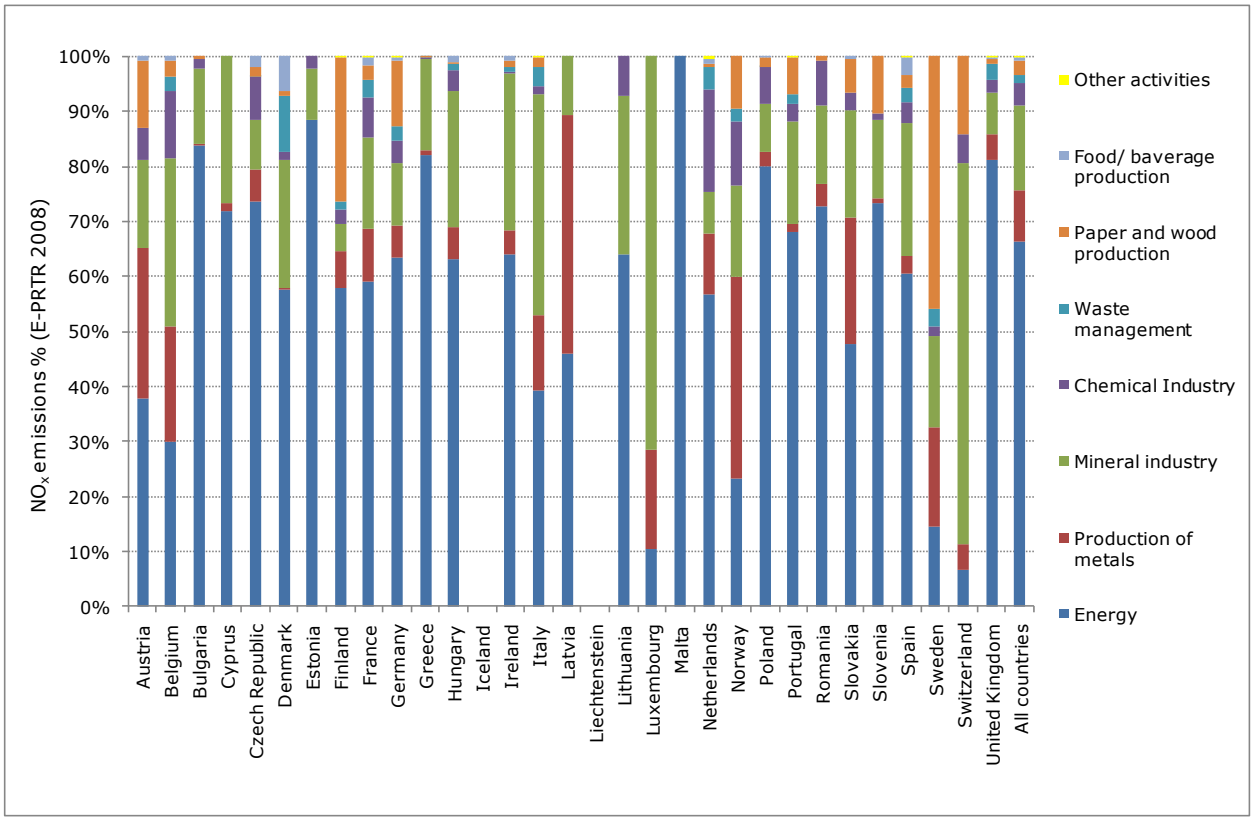
E-PRTR NO_x releases mainly stem from *Energy*, followed by *Mineral industry, Production of metals, Paper and wood processing and Chemical industry*. As expected the share of *Energy* in E-PRTR NO_x releases is lower than the share of *Energy* in SO_2 E-PRTR releases (compare Figure C.9).

Figure C.8 Share of E-PRTR NOx releases in the national total reported under CLRTAP (national total without transport)



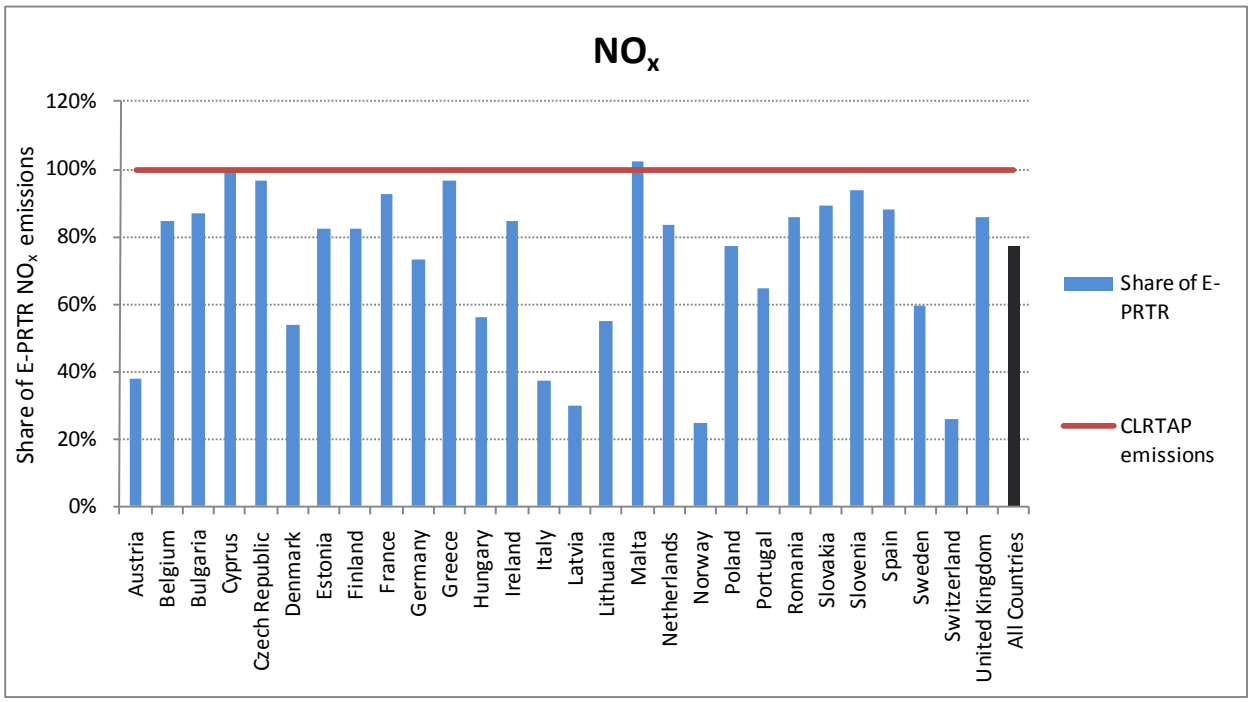
Note: *Iceland and Liechtenstein did not report NO_x emissions under CLRTAP. Luxembourg did not submit emissions under CLRTAP 2008.*

Figure C.9 Contribution of E-PRTR main activities to the total NOx releases reported under E-PRTR 2008



In 15 countries the share of NO_x E-PRTR aggregated sector A releases in sectoral emissions reported under CLRTAP is between 80 % and 100 % (Figure C.10). In Malta E-PRTR NO_x releases account for 102 % of the national total reported under CLRTAP.

Figure C.10 Share of E-PRTR NOx releases (Energy, manufacturing industries and waste incineration) in sectoral emissions reported under CLRTAP



Note: *Iceland and Liechtenstein and Luxembourg did not report NO_x emissions for Energy sector under E-PRTR 2008.*

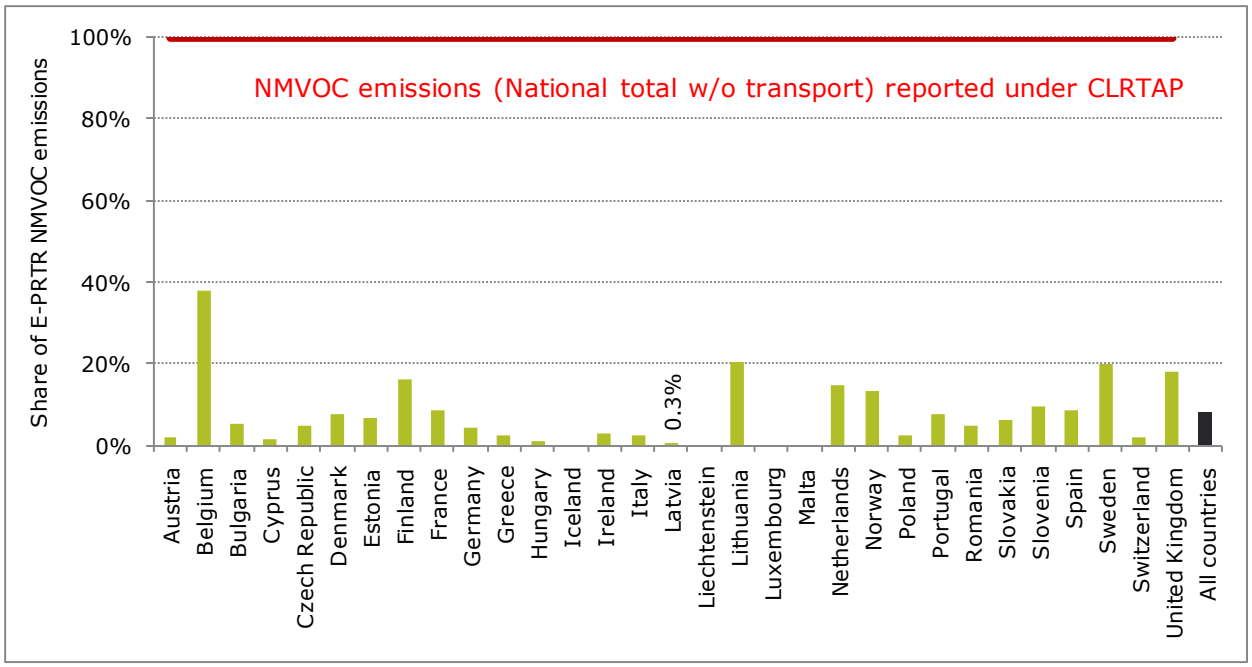
C.2.4 NMVOC

The total percentage of NMVOC emissions accounted for in E-PRTR reporting for all countries is 8 % of the national total reported under CLRTAP (Figure C.11). For individual countries the total percentage of NMVOC emissions accounted for is on average 9 % (minimum 0.3 % for Latvia, maximum 38 % for Belgium, standard deviation 8 %). This finding is consistent with the results of the CLRTAP key category analyses indicating that in general NMVOC emissions are occurring from a number of (small) area (diffuse) sources[35] like residential heating and domestic solvent and other product use.

Figure C.12 shows that *Energy* and *Other activities* are the most important activities for NMVOC releases under E-PRTR. Belgium, Czech Republic and Luxembourg, also report significant NMVOC emissions from *Production of metals*, while in Cyprus relevant NMVOC emissions only occur in *Mineral industry*.

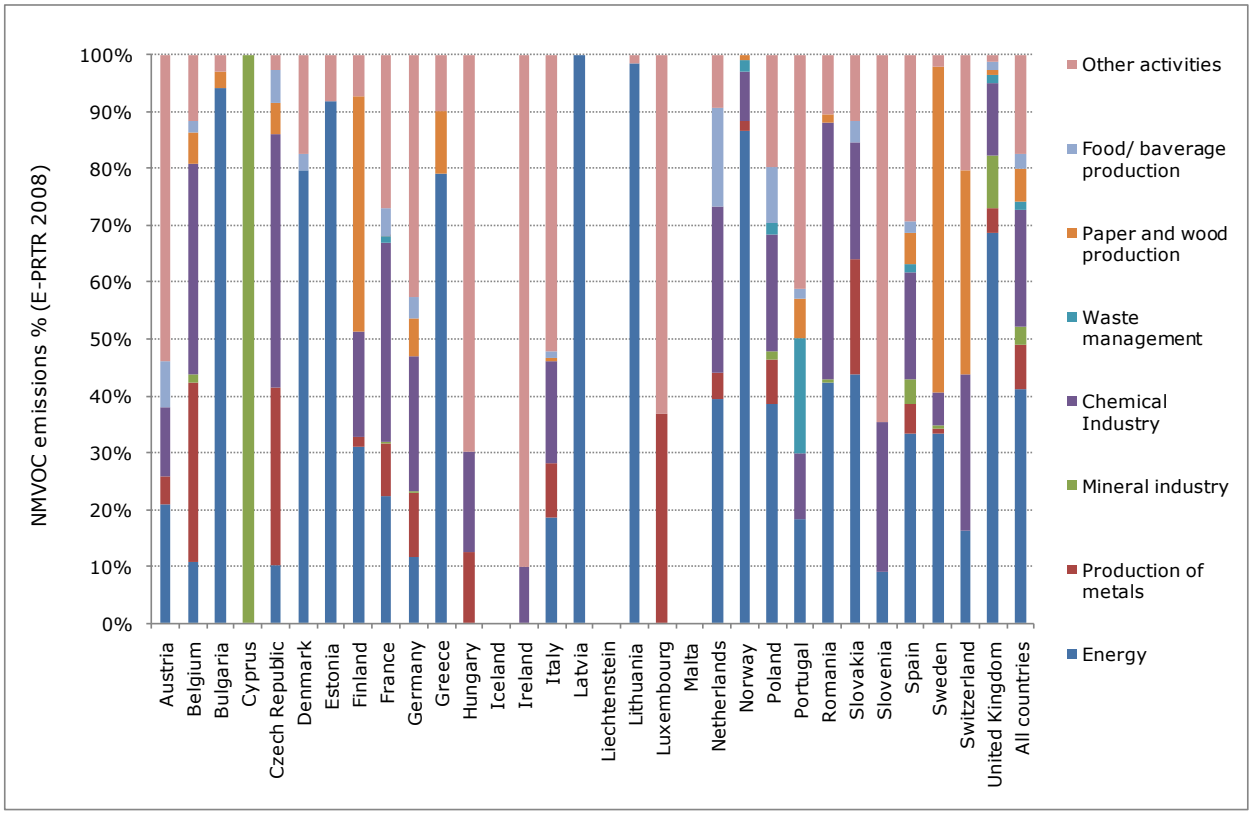
[35] See results of KCA analyses in CEIP &EEA report; Inventory Review 2009. http://www.ceip.at/review-process/review-2009/

Figure C.11 Share of E-PRTR NMVOC emissions in the national total reported under CLRTAP (national total without transport)



Note: *Iceland, Liechtenstein and Malta did not report NMVOC emissions under E-PRTR 2008. Luxembourg did not submit emissions under CLRTAP 2008.*

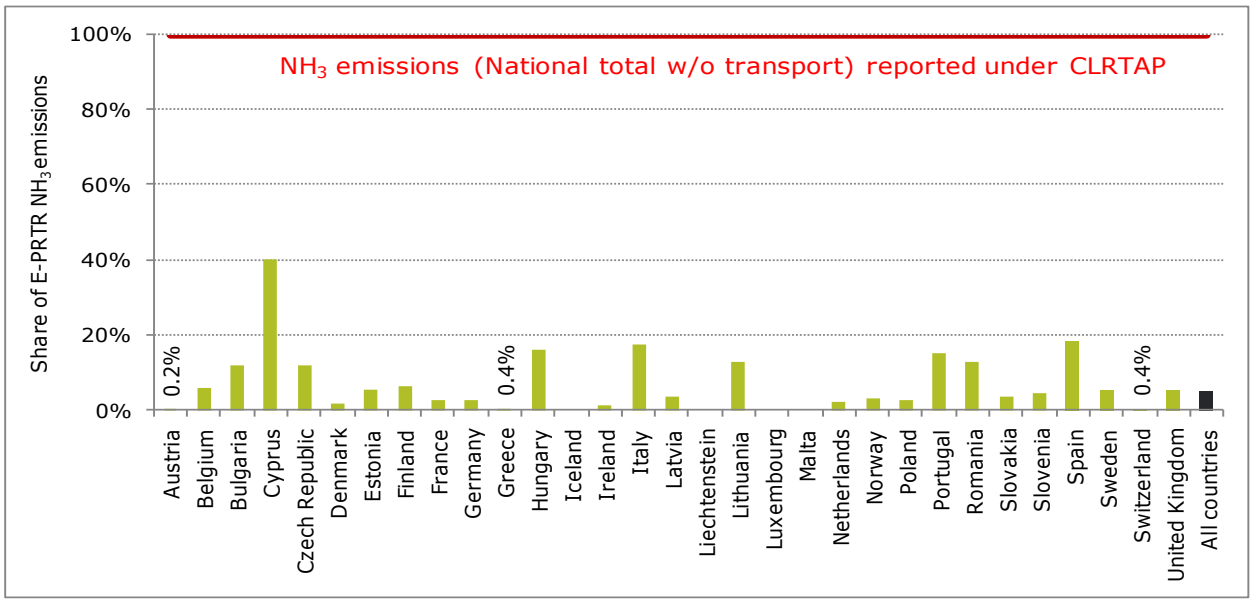
Figure C.12 Contribution of E-PRTR main activities to the total NMVOC releases reported under E-PRTR 2008



Note: *Iceland, Liechtenstein and Malta did not report NMVOC emissions under E-PRTR 2008.*

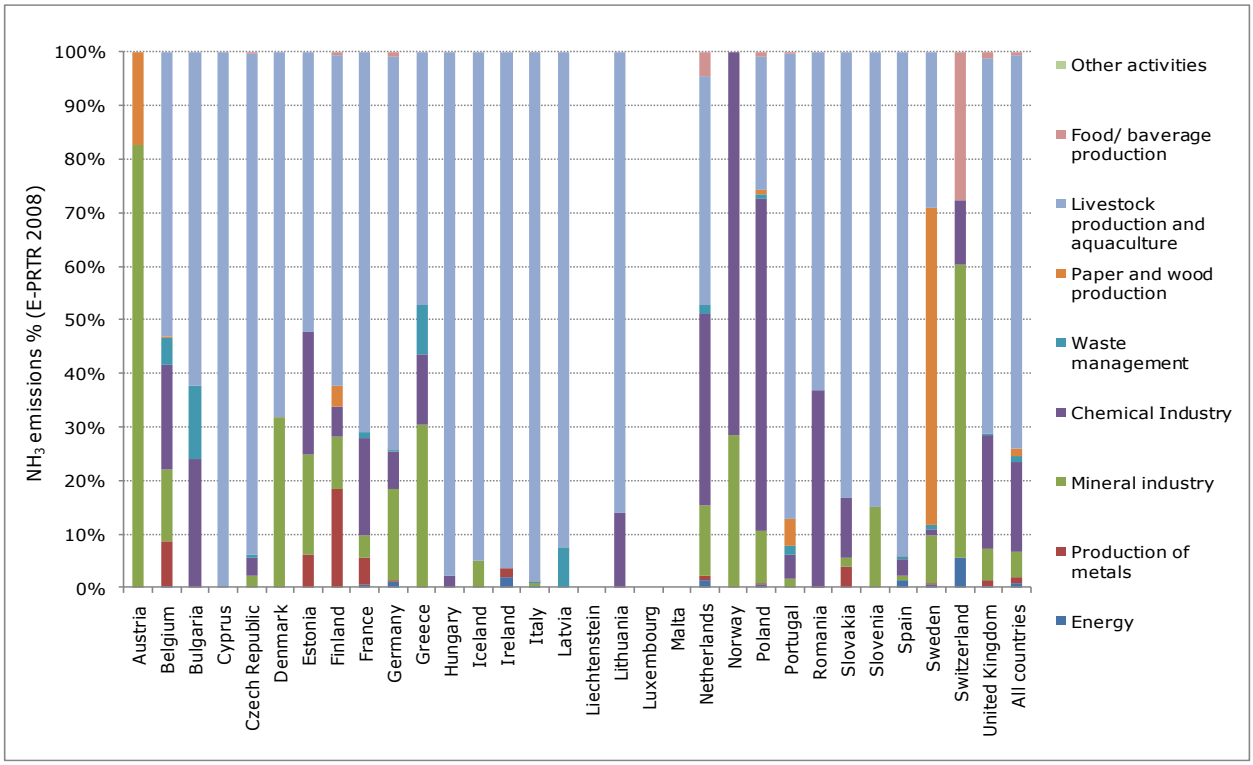
C.2.5 NH_3

Figure C.13 Share of E-PRTR NH_3 emissions in the national total reported under CLRTAP (national total without transport)



Note: *Liechtenstein did not report NH_3 emissions under E-PRTR 2008. Luxembourg and Malta reported zero emissions. Iceland did not report NH3 emissions under CLRTAP 2008*

Figure C.14 Contribution of E-PRTR main activities to the total NH_3 releases reported under E-PRTR 2008



Note: *Liechtenstein did not report NH_3 emissions under E-PRTR 2008. Luxembourg and Malta reported zero emissions.*

All countries but Luxembourg, Liechtenstein and Malta reported NH_3 emissions in E-PRTR 2008. The total percentage of NH_3 emissions accounted for in E-PRTR reporting by all countries is 5 % of the national total reported under CLRTAP (Figure C.13). For individual countries the percentage of NH_3 emissions accounted for is on average 8 % (minimum 0.2 % for Austria, maximum 40 % for Cyprus, standard deviation 8.6 %). The results indicate that NH_3 emissions occur prevailingly by small or area sources.

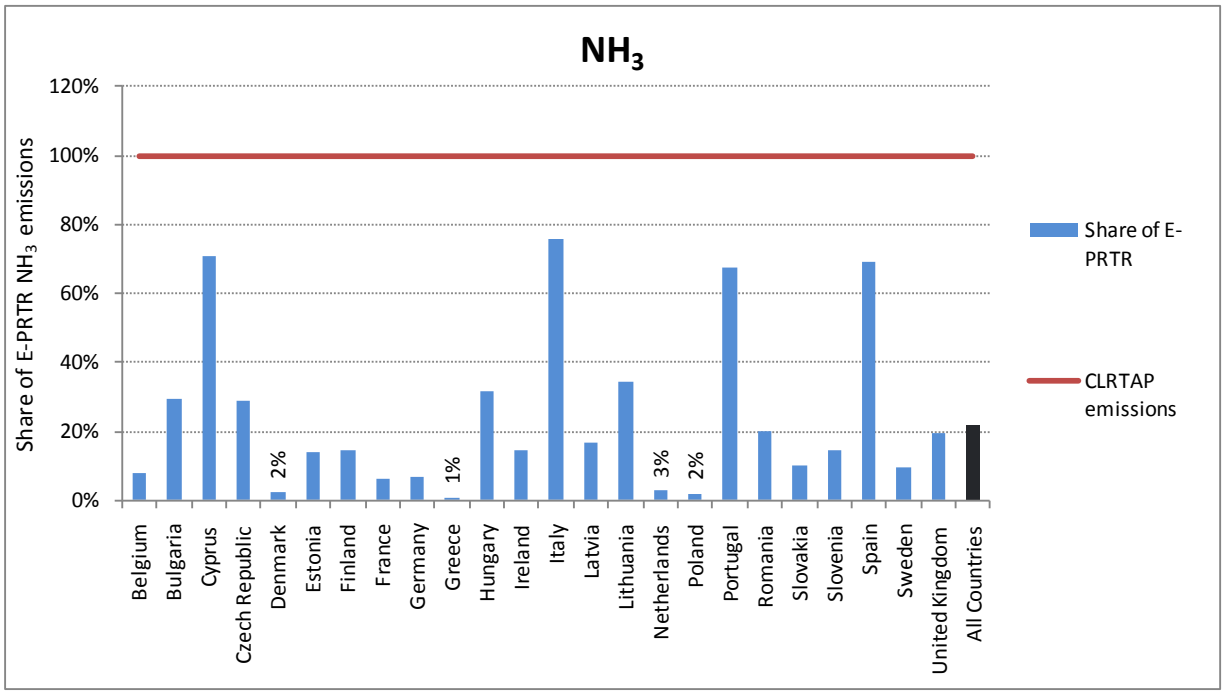
The main source of NH_3 emissions under E-PRTR is *Livestock production and aquaculture*, followed by *Chemical industry* and *Mineral industry* (Figure C.14). However, three countries (Austria, Norway and Switzerland) did not report any NH_3 emissions occurring in *Livestock production and aquaculture*.

Sweden and Austria are the only countries reporting a relatively high share (59 % and 17 % respectively) of NH_3 emission from *Paper and wood production*. Such anomalies can be correct, but can be verified only by countries themselves. The E-PRTR dataset does not contain explanatory information.

C.2.5.1 Agriculture (C)

The comparison of emissions stemming from *Agriculture* at sectoral level shows a limited share of E-PRTR in CLRTAP emissions in most countries (Figure C.15). This indicates that this type of emission is occurring prevailingly from sources beneath the E-PRTR thresholds. In 16 countries the share of E-PRTR 2008 NH_3 emissions in CLRTAP emissions is below 20 %. A significantly higher share was observed only for Cyprus (71 %), Italy (76 %), Portugal (68 %) and Spain (69 %).

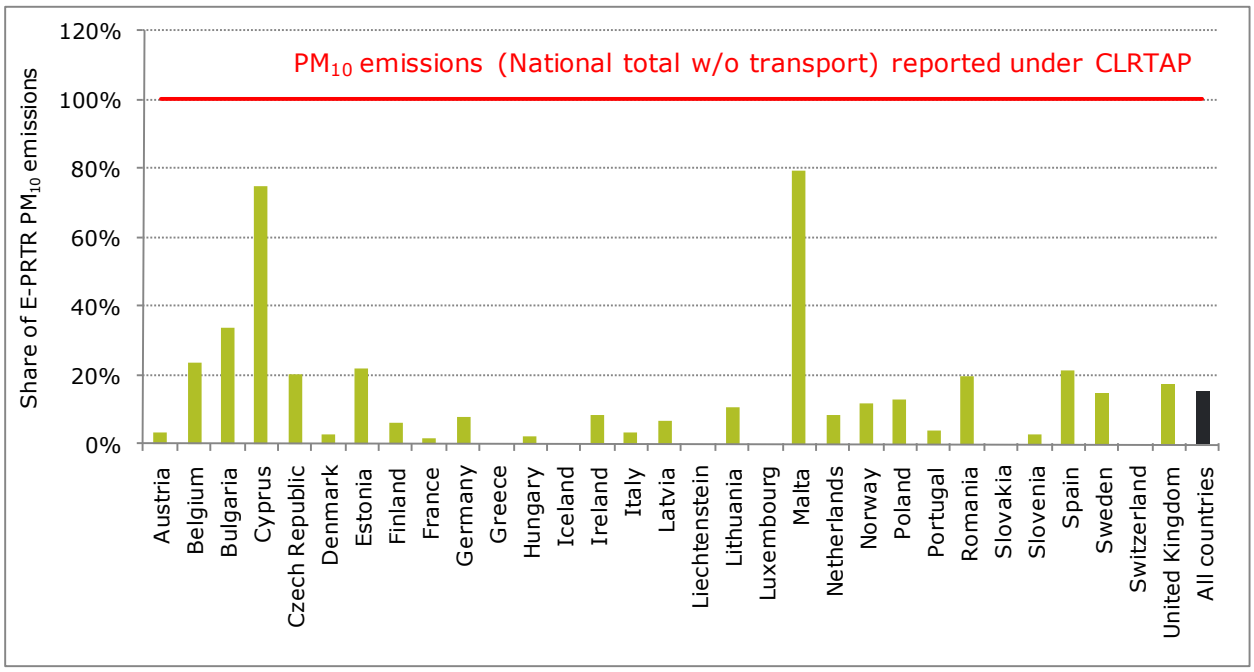
Figure C.15 Share of E-PRTR NH_3 emissions (Agriculture –Poultry, pigs) in the CLRTAP emissions (Manure management)



Note: *Austria, Iceland, Liechtenstein, Luxembourg, Malta, Norway and Switzerland did not report Hg emissions for the „Agriculture" sector.*

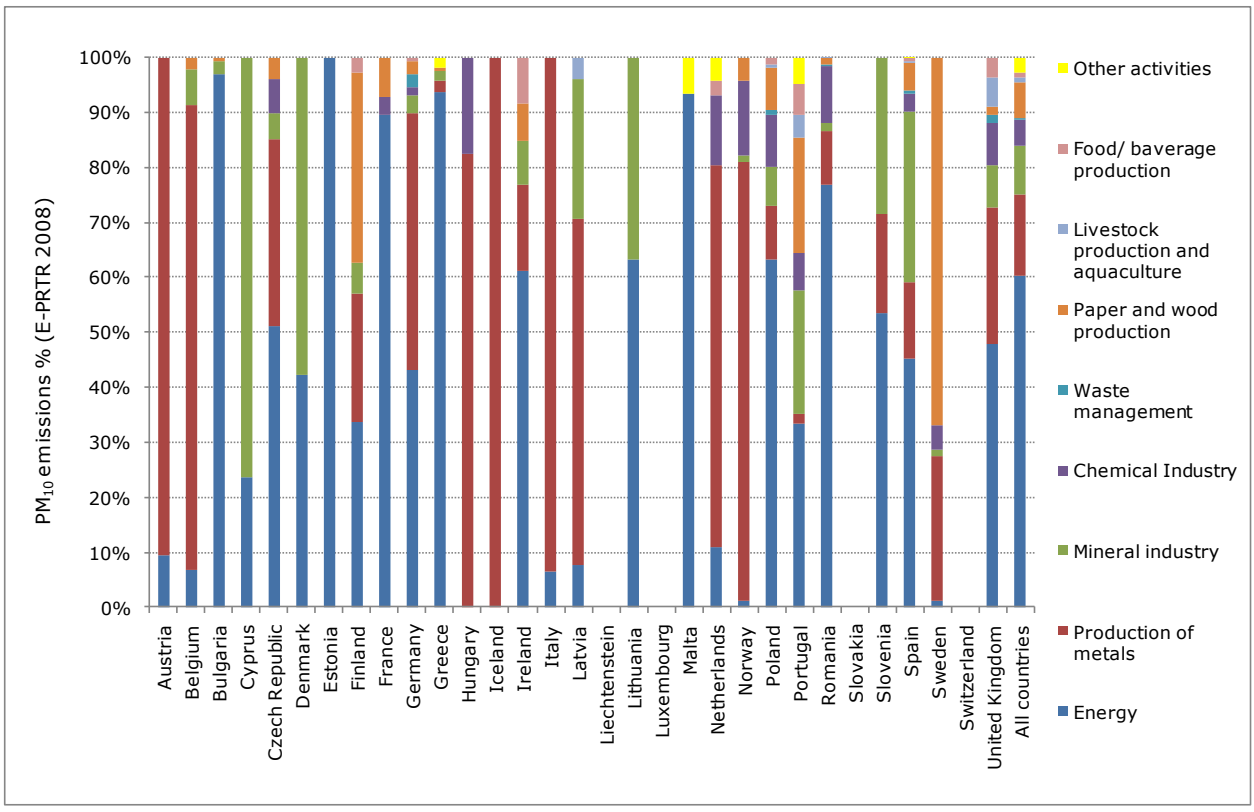
C.2.6 PM_{10}

Figure C.16 Share of E-PRTR PM_{10} emissions in the national total reported under CLRTAP (national total without transport)



Note: *Liechtenstein, Luxembourg and Slovakia and Switzerland did not report PM10 emissions under E-PRTR 2008. Greece and Iceland did not report PM_{10} emissions under CLRTAP 2008*

Figure C.17 Contribution of E-PRTR main activities to the total PM_{10} releases reported under E-PRTR 2008



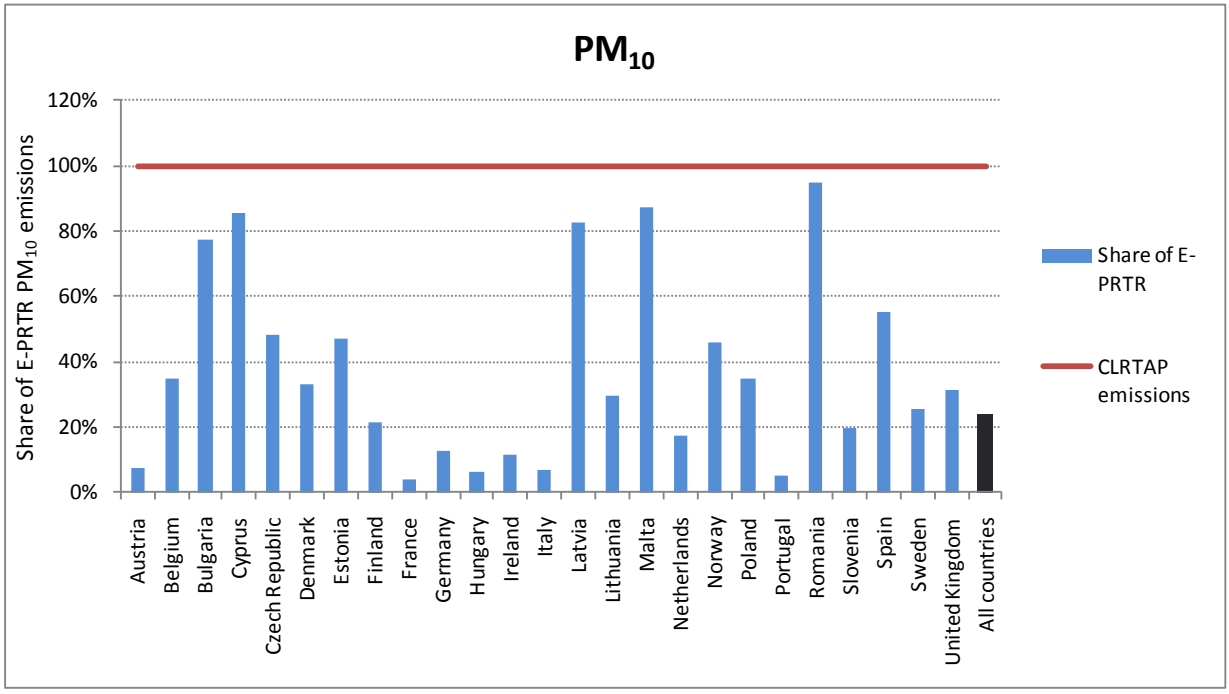
Note: *Liechtenstein, Luxembourg and Slovakia and Switzerland did not report PM10 emissions under E-PRTR 2008.*

The total percentage of PM_{10} emissions accounted for in E-PRTR reporting for all countries is 15 % of the national total without transport reported under CLRTAP (Figure C.16). For individual countries the total percentage of PM_{10} emissions accounted for is rather variable with an average of 16 % (minimum 1.5 % for France and maximum 79 % for Malta, standard deviation 20 %).

The most relevant activities for the production of PM_{10} emissions are *Energy* and *Industry* (production of metals and mineral industry). Sweden and Finland also reported a relatively high share of PM_{10} emissions from *Paper and Wood production*. The results of key category analyses under CLRTAP also indicate that PM emissions occur from a number of area sources (diffuse emissions).

For PM_{10} the results differ widely for individual countries. Only four countries (Cyprus, Latvia, Malta, Romania) have a share of PM_{10} E-PRTR releases in sectoral CLRTAP emissions between 80 % and 100 %; while in five countries the share accounted for less than 10 % (Figure C.18).

Figure C.18 Share of E-PRTR PM_{10} releases (Energy, manufacturing industries and waste incineration) in sectoral emissions reported under CLRTAP

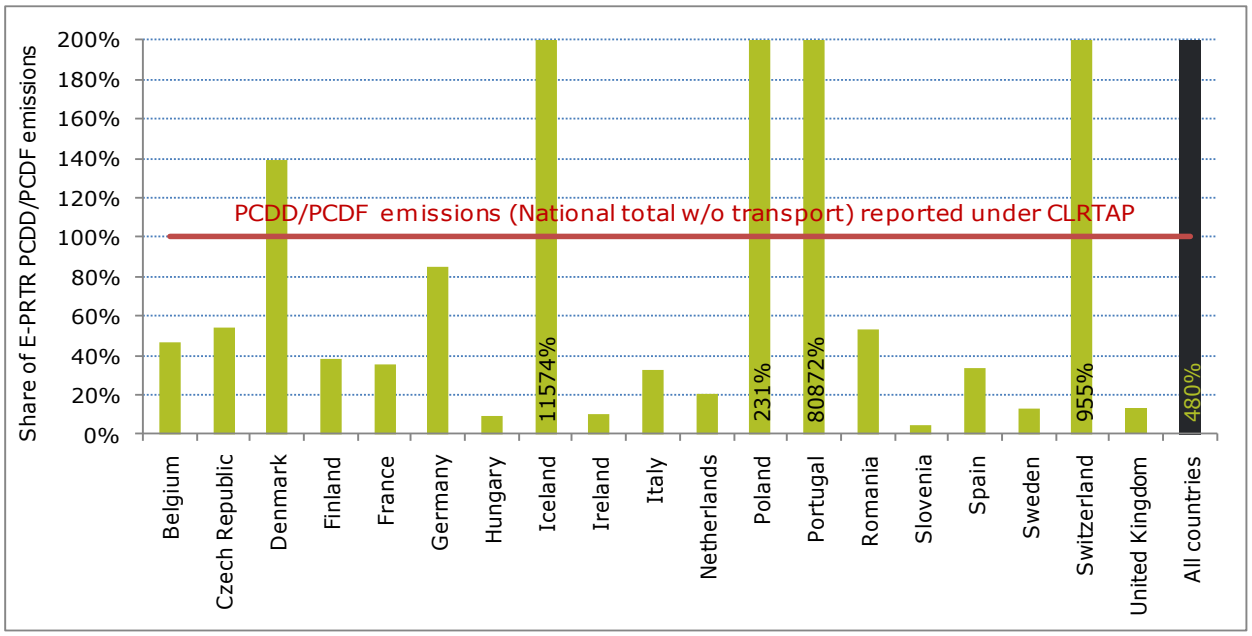


Note: *Greece, Iceland, Liechtenstein and Slovakia did not report PM_{10} emissions for „Energy" sector.*

C.2.7 Dioxins and furans (PCDD/PCDF)

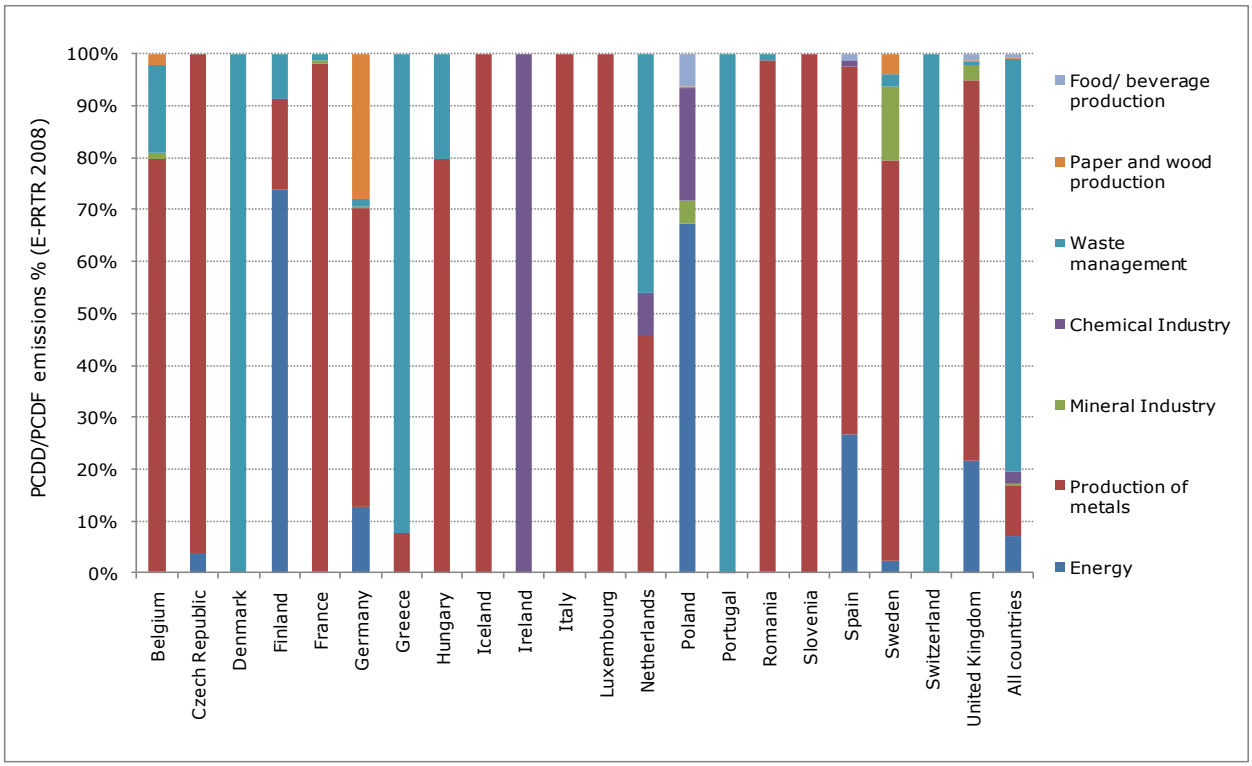
Reporting of PCDD/PCFD under E-PRTR 2008 is extremely inconsistent between countries. Five countries (Denmark, Iceland, Poland, Portugal and Switzerland) have a share of E-PRTR emissions in the national total reported under CLRTAP far above 100 %, while most other countries have a share below 50 % (Figure C.19).

Figure C.19 Share of E-PRTR PCDD/PCFD emissions in the national total reported under CLRTAP (national total without transport)



Note: *Austria, Bulgaria, Cyprus, Estonia, Latvia, Liechtenstein, Lithuania, Malta, Norway and Slovakia did not report PCDD/PCFD emissions under E-PRTR 2008.*
Greece, Luxembourg and Malta did not report PCDD/PCFD emissions under CLRTAP 2008.

Figure C.20 Contribution of E-PRTR main activities to the total PCDD/PCFD releases reported under E-PRTR 2008



Note: *Austria, Bulgaria, Cyprus, Estonia, Latvia, Liechtenstein, Lithuania, Norway, Romania and Slovakia did not report PCDD/PCFD emissions under E-PRTR 2008.*

The most relevant activities that involve releases of PCDD/PCFD are *Production of metals* followed by *Waste management* and *Energy* (Figure C.20). Ireland reported 100 % of their PCDD/PCFD emissions from *Chemical Industry* and Germany reported a relatively high share of emissions from *Paper and Wood production*. Poland did not report any PCDD/PCFD emissions from *Production of metals* although the sector contains 241 facilities for 2008 in the E-PRTR dataset. This might indicate under-reporting and should be checked by Poland.

It is known that PCDD/PCDF emissions occur by combustion processes, particularly by combustion of solid fuels. The E-PRTR database does not contain information on fuel consumption in individual facilities. In order to assess the completeness of PCDD/PCDF reporting CO_2 emissions (occurring as well by combustion of fossil fuels) are consequently selected as indicator for potential releases of PCDD/PCDF. Fuel consumption is calculated from CO_2 emissions with emission factors from EMEP/EEA Inventory guidebook[36].

C.2.7.1 Thermal power stations and other combustion installations , 1.(c)

It could be proved that all the top 20 E-PRTR CO_2 emitters are coal plants. Fuel consumption used in this comparison has been calculated from CO_2 emissions by means of the default CO_2-EF (110 t/TJ for brown coal, 95 t/TJ for hard coal). Potential PCDD/PCDF emissions have been calculated with the estimated fuel consumption and an emission factor of 10 µg/TJ (EMEP/EEA-Guidebook 2009 tier1 EF). Resulting potential emissions of PCDD/PCFD for the top 20 E-PRTR CO_2 emitting facilities range from 0.8 g to 2.8 g and would therefore exceed the reporting threshold. This might indicate that operators underestimate or do not estimate at all releases of PCDD/PCDF in these facilities.

Table C.5 compares PCDD/PCDF emissions in activity 1.(a) NACE 35.11, 35.30 with emissions reported under CLRTAP NFR *1 A 1 a Public Electricity and Heat.* E.g.in Austria, most of NFR category *1 A 1 a* PCDD/PCDF emissions derive from small biomass plants with emissions below the threshold. The same may apply to other countries.

Poland and Spain reported PCDD/PCDF releases under E-PRTR that are 70 and 5 times higher, respectively, than under CLRTAP. The Netherlands reported emissions as “not occurring” under CLRTAP and did not report any emissions under E-PRTR although they reported about 220 PJ of coal consumption in the CRF. It is not clear whether this amount stems from coal power plants or from the iron and steel industry and whether this could consequently indicate a gap in reporting. Potential gaps in reporting were also identified for Bulgaria, Germany, Estonia, Italy, Romania, Slovakia and Switzerland.

The very low PCDD/PCDF emissions reported by the Czech Republic under CLRTAP could indicate an error in magnitude.

About 7 % (654 g) of total PCDD/PCFD E-PRTR 2008 emissions were reported from activity 1.(c). Out of the 51 facilities that reported PCDD/PCFD releases only six plants did not report any CO_2 emissions. On the other hand, out of 940 facilities that reported CO_2 emissions only 46 also reported PCDD/PCFD emissions. Only three top 20 CO_2 polluters reported PCDD/PCFD emissions which indicates a potential gap in reporting.

Ten facilities reported more than 10 g PCDD/PCFD releases in 2008 (nine from Poland and one from Spain) and only three facilities with relatively high PCDD/PCFD emissions were also among the top 50 CO_2 emitters of activity 1.(c) (Table C.6).

[36] E..g EMEP/EEA air pollutant emission inventory guidebook-2010 http://www.eea.europa.eu/publications/emep-eea-emission-inventory-guidebook-2009

Poland reported less than 9 g PCDD/PCFD emissions from NFR *1 A 1 a* power plants under CLRTAP 2008 but 622 g under E-PRTR 2008 with only a few reports that are based on measured data. This indicates a potential inconsistency in reporting and should be checked by the country.

Table C.5 Comparison of PCDD/PCDF emissions reported under activity 1.(a) NACE 35.11, 35.30 and under CLRTAP NFR 1 A 1 a Public Electricity and Heat

Country	1 A 1 a [g PCDD/PCDF]	E-PRTR 1.(a) NACE 35.11, 35.30 [g PCDD/PCDF]	Share E-PRTR [%]
Austria	0,89	0,00	0%
Belgium	1,09	0,00	0%
Bulgaria	2,26	0,00	0%
Cyprus	0,13	0,00	0%
Czech Republic	0,00273	2,98	109229%
Germany	4,86	0,91	19%
Denmark	1,19	0,00	0%
Estonia	2,25	0,00	0%
Spain	2,49	13,50	543%
Finland	5,82	3,40	58%
France	2,49	0,11	4%
Hungary	12,31	0,00	0%
Ireland	0,42	0,00	0%
Italy	5,68	0,00	0%
Lithuania	0,93	0,00	0%
Latvia	0,24	0,00	0%
Netherlands	0,00	0,00	-
Norway	0,46	0,00	0%
Poland	8,79	611,09	6951%
Portugal	1,62	0,20	12%
Romania	3,23	0,20	6%
Sweden	19,81	0,11	1%
Slovenia	0,74	0,00	0%
Slovakia	1,79	0,00	0%
United Kingdom	5,66	4,15	73%
Iceland	0,55	0,00	0%
Switzerland	4,96	0,00	0%

There is no clear correlation between high PCDD/PCFD and high CO_2 emissions in data reported under E-PRTR. High PCDD/PCFD emissions may result from waste co-incineration or biomass plants without flue gas cleaning. Due to a lack of knowledge about fuel type and flue gas cleaning technologies of individual facilities no clear-cut conclusion about possible over- or underestimation of PCDD/PCFD emissions can be drawn. However, PCDD/PCFD releases above 5 g from individual plants should be double-checked to avoid overestimations.

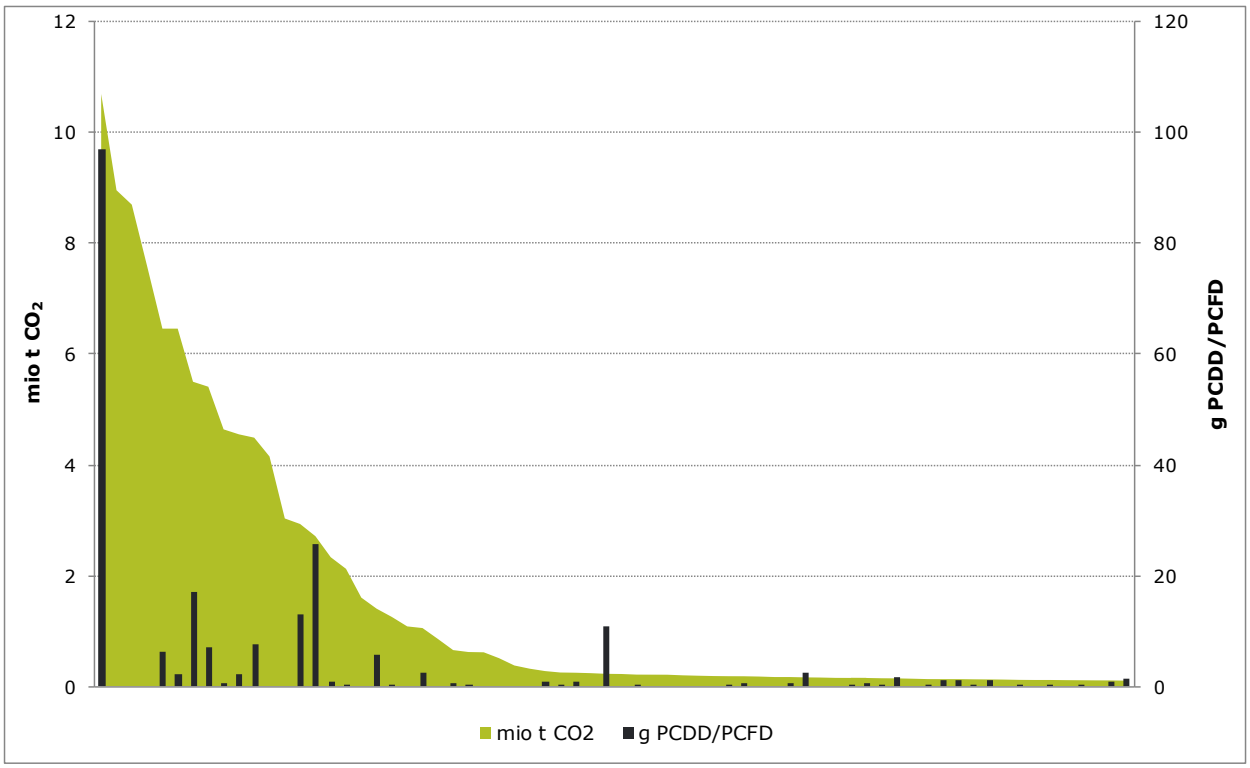
Table C.6 Activity 1.(c): Top 50 CO_2 emitters which reported high PCDD/PCFD emissions in E-PRTR 2008

National-ID	Country	Facility name	Rank	mio t CO_2	PCDD/PCFD [g]
07W000084	Poland	Elektrownia "KOZIENICE" S.A.	15	10.00	39.00
03-01-01211092310	Germany	Salzgitter Flachstahl GmbH	25	7.48	7.00
12S000298	Poland	Południowy Koncer Energetyczny S.A., Elektrownia Jaworzno III - Elektrownia III	43	5.64	260.00

C.2.7.2 Installations for the production of pig iron or steel (primary or secondary melting) including continuous casting, 2.(b)

About 3 % (242 g) of PCDD/PCFD E-PRTR 2008 releases were reported from activity 2.(b). Out of 69 facilities that reported PCDD/PCFD 40 plants also reported CO_2 releases. On the other hand, out of 68 facilities that reported CO_2 releases 40 facilities also reported releases of PCDD/PCFD (Figure C.21).

Figure C.21 Activity 2.(b) top 150 CO_2 emitters: CO_2 and PCDD/PCFD releases into air



Six out of the top 20 CO_2 emitters did not report any PCDD/PCFD releases which indicates a potential gap in reporting (Table C.7). This affects the countries Slovakia, Austria, Romania, France and Germany. Due to the heterogeneous production and abatement techniques of iron plants it is not possible to assess the magnitude of the gap in reporting.

Table C.7 Activity 2.(b) top 20 CO_2 emitters which did not report PCDD/PCFD releases in 2008

Country	National -ID	Facility name	Rank	mio t CO_2
Slovakia	57002803	U.S.Steel s.r.o.	2	9.0
Austria	20000.00256	voestalpine Stahl GmbH	3	8.7
Romania	RO2GL_21	SC ARCELORMITTAL GALATI SA	4	7.6
France	062.01364	ARCELORMITTAL Atlantique et Lorraine	12	4.2
Austria	20000.00319	voestalpine Stahl Donawitz GmbH & Co KG	13	3.0
Germany	12-30670480000	ArcelorMittal Eisenhüttenstadt GmbH	18	1.6

Table C.8 compares activity 2.(b) with data reported under CLRTAP NFR *1 A 2 a a*nd *NFR 2 C 1.* Even though NFR 1 A 2 a includes fuel combustion facilities, nine plants reported in total 80 g PCDD/PCDF emissions (Germany 11 g, United Kingdom 15 g, France 13g, Czech Republic 40 g) for NACE 24.10 under activities other than 2.(b), which is 27 % of total emissions reported under NACE 24.10. Considering this issue, potential gaps in reporting were identified for Austria, Bulgaria, Poland, Romania, Slovakia and the United Kingdom.

The very low PCDD/PCDF emissions reported by Portugal under CLRTAP could indicate an error in magnitude. For Belgium, Germany, Finland, Italy, the Netherlands and Sweden reporting of PCDD/PCDF emissions under activity 2.(b) and under CLRTAP NFR *1 A 2 a a*nd *NFR 2 C 1* was rather consistent.

Table C.8 Comparison of PCDD/PCDF emissions reported under activity 2.(b) with data reported under CLRTAP NFR 1 A 2 a Stationary Combustion in Manufacturing Industries and Construction: Iron and Steel and NFR 2 C 1 Iron and Steel Production

Country	PCDD/PCDF [g] NFR (1 A 2 a + 2 C 1)	PCDD/PCDF [g] E-PRTR 2.(b)	Share E-PRTR
Austria	3.45	0.00	0%
Belgium	22.11	24.51	111%
Bulgaria	17.13	0.00	0%
Cyprus	0.00	0.00	-
Czech Republic	110.28	29.10	26%
Germany	34.62	31.29	90%
Denmark	0.00	0.00	-
Estonia	0.00	0.00	-
Spain	55.85	24.54	44%
Finland	0.86	0.80	93%
France	31.63	15.72	50%
Greece	0.00	1.03	-
Hungary	16.06	5.81	36%
Ireland	0.00	0.00	0%
Italy	87.34	98.67	113%
Lithuania	0.00	0.00	-
Luxembourg	0.00	0.70	-
Latvia	0.04	0.00	0%
Malta	0.00	0.00	-
Netherlands	2.25	2.26	100%

Country	PCDD/PCDF [g] NFR (1 A 2 a + 2 C 1)	PCDD/PCDF [g] E-PRTR 2.(b)	Share E-PRTR
Norway	1.21	0.00	0%
Poland	22.17	0.00	0%
Portugal	0.0037	0.10	2733%
Romania	25.59	0.50	2%
Sweden	2.99	3.07	103%
Slovenia	1.35	0.00	0%
Slovakia	27.05	0.00	0%
United Kingdom	31.03	3.58	12%
Liechtenstein	0.00	0.00	-
Iceland	0.00	0.00	0%
Switzerland	0.55	0.00	0%

C.2.7.3 Production of non ferrous metals – Aluminum Production, 2.(e)

According to the Emission Inventory Guidebook PCCD/PCDF emissions occur during aluminum production. Seven facilities reported PCCD/PCDF releases for NACE *24.42 Aluminum Production* under activity *2.(e) Production of non ferrous metals*. Table C.9 shows a comparison of these facilities with data reported under CLRTAP NFR *2 C 3 Aluminum Production*.

The extremely high PCCD/PCDF releases of Iceland reported under E-PRTR seem to be an error in magnitude. In case of Germany, Norway and United Kingdom a gap in reporting could be possible.

Table C.9 Comparison of PCDD/PCDF emissions under activity 2.(b) with data reported under CLRTAP NFR 1 A 2 a Stationary Combustion in Manufacturing Industries and Construction: Iron and Steel and NFR 2 C 1 Iron and Steel Production.

Country	PCDD/PCDF [g] CLRTAP	PCDD/PCDF [g] E-PRTR	Share E-PRTR
Austria	NO		
Belgium	NO		
Bulgaria	0.15		
Cyprus	NO		
Czech Republic	-		
Germany	1.84		0.00%
Estonia	NO		
Spain	NE		
Finland	NA		
France	NA	0.48	
Hungary	NA	0.93	
Ireland	NO		
Italy	NA		
Lithuania	NO		
Latvia	NO		
Netherlands	IE		
Norway	1.19		
Poland	0.09		
Portugal	NO		

Country	PCDD/PCDF [g] CLRTAP	PCDD/PCDF [g] E-PRTR	Share E-PRTR
Romania	NA		
Sweden	NA		
Slovenia	0.07		
Slovakia	IE		
United Kingdom	5.93	0.19	3.3%
Iceland	0.53	440.00	83341%
Switzerland	NA		
Croatia	NO		

C.2.7.4 Production of non ferrous metals – Other non ferrous metals,2.(e)

According the Emission Inventory Guidebook PCCD/PCDF emissions occur from all types of primary production of non ferrous metals.

The following comparison related to the production and casting of other non ferrous metals. 21 facilities reported PCCD/PCDF releases under activity *2.(e) Production of non ferrous metals* for the following NACE codes:

- 24.51 Casting of iron
- 24.44 Copper production
- 24.53 Casting of light metals
- 29.32 Manufacture of other parts and accessories for motor vehicles
- 24.43 Lead, zinc and tin production
- 24.54 Casting of other non-ferrous metals
- 24.44 Copper production
- 24.41 Precious metals production

Table C.10 Comparison of PCCD/PCDF releases under activity 2.(b) with data reported under CLRTAP NFR 1 A 2 a Stationary Combustion in Manufacturing Industries and Construction: Iron and Steel and NFR 2 C 1 Iron and Steel Production

Country	PCDD/PADS [g] CLRTAP	PCDD/PCDF [g] E-PRTR	Share E-PRTR
Belgium	0.21		
Bulgaria	1.03		
Czech Republic		8.23	
Germany	1.85	0.63	34.2%
Spain		0.59	
Finland	0.58		
Portugal		0.10	
Romania	0.48	89.00	18426.5%
Sweden	0.63	0.74	117.0%
Slovenia	1.18	0.53	44.9%
United Kingdom	38.13	2.20	5.8%
Switzerland	0.74		

Table C.10 shows the comparison of PCCD/PCDF releases and emissions reported under CLRTAP for NFR *2 C 5 b Lead Production*, *2 C 5 c Nickel Production, 2 C 5 d Zinc Production, 2 C 5 e Other metal production* for countries that reported emissions either under CLRTAP or E-PRTR.

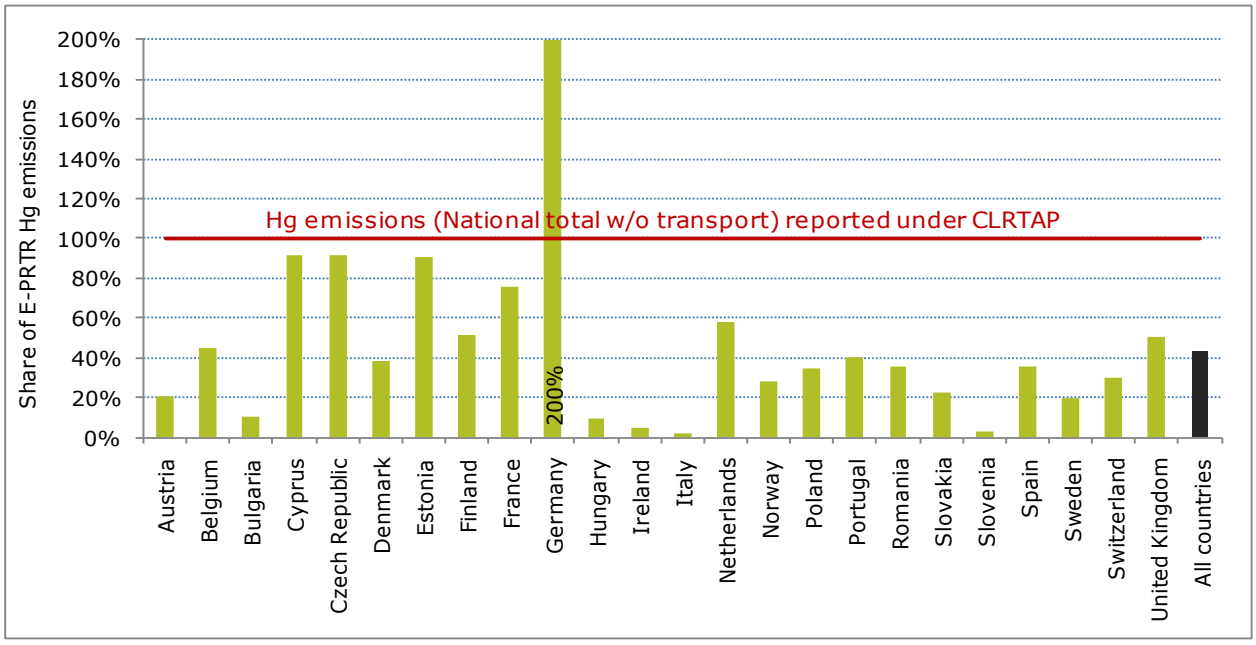
In case of Romania, a possible error of magnitude in reporting was identified. The very low PCCD/PCDF releases reported under E-PRTR by the United Kingdom might indicate a potential gap in reporting.

C.2.8 Mercury (Hg)

The total percentage of **Hg** emissions accounted for in E-PRTR reporting for all countries is 43 % of the national total without transport reported under CLRTAP (Figure C.22). For individual countries the total percentage of Hg emissions accounted for is rather variable (minimum 2 % for Italy and maximum 200 % for Germany, standard deviation 43 %).

E-PRTR Hg releases mainly stem from *Energy*, *Production of metals, Mineral industry and Chemical industry*. Switzerland, Denmark and Norway also reported a relatively high share of Hg emissions from *Waste management* (Figure C.23).

Figure C.22 Share of E-PRTR Hg emissions in the national total reported under CLRTAP (national total without transport)



Note: *Greece, Iceland, Latvia, Liechtenstein, Lithuania, Luxembourg and Malta did not report Hg emissions under E-PRTR 2008. Greece, Iceland, Latvia, Liechtenstein and Luxembourg did not report Hg emissions under CLRTAP 2008*

For mercury (Hg) the results also differ very much between countries. In Germany the share of Hg E-PRTR releases in sectoral CLRTAP emissions is 224 %; in Cyprus, the Czech Republic, Estonia and France the share is between 80 % and 100 % and in Ireland, Italy and Slovenia less than 10 % (Figure C.24).

Figure C.23 Contribution of E-PRTR main activities to the total Hg releases reported under E-PRTR 2008

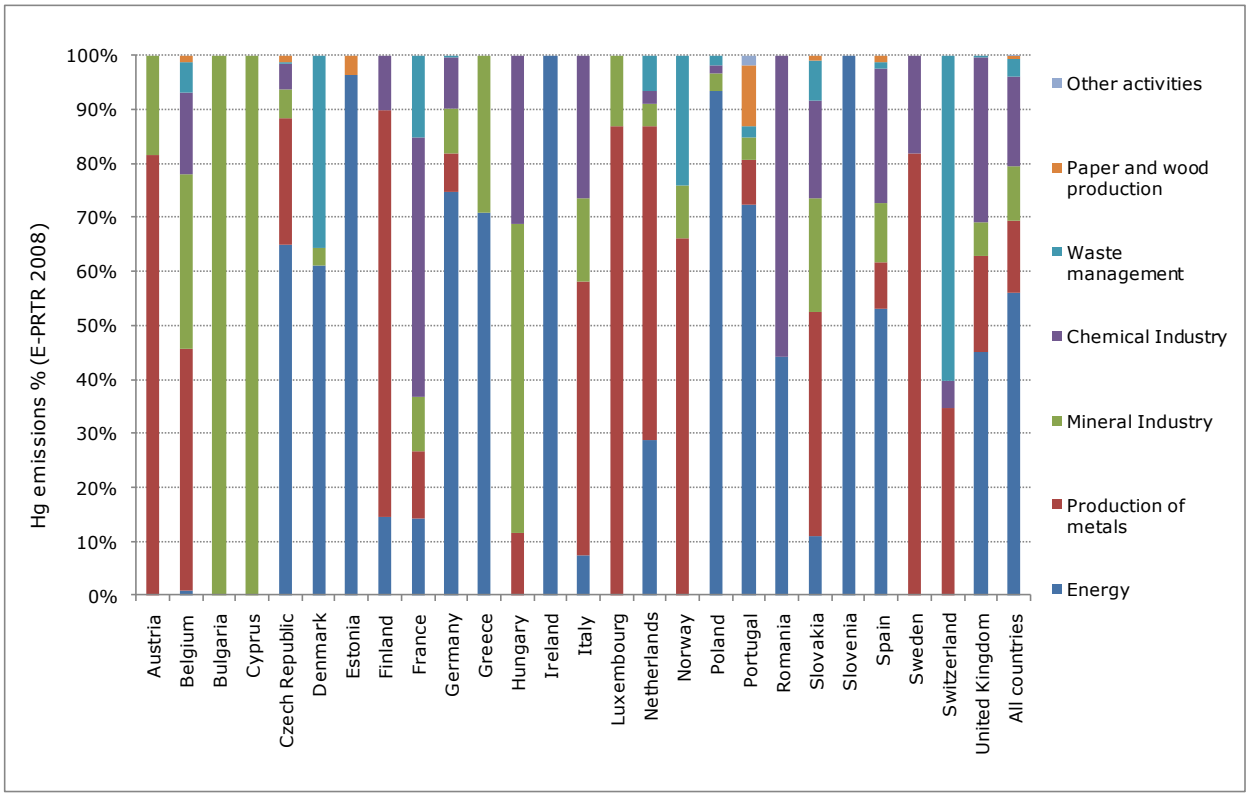
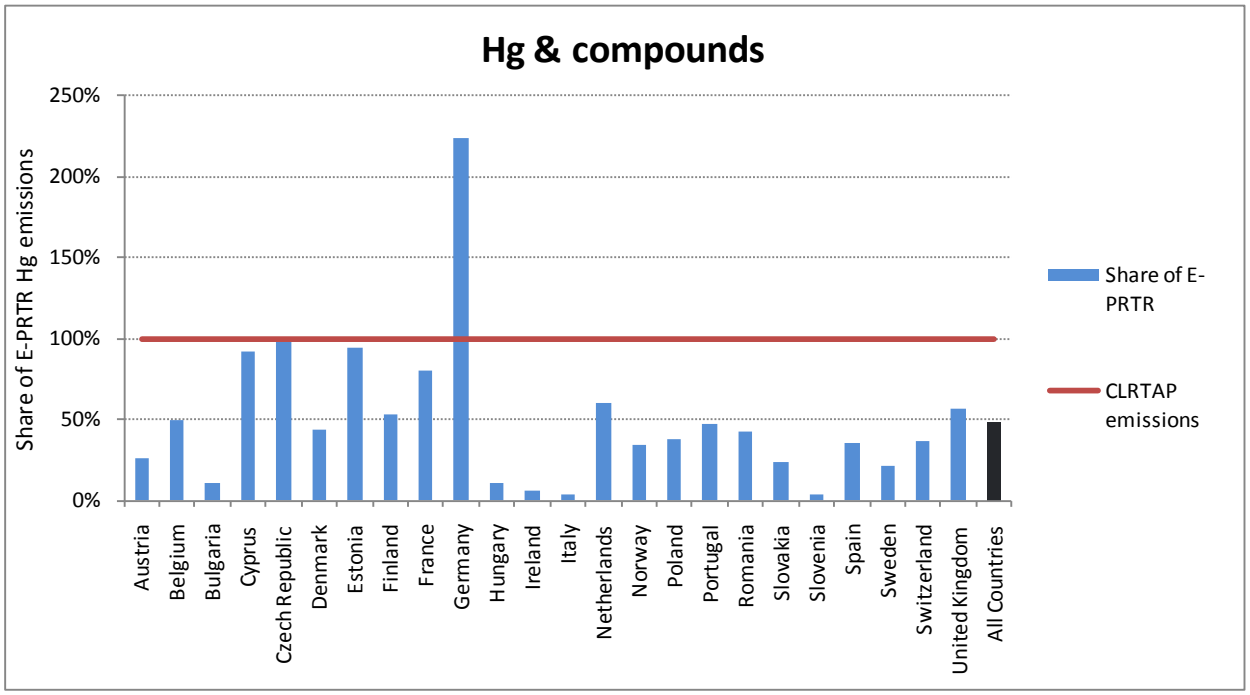


Figure C.24 Share of E-PRTR Hg releases (Energy, manufacturing industries and waste incineration) in sectoral emissions reported under CLRTAP



Note: *Bulgaria, Greece, Iceland and Latvia, Lithuania, Liechtenstein and Malta did not report Hg emissions for „Energy" sector.*

C.2.8.1 Thermal power stations and other combustion installations, 1.(c)

The most important activity for Hg emissions is *1.(c) thermal power stations and other combustion installations* which is responsible for 53 % (20.218 kg) of the total E-PRTR Hg emissions. In total 195 facilities were reporting Hg emissions under *1.(c)* but only 6 facilities were reporting Hg emissions without reporting of any CO_2 emissions. Figure C.25 shows the top 100 CO_2 emitters for activity *1.(c)* contributing 55 % (691 mio t) of total CO_2 emissions reported under *1.(c).*

It is assumed that the largest thermal power plants are coal-fired (which could be verified for at least the top 20 facilities) and that Hg emissions were above the threshold of 10 kg. Hg emissions of the top 100 CO_2 emitters contributed 71 % (14.143 kg) to total 1.(c) Hg emissions and 37 % of total Hg E-PRTR emissions, respectively. A rather high percentage (68 %) of the top 100 CO_2 emitters was also reporting Hg emissions.

Within the top 20 CO_2 emitters of activity *1.(c)* three facilities did not report Hg emissions (Figure C.26). This may indicate inconsistencies in reporting and should be checked by countries.

Figure C.25 Activity 1.(c) top 100 CO_2 emitters: CO_2 and Hg emissions into air

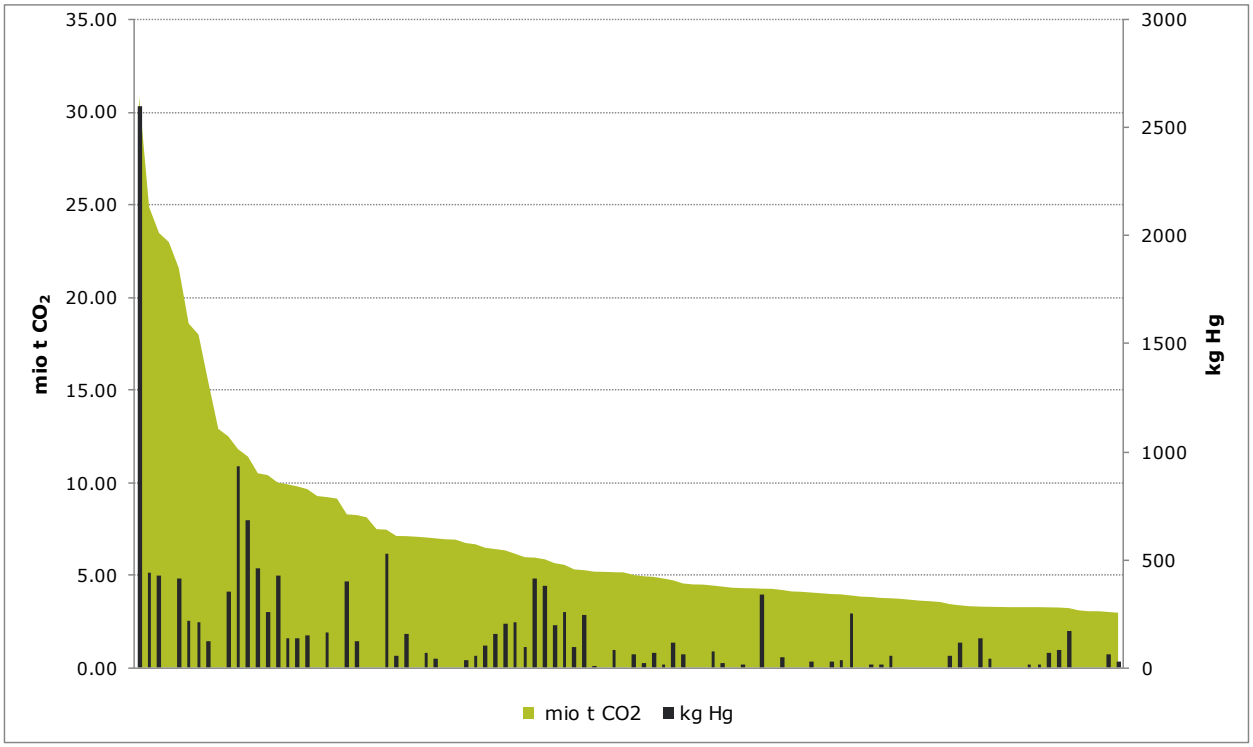


Figure C.26 Activity 1.(c) top 20 CO_2 emitters which did not report Hg emissions

National-ID	Country	Facility name	Rank	mio t CO_2
EW_EA-67	United Kingdom	Drax Power Limited, Drax Power Ltd	4	23.00
01D000018	Poland	PGE Elektrownia Turów S.A.	9	12.90
2007000042	Italy	CENTRALI TERMOELETTRICHE DI TARANTO	19	9.27

C.2.8.2 Installations for the production of pig iron or steel (primary or secondary melting) including continuous casting, 2.(b)

Another important activity for Hg emissions is *2.(b)* which accounted for 10 % (3.635 kg) of total Hg E-PRTR emissions in 2008. Forty percent of CO_2 emitters of this activity were also reporting Hg emissions. Within the top 20 CO_2 emitters only 9 plants were reporting Hg emissions, which possibly indicates a gap in reporting.

In total 53 facilities were reporting Hg emissions of which 26 are not reporting CO_2 emissions. Especially the largest Hg emitter (384 kg) did not report any CO_2 emissions. A certain correlation of large CO_2 with large Hg emissions is given but due to the heterogenic structure of this activity it is not possible to show any discrepancies.

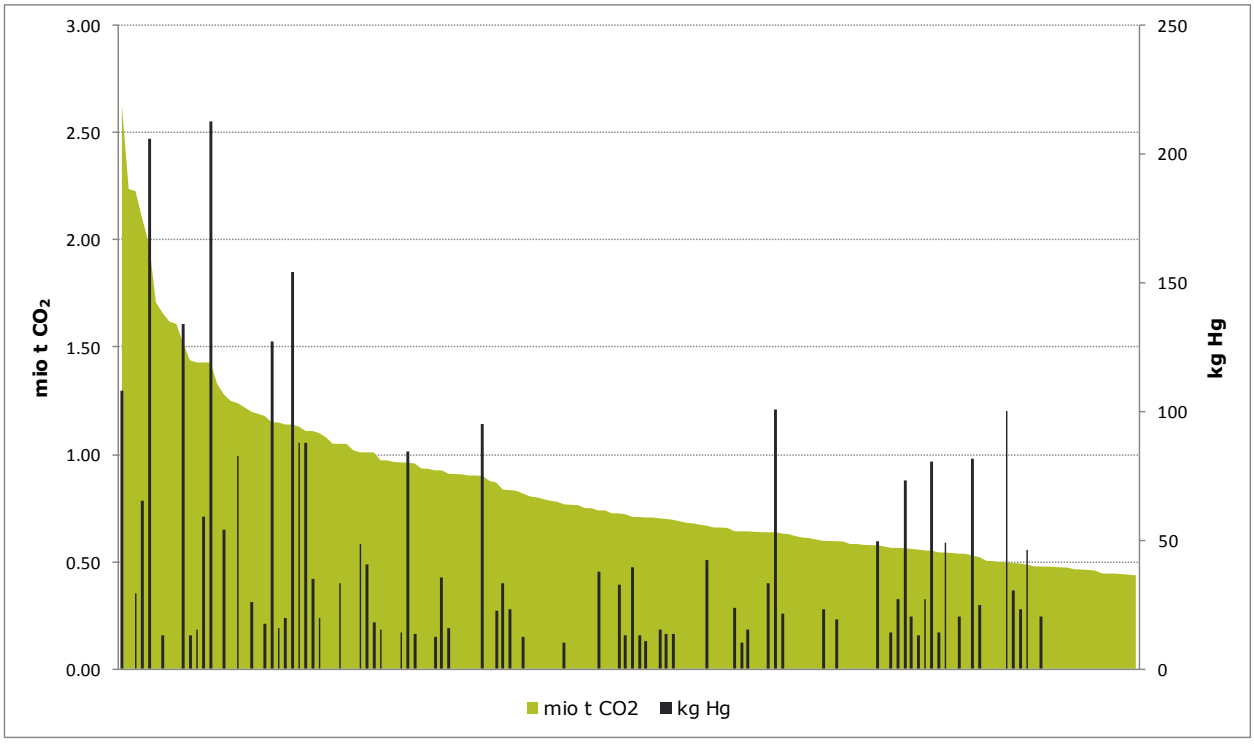
C.2.8.3 Installations for the production of: cement clinker in rotary kilns 3.(c).(i), (NACE 23.51)

Activity *3.(c).(i)* is also an important source for Hg emissions accounting for 9 % (3.588kg) of total Hg E-PRTR emissions in 2008.

Figure C.27 shows the top 150 CO_2 emitters of NACE 23.51, which were responsible for 84 % (126 mio t) of total CO_2 emissions reported under NACE 23.51 in 2008. Fifty percent of the top 150 CO_2 emitters were also reporting Hg emissions. Within the top 20 CO_2 emitters 7 plants were not reporting Hg emissions, which could indicate a gap in reporting and should consequently be checked by the countries concerned (Denmark, Ireland, Portugal, Romania, Spain, Sweden, the United Kingdom).

In total 91 facilities were reporting Hg emissions under NACE 23.51 and only one facility reported Hg emissions without reporting any CO_2 emissions.

Figure C.27 Activity 3.(c).(i) top 150 CO_2 emitters: CO_2 and Hg emissions into air

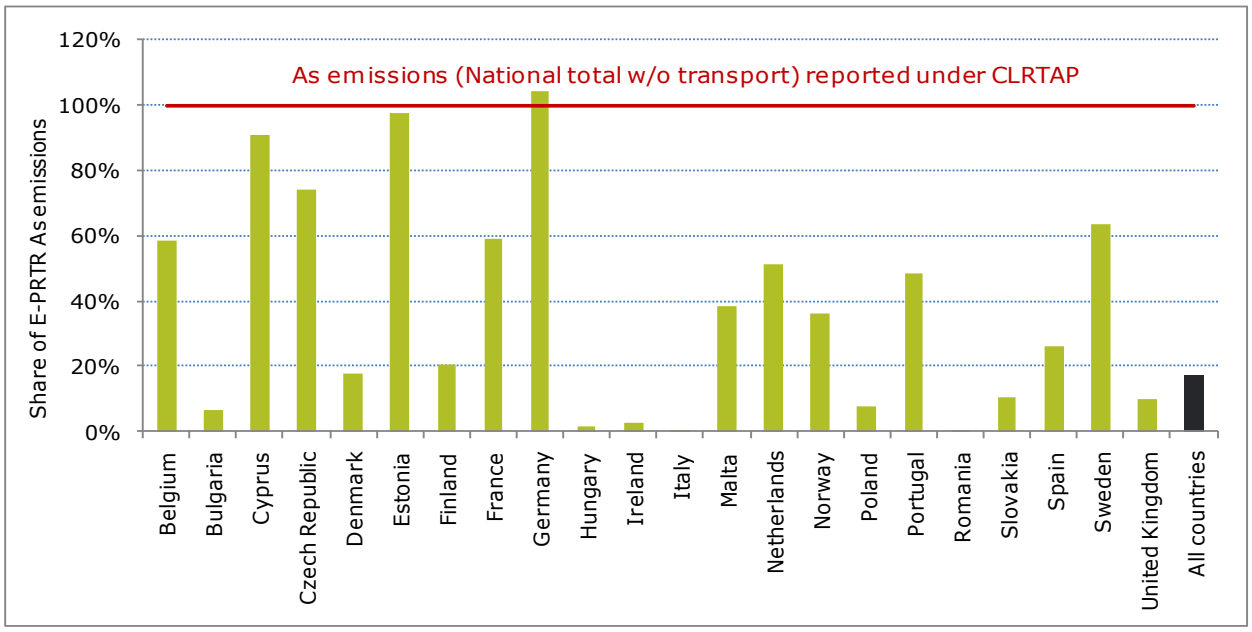


C.2.9 Other heavy metals (HMs)

All countries reported releases of at least one heavy metal (HM) under E-PRTR. Reporting of HM under E-PRTR seems to be more complete than reporting of HM under CLRTAP. Large point sources produce on average more than 20 % of national total HM emissions. For individual HMs between seven and eight countries have a share of E-PRTR emissions above 50 %. Germany, Hungary, Lithuania, Malta and Portugal reported significantly higher emissions under the E-PRTR than national totals under CLRTAP, this indicates either incomplete reporting under CLRTAP or errors in E-PRTR data.

The total percentage of **As** emissions accounted for in E-PRTR reporting for all countries is 17 % of the national total without transport reported under CLRTAP (Figure C.28). For individual countries the total percentage of As emissions accounted for is rather variable with a minimum of 0.1 % for Romania and a maximum of 104 % for Germany (standard deviation 33 %).

Figure C.28 Share of E-PRTR As emissions in the national total reported under CLRTAP (national total without transport)

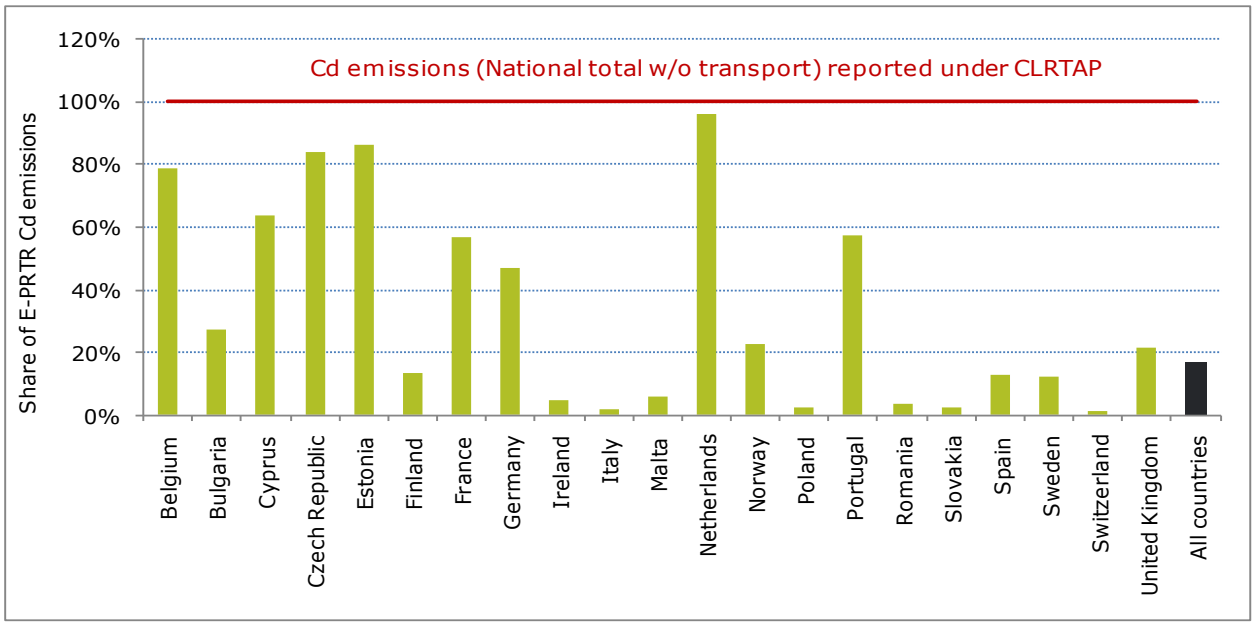


Note: *Austria, Greece, Latvia, Liechtenstein, Lithuania and Luxembourg did not report As emissions under E-PRTR 2008. Austria, Greece, Iceland, Latvia, Liechtenstein, Luxembourg, Slovenia and Switzerland did not report As emissions under CLRTAP 2008*

The total percentage of **Cd** emissions accounted for in E-PRTR reporting for all countries is 17 % of the national total without transport reported under CLRTAP (Figure C.29). For individual countries the total percentage of Cd emissions accounted for is rather variable with a minimum of 1 % for Switzerland and a maximum of 96 % for the Netherlands (standard deviation 33 %).

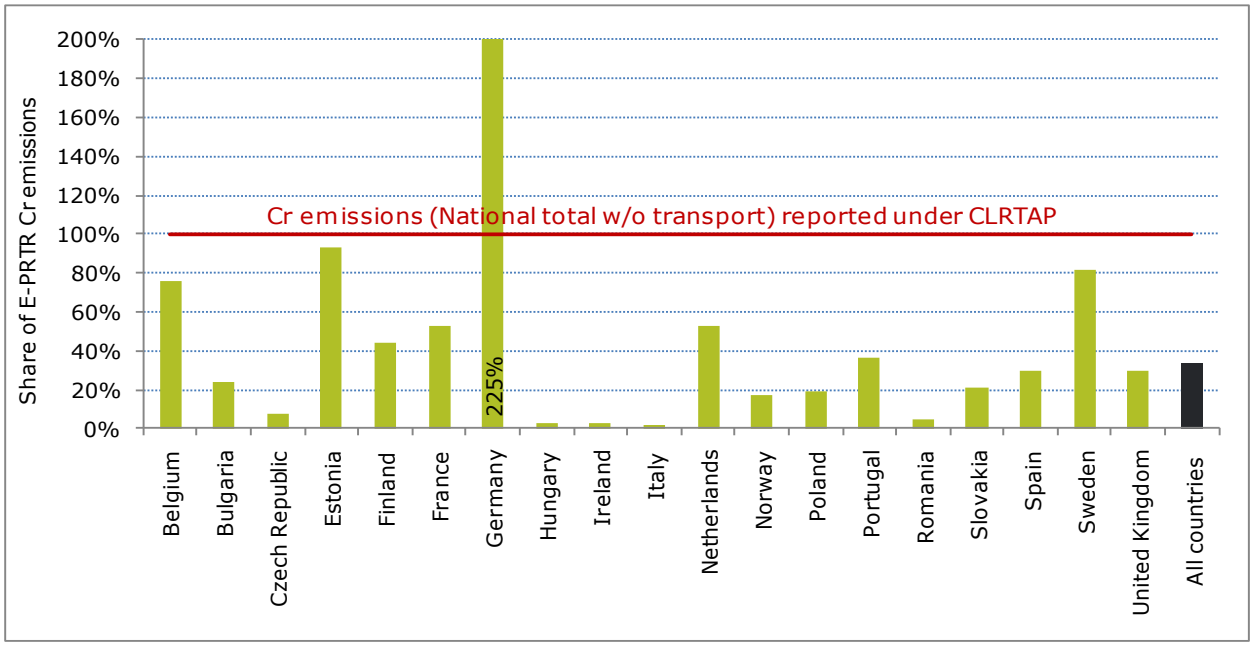
The total percentage of **Cr** emissions accounted for in E-PRTR reporting for all countries is 33 % of the national total without transport reported under CLRTAP (Figure C.30). For individual countries the total percentage of Cr emissions accounted for is rather variable with a minimum of 2 % for Italy and a maximum of 225 % for Germany (standard deviation 52 %).

Figure C.29 Share of E-PRTR Cd emissions in the national total reported under CLRTAP (national total without transport)



Note: *Austria, Denmark, Greece, Iceland, Latvia, Liechtenstein, Lithuania, Luxembourg and Slovenia did not report Cd emissions under E-PRTR 2008. Greece, Iceland, Liechtenstein, Luxembourg did not report Cd emissions under CLRTAP 2008.*

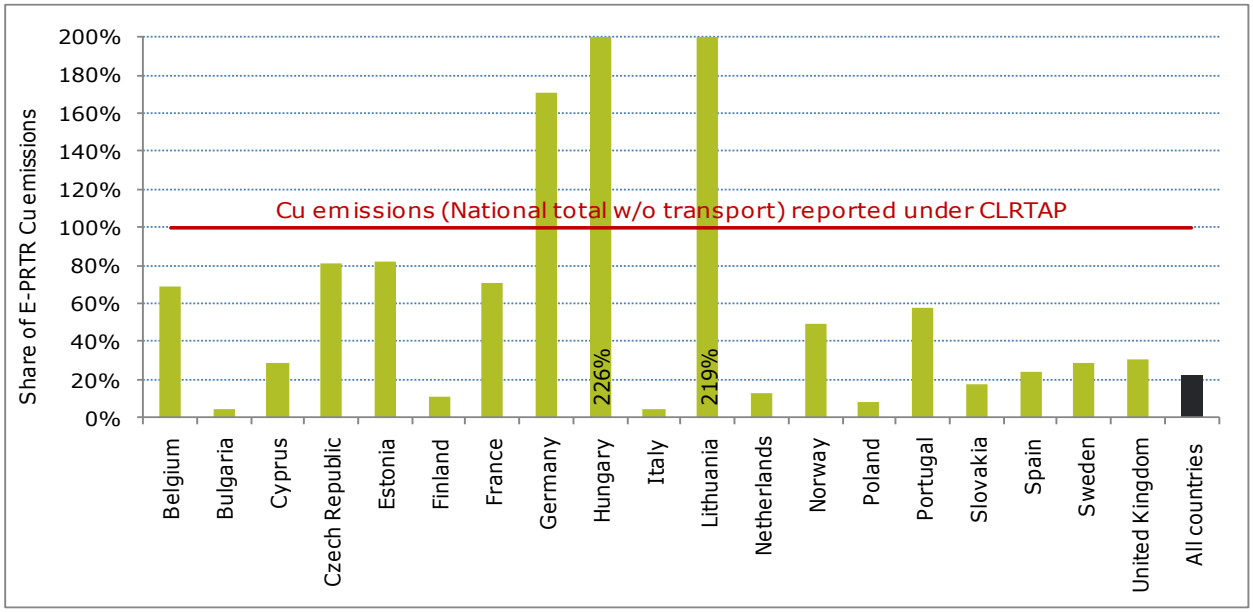
Figure C.30 Share of E-PRTR Cr emissions in the national total reported under CLRTAP (national total without transport)



Note: *Cyprus, Denmark, Greece, Iceland, Latvia, Liechtenstein, Lithuania, Luxembourg and Malta did not report Cr emissions under E-PRTR 2008. Austria, Greece, Iceland, Liechtenstein, Luxembourg, Slovenia and Switzerland did not report Cr emissions under CLRTAP 2008*

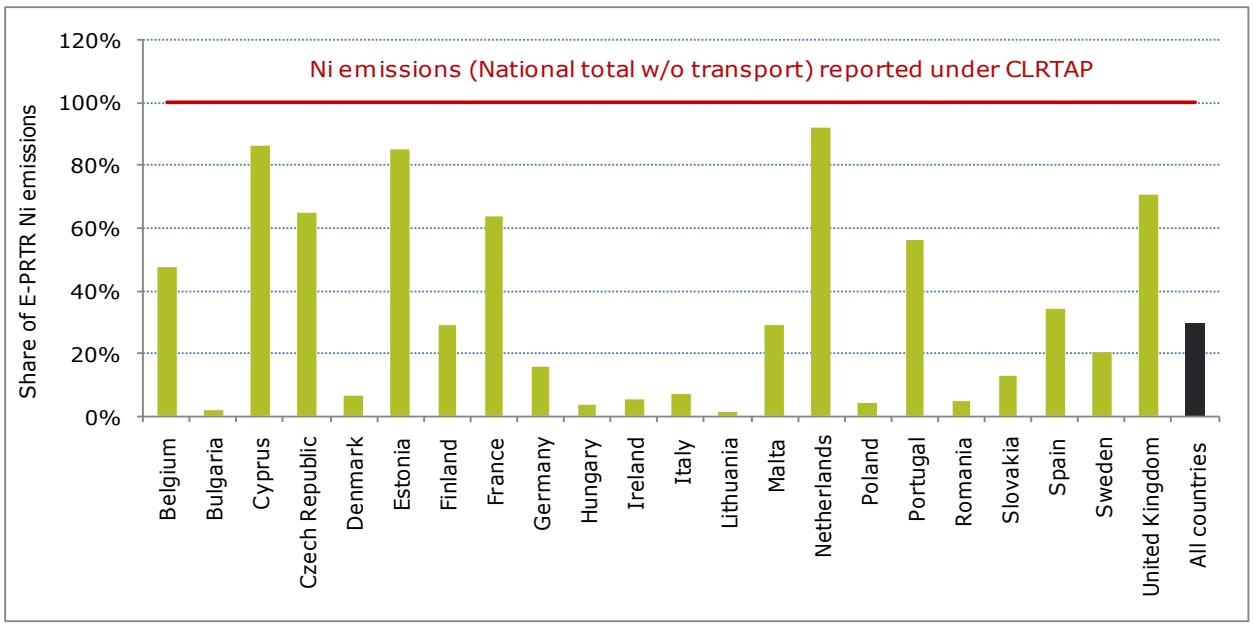
The total percentage of **Cu** emissions accounted for in E-PRTR reporting for all countries is 22 % of the national total without transport reported under CLRTAP (Figure C.31). For individual countries the total percentage of Cu emissions accounted for is highly variable with a minimum of 5 % for Bulgaria and a maximum of 226 % for Germany (standard deviation 69 %).

Figure C.31 Share of E-PRTR Cu emissions in the national total reported under CLRTAP (national total without transport)



Note: *Austria, Denmark, Greece, Iceland, Ireland, Latvia, Liechtenstein, Luxembourg, Malta and Romania did not report Cu emissions under E-PRTR 2008. Austria, Greece, Iceland, Liechtenstein, Luxembourg, Slovenia and Switzerland did not report Cu emissions under CLRTAP 2008*

Figure C.32 Share of E-PRTR Ni emissions in the national total reported under CLRTAP (national total without transport)

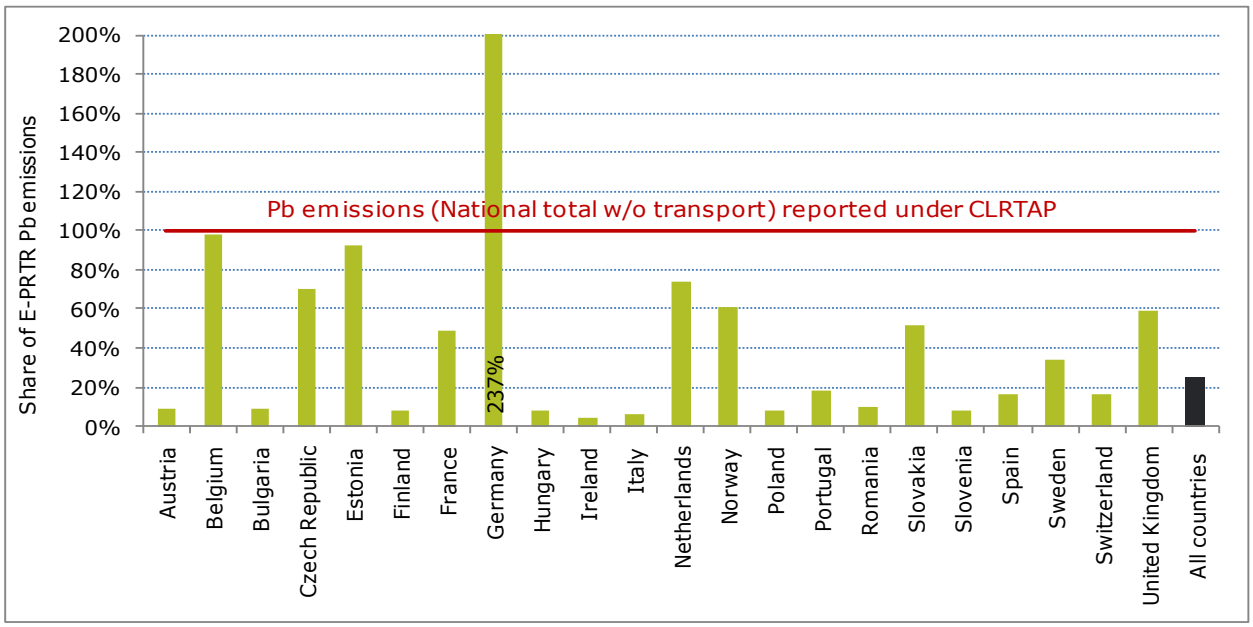


Note: *Greece, Iceland, Latvia, Liechtenstein and Luxembourg did not report Ni emissions under E-PRTR 2008. Austria, Greece, Iceland, Liechtenstein, Luxembourg, Norway, Slovenia and Switzerland did not report Ni emissions under CLRTAP 2008*

The total percentage of **Ni** emissions accounted for in E-PRTR reporting for all countries is 30 % of the national total without transport reported under CLRTAP (Figure C.32). For individual countries the total percentage of Ni emissions accounted for is rather variable with a minimum of 1 % for Lithuania and a maximum of 92 % for the Netherlands (standard deviation 31 %).

The total percentage of **Pb** emissions accounted for in E-PRTR reporting for all countries is 25 % of the national total without transport reported under CLRTAP (Figure C.33). For individual countries the total percentage of Pb emissions accounted for is rather variable with a minimum of 4 % for Ireland and a maximum of 237 % for Germany (standard deviation 53 %).

Figure C.33 Share of E-PRTR Pb emissions in the national total reported under CLRTAP (national total without transport)



Note: *Cyprus, Denmark, Greece, Iceland, Latvia, Liechtenstein, Luxembourg and Malta did not report Pb emissions under E-PRTR 2008. Greece, Iceland, Liechtenstein and Luxembourg did not report Pb emissions under CLRTAP 2008*

C.3 Refineries, Iron and Steel

A more detailed comparison was performed for *Electricity and heat production* (Table C.11), *Refineries* (Table C.12) and the *Iron and steel industry* (Table C.13), while these sectors contribute significantly to E-PRTR SO_x, NO_x and PM_{10} emissions. These are the sectors for which also under CLRTAP emissions are occurring from large point sources, however not all of them necessarily exceed E-PRTR thresholds. The tables show identical figures reported under CLRTAP and E-PRTR in a number of countries.

Table C.11 Comparison of E-PRTR and CLRTAP emissions (NO_x, SO_x and PM_{10}) occurring in Electricity and heat production

Country	E-PRTR NOx/NO2 Gg	CLRTAP NOx/NO2 Gg	Share E-PRTR in CLRTAP %	E-PRTR SOx/SO2 Gg	CLRTAP SOx/SO2 Gg	Share E-PRTR in CLRTAP %	E-PRTR PM10 Gg	CLRTAP PM10 Gg	Share E-PRTR in CLRTAP %
Austria	3.23	10.81	30%	0.68	2.31	29%	0.08	1.04	7%
Belgium	11.19	16.57	68%	7.42	7.91	94%	0.20	0.43	46%
Bulgaria	64.42	56.82	113%	721.32	663.22	109%	16.86	9.79	172%
Cyprus	6.33	6.32	100%	19.00	20.52	93%	0.59	0.59	100%
Czech Republic	83.81	83.74	100%	106.90	105.32	101%	2.55	2.62	97%
Denmark	15.68	24.06	65%	4.99	6.28	79%	0.23	0.65	35%
Estonia	10.68	11.94	89%	56.57	61.69	92%	5.04	6.13	82%
Finland	30.54	35.78	85%	19.49	26.52	73%	0.72	2.03	35%
France	94.99	69.16	137%	100.56	79.44	127%	4.35	4.06	107%
Germany	201.79	277.44	73%	138.64	204.09	68%	3.97	9.68	41%
Greece	126.76	133.62	95%	338.19	331.50	102%	21.27		
Hungary	15.52	28.01	55%	12.20	10.20	120%		0.24	
Iceland	21.13	21.98	96%	25.06	25.19	99%	0.49	4.25	12%
Ireland	31.84	58.75	54%	16.41	57.98	28%	0.19	2.02	9%
Italy	1.74	5.49	32%	0.65	0.38	170%		0.22	
Latvia	2.36	6.79	35%	1.28	5.21	25%		2.13	
Liechtenstein	0.41								
Lithuania	5.60	5.19	108%	10.44	10.47	100%	0.75	0.91	82%
Luxembourg	24.29	24.69	98%	5.82	6.08	96%	0.14	0.27	52%
Malta	232.36	260.83	89%	477.39	542.17	88%	18.26	17.39	105%
Netherlands	45.19	35.29	128%	38.46	33.74	114%	1.34	1.60	84%
Norway	82.21	83.45	99%	450.53	451.10	100%	20.21	6.58	307%
Poland	9.50	10.64	89%	40.12	40.36	99%		0.82	
Portugal	10.89	12.11	90%	7.03	7.43	95%	0.20	0.40	50%
Romania	182.43	205.63	89%	123.40	187.90	66%	6.38	8.52	75%
Slovakia	3.27	12.94	25%	0.68	7.67	9%	0.05	4.58	1%
Slovenia	276.66	278.52	99%	214.04	213.09	100%	6.98	8.55	82%
Spain		0.09			0.02				
Sweden		0.01			0.00			0.00	
Switzerland	0.20	1.59	12%		1.02			0.18	
United Kingdom		2.21			0.27			0.29	

Note: *E-PRTR activities 1.(c) Thermal power stations and other combustion installations and 5.(b) Installations for the incineration of non-hazardous waste (NACE 35.11 Production of electricity and 35.30 Steam and air conditioning supply) are compared with CLRTAP/UNFCCC sector 1 A1a Public Electricity and Heat production.*

Shares of E-PRTR emissions in emissions reported under CLRTAP between 90 % and 100 % are highlighted in green; those exceeding 100 % are highlighted in red.

Table C.12 Comparison of E-PRTR and CLRTAP NO_x and SO_x, emissions occurring in Refineries, 2008

Country	E-PRTR NOx/NO2 Gg	CLRTAP NOx/NO2 Gg	Share E-PRTR in CLRTAP %	E-PRTR SOx/SO2 Gg	CLRTAP SOx/SO2 Gg	Share E-PRTR in CLRTAP %
Austria		1.20			0.85	
Belgium	6.26	4.69	133%	20.91	21.01	100%
Bulgaria	4.08	0.01	30753%	6.55	0.06	10982%
Cyprus						
Czech Republic	0.74	0.52	142%	5.79	0.81	713%
Denmark	1.39	1.49	93%	1.56	0.32	493%
Estonia	0.24	0.00	9042%		0.00	
Finland	3.85	3.05	126%	6.72	1.08	621%
France	23.60	17.79	133%	92.84	49.32	188%
Germany	15.41	20.60	75%	32.44	48.64	67%
Greece	6.24	6.09	103%	12.10	34.36	35%
Hungary	1.14			0.58		
Iceland	0.77	0.77	100%	0.98	0.98	100%
Ireland	2.48	23.52	11%	8.35	45.44	18%
Italy						
Latvia	2.84	1.23	231%	12.30	3.42	360%
Liechtenstein						
Lithuania						
Luxembourg	8.52	8.62	99%	25.76	25.71	100%
Malta	8.14	8.17	100%	25.64	25.72	100%
Netherlands	4.75	6.71	71%	21.37	20.73	103%
Norway	5.57	1.29	431%	15.99	2.03	787%
Poland	2.55	1.04	245%	8.10	1.48	548%
Portugal		0.00			0.00	
Romania	23.49	22.13	106%	71.16	47.32	150%
Slovakia	1.35	1.47	92%	0.51	0.47	108%
Slovenia	11.69	24.58	48%	27.21	72.01	38%
Spain						
Sweden						
Switzerland	1.94	1.03	189%	1.39	0.52	270%
United Kingdom	0.30	1.26	24%		1.99	

Note: *E-PRTR activity 1.(a) Mineral oil and gas refineries (NACE 19.20 Manufacture of refined petroleum products) is compared with CLRTAP sector 1A1b Petroleum refining*

Shares of E-PRTR emissions in emissions reported under CLRTAP between 90 % and 100 % are highlighted in green; those exceeding 100 % are highlighted in red.

Table C.13 Comparison of NO_x and CO emissions occurring in Iron and steel industry

Country	E-PRTR NOx/NO2 Gg	CLRTAP NOx/NO2 Gg	Share E-PRTR in CLRTAP %	E-PRTR CO Gg	CLRTAP CO Gg	Share E-PRTR in CLRTAP %
Austria	4.43	5.19	85%	124.60	127.24	98%
Belgium	10.91	14.56	75%	257.64	329.64	78%
Bulgaria	0.15	6.03	3%	0.00	28.61	0%
Cyprus		0.00			0.00	
Czech Republic	7.01	7.08	99%	109.17	110.95	98%
Denmark	0.11					
Estonia		0.02			0.06	
Finland	3.99	4.22	95%	2.96	9.63	31%
France	18.13	18.83	96%	101.09	1,470.79	7%
Germany	19.12	30.60	62%	656.93	1,064.60	62%
Greece	0.14	0.76	19%	0.82	0.06	1495%
Hungary	1.03	4.81	21%	23.23	42.28	55%
Iceland		0.00			0.00	
Ireland	12.75	2.57	496%	249.42	79.30	315%
Italy	1.63	3.50	47%		0.14	
Latvia						
Liechtenstein	0.72			4.04		
Lithuania						
Luxembourg	5.92	5.31	112%	67.10	74.31	90%
Malta	7.00	2.20	317%	133.39	3.67	3633%
Netherlands	0.38	0.33	115%	0.63	13.70	5%
Norway	4.70	17.02	28%	103.50	81.20	127%
Poland	6.58	5.89	112%	91.20	80.08	114%
Portugal	0.15	0.29	51%	1.92	0.36	540%
Romania	9.56	14.52	66%	124.13	460.31	27%
Slovakia	2.28	2.24	102%	14.00	2.60	539%
Slovenia	11.53	19.45	59%	184.40	298.07	62%
Spain		1.08			0.16	
Sweden						
Switzerland		6.24			0.02	
United Kingdom	0.22	0.41	54%	0.50	1.78	28%

***Note**: E-PRTR activities: 2.(a) Metal ore (including sulphide ore) roasting or sintering installations, 2.(b) Installations for the production of pig iron or steel (primary or secondary melting) including continuous casting and 2.(c) Installations for the processing of ferrous metals (NACE 24.10 Manufacture of basic iron and steel and of ferro-alloys and 24.20 Manufacture of tubes, pipes, hollow profiles and related fittings, of steel) are compared with CLRTAP categories 1 A 2 a Stationary combustion in manufacturing industries and construction: Iron and steel, 2 C 1 Iron and steel production and 2 C 2 Ferroalloys Production.*

Shares of E-PRTR emissions in emissions reported under CLRTAP between 90 % and 100 % are highlighted in green; those exceeding 100 % are highlighted in red.

D Stage 2 Review – Waste- Comparisons with other data on waste transfers

The stage 2 review of the E-PRTR dataset for waste comprises a comparison of the 2007 with the 2008 data on waste transfers as well as a number of checks regarding waste incineration plants and landfills.

The checks included the following:

1. Significant changes in the reported amount of waste transfers
2. Significant changes in the distribution of waste transfer for recovery and disposal
3. Number of incineration plants reporting
4. Number of incineration plants reporting CO_2 emissions
5. Number of incineration plants reporting CO_2 emissions compared with the amount of waste transferred from the plants
6. Number of incineration plants reporting generation of hazardous waste
7. Landfills reporting leachate as "waste water transfer" under the category pollutant transfer instead of the category "waste transfer"

The stage 2 review of the E-PRTR dataset for waste for the reporting year 2008 was constraint by the fact that other relevant waste data were not available at the time the review was conducted. The Eurostat waste generation data for 2008 were reported by Member States according to the EU Waste Statistical Regulation[37] by the end of June 2010, but will not become available until the end of 2010 or by the beginning of 2011. Regarding transboundary shipments of waste the deadline for reporting of notified waste was by the end of 2009, but several Member States have still not reported.

D.1 Comparison of reporting year 2008 with 2007

The number of reported waste transfers (waste streams) was reviewed. In total 42,163 waste streams were included in the database in 2008 compared with 38,125 in 2007.

Altogether 17,205 facilities reported waste data in 2008 compared with 16,283 facilities in 2007. Hazardous waste reporting is divided into transfer within the country (domestic) and transfer out of the country (transboundary). In 2008, a total of 14,515 facilities reported data on domestically transferred hazardous waste and 1,234 reported data on transboundary transferred hazardous waste. A total of 7,333 facilities reported data on non-hazardous waste.

The different orders of magnitude for the hazardous waste and the non-hazardous waste data are partly due to the different reporting threshold for operators. Off-site transfers of non-hazardous waste must be reported if the facility transfers more than 2000 tonnes per year. For hazardous waste the threshold is 2 tonnes per year.

Figure B.11 in part B shows the distribution between countries of total combined waste transfer of hazardous waste and non-hazardous waste in million tonnes. Germany and Poland have the largest

[37] Waste Regulation: Regulation (EC) No 2150/2002 of the European Parliament and of the Council of 25 November 2002 on waste statistics, (http://eur-lex.europa.eu/LexUriServ/LexUriServ.do?uri=OJ:L:2002:332:0001:0036:EN:PDF)

reported amounts, whereas the Netherlands, Spain and Sweden have the absolute largest increases, when the 2008 reporting is compared with 2007 data.

Figure D.1 shows the overall development in percentage change from 2007 to 2008. The figure shows that the Netherlands, Sweden, Malta, Spain, Latvia, Iceland, Lithuania and Norway have reported an increase of more than 50 %, whereas Austria, Portugal and Cyprus have reported decreases larger then 50 %. These very large changes might indicate reporting errors.

Figure D.1 Development from 2007 to 2008 of total amounts of off-side waste transfers (hazardous+ non-hazardous waste) related to country (in %)

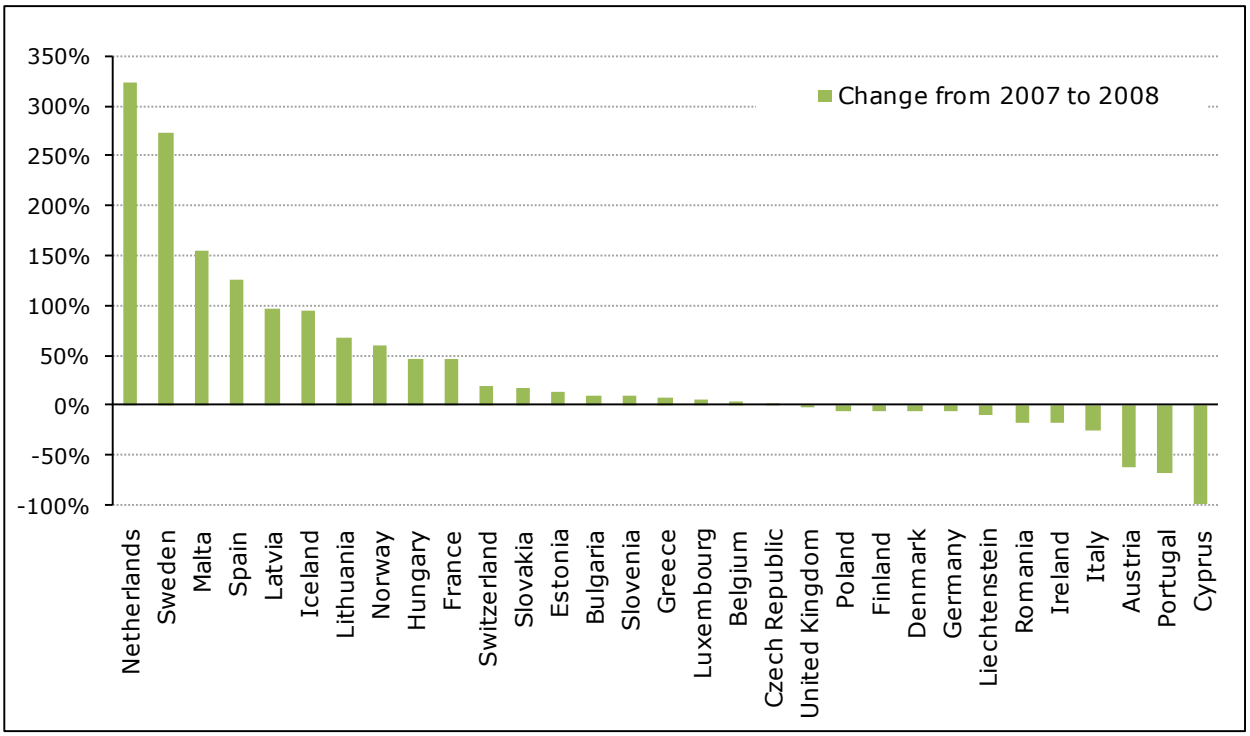


Table D.1 shows that total amount of domestically transferred hazardous waste increased by 2.8 million tonnes from 2007 to 2008. The overall is mainly due to increases reported by Germany and Spain, which more than offset the major declines reported by Italy and the Netherlands.

Table D.1 also shows that 1,234 facilities have reported 7.9 million tonnes of transboundary shipment of hazardous waste in 2008 compared with 999 facilities and 2.2 million tonnes in 2007. The large increase is mainly due to a huge increase in the amount reported by the Netherlands. This might indicate a reporting error since one facility[38] alone accounted for about 60 % of the total amount of transboundary waste in Europe.

7,333 facilities have reported transfer of non-hazardous waste of 371.8 million tonnes in 2008 compared with 6,860 facilities and 326.8 million tonnes in 2007. The absolute increase of non-hazardous waste transfer means that the increase in non-hazardous waste transfer by the likes of France, the Netherlands, Spain and Sweden, outweigh the major decrease in non-hazardous waste transfer in Austria, Germany, Italy, Poland and Portugal.

[38] NV Afvalverbranding Zuid-Nederland; National ID 44009

Table D.1 Number of facilities reporting waste data and quantities of off-side waste transfers related to hazardous waste, domestic and transboundary shipment, and non-hazardous waste in 2007 and 2008

Country	Hazardous waste								Non-hazardous waste			
	Domestic				Transboundary							
	2007		2008		2007		2008		2007		2008	
	Waste transfer (tonnes)	Facilities	Waste transfer (tonnes)	Facilities	Waste transfer (tonnes)	Facilities	Waste transfer (tonnes)	Facilities	Waste transfer (tonnes)	Facilities	Waste transfer (tonnes)	Facilities
Austria	184,920	124	256,900	108	147,677	17	128,134	18	5,213,304	73	1,747,585	66
Belgium	1,329,275	509	1,562,821	563	332,693	129	311,496	118	12,928,012	347	13,335,040	339
Bulgaria	53,538	40	187,449	56	182	2	3,870	4	7,404,040	32	8,018,750	40
Cyprus	661	11	858	10	27	1	0	0	1,081,830	4	17,220	3
Czech Republic	326,598	399	332,716	439	421	7	1,158	11	3,819,667	166	3,900,390	185
Denmark	246,979	202	436,559	223	103,765	30	77,290	27	3,131,866	136	2,756,854	103
Estonia	551,656	63	746,777	75	907	10	601	7	1,310,911	31	1,362,688	37
Finland	1,340,128	335	1,416,881	338	0	0	0	0	10,549,611	223	9,838,554	229
France	2,765,127	1,969	2,894,013	2,091	261,745	263	375,853	258	9,746,963	505	15,421,897	656
Germany	9,166,780	2,955	10,261,153	3,226	0	6	103,676	70	72,232,030	1,512	65,923,262	1,650
Greece	55,527	89	61,052	99	2,451	11	461	10	2,770,780	34	2,973,508	40
Hungary	264,634	247	219,109	262	6,235	7	673	6	1,565,872	104	2,487,216	120
Iceland	5,514	3	3,171	2	218	1	3,320	1	31,879	3	66,605	2
Ireland	77,368	161	54,993	165	250,087	119	435,104	118	4,475,753	102	3,434,359	110
Italy	4,342,345	1,514	3,789,978	1,189	422,499	79	582,518	65	20,706,625	768	14,539,377	613
Latvia	5,584	17	8,023	21	11,340	3	5,410	2	47,448	7	113,534	10
Liechtenstein	0	0	0	0	0	0	0	0	2,430	1	2,180	1
Lithuania	7,216	31	7,924	48	2,238	2	2,881	3	203,213	17	344,967	20
Luxembourg	98,197	21	101,368	21	7,607	13	46,502	11	1,097,937	16	1,114,766	17
Malta	1,531	3	14,705	4	642	2	916	3	5,131	1	2,960	1
Netherlands	3,456,637	355	1,801,426	454	291,337	88	5,043,973	92	9,955,055	214	51,094,135	277
Norway	529,818	85	666,433	147	0	0	0	0	583,547	25	1,123,436	51
Poland	1,336,262	705	1,150,012	754	11,634	18	12,235	19	78,690,917	654	74,755,642	672
Portugal	553,786	301	576,747	330	85,269	30	174,562	26	11,560,691	129	3,102,536	135
Romania	183,485	109	261,136	116	60	1	301	2	9,714,148	176	7,995,827	190
Slovakia	117,768	173	124,127	202	5,626	5	5,080	5	3,371,333	65	4,004,840	82
Slovenia	121,293	87	51,508	108	21,874	40	27,934	55	923,974	51	1,092,148	65
Spain	2,279,042	1,181	4,816,571	1,147	31,722	18	254,356	184	13,561,434	391	30,897,967	460
Sweden	363,073	304	461,793	379	85,939	22	94,032	37	3,018,485	144	12,397,910	192
Switzerland	389,056	146	515,053	165	46,314	37	84,551	36	8,134,850	51	9,557,107	55
United Kingdom	2,597,027	1,694	2,717,329	1,773	76,788	38	76,249	46	28,899,267	878	28,334,564	912
Total	**32,750,824**	**13,833**	**35,498,583**	**14,515**	**2,207,296**	**999**	**7,853,135**	**1,234**	**326,739,002**	**6,860**	**371,757,825**	**7,333**

Some countries have high percentual changes even if the change in amount might be small. Table D.2 shows that Bulgaria, Denmark, Malta, Slovenia and Spain have for domestic transfers of hazardous waste percentage changes larger than +/- 50 %. For transboundary transfers of hazardous waste Bulgaria, Cyprus, the Czech Republic, Greece, Hungary, Iceland, Ireland, Latvia, Luxembourg, the Netherlands, Portugal, Romania, Spain and Switzerland have changes larger than +/- 50 %. Table E.2 shows that the total amount of transferred hazardous waste (domestic plus transboundary transfer) has also changed considerably for some countries. Bulgaria, Malta, the Netherlands and Spain have for total amount of hazardous waste changes larger than 50 %.

For non-hazardous waste transfers Austria, Cyprus, France, Hungary, Iceland, Latvia, Lithuania, the Netherlands, Norway, Portugal, Spain and Switzerland have changes larger than +/- 50 %.

Table D.2 Amount of waste in 2008 and the percentage change compared with 2007 related to country, hazardous waste domestic and transboundary transferred, total transfers of hazardous waste, and non-hazardous waste

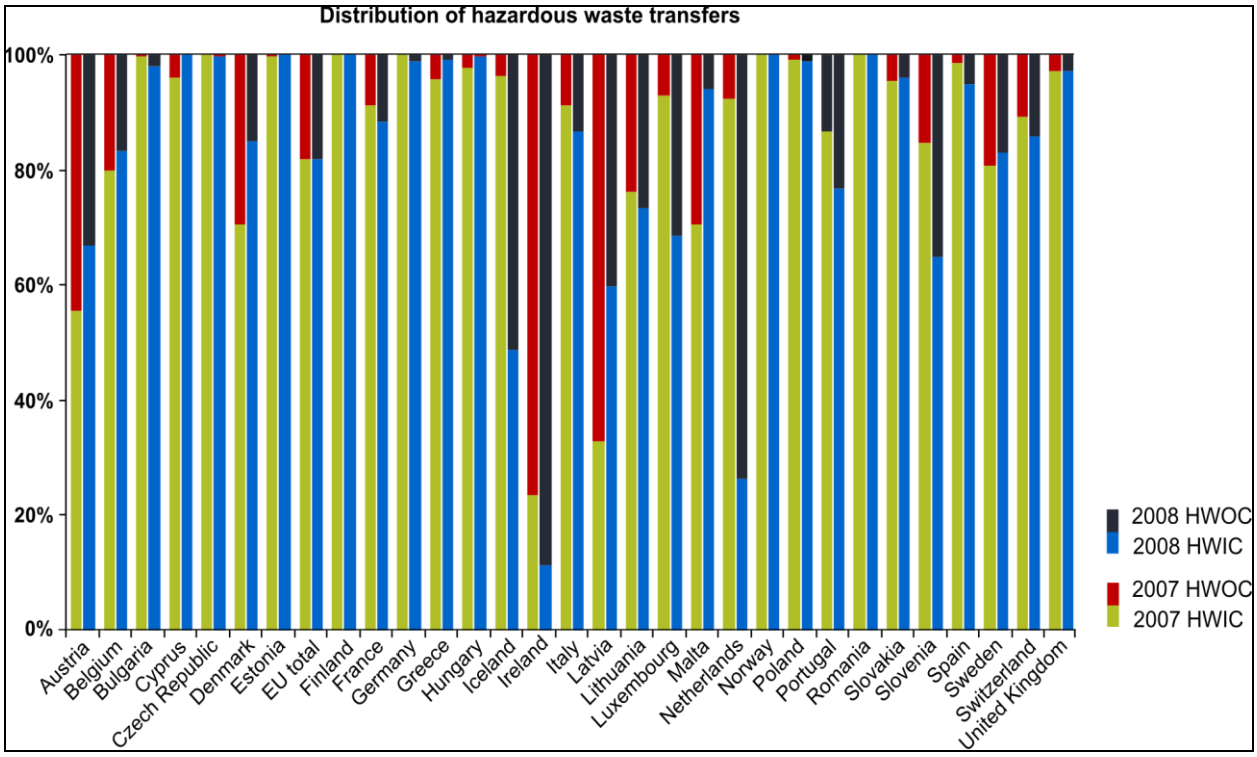
Country	Hazardous waste 2008						Non-hazardous waste 2008	
	Domestic transfer	Change compared with 2007	Transboundary transfer	Change compared with 2007	Total	Change compared with 2007	Total	Change compared with 2007
	tonnes	*%*	*tonnes*	*%*	*tonnes*	*%*	*tonnes*	*%*
Austria	256,900	39	128,134	-13	385,072	16	1,747,585	-66
Belgium	1,562,821	18	311,496	-6	1,874,334	13	13,335,040	3
Bulgaria	187,449	250	3,870	2,031	191,569	257	8,018,750	8
Cyprus	858	30		-100	887	29	17,220	-98
Czech Republic	332,716	2	1,158	175	333,875	2	3,900,390	2
Denmark	436,559	77	77,290	-26	513,926	47	2,756,854	-12
Estonia	746,777	35	601	-34	747,413	35	1,362,688	4
Finland	1,416,881	6			1,416,886	6	9,838,554	-7
France	2,894,013	5	375,853	44	3,269,871	8	15,421,897	58
Germany	10,261,153	12	103,676		10,364,841	13	65,923,262	-9
Greece	61,052	10	461	-81	61,523	6	2,973,508	7
Hungary	219,109	-17	673	-89	219,764	-19	2,487,216	59
Iceland	3,171	-42	3,320	1,423	6,449	12	66,605	109
Ireland	54,993	-29	435,104	74	490,068	50	3,434,359	-23
Italy	3,789,978	-13	582,518	38	4,372,484	-8	14,539,377	-30
Latvia	8,023	44	5,410	-52	13,477	-20	113,534	139
Liechtenstein					0		2,180	-10
Lithuania	7,924	10	2,881	29	10,815	14	344,967	70
Luxembourg	101,368	3	46,502	511	147,873	40	1,114,766	2
Malta	14,705	860	916	43	16,481	658	2,960	-42
Netherlands	1,801,426	-48	5,043,973	1,631	6,845,351	83	51,094,135	413
Norway	666,433	26			666,458	26	1,123,436	93
Poland	1,150,012	-14	12,235	5	1,162,233	-14	74,755,642	-5
Portugal	576,747	4	174,562	105	751,313	18	3,102,536	-73
Romania	261,136	42	301	402	261,479	42	7,995,827	-18
Slovakia	124,127	5	5,080	-10	129,212	5	4,004,840	19
Slovenia	51,508	-58	27,934	28	79,385	-45	1,092,148	18
Spain	4,816,571	111	254,356	702	5,071,039	119	30,897,967	128
Sweden	461,793	27	94,032	9	555,852	24	12,397,910	311
Switzerland	515,053	32	84,551	83	599,636	38	9,557,107	17
United Kingdom	2,717,329	5	76,249	-1	2,793,582	4	28,334,564	-2

	Change more than +/- 25%
	Change more than +/- 50%
	Change more than +/- 75%

These large changes in absolute and percentage values might indicate reporting errors in the indicated countries' reporting, particularly when the change is larger than +/- 50 %, and even more so if the changes in percentage values are based on reasonable high amounts. Table E.4 below indicates some more detailed country comments, which might be relevant for explaining the stated changes.

Figure D.2 shows the amounts of hazardous waste transferred per country in 2007 and 2008 and related in percentage to transfer inside (HWIC) and outside the country (HWOC). There is a huge variety among the countries regarding how much of the hazardous waste is transferred transboundary. Countries like Germany, the Czech Republic, Estonia, Finland, Germany, Norway and Romania hardly export any, whereas countries like Ireland has reported export of up to almost 80 % of the total transferred hazardous waste. The Netherlands has had a significant change in the distribution from 2007 to 2008, which might be due to an error in reporting.

Figure D.2 **Country development from 2007 to 2008 of percentage of transboundary (HWOC) and domestic (HWIC) off-side transfers of hazardous waste related to the total amount of transferred hazardous waste**



The distributions of the different types of waste transfers over the different E-PRTR activities are shown in Table D.3. The increase or the decrease in percentage from 2007 to 2008 is also stated.

Table D.3 **Amount of waste transfers related to E-PRTR activity code in 2008 and the percentage change compared with 2007. The amounts are related to hazardous waste domestic and transboundary transferred, total transfers of hazardous waste, and non-hazardous waste**

	Hazardous waste 2008						Non-hazardous waste 2008	
Main activity code	Domestic transfer	Change compared with 2007	Transboundary transfer	Change compared with 2007	Total	Change compared with 2007	Total	Change compared with 2007
	tonnes	*%*	*tonnes*	*%*	*tonnes*	*%*	*tonnes*	*%*
1.(a)	1,411,919	27	49,529	40	1,461,447	28	1,532,619	79
1.(b)	32,577	13	485	1,163	33,062	14	10,930	41
1.(c)	1,095,732	-4	97,081	192	1,192,813	2	54,104,891	-9
1.(d)	6,256	-90	0		6,256	-90	98,518	-61
1.(e)	1,168	117	0		1,168	117	3,040	
1.(f)	1,691	-5	0		1,691	-5	101,088	-41
2.(a)	818,580	-5	0	-100	818,580	-5	1,252,247	-36
2.(b)	1,119,897	-17	418,915	13	1,538,812	-11	19,536,828	-6
2.(c)	473,337	-52	36,609	166	509,946	-49	4,737,351	66
2.(d)	261,683	14	257	-21	261,940	14	13,583,134	172
2.(e)	2,359,384	-20	207,641	-7	2,567,025	-19	8,341,440	21
2.(f)	2,021,068	47	76,767	203	2,097,835	50	4,099,019	107
3.(a)	62,386	-35	196	-79	62,582	-36	46,304,669	-1
3.(b)	39,754	0	39,408	8,788	79,162	96	3,518,349	181
3.(c)	69,763	11	1,862	-72	71,624	3	1,300,908	50
3.(e)	84,525	29	356,330	3,751	440,855	488	747,274	0
3.(f)	7,015	-66	0	-100	7,015	-66	321,481	-1
3.(g)	1,368,369	1,259	1,486	-53	1,369,855	1,219	2,059,446	68
4.(a)	3,204,693	-26	174,998	9	3,379,691	-24	11,693,697	-7
4.(b)	494,937	-2	62,766	62	557,703	2	3,021,599	-40
4.(c)	93,308	-3	2,114	141,431	95,422	0	951,320	-7
4.(d)	229,567	0	6,848	10	236,416	0	60,342	-6
4.(e)	1,056,696	-7	62,984	-19	1,119,679	-8	703,577	-1
4.(f)	11,759	93	32		11,791	93	7,497	-4
5.(a)	13,992,726	57	1,115,876	35	15,108,602	55	45,111,507	50
5.(b)	1,973,135	17	4,909,234	1,525	6,882,369	245	12,583,849	16
5.(c)	588,029	-2	53,743	373	641,772	5	19,901,412	14
5.(d)	628,707	-17	7,872	-7	636,580	-17	11,099,078	-14
5.(e)	47,533	22	8,160	25	55,693	23	989,319	13
5.(f)	149,485	-30	64	638,840	149,549	-30	26,099,010	11
5.(g)	149,006	-45	24,734	1	173,740	-41	317,645	-91
6.(a)	40,226	170	590	6,172	40,816	174	5,087,752	12
6.(b)	140,859	-14	297	-49	141,157	-14	10,390,506	0
6.(c)	3,431	-47	142		3,573	-45	302,364	-7
7.(a)	65,487	227	112,974	22,631	178,461	769	3,249,160	30
7.(b)	6		0		6		0	
8.(a)	76,493	2	9,315	82	85,809	7	33,249,460	62
8.(b)	379,535	-47	1,444	52	380,979	-47	19,612,564	46
8.(c)	26,932	71	496	4,182	27,428	74	1,564,327	-6
9.(a)	37,088	53	398	-44	37,486	50	314,162	-9
9.(b)	474	-93	0		474	-93	64,668	31
9.(c)	704,355	-70	7,643	-17	711,999	-70	2,625,378	1
9.(d)	16,088	36	342	-90	16,430	8	63,173	182
9.(e)	152,920	115	3,502	16,654	156,421	120	1,041,228	220

	Change more than +/- 25%
	Change more than +/- 50%
	Change more than +/- 75%

Table D.3 shows that E-PRTR code *5.a. (Installations for recovery or disposal of hazardous waste*) reports the largest amount of domestically transferred hazardous waste (14 million tonnes out of a total of 32.8 million tonnes). E-PRTR code *5.b (Installations for incineration of non-hazardous waste)* has the largest reporting of transboundary transferred hazardous waste (4.9 million tonnes out of a total of 7.9 million tonnes). However, 60 % of this reported amount comes from one facility[39], which might indicate a reporting error.

The E-PRTR codes 1.*c (Thermal power stations and other combustion installations)*, *3.a (Underground mining and related operations)* and code *5.a. (Installations for recovery or disposal of hazardous waste)* report the largest waste transfers of non-hazardous waste with 54, 46 and 45 million tonnes in 2008, respectively.

Table D.3 also shows that the amounts of waste reported under most of the included E-PRTR activities have undergone large percentage changes between 2007 and 2008. Out of the 44 E-PRTR activities included in this review, 33 reported percentage larger than +/-50 % for domestic transfer of hazardous waste or transboundary transfer of hazardous waste or transfer of non-hazardous waste. It has to be remembered that the financial and the economic crisis started in 2008, which might explain the reduction of waste transfers in some countries, whereas increases can not be explained by the crisis.

To demonstrate the relationship between the change in the amounts reported under E-PRTR activities and the individual reporting facilities, Table D.4 summarises the most significant changes for each E-PRTR code. Where one of the three different types of waste transfers related to an E-PRTR activity has increase or decrease by more than 50 % from 2007 to 2008, the facilities reporting more than 10 % of the reported amount is stated.

Table D.4 In-depth review of the sectors with waste transfer changes of 50 % or higher from 2007 to 2008

Activity	Finding
1.a	37 % of the transferred non-hazardous waste is reported by one facility in Portugal (Petróleos de Portugal- Petrogal, S.A. (Refinaria de Sines).
1.b	98 % of the transboundary transferred hazardous waste is reported by one facility in United Kingdom (CHEVRON LIMITED, Pembroke Refinary). The entire amount of transferred non-hazardous waste in this activity is accounted for by two facilities in United Kingdom (CHEVRON LIMITED, Pembroke Refinary and BP Exploration Operating Co Ltd, BP WYTCH FARM GATHERING STATION AND WELLSITES)
1.c	83 % of the transboundary transferred hazardous waste is reported by one facility in Portugal (Central Termoeléctrica de Sines).
1.d	Almost all of the reduction in domestically transferred hazardous waste is related to two facilities. One Czech facility (ArcelorMittal Ostrava a.s.) reported 33,200 tonnes in 2007 and no tonnes in 2008, while a Norwegian facility (Hydro Aluminium AS Årdal, Årdal Karbon) reported considerably less in 2008 compared with 2007. 61 % of the total amount of the domestic transferred hazardous waste in 2008 is reported by one facility in Italy (ITALIANA COKE S.R.L.). 81 % of transferred non-hazardous waste is reported by one facility in France (ArcelorMittal Atlantique et Lorraine). The large reduction of transferred non-hazardous waste is primarily due to changes reported by a Czech facility (ArcelorMittal Ostrava a.s.), which reported 218,000 tonnes in 2007 and none in 2008, although a Polish facility (Zakłady Koksownicze "Zdzieszowice" Sp. z o.o), which reported 13,760 tonnes in 2007 and none in 2008, also contributed to the reduction. Conversely, a French facility (ArcelorMittal Atlantique et Lorraine) has reported a large increase from 2007 to 2008.
1.e	66 % of the domestic transferred hazardous waste is reported by one facility in France (HONEYWELL Matériaux de Friction) and 16 % by another French facility (EADS ASTRIUM).
2.c	Almost all the total reduction of domestic transferred hazardous waste is down to one Spanish facility (GALVANIZADOS DE NAVARRA, S.A.), which reported 564,000 tonnes in 2008 and only 465 tonnes in 2008. 33 % of the transboundary transferred hazardous waste is reported by one facility in Switzerland (Stahl Gerlafingen AG) and 26 % by another Swiss facility (Swiss Steel Walzwerk). 33 % of

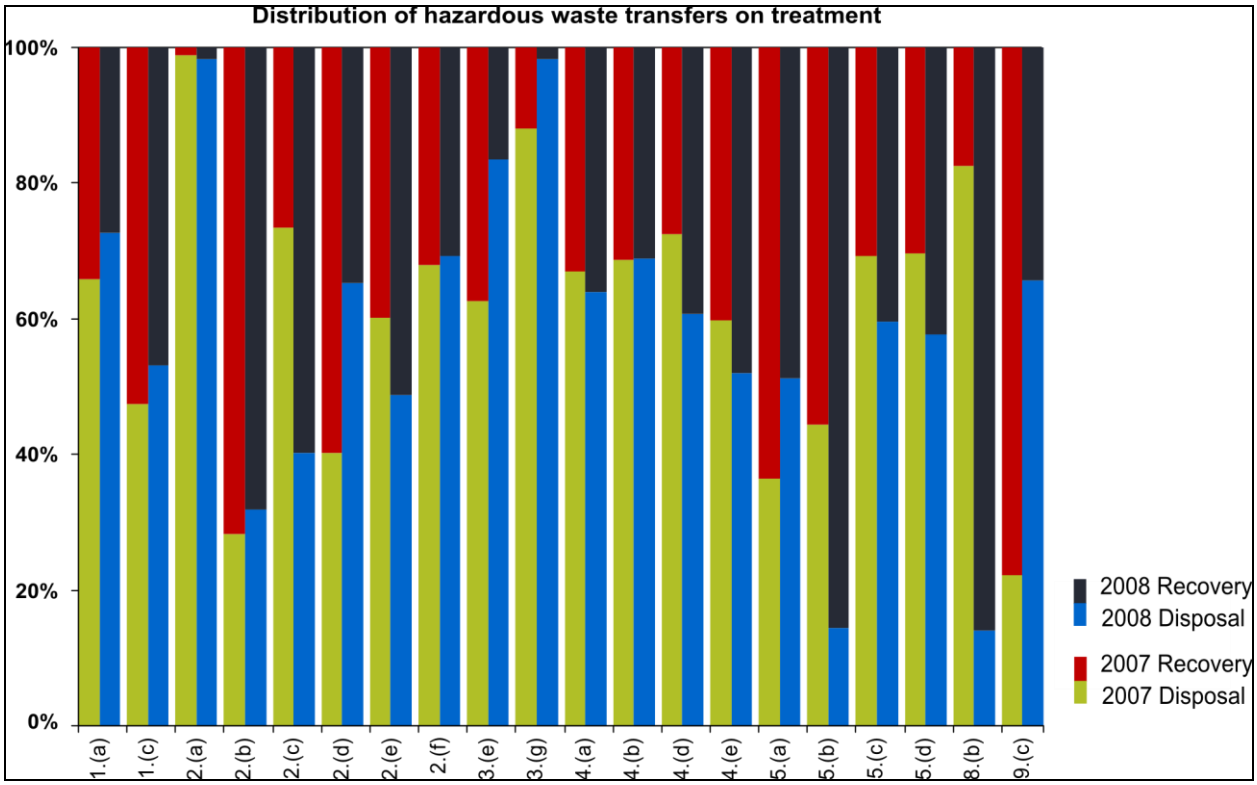
[39] NV Afvalverbranding Zuid-Nederland; National ID 44009

Activity	Finding
	transferred non-hazardous waste is reported by one facility in France (ARCELORMITTAL SITE DE DUNKERQUE).
2.d	52 % of the transferred non-hazardous waste is reported by one facility in Spain (INDUSTRIAS HERGOM).
2.f	52 % of the transboundary transferred hazardous waste is reported by one facility in Italy (BONETTO DANIELE SRL.) 17 % of the total amount of transferred non-hazardous waste is reported by one facility in Italy (Margaritelli S.p.A. - Divisione Veicoli Industriali) and 15 % by a facility in United Kingdom (BMW (UK) Manufacturing Ltd).
3.b	99 % of the total amount of the transboundary transferred hazardous waste is reported by one facility in Spain (CORTA BALLESTA OESTE). 56 % of transferred non-hazardous waste is reported by one facility in Spain (PIZARRAS VILLAR DEL REY, S.L.).
3.c	40 % of the transferred non-hazardous waste is reported by one facility in Belgium (CARMEUSE sa - Site d'Aisemont) and 10 % by one facility in United Kingdom (Corus UK Limited, SHAPFELL WORKS).
3.e	63 % of the transboundary transferred hazardous waste is reported by one facility in Ireland (Becbay Limited) and 35 % by a facility in France (URSA FRANCE).
3.g	96 % of the domestic transferred hazardous waste is reported by one facility in Italy (SMORLESI GAETANA, CECILIA & C SPA). The high percentage reduction of hazardous waste transboundary transferred is based on a small absolute amount. 40 % of the transferred non-hazardous waste is reported by one facility in Italy (SMORLESI GAETANA, CECILIA & C SPA).
4.b	31 % of the transboundary transferred hazardous waste is reported by one facility in Spain (TIOXIDE EUROPE, S.L.) and 26 % by a facility in the Netherlands (Chemelot Site Permit BV).
4.c	78 % of the transboundary transferred hazardous waste is reported by one facility in Spain (FÁBRICA DE HUELVA) and 14 % by another Spanish facility (FÁBRICA DE PALOS).
5.a	25 % of the domestic transferred hazardous waste is reported by one facility in Spain (ECOCAT (ANTIGUO CESPA CONTEN)). 17 % of transferred non-hazardous waste is reported by one facility in Sweden (Lidens avfallsanläggning) and 17 % by a facility In Poland (KGHM POLSKA MIEDŹ S.A., Zakłady Wzbogacania Rud - Rejon POLKOWICE).
5.b	94 % of the transboundary transferred hazardous waste is reported by one facility in the Netherlands (NV Afvalverbranding Zuid-Nederland).
5.c	46 % of the transboundary transferred hazardous waste is reported by one facility in Italy (RA.RI. LIVORNO S.R.L.), 20 % by a facility in the Netherlands (Environmental Centre Europoort) and 12 % by a facility in France (SANINORD).
5.f	The % changes are based on very low amounts
6.a	52 % of the domestic transferred hazardous waste is reported by one facility in United Kingdom (Aylesford Newsprint Ltd , AYLESFORD NEWSPRINT PAPER MILL). 99 % of the transboundary transferred hazardous waste is reported by one facility in Spain (COMPLEJO INDUSTRIAL DE HUELVA).
7.a	25 % of the domestic transferred hazardous waste is reported by one facility in Poland (Fermy Drobiu Woźniak Sp. z o.o. Ferma Bałdrzychów); and by three Italian facilities with respectively 17 % (FABEMOLI GIOVANNI E GIUSEPPE SOCIETA' SEMPLICE SOCIETA' AGRICOLA), 13 % (AZ. AGRICOLA BOLDINI ALBINO E ALBERTO SS) and 10 % (LATTERIA AGRICOLA DEL PO). 99 % of the transboundary transferred hazardous waste is reported by one facility in Italy (AZ. AGRICOLA BOLDINI ALBINO E ALBERTO SS).
8.a	46 % of the transboundary transferred hazardous waste is reported by one facility in Austria (Rudolf Großfurtner GmbH), 43 % by one facility in the Netherlands (Slachthuis Nijmegen BV) and 10 % by one facility in Slovakia (SK) (TAURIS DANUBIUS). 86 % of transferred non-hazardous waste is reported by one facility in the Netherlands (Van Rooi Meat BV (Helmond)).
8.b	39 % of the transboundary transferred hazardous waste is reported by one facility in France (ROQUETTE Frères), 15 % by one facility in the Netherlands (Cargill Refined Oils Europe) and 13 % by one facility in Spain (AZUCARERA DE JEREZ - CENTRO DE GUADALCACÍN).
8.c	81 % of the domestic transferred hazardous waste is reported by one facility in the Netherlands (FrieslandCampina Kievit (Meppel)). 66 % of the transboundary transferred hazardous waste is reported by one facility in Ireland (Cadbury Ireland Limited), 17 % by one facility in United Kingdom (Dairy Farmers of Britain Ltd, Blaydon Dairy) and 12 % by one facility in Spain (FÁBRICA DE GRANADA).
9.a	26 % of the domestic transferred hazardous waste is reported by one facility in United Kingdom (Waddington & Ledger Ltd), 25 % by one facility in Italy (TEXFER S.P.A. IN LIQUIDAZIONE E AMMINISTRAZIONE STRAORDINARIA) and 10 % by one facility United Kingdom (Polestar UK Print Ltd (Sheffield)).

Activity	Finding
9.c	Almost all the total reduction in domestic transferred hazardous waste is related to the reporting of one facility in the Netherlands (DAF Trucks N.V.). The facility reported 1,885,000 tonnes in 2007 and 2617 tonnes in 2008.
9.d	65 % of the transferred non-hazardous waste is reported by one facility in the Netherlands (Aluminium & Chemie Rotterdam BV).
9.e	43 % of the domestic transferred hazardous waste is reported by one facility in the Netherlands (Breko) and 17 % by one facility in Poland (Gdańska Stocznia "Remontowa" im. J. Piłsudskiego S.A.). 64 % of the transboundary transferred hazardous waste is reported by one facility in Spain (NAVANTIA CADIZ) and 25 % by another Spanish facility (NAVANTIA SAN FERNANDO). 63 % of the transferred non-hazardous waste is reported by one facility in Sweden (Götaverken Cityvarvet AB).

Figure D.3 illustrates the distribution of the overall amount of transferred hazardous waste between recovery and disposal by E-PRTR activity code. In general E-PRTR activity code *2.b (Installations for the production of pig iron or steel (primary or secondary melting) including continuous casting)* has a quite low disposal rate (15-20 %) in both 2007 and 2008. E-PRTR activities *9.c (Installations for the surface treatment of substances, objects or products using organic solvents*) and *8.b (Treatment and processing intended for the production of food and beverage)* both have significantly different disposal rates in 2007 and 2008. This might indicate reporting errors.

Figure D.3 Distribution of overall hazardous waste transfers on disposal and recovery and development from 2007 to 2008



D.1.1 Significant changes in distribution of waste transfer for recovery and disposal related to country

In this check the distribution of a facility's waste transfer between disposal and recovery is compared for 2007 and 2008. A large change in the distribution between disposal and recovery (e.g. the majority of the waste suddenly goes for disposal in 2008 when in 2007 it was recovered), might indicate a reporting

error for one of the reporting years. If the distribution changes by at least 50 percentage points and the total quantity changes at least by 1000 or 5000 tonnes, for hazardous and non-hazardous waste respectively, the change is considered to be significant. The number of facilities with significant changes per country is shown in Table D.5.

Table D.5 Number of facilities, where the distribution of waste transfer for disposal and recovery for non-hazardous waste and hazardous waste respectively has changed significantly in the reporting from 2007 to 2008.

Country	Number of facilities with changes more than 50 % and 5000 tonnes	Number of facilities with changes more than 50 % and 1000 tonnes
Austria		1
Belgium	8	8
Cyprus	1	
Czech Republic	7	2
Denmark	3	6
Estonia		1
Finland	13	7
France	17	34
Germany	15	37
Greece	1	2
Hungary	6	5
Ireland	5	2
Italy	9	12
Lithuania	2	
Luxembourg	1	2
Netherlands	12	8
Norway		6
Poland	12	10
Portugal		5
Romania	1	
Sweden	1	2
Slovakia	2	2
Slovenia	1	1
Spain	14	17
Switzerland	0	3
United Kingdom	36	26
Total	**167**	**199**

As a part of the stage 2 review process, the countries have received the names and the national identity code of the facilities that reported major changes between 2007 and 2008 in the distribution of disposal and recovery of the transferred waste.

D.2 Comparison of E-PRTR data with other sources and estimates

A number of data review checks have been undertaken by comparing the waste data reported under E-PRTR with other available information. These checks have been done on facility level for each country and detailed results at facility level have been reported to each country. The following checks have been undertaken:

Capacity of incineration plants (E-PRTR Activity *5.b*) compared with the 2006 ISWA survey

Comparison of CO_2 emissions from waste incineration plants (E-PRTR Activity *5.b*), with CO_2 estimations based on the 2006 ISWA survey data

Comparison of CO_2 emissions from waste incineration plants (E-PRTR Activity *5.b*) with estimations based on E-PRTR waste transfer data for the same facility

Hazardous waste from incineration plants (E-PRTR Activity *5.b*)

Leachate from landfills (E-PRTR Activity *5.d*)

The different checks and the review results are presented in the following sections.

D.2.1 Capacity of incineration plants (Activity *5.b*) compared with the 2006 ISWA survey

According to the E-PRTR legislation, incineration plants of non-hazardous waste with a capacity of more than three tonnes per hour have to report releases and transfers, where thresholds are exceeded. The International Solid Waste Association's (ISWA) survey from 2006[40] gives information about each municipal non-hazardous waste incineration plant in a country related to capacity per hour on each line. The ISWA survey therefore gives a good indication on whether all 3-ton capacity incineration plants have reported to the E-PRTR register. The ISWA survey does not cover special plants for hazardous waste, sewage sludge, agricultural and hospital waste.

In 2008, a total of 356 European facilities reported waste transfer on activity code *5.(b)* according to the E-PRTR. ISWA found 377 plants with a capacity of at least 3 tonnes per hour. The net difference of 21 incineration plants hides a larger gross difference, because not all facilities reported according to the E-PRTR legislation are included in the ISWA survey and vice versa. Table D.6 shows that for some countries like Belgium, Denmark, Italy and Sweden the E-PRTR reporting includes a considerably lower number of incineration plants than the ISWA survey. The explanation for this difference could be that these facilities are no longer in operation or have releases/transfers below the reporting threshold, but the difference might also be due to missing reporting.

As a part of the stage 2 review process, the countries have received a link to the name of the incineration plants of non-hazardous waste included in the ISWA survey.

[40] Energy from Waste. State-of-the-Art-Report, 5th Edition 2006, ISWA. https://www.iswa.org/en/290/iswa_publications_detailview/publicationdetail/energy-from-waste-state-of-the-art-report-statistics-5th-edition.html

Table D.6 Number of incineration plants of non-hazardous waste reported in 2008 according to the E-PRTR legislation compared with the ISWA survey from 2006.

Country	*Capacity higher than 3 tonnes/hour*		E-PRTR minus ISWA
	Number of E-PRTR facilities reporting on activity code 5.(b)	ISWA Waste-to-Energy Plants in Europe operating in 2005 - capacity > 3tonnes/h	Difference
Austria	6	4	2
Belgium	10	18	-8
Czech Republic	3	3	0
Denmark	20	28	-8
Finland	2	1	1
France	126	119	7
Germany	76	59	17
Hungary	1	1	0
Italy	20	45	-25
Netherlands	10	11	-1
Norway	10	8	2
Poland	1		1
Portugal	1	3	-2
Slovak Republic	1		1
Spain	8	10	-2
Sweden	16	23	-7
Switzerland	27	29	-2
United Kingdom	18	15	3
Total	**356**	**377**	**-21**

D.2.2 Comparison of CO_2 emissions from waste incineration plants (Activity *5.b*), with CO_2 estimations based on the 2006 ISWA survey data

The ISWA survey includes the capacity of municipal waste incinerators (non-hazardous waste plants). Taking into account that the incineration of one metric tonne of waste generates approximately one tonne of CO_2 (sum of fossil and biogenic)[41], it could be assumed that an incineration plant with a load from 11.4 tonnes of waste per hour or above normally produces above 100,000 tonnes CO_2 per year (E-PRTR reporting threshold).

Table D.7 shows that the ISWA survey includes 230 municipal non-hazardous waste incineration plants with a capacity of at least 12 tonnes per hour (and therefore with an expected CO_2 release above the reporting threshold if working at full capacity). Under E-PRTR, only 123 non-hazardous waste incineration plants reported CO_2 emissions in 2008. This could indicate missing reporting of CO_2 emissions, but also that some facilities operate below capacity and therefore produce less CO_2.

[41] Good Practice Guidance and Uncertainty Management in National Greenhouse Gas Inventories. Emissions from waste incineration http://www.ipcc-nggip.iges.or.jp/public/gp/bgp/5_3_Waste_Incineration.pdf

Table D.7 Comparison of CO_2 emissions from incineration plants of non-hazardous waste (Activity 5.b), with CO_2 estimations based on the 2006 ISWA survey.

	E-PRTR	ISWA	E-PRTR minus ISWA
Country	Facilities with activity code 5.(b) reporting CO_2 emissions	Waste-to-Energy Plants 100,000 tonnes CO_2 equivalents per year	Difference
	Capacity higher than 12 tonnes/h		
Austria	4	3	1
Belgium	4	9	-5
Czech Republic	2	3	-1
Denmark	1	13	-12
France	32	62	-30
Germany	30	53	-23
Hungary	0	1	-1
Italy	5	21	-16
Luxembourg	1		1
Netherlands	8	10	-2
Norway	0	3	-3
Portugal	0	3	-3
Spain	4	8	-4
Sweden	6	13	-7
Switzerland	18	15	3
United Kingdom	8	13	-5
Total	**123**	**230**	**-107**

As a part of the stage 2 review process, the Member Countries have received the names of plants included in the ISWA survey with a capacity of at least 12 tonnes per hour that could not be linked to CO_2 emissions reported by facilities under E-PRTR.

D.2.3 Comparison of CO_2 emissions from waste incineration plants of non-hazardous waste (Activity *5.b*) with estimations based on E-PRTR waste transfer data

The residual waste fraction after incineration will normally amount to 25 - 30 % of the original waste mass. Taking into account that the incineration of one metric tonne of waste generates approximately one tonne of CO_2 (sum of fossil and biogenic), a facility with a residual waste fraction of more than 25,000 tonnes could therefore be assumed to be above the reporting threshold for CO_2 emissions. Table D.8 shows that 180 incineration plants of non-hazardous waste reported under E-PRTR a waste transfer of more than 25,000 tonnes. These waste transfers could correspond to transfers of residual waste after incineration and could therefore indicate missing CO_2 emission reporting, as only 123 records of CO_2 emissions were reported to the register.

As a part of the stage 2 review process, the countries have received the names and the national identity code of incineration plants that reported at least 25,000 tonnes of waste transfer to the E-PRTR in 2008 but did not report any CO_2 emissions in 2008.

Table D.8 Comparison of CO_2 emissions from waste incineration plants of non-hazardous waste (Activity 5.b) with CO_2 estimations based on E-PRTR waste transfer data for the same facility.

Country	5.(b) Facilities reporting CO_2 emissions	5.(b) facilities reporting waste equal to > incineration of 100,000 tonnes waste per year (> 25,000 tonnes residuals/year)	Difference
Austria	4	5	-1
Belgium	4	6	-2
Czech Republic	2	2	0
Denmark	1	10	-9
Finland	0	0	0
France	32	41	-9
Germany	30	56	-26
Hungary	0	1	-1
Italy	5	10	-5
Luxembourg	1	0	1
Netherlands	8	8	0
Norway	0	1	-1
Portugal	0	0	0
Spain	4	7	-3
Sweden	6	7	-1
Switzerland	18	13	5
Poland	0	1	-1
Slovakia	0	1	-1
United Kingdom	8	11	-3
Total	**123**	**180**	**-57**

D.2.4 Hazardous waste from incineration plants of non-hazardous waste (Activity *5.b*)

All incineration plants generate hazardous waste from flue gas cleaning. Taking into account that this waste fraction amounts to approximately 1 % to 5 % of the original waste mass42, the reporting threshold for E-PRTR (2 tonnes hazardous waste) would be reached for a waste incineration plant with an annual load between 40 and 200 tonnes (at 5 % and 1 % respectively). Therefore it could be assumed that all waste incineration plants under activity code *5.(b)* should report hazardous waste unless there is a hazardous waste disposal site at the site of the facility. Table D.9 shows that all together 18 facilities have not reported any transfer of hazardous waste.

As a part of the stage 2 review process, the countries have received the names and the national identity code of incineration plants, which have not reported hazardous waste transfers to the E-PRTR in 2008

[42] Affaldsteknologi, Copenhagen 1998. Edited by Thomas H. Christensen

Table D.9 Number of non-hazardous waste incineration plants (Activity 5.b) not reporting generation of hazardous waste

Country	Number of plants
Denmark	3
Finland	1
France	1
Germany	1
Norway	1
Poland	1
Sweden	1
Switzerland	7
United Kingdom	2
Total	**18**

D.2.5 Leachate from landfills (Activity *5.d*)

Table D.10 Number of landfills (Activity 5.d) reporting only pollutant transfers in water and no waste transfers or reporting both pollutant transfers in water and waste transfers

Country	Landfills reporting only pollutant transfers and no waste transfers	Landfills reporting both pollutant transfers and waste transfers
Bulgaria	1	
Czech Republic	1	
Denmark	1	1
Finland	5	
France	10	
Germany	13	4
Greece	1	
Ireland	1	1
Italy	1	4
Netherlands	1	3
Poland	3	1
Portugal	5	6
Romania	1	
Sweden	4	1
Slovakia		1
Slovenia	1	1
Spain	15	2
United Kingdom	10	1
Total	**74**	**26**

There is an indication that leachate from some landfills has been reported as waste water transfer (reported as pollutant transfer in water) instead of waste transfer. Landfills that report waste water transfer could therefore indicate a reporting error. Table D.10 below states the number of landfills that have reported either only “pollutant transfer in water” or which have reported both “pollutant transfer in water” and “waste transfer”. In both cases there might be an error in the reporting.

As a part of the stage 2 review process, the countries have received the names and the national identity code of landfills that reported only pollutant transfer in water or which have reported both pollutant transfer and waste transfer.

E Stage 2 Review – Water Comparisons with other data on releases to water

This chapter covers the Stage 2 review of the E-PRTR dataset for the releases to water. The chapter contains a description of the methodology used and of the summary results obtained in this part of the informal review.

The Stage 2 review for water covered the following comparisons/evaluations:

Comparison of E-PRTR data with the Urban Waste Water Treatment Directive[43] (UWWTD) data on facility level.
The analysis is focused on

- identification of UWWTPs which are potentially missing from the E-PRTR dataset (based on the reported information under the UWWTP Directive) and
- comparison of the release data from both datasets.

Comparison of the E-PRTR data with the State of Environment (SoE) emissions data[44] set on River Basin District (RBD) level.
The analysis deals with identification of possible inconsistencies between the E-PRTR and SoE emissions datasets in total release data on nutrients (Total N, Total P) and TOC.

Evaluation of pollutants which might be missing for reported E-PRTR facilities (with a main focus on UWWTP).

E.1 Characteristics of the datasets used in the E-PRTR data review

E.1.1 UWWTD database

The database contains data selected from the annual reporting of Member States (MS) as part of the UWWTD implementation. The UWWTD dataset contains information on agglomerations with generated load ≥ 2,000 p.e., or < 2,000 p.e. if the load is generated trough a collecting system, UWWTPs connected to these agglomerations, and the size of the UWWTP according to its entering load and capacity (in p.e.). Discharges of nutrients (N and P) and organic matter (BOD and COD) (expressed as total annual loads in tonnes per year) from the UWWTP can be reported on a voluntary basis.

The ID codes are different from those used in the E-PRTR database. However, under the latest reporting exercise it was made possible to include also E-PRTR facility ID coding (on a voluntary basis). Only three countries used this option in the 2009 reporting (Portugal, Romania and Slovenia). The dataset used is the latest dataset available at the time of this report and covers the data from 2007 / 2008[45] (Table E.1). The dataset contains reports from 26 of the 27 EU countries (no data was available from the UK at the time of the analysis).

[43] http://rod.eionet.europa.eu/obligations/613

[44] http://rod.eionet.europa.eu/obligations/632

[45] Publication by end 2010 on: http://www.eea.europa.eu/data-and-maps/data#c5=all&c11=&c17=&c0=5

Table E.1 Reported year of the UWWT Directive dataset

Reported year	Countries
2007	Cyprus, Denmark, Estonia, Finland, Greece, Hungary, Ireland, Italy, Latvia, Lithuania, Netherlands, Portugal, Romania and Slovenia
2008	Austria, Belgium, Bulgaria, Czech Republic, France, Germany, Luxembourg, Malta, Poland, Slovakia, Spain and Sweden

E.1.2 SoE Emissions

State of Environment (SoE) emissions data is submitted on an annual basis through the Water Information System for Europe (WISE)-SoE voluntary reporting process. It contains nutrient (total N, total P), organic matter (BOD, COD) and hazardous substances emissions discharged to water from point and diffuse sources, aggregated at the national RBD level. List of hazardous pollutants was published 25.8.2010 in Data Dictionary: Definition of WISE-SoE Reporting: Emissions dataset Version: July 2010[46].

For the comparative analysis, the most relevant is the data on point sources of pollution, which fall into 3 categories: urban, industrial and other waste-water discharges. Data on the following pollutants has been used for the comparison: total N, total P and TOC. No other pollutants were included due to the fact that the year 2008 was the first regular reporting year and the quality of the data for the hazardous substances was not sufficient to carry out the analysis.

Table E.2 The most frequent pollutants in SoE emissions reporting

Pollutant	SoE - number of countries
Ammonium	5
Total nitrogen	13
Total phosphorus	13
Biochemical oxygen demand (BOD)	10
Chemical oxygen demand (COD)	10
Total organic carbon	4
Cadmium	12
Zinc	12
Copper	11
Lead	11
Mercury	11
Nickel	11
total suspended solids	6
1,2-dichloroethane	5
Anthracene	5
Benzene	5
Cyanide	5
Toluene	5

[46] http://dd.eionet.europa.eu/dataset.jsp?mode=view&ds_idf=Emissions.

Unlike the E-PRTR and UWWTD datasets, the SoE data is reported by countries on voluntary base, which means that fewer countries take part in the exercise. Thirteen EEA countries (Austria, Belgium, Bulgaria, Czech Republic, Estonia, Finland, France, Iceland, Latvia, Lithuania, Romania, Sweden and Switzerland) reported SoE data in 2009, the period covered by this reporting exercise is 2000 – 2008. The list of pollutants reported by 5 or more countries is presented in Table E.2. An overview of the countries reporting nutrients (total N, total P) and TOC for point sources is presented in Table E.3.

The SoE emissions reporting support the "report only once" principle. This means that countries can chose not to report data which is already covered under any other reporting obligation. This option was used by Austria which did not report any E-PRTR relevant data in the SoE reporting.

Table E.3 Overview of nutrients (total N, total P) and organic matter (TOC) emissions from point sources reported by countries

Country	Reporting period	Total N data	Total P data	TOC data
Austria	2007	Y	Y	Y
Belgium	2005, 2007, 2008	Y	Y	Y
Bulgaria	2007, 2008	Y	Y	N
Czech Republic	2006	Y	Y	N
Estonia	2008	Y	Y	N
Finland	2008	Y	Y	N
France	2007	Y	Y	Y
Iceland	2008	Y	Y	N
Latvia	2008	Y	Y	N
Lithuania	2008	Y	Y	N
Romania	2008	Y	Y	N
Sweden	2006	Y	Y	N
Switzerland	2007	Y	Y	Y

Note: *Y: data was reported, N: no data was reported*

E.2 Comparison of E-PRTR data with the Urban Waste Water Treatment Directive data on facility level

The comparison between the E-PRTR data and the UWWTPD data is focused on

identification of UWWTPs ≥ 100,000 p.e.[47] which might be missing from the E-PRTR or the UWWTD database and

comparison of nutrients and organic matter release data from UWWTPs that are included in both E-PRTR and UWWTD datasets.

The comparison also includes detailed examination of the cities with more than 500,000 inhabitants, identification of corresponding facilities from both datasets, and their comparison. The Eurostat data on large cities (Data on European cities in the Urban Audit and in the Large City Audit projects[48]) was used,

[47] The E-PRTR reporting covers namely above threshold releases of pollutant from facilities with an UWWTP with a capacity ≥ 100,000 P.E (E-PRTR activity 5.f)

[48] http://www.urbanaudit.org/

including the city boundaries geographical layer. Also, the E-PRTR IDs were compared for those countries/facilities that reported them under the UWWTD.

E.2.1 Data selection criteria for UWWT Directive and E-PRTR datasets

For the comparison between the E-PRTR and UWWT Directive data on UWWTP, the specific selection criteria were used for both datasets:

The **UWWTPs** were divided into categories by size:

- Category I – capacity ≥ 100,000 p.e.
- Category II – capacity 50,000 – 100,000 p.e. with entering load > 100,000 p.e.
- Category III – capacity and entering load > 50,000 p.e., but not covered in I or II Category IV – the rest of facilities (with only a small probability to be found in E-PRTR dataset)
  Some countries have not provided any data on capacity or UWWTP entering load. In these cases, all data has been used.

For the E-PRTR data selection the following criteria were applied:

- Category A - facilities with E-PRTR main industrial activity *5.f* (UWWTP)
- Category B - facilities with E-PRTR secondary industrial[49] activity *5.f*
- Category C - facilities without an E-PRTR activity *5.f*, but with NACE-codes (economic activity) 36.00 (Water collection, treatment and supply) or 37.00 (Sewerage)
  The E-PRTR data were not divided into categories according to size (no information about the exact size is available under E-PRTR), instead the criteria reflect the probability of the facility serving as UWWTP.

A summary table of the number of UWWT plants for each category of the E-PRTR and the UWWT Directive dataset is included in Appendix VII.

E.2.2 Analytical procedure used

The procedure contains 4 steps:

Step 1: Detailed analysis of UWWTPs for cities with more than 500.000 inhabitants.

Step 2: Comparative geographical analysis - identification of corresponding UWWTPs from E-PRTR and UWWT Directive datasets.

Step 3: Comparison of nutrient release data for the identified corresponding UWWTPs (if available in the UWWT Directive dataset).

Step 4: Comparison of IDs reported in the UWWTD dataset with the reported E-PRTR IDs.

Step 1: Detailed analysis of UWWTPs for cities with more than 500.000 inhabitants

Detailed analysis was done for cities with more than 500,000 inhabitants, as these cities are likely to have at least one UWWTP ≥ 100,000 p.e. The following steps were applied:

From the Eurostat data on large cities (Data on European cities in the Urban Audit and in the Large City Audit project[50]), the cities with more than 500.000 inhabitants were selected. These were complemented with cities with more than 500.000 inhabitants which were reported under UWWTD.

[49] Secondary activity refers to the fact that the E-PRTR activity was reported as an activity taking place at the site of the facility but that the activity was not reported as the main activity of the facility

The UWWTPs found both in the E-PRTR and UWWTD datasets were assigned to the cities polygons (ESRI maps 1 : 1,000,000[51]).

Step 2: Geographical analysis

In Step 2, the analysis deals with other E-PRTR and UWWTD facilities, which were not covered by Step 1. The geographical analysis was carried out in 3 rounds. Again, the UWWTPs which were positively interconnected in round 1 were not included in round 2. The same applies for round 2 and 3. In each run, the locations of selected E-PRTR facilities were compared with those of UWWTPs from the UWWTD dataset, followed by a manual check of the facility name or other data of the city or agglomeration level.

The buffer for the analysis has been set to 5 km. (This rather large buffer area around the E-PRTR facilities was used since a buffer of 1 km could only link 68 % of the UWWTPs under both reporting schemes (although the reporting precision under E-PRTR is set to 500m). Using the 5km buffer, 95 % of the UWWTP in E-PRTR could be linked to plants in the UWWTP Directive dataset.

Round 1: Interconnection of E-PRTR facilities falling into Category A, B or C (see para 2.1 for definition) with UWWTPs falling into Category I of the UWWTD dataset (UWWTP with a capacity > 100,000 p.e.).

Round 2: Interconnection of E-PRTR facilities falling into Category A, B or C (see para 2.1 for definition) with UWWTPs falling into Category II and III of the UWWTD dataset (see para 2.1 for definition).

Round 3: Interconnection of E-PRTR facilities falling into Category A, B or C with UWWTPs falling into Category IV of the UWWTD dataset (UWWTP with a capacity and entering load < 50,000 p.e. or missing information).

A specific approach had to be applied for the 35 Romanian facilities. Their coordinate's format was broken during the UWWTD reporting procedure, so the facilities needed to be identified manually.

Step 3: Comparison of nutrient release data for the identified corresponding UWWTPs

The comparison of nutrient release data was done only for those countries that reported in the UWWTD dataset. If the ratio E-PRTR / UWWTD data was < 91 % or > 105 %, the values were considered inconsistent.

Step 4: Comparison of IDs reported in the UWWTD dataset

In the UWWTD reporting it was made possible for countries to voluntarily report IDs of the E-PRTR facilities, either in the form of a comment or in the attached file documentation. The approach then was to go through the comments and file documentation and summarize the information obtained. The results were then included into the geographical analysis outputs.

[50] http://www.urbanaudit.org/

[51] http://www.esri.com/data/data-maps/data-and-maps-dvd.html

E.2.3 Results of analysis

E.2.3.1 Detailed analysis of UWWTPs in big cities

As a result of the analysis, a total of 98 corresponding UWWTPs could be found in both databases. For 11 big cities, no UWWTPs have been found in the E-PRTR dataset, while in the UWWTD dataset, 37 UWWTPs with the capacity > 100.000 p.e. have been found for the same cities. In some cases the UWWTD data was missing completely (Switzerland, Iceland, Norway, United Kingdom) or the data on capacity or entering load was missing (Bulgaria, Sweden).

In general, more UWWTPs with a capacity or entering load of 100,000 p.e. (Category I and II) have been reported under the UWWT Directive then under the E-PRTR Regulation (Category A and B). The difference in number of UWWTP between both reporting obligations can therefore be an indication of an incomplete or incorrect reporting under one of both obligations. For the evaluation below, the UWWTP of the UWWT Directive Database (Category I and II) which could not be linked to E-PRTR facilities (Category A, B and C) were evaluated to be "potentially missing UWWTP" in the E-PRTR reporting.

Number of big cities with no UWWTP found	11
Number of potentially missing UWWTPs from the E-PRTR dataset (compared with the UWWTD dataset)	37
Number of interconnected UWWTPs in both E-PRTR and UWWTD datasets	98

Table E.4 summarizes the number of UWWTP which could potentially be missing in the E-PRTR reporting. For the detailed results see the country sheets or **APPENDIX VIII**.

Table E.4 Detailed analysis of UWWTPs in big cities - summary results

Country	# UWWTPs from E-PRTR	# potentially missing UWWTPs in E-PRTR
Austria	0	1
Belgium	1	1
Bulgaria	1	NA
Czech Republic	1	0
Denmark	2	0
Finland	2	0
France	20	1
Germany	32	4
Greece	2	0
Hungary	2	0
Ireland	1	0
Italy	2	16
Latvia	1	0
Lithuania	1	0

Country	# UWWTPs from E-PRTR	# potentially missing UWWTPs in E-PRTR
Netherland	2	3
Norway	1	NA
Poland	8	0
Portugal	4	1
Romania	0	NA
Spain	19	9
Sweden	0	NA
United Kingdom	16	0

Note: *NA: data was not available; Countries not included in the table have no cities> 500.000 inhabitants according to the Urban Audit in the Large City Audit project*[52]

There is an indication that a number of UWWTPs could be missing from the E-PRTR dataset for 9 out of the 18 countries covered by the evaluation. Other countries either have no cities > 500.000 inhabitants according to the Urban Audit in the Large City Audit project (e.g. Cyprus or Slovenia) or did not report under the UWWTD at all (e.g. Norway) or information about capacity in the UWWTD dataset was missing (e.g. Romania or Sweden). Each country for which there seem to be missing UWWTPs should check their reported UWWTPs under E-PRTR.

Detailed information was provided to the countries in the country-specific feedback reports covering the stage 1 and stage 2 review[53] and the accompanying Excel sheets.

E.2.3.2 Geographical analysis

The numbers of categories of E-PRTR facilities and UWWTPs together with analysis results are given in Table E.5, Figure E.1 and Figure E.2. For detailed results see the country sheets. Table E.5 contains also the Category C E-PRTR facilities results (facilities without an E-PRTR activity *5.f*, but with NACE-codes (economic activity) 36.00 (Water collection, treatment and supply) or 37.00 (Sewerage)), which are included in country data sheets (Excel files) but not in the country findings.

Category C E-PRTR facilities as well as UWWTPs from Category III or IV or with no information about capacity in the UWWTD dataset could not be completely excluded from the analysis. For consistency reasons, wherever there was a link found for a facility from the above mentioned categories to a Category I UWWTP or an E-PRTR facility from Category A or B, these facilities entered the analysis as well.

All UWWTPs from category III or IV from the UWWTD dataset were excluded from the set of potentially missing E-PRTR facilities. Category C E-PRTR facilities with no interconnection with the UWWTD dataset are included separately in Table E.5 as they can not be used for indication of potential inconsistencies in the reporting between UWWTD and E-PRTR.

The numbers and percentage values of potentially missing E-PRTR facilities then indicate potential inconsistencies between the UWWTD and the E-PRTR datasets. Each country for which there seems to

[52] http://www.urbanaudit.org/

[53] Published on 1 September on Eionet CIRCA website at: http://eea.eionet.europa.eu/Members/irc/eionet-circle/e-prtr/library?l=/e-prtr/country_feedback/2010_2008_dataset/stage_stage_august_2010/country-specific&vm=detailed&sb=Title

be an inconsistency should check the UWWTP data reported under both reporting schemes in order to identify whether the reported data are correct and complete.

The results of the analysis are also presented as maps (Figure E.3, Figure E.4 and Figure E.5).

Table E.5, Figure E.1 and Figure E.2 show UWWTPs that have been reported to E-PRTR by practically all countries (the exceptions are Cyprus and Malta, where no UWWTPs can reasonably be expected). The maps in Figure E.3, Figure E.4 and Figure E.5 however show considerable local differences. For example in Italy: UWWTPs reported under the UWWTD are quite evenly distributed across the country while there are practically no reported UWWTPs in the south of the country in E-PRTR.

Generally, UWWTPs with the capacity or entering load > 100.000 p.e. are more likely to be reported under UWWTD then E-PRTR. Only Denmark, Italy, Poland and Spain reported more then 2 (and less than 5) E-PRTR facilities with main or secondary activity *5.*f) for which there was no corresponding facility found in the UWWTD dataset. The data completeness can not be evaluated for Bulgaria and Sweden, which provided incomplete data to the UWWTD database (information on capacity is missing). The most UWWTPs with the capacity or entering load > 100.000 p.e. according to UWWTD database for which there was no corresponding facility found in E-PRTR are located in Austria, Italy and Spain.

The geographical analysis does not include Island, Norway, Switzerland and the United Kingdom which either do not report under UWWTD or the data was not available at the time of the analysis.

Table E.5 Summary results of comparative analysis of E-PRTR facilities and UWWTPs from the UWWT Directive dataset

Country	Comparison of UWWTPs					
	All positively intersected plants	E-PRTR facilities in category A or B without link to UWWTD	E-PRTR facilities in category C without link to UWWTD	Expected E-PRTR plants according UWWTD	Eexisting facilities in E-PRTR	% of existing facilities in E-PRTR
Austria	13	0	1	33	13	39%
Belgium	18	1	0	17	14	82%
Bulgaria	12	no data	no data	no data	no data	no data
Cyprus	0	0	0	0	0	0%
Czech Republic	18	0	0	26	18	69%
Denmark	32	4	2	30	27	90%
Estonia	4	0	0	7	4	57%
Finland	17	0	1	14	12	86%
France	107	2	6	135	105	78%
Germany	205	0	1	247	202	82%
Greece	8	0	0	12	4	33%
Hungary	21	1	0	22	18	82%
Iceland	no data	no data	no data	no data	no data	no data
Ireland	2	2	0	7	2	29%
Italy	30	5	4	178	29	16%
Latvia	1	0	0	7	1	14%
Lithuania	3	2	0	9	3	33%
Luxembourg	2	0	0	2	0	0%
Malta	0	0	0	1	0	0%
Netherlands	58	2	3	61	50	82%
Norway	no data	no data	no data	no data	no data	no data
Poland	66	5	2	102	62	61%
Portugal	21	0	0	32	21	66%
Romania	18	1	0	31	16	52%
Slovakia	5	0	0	5	5	100%
Slovenia	5	0	0	15	5	33%
Spain	77	3	0	192	76	40%
Sweden	10	no data	no data	no data	no data	no data
Switzerland	no data	no data	no data	no data	no data	no data
United Kingdom	no data	no data	no data	no data	no data	no data
All countries	**753**	**28**	**20**	**1185**	**687**	**58%**

Legend

Positively intersected plants	*E-PRTR facilities (category A, B or C) linked to plants (all size categories) from UWWT Directive dataset.*
E-PRTR facilities in category A or B without link to UWWTD	*E-PRTR facilities (category A or B) not linked to plants from UWWT Directive dataset. It can indicate an inconsistency in the reporting between UWWTD and E-PRTR.*
E-PRTR facilities in category C without link to UWWTD	*E-PRTR facilities (category C) not linked to plants from UWWT Directive dataset. It does not indicate an inconsistency in the reporting between UWWTD and E-PRTR.*
Expected E-PRTR plants according UWWTD	*UWWTPs (all linked + plants category I or II without link) from UWWT Directive dataset.*
Existing facilities in E-PRTR	*Number of E-PRTR facilities linked to plants (size category I and II) from UWWT Directive dataset.*
% of existing facilities in E-PRTR	*% of E-PRTR facilities linked to plants (size category I and II) from UWWT Directive dataset. Less than 100% can indicate an inconsistency in the reporting between UWWTD and E-PRTR.*

Figure E.1 Number of corresponding facilities and count of E-PRTR facilities (category A and B or C) without link to UWWT Directive dataset

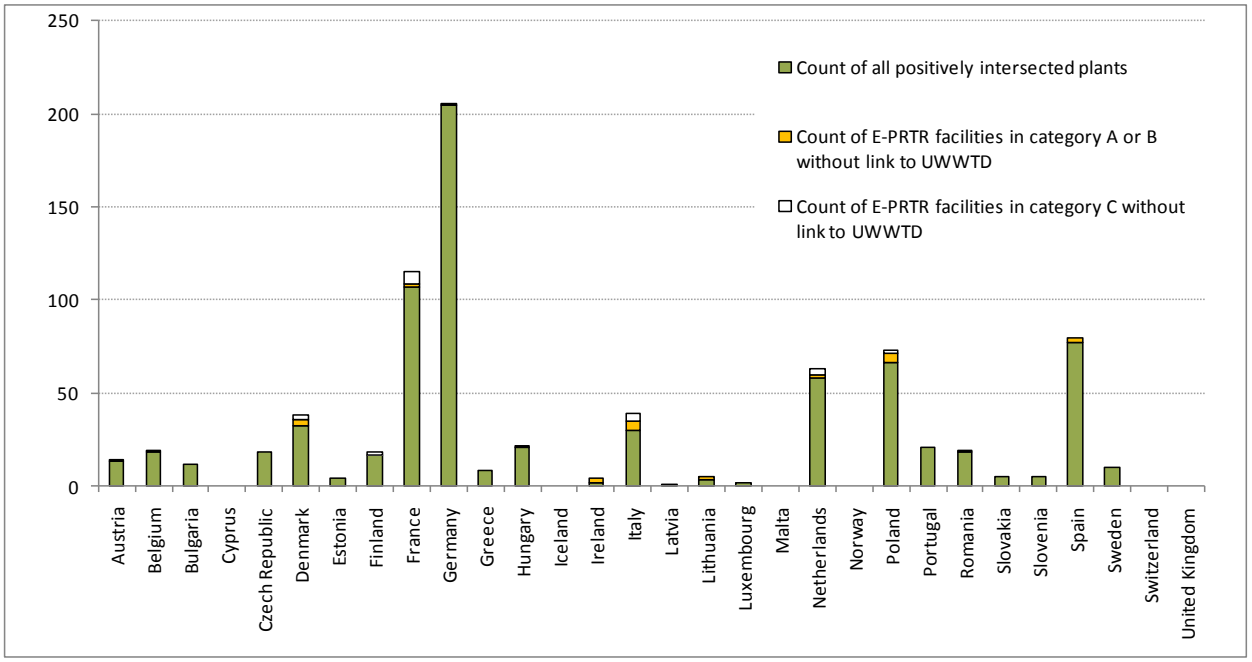
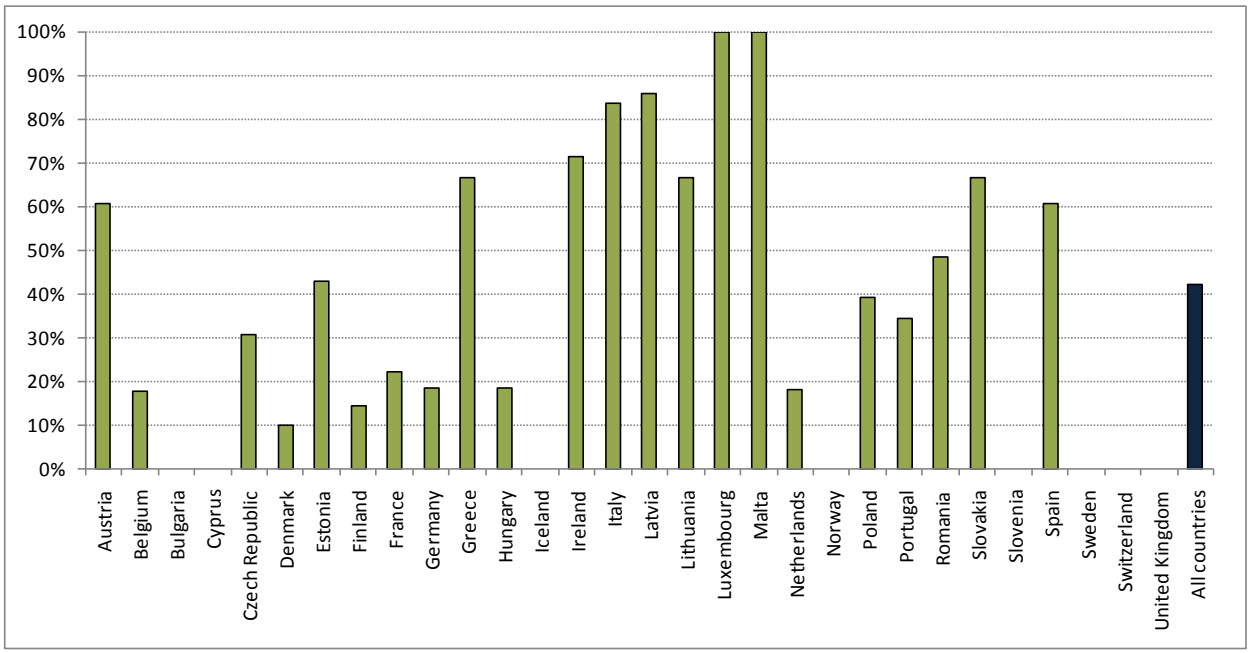


Figure E.2 Number of linked E-PRTR facilities according to the UWWTD dataset



Note: *Bulgaria and Sweden did not report capacity of plants in UWWT Directive dataset; Iceland, Norway, Switzerland and United Kingdom did not report UWWT Directive*

Figure E.3 E-PRTR reported facilities with main or secondary E-PRTR activity 5.f or with NACE code 36.00 (Water collection, treatment and supply) or 37.00 (Sewerage)

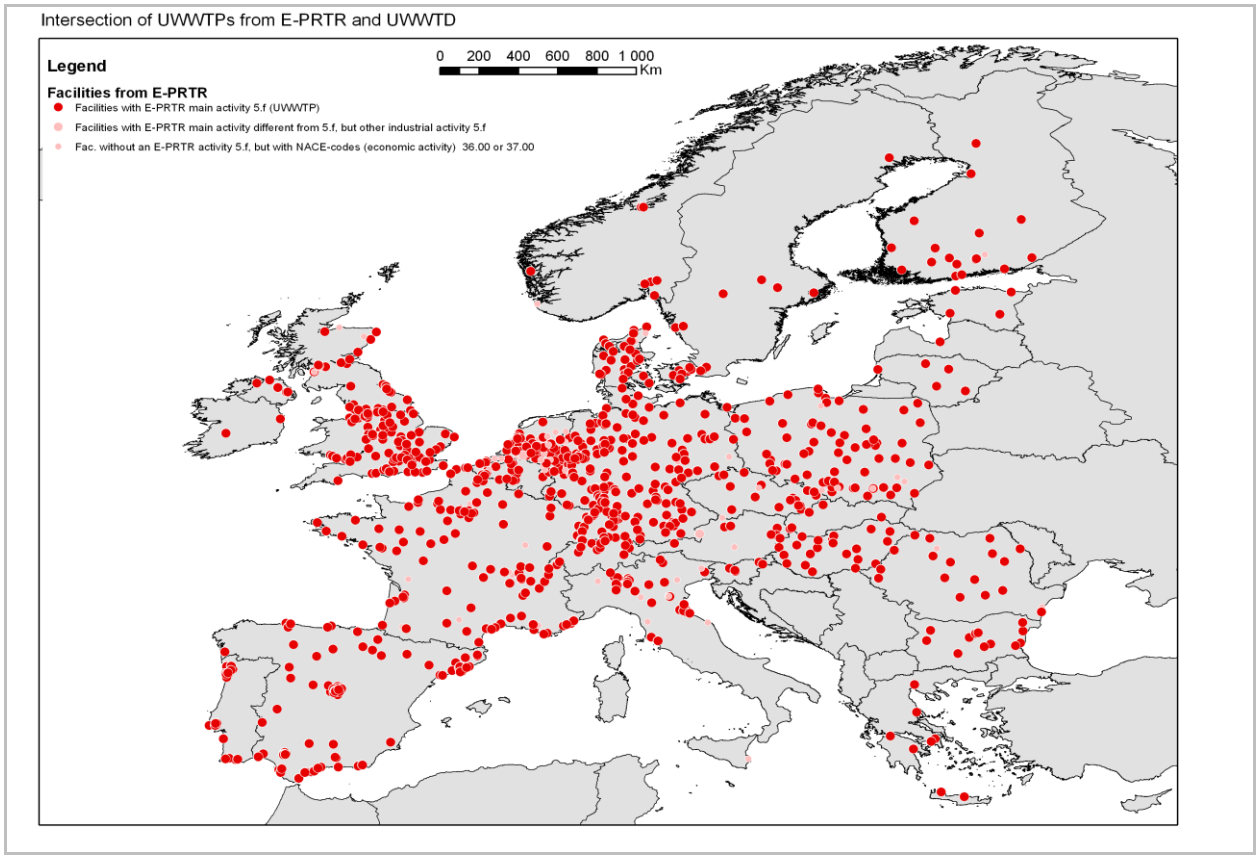


Figure E.4 UWWT Directive reported UWWTPs

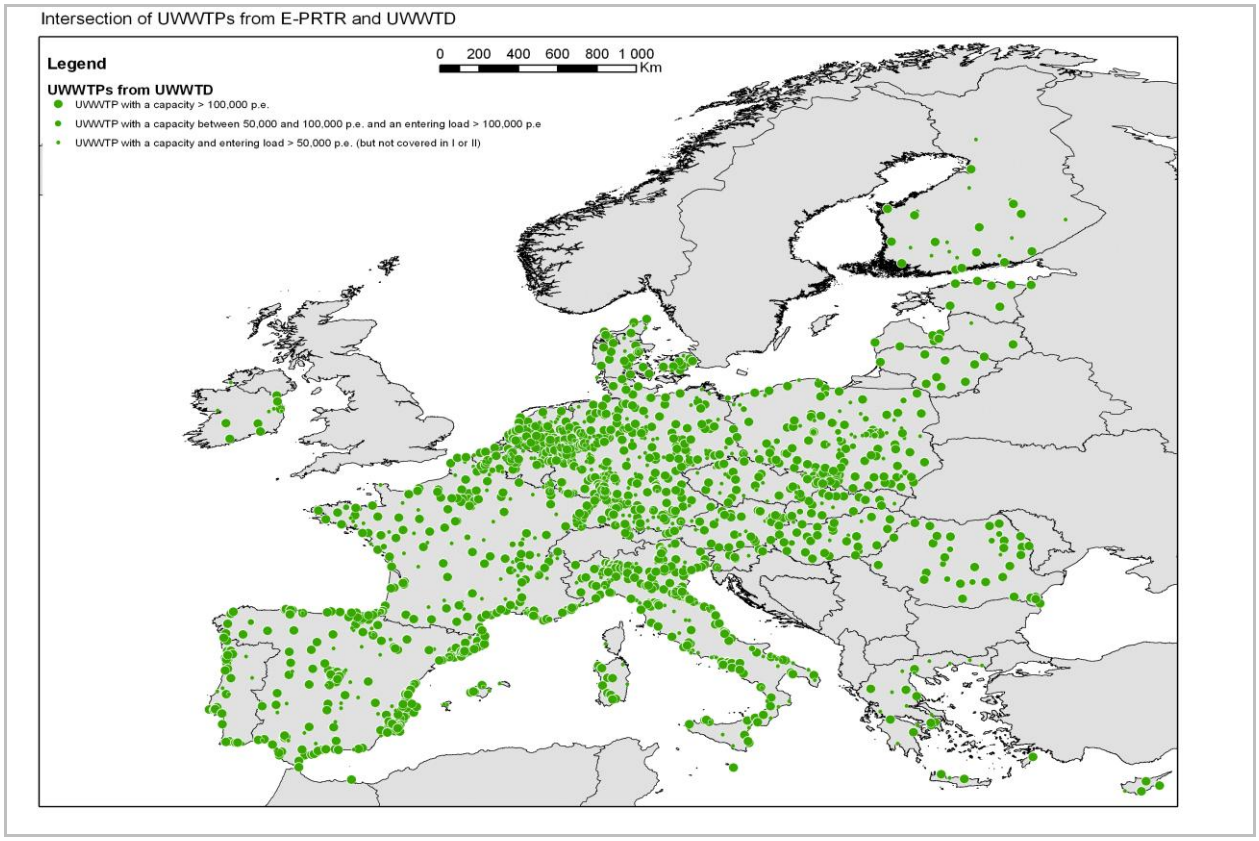
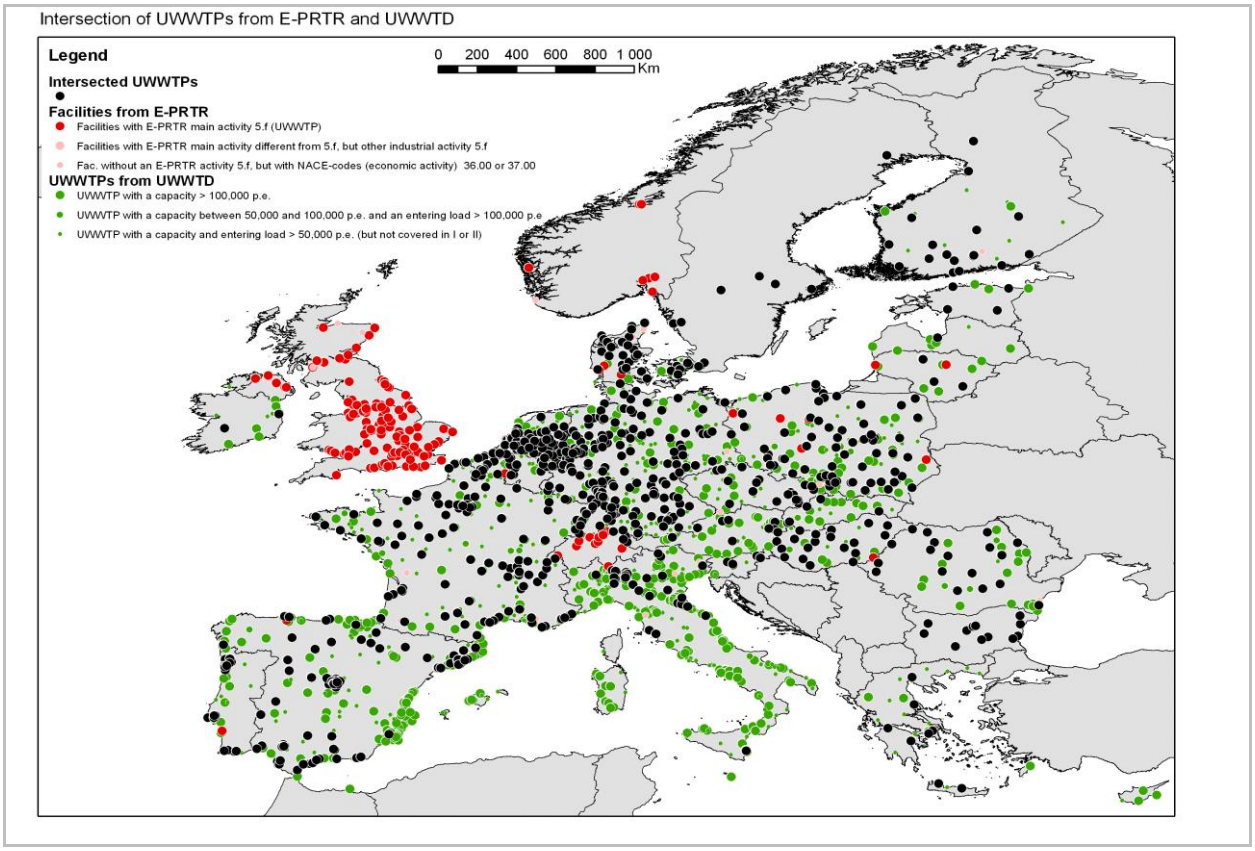


Figure E.5 Intersection of UWWTPs from E-PRTR and UWWT Directive dataset



E.2.3.3 Comparison on released emission data

Released emission data in the UWWTD dataset was reported by the following countries: Czech Republic, Belgium, Denmark, Estonia, Germany, Italy, Latvia, Lithuania, Luxembourg, Poland, Romania and Spain reported data on one UWWTP each.

In some cases, the data was probably reported in other units than required: Romania, it seems, reported practically for all UWWTPs in kg/year instead of tons/year, so for the comparison the values were adjusted. The Czech Republic probably also reported in an incorrect order of magnitude - for one UWWTP (Prague) probably in kg/year (as in the case of Romania). It was, however, not a systematic error - some values were one or two orders of magnitude (10x or 100x) larger, but often for one determinant only – so the values were not adjusted in this case.

Generally, it can be said that almost all of the release values show major inconsistencies. The release values represent emission loads, not monitored concentrations, so the likely reason for these inconsistencies lies in a different calculation method - the release values were calculated from different types of raw data or different numbers of values per year.

For the detailed results see the country sheets.

E.2.3.4 ID comparison for UWWTPs

From the comments and the documentation of the UWWTD reporting it became clear that some countries renumbered the identifiers for UWWTD reporting according to E-PRTR, and some others included the E-PRTR IDs of individual UWWTPs in the comments/documentation.

The analysis gave the following results:

Austria renumbered its UWWTPs but not according to E-PRTR. The new code in the UWWTD dataset is always in the form ATTP_6-M3231731R0 or ATTP_6-362, while the E-PRTR ID is in the form of a 10 digits code, sometimes divided by a separator. Therefore, ID comparison could not be conducted.

Portugal reported the national identifiers and included the E-PRTR IDs in the comment accompanying each facility, so that the identifiers could be automatically linked to those in E-PRTR. This enabled the confirmation of the geographical analysis outputs.

Romania used the E-PRTR identifier as a national identifier for the UWWTD database, so that the identifiers could be automatically linked. This enabled the confirmation of the geographical analysis outputs as well as linking one more E-PRTR facility, which was however not of A, B or C category and therefore could not be included into the set of corresponding facilities.

Slovenia left the facilities their national identifiers and included the E-PRTR IDs in the accompanying comments, so that the identifiers could be automatically linked. This enabled the confirmation of the geographical analysis outputs except for one facility.

Detailed results are included in the "Link with UWWT Directive" Table, which can be found in country Excel sheets.

E.3 SoE emissions and E-PRTR datasets analysis

The purpose of this analysis was to compare the total emissions released in individual RBDs, reported under the SoE emissions and the E-PRTR reporting exercises. It is important to note that while the subject of SoE reporting is total emissions to water, E-PRTR reporting is aimed at the biggest pollutant producers which report emissions at the facility level and only above the thresholds set for the individual pollutants.

E.3.1 Data selection criteria and process

SoE emissions

There is a wide scale of reported pollutants in both E-PRTR and SoE Emissions. For the purpose of this analysis, however, only nutrients (N and P) and TOC have been chosen, for there is considerably more experience with reporting of these two types of pollutants compared to the rest. Also, the emissions are reported in kg (or tons)/year and therefore emission loads need to be calculated using monitored concentrations and the amount of wastewater. These two quantities can vary throughout the year. As a result, the reported values are associated with substantial uncertainty which rises with lower concentrations and higher amount of released water. It is also not stated how to deal with quantification limits when calculating emission loads.

The data from SoE emissions entered the analysis only if the value for an RBD was approximately the same as the sum of the E-PRTR releases within the same RBD.

The following data has been considered as relevant for the comparative analysis (Table E.6):

U24 Urban Waste Water Treated Discharges > 100 000 p.e.

U14 Urban Waste Water Untreated Discharges > 100 000 p.e. (Almost no data was reported except for by Romania, because of transitional period of UWWT Directive implementation).

For the purpose of this analysis, codes U24 + U14 represent the sum of UWWTP emission loads in the E-PRTR dataset.

I, I3, I4, O, O5, O6 or PT. For the purpose of this analysis, the data should reach at least the same value as the sum of releases from facilities not included in the *5.f* activity.

If there were more values available for industrial or other wastewater in one RBD, their sum was used.

While SoE data was reported in 2009, its time coverage is scattered over the period of 2000 – 2008. In case of more reported years for one RBD, 2008 data was preferred. If only older data was available, it was used as well.

E-PRTR

Table E.6 SoE emissions code list for point emissions sources

Code	Name	Definition
U21	Urban Waste Water Treated Discharges < 2 000 p.e.	
U22	Urban Waste Water Treated Discharges 2 000 ≥ p.e. ≤ 10 000	
U23	Urban Waste Water Treated Discharges 10 000 > p.e.≤ 100 000	
U24	Urban Waste Water Treated Discharges > 100 000 p.e.	
U2	Urban Waste Water Treated Discharges total	Refers to the discharge of municipal waste water following treatment in an UWWTP. Such wastewater may have come originally from domestic and industrial sources. In addition, it includes any urban runoff, generated during rainfall, which is collected and directed to a treatment plant. Ideally, such treated discharges should not include stormflows that exceed the storage capacity of the system. However, if only combined data is available then please flag.
U11	Urban Waste Water Untreated Discharges < 2 000 p.e.	
U12	Urban Waste Water Untreated Discharges 2 000 ≥ p.e. ≤ 10 000	
U13	Urban Waste Water Untreated Discharges 10 000 > p.e.≤ 100 000	
U14	Urban Waste Water Untreated Discharges > 100 000 p.e.	
U1	Urban Waste Water Untreated Discharges total	Refers to municipal wastewater that is collected but discharged without treatment.
U	Urban Waste Water Discharges total	
I3	Industrial Waste Water Treated Discharges	Refers only to the discharge of treated industrial waste water from **independently operated industrial WWTPs** and not that discharged from municipal treatment plants.
I4	Industrial Waste Water Untreated Discharges	Refers to discharges of industrial wastewater that remain untreated.
I	Industrial Waste Water Discharges total	
O5	Other Waste Water Treated Discharges	
O6	Other Waste Water Untreated Discharges	
O	Other Waste Water Discharges total	
PT	Point Sources to Inland Surface Water total	
G7	Point Sources to Groundwater total	
D0	Direct Discharges to Coastal and Transitional Water total	
R	Riverine Input to Coastal Water	

All E-PRTR data on releases to water was used. For the purpose of the comparison the data was aggregated on the individual RBDs level (based on attributes), and also divided into UWWTP and other facilities datasets. Three figures were attributed to each RBD:

Sum of releases from all facilities

Sum of releases from facilities identified as UWWTPs (based on results of comparison between UWWTD and E-PRTR data - facilities with main or secondary E-PRTR activity *5.f* - Category A and B)

Sum of releases from other facilities

E.3.1.1 Analytical procedure used to draw conclusions from the data

The comparison was based on the ratio of E-PRTR releases to SoE emissions. As mentioned above, priority was given to the 2008 SoE data to maintain time relevance. If the data was available in the SoE emissions dataset, the comparison was carried out for municipal wastewater and for industrial and other wastewater data separately. Given the fact that there is no commonly accepted definition of municipal wastewater, the comparison of all wastewater data was also carried out. The results were divided into three categories: consistent, potentially inconsistent and inconsistent. More stringent criteria were used for comparison of releases from UWWTPs (Table E.7).

Given the E-PRTR thresholds, SoE emission values only qualified for the comparison if they doubled the threshold (2x50.000 kg for N, 2x5.000 kg for P) and there was a corresponding report in E-PRTR.

The scope of the comparison was limited by the number of reporting countries. In 2009, thirteen countries carried out the SoE emissions reporting exercise (Austria, Belgium, Bulgaria, Czech Republic, Estonia, Finland, France, Iceland, Latvia, Lithuania, Romania, Sweden and Switzerland) and are included in the analysis. Countries which provided „E-PRTR flags“ instead of emission values are mentioned separately (Austria).

Table E.7 Criteria for data consistency assessment of E-PRTR against SoE Emissions dataset

Ratio	Assessment	Basis for assessment (evaluation three)
N, P or TOC UW ratio EPRTR to SoE (>100,000 p.e.)	Inconsistent	Ratio > or equal to 120% or Ratio < or equal to 80%
	Potentialy inconsistent	Ratio between 110% and 120% or between 90% and 80%
N, P or TOC industry ratio EPRTR to SoE	Inconsistent	Ratio > 100%
	Potentialy inconsistent	Ratio < or equal to 30%
N, P or TOC total ratio EPRTR to SoE	Inconsistent	Ratio > 100%
	Potentialy inconsistent	Ratio < or equal to 10%

E.3.1.2 Results of comparison

The comparison between the SoE and the E-PRTR data covered the 13 countries which reported SoE data.

Table E.8 Inconsistencies on RBD level for total nitrogen and phosphorus

	# of RBD compared	# of RBD with inconsistencies
Nitrogen		
– UWWTP > 100,000 p.e.	12	5
– Industrial	24	3
– Total	45	8
Phosphorus		
– UWWTP > 100,000 p.e.	11	5
– Industrial	26	4
– Total	45	6

Note: *number of RBD compared is the number of RBD for which both SoE and E-PRTR data were available across the 13 countries which reported SoE data*

The comparison between SoE and E-PRTR data shows a number of inconsistencies for the reporting of total nitrogen and total phosphorus releases. An overview of the number of the inconsistencies on RBD level is provided in Table E.8.

For the urban waste water treatment plants the differences in definition of the facility as such and of which releases are reported (including spill-over, accidental releases, etc.) can be a reason for the inconsistencies. Regarding the releases from industry, it is expected that the releases reported under E-PRTR are lower than under the SoE reporting. Reported industrial releases of N and P are however significantly higher under E-PRTR for a number of RBD in Belgium, France, Switzerland and Lithuania. When looking at releases from all sources, a number of countries (Belgium, Bulgaria, France, Iceland and Switzerland) have significantly higher releases under E-PRTR compared to under the SoE reporting.

TOC releases were compared for the four countries which reported TOC under the SoE reporting. The comparison showed a high inconsistency for nearly all the RBDs in Belgium, France and Switzerland. For Austria the data reported under E-PRTR and SoE appear to be consistent.

It needs to be noted that for a number of countries, the inconsistency can be due to the fact that different reporting years were compared, namely 2008 for E-PRTR with 2007, 2006 or 2005 for SoE. This is the case for Austria, Belgium, Bulgaria, Czech Republic, France, Switzerland and Sweden.

Each country for which there seems to be an inconsistency should evaluate the discharged data reported under both reporting schemes in order to identify whether the reported data are correct and complete.

An overview of the comparison results is provided in **APPENDIX IX, APPENDIX X** and **APPENDIX XI** for N P and TOC, respectively. Feedback was also provided to the countries concerned in the country-specific feedback reports covering the stage 1 and stage 2 review[54].

E.4 Identification of pollutants which might be missing for reported E-PRTR facilities

Even if a facility reports to E-PRTR, some pollutants may not be reported, or, if reported, the values may not reflect the real situation (due to e.g. reporting errors). However, without a detailed knowledge of

[54] Published on 1 September on Eionet CIRCA website at: http://eea.eionet.europa.eu/Members/irc/eionet-circle/e-prtr/library?l=/e-prtr/country_feedback/2010_2008_dataset/stage_stage_august_2010/country-specific&vm=detailed&sb=Title

the facility, completeness of its pollutants list as well as reported values cannot be evaluated as correct or incorrect as BAT allows many technologies to be deployed, pollutant combinations and concentrations differ for each source and there is a major difference between an UWWTP and an industrial facility in terms of pollutant releases. This methodology is thus limited to an indication of expected pollutants, or, when the data allows, to a rough indication of expected annual loads.

The analysis was carried out separately for UWWTPs and other industrial facilities due to the different character of released waste-water.

E.4.1 Expected pollutants in UWWTPs

E.4.1.1 Issues to be considered

1. Non-existence of a common definition of an UWWTP at the European level

This situation can lead to inconsistencies in facility classification for the purposes of the relevant Directives.

2. Difference between capacity and entering load

According to the E-PRTR Regulation all UWWTPs > 100.000 p.e. and releases above thresholds are subject to reporting. Where the emission load data is available in the UWWTD dataset it can be compared to E-PRTR thresholds. For those countries which do not include the release data in their UWWTD reporting, emission load can be estimated by the facility p.e. number. In many UWWTPs, however, there can be quite a difference between capacity and actual entering load. In case the entering load is substantially lower then the capacity, it can be anticipated that the release to water for nutrients or TOC is below thresholds. The data in the UWWTD dataset shows that 14% of UWWTPs with capacity > 100.000 p.e. report entering load < 80.000 p.e.

3. Determination of other pollutants in UWWTP effluent

Municipal waste water is characterized by the share of domestic waste water, industrial waste water and often also by urban run-off generated during rainfall. While nutrients are the main pollutants generally found in domestic waste water, the composition of connected industrial wastewater differs for each agglomeration. The third component, urban run-off generated during rainfall, most often contains substances coming from atmospheric deposition (metals) or chlorides (salt used for the winter road maintenance). Here, the identification or quantification of expected pollutants would be unfeasible without a detailed knowledge of the particular UWWTP.

E.4.1.2 Analytical procedure used to draw conclusions from the data

Determination of N and P and its quantification in UWWTP effluent:

On the basis of known concentration in the inflow (or derived from the JQ Eurostat[55] defined population equivalent) the approximate inflow of an UWWTP for 100,000 p.e. (Table E.9) can be calculated. Expected N and P discharge can then be determined based on known average treatment efficiency (Table E.10 and Table E.11).

[55] http://circa.europa.eu/Public/irc/dsis/envirmeet/library?l=/meetings_2008_archive/statistics_09-101008/background_documents/jq_iwa_2008_v2pdf/_EN_2.0_&a=d

Table E.9 Load entering an UWWTP (capacity 100,000 p.e.)

Pollutant	1 p.e. g/p.e./day	UWWTP serving 100,000 p.e. tonnes/year
BOD_5	60	2190
N	12	438
P	2.5	91.25
COD	109	3978.5
TOC	40	1460

Note: *ratio BOD/COD=0.55, ratio BOD/TOC=1,5*

The E-PRTR thresholds for N and P are 50.000 and 5.000 kg/year respectively. If the entering load is at least 100, 000 p.e. calculated by using the value of 60 g BOD_5 , and if the MS do not operate UWWTPs with significantly higher treatment efficiency, all reported UWWTP releases should exceed the thresholds.

However, this way, only the expected minimal N and P values for the UWWTP included in the E-PRTR dataset are determined, not the real ones. The technologies for N and P treatment differ, and even if the sensitive areas measures are applied, not every country in accordance with the Directive reports both N and P. This means that if only P values are reported by an UWWTP, N values can not be simply derived from it.

The non-reporting of certain pollutants provides an indication of a potential under-reporting or error in the dataset which would need to be verified by the competent authority. Where data are available, the values could be compared with reporting under UWWTPD.

Table E.10 Treatment efficiency of different types of UWWTPs

	treatment efficiencies			
	BOD	**COD/TOC**	**N**	**P**
Primary treatment	> 20 %		10 %	10 %
Secondary treatment	> 70 %	> 75 %	35 %	35 %
More stringent treatment (tertiary)				
- of which for Organic pollution	> 95 %	> 85 %		
- of which for Nitrogen			> 70 %	
- of which for Phosphorus				> 80 %

Table E.11 Expected discharge for different types of UWWTPs and E-PRTR threshold for reporting

	expected discharge (t/year)			
UWWTP 100 000 p.e.	**BOD**	**COD/TOC**	**N**	**P**
Primary treatment	1752		394	82
Secondary treatment	657	995/365	285	59
More stringent treatment (tertiary)				
- of which for Organic pollution	110	597/219		
- of which for Nitrogen			131	
- of which for Phosphorus				18
E-PRTR reporting threshold	-	-/50[56]	50	5

Specific situation regarding TOC or COD/TOC ratio:

The E-PRTR threshold for TOC is 50,000 kg/year. In case an UWWTP facility in E-PRTR would operate with an entering load of at least 100,000 p.e., and if the UWWTP does not operate with significantly higher treatment efficiency, it would exceed the reporting threshold for COD.

It can be determined on the basis of population equivalents or on the basis of known concentration of a particular pollutant (e.g. BOD) and known ratios between the pollutant and other relevant pollutants (e.g. COD/TOC). The ratios however represent a substantial simplification and should be used with care on a larger scale (or for international comparisons) as they were derived from datasets of specific waste water treatment plants. While ratio BOD/COD is widely accepted, opinions regarding 'reasonability' of use of 'constant' BOD/TOC are rather diverse among waste water professionals.

Approach applied:

The analysis of the potentially missing pollutants was focused on nutrients and TOC. It was based on the assumption that, given the average EU figures, every UWWTP releases total N, P and TOC in amounts exceeding the E-PRTR thresholds if operating with an entering load of at least 100.000 p.e. and if the UWWTP does not have a significantly higher treatment efficiency than average efficiencies across Europe. UWWTPs which do not report the expected values are then flagged as potentially under-reporting. The few exceptions from this assumption are mentioned in the results chapter below.

Only facilities which reported the main or secondary activity as *5.f* entered the analysis.

For the assessment, the percentage of facilities with potentially missing nutrients or TOC has been used. Also the results of comparing the reported releases of UWWTPs against the UWWTD dataset (where available) have been taken into account.

E.4.1.3 Results of analysis

When assessing the results it is important to take into account the fact that some facilities have capacity >100.00 p.e. but a lower entering load (as reported in UWWTD dataset) and therefore do not necessarily fulfill the assumption of nutrients and TOC releases being above the E-PRTR thresholds.

The evaluation shows that 21 %, 30 % and 26 % of the UWWTP have not reported N, P and TOC releases, respectively. This is an indication of a potential under-reporting of these pollutants.

[56] The TOC threshold in E-PRTR as defined as total C or as COD/3

A further assessment of on-country level is necessary since no information is available in the E-PRTR reporting on effective treatment efficiency and entering load (compared to the capacity).

The overview table including UWWTPs with potentially missing N, P and TOC values can be found below (Table E.12, Figure E.6, Figure E.7, Figure E.8). For the detailed results see the country sheets.

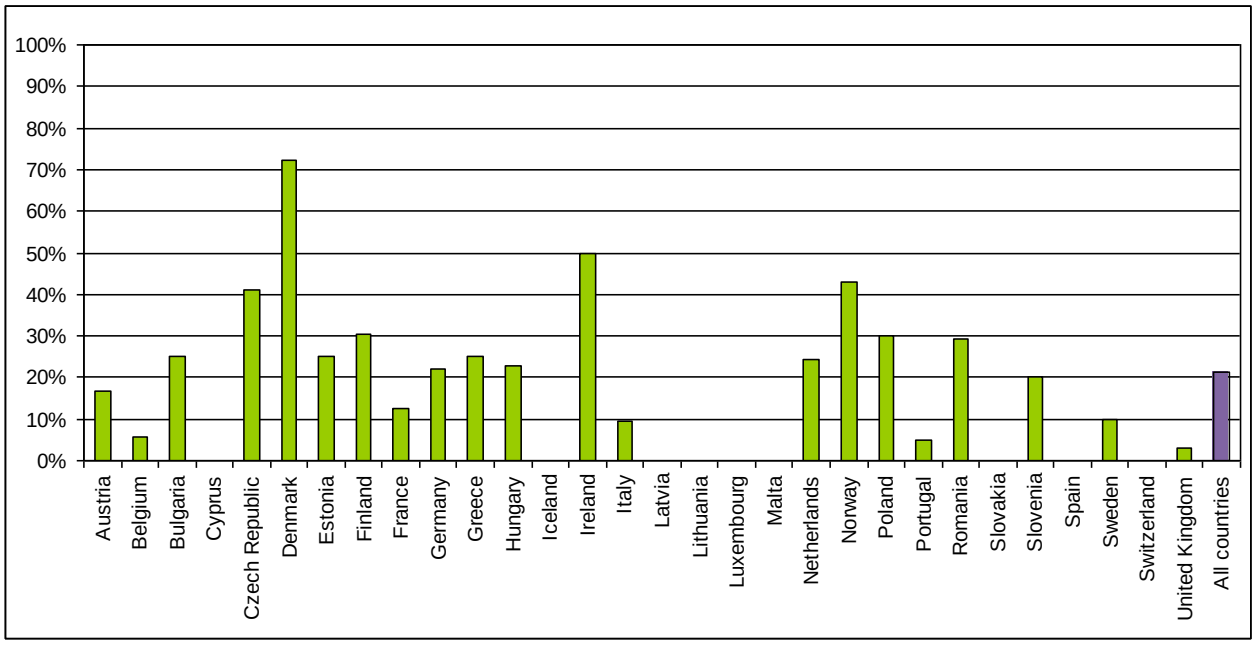
For certain countries the comparison with the UWWTP data showed a higher UWWTP efficiency than the EU average. This information is included in the comments for the individual country[57].

[57] Published on 1 September on Eionet CIRCA website at: http://eea.eionet.europa.eu/Members/irc/eionet-circle/e-prtr/library?l=/e-prtr/country_feedback/2010_2008_dataset/stage_stage_august_2010/country-specific&vm=detailed&sb=Title

Table E.12 Summary table with potentially missing N, P and TOC values in E-PRTR facilities with main or secondary E-PRTR activity *5.f*)

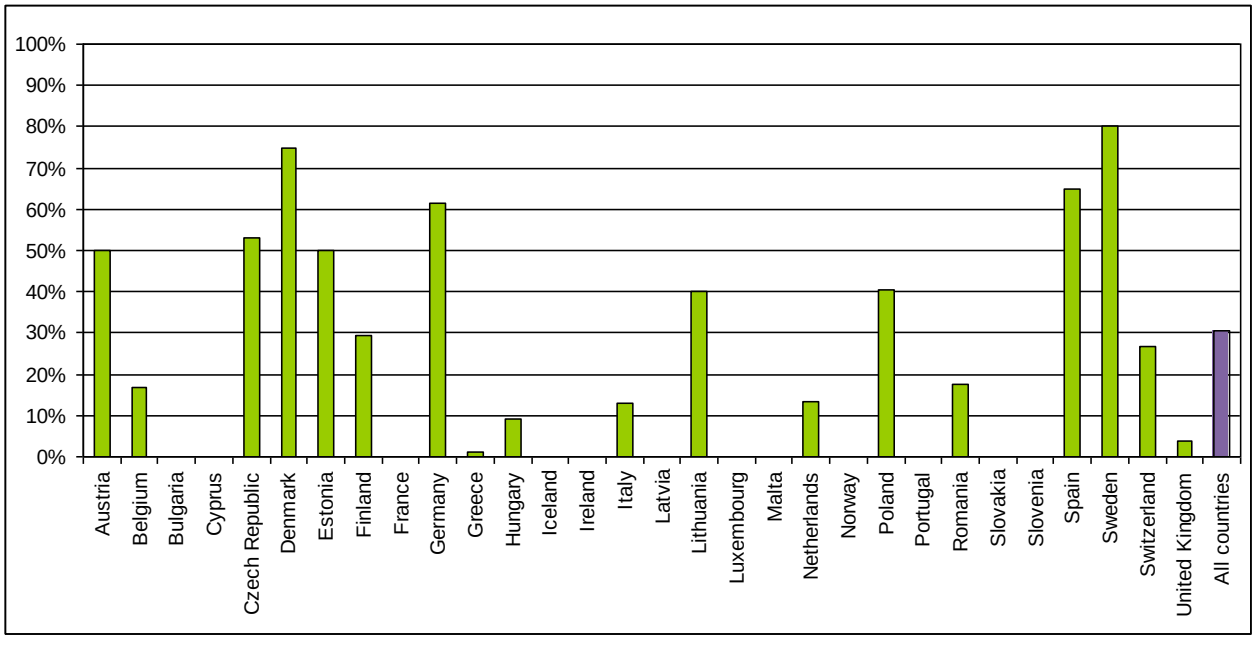
Country Code	# UWWTPs	# potentially missing N	% potentially missing N	# potentially missing P	% potentially missing P	# potentially missing TOC	% potentially missing TOC
Austria	12	2	17%	6	50%	0	0%
Belgium	18	1	6%	3	17%	2	11%
Bulgaria	12	3	25%	0	0%	6	50%
Cyprus	0	0		0		0	
Czech Republic	17	7	41%	9	53%	8	47%
Denmark	36	26	72%	27	75%	14	39%
Estonia	4	1	25%	2	50%	0	0%
Finland	17	0	0%	11	65%	3	18%
France	102	31	30%	30	29%	7	7%
Germany	203	45	22%	125	62%	49	24%
Greece	8	1	13%	0	0%	4	50%
Hungary	22	5	23%	2	9%	1	5%
Iceland	2	0	0%	0	0%	2	100%
Ireland	4	2	50%	0	0%	2	50%
Italy	31	3	10%	4	13%	14	45%
Latvia	1	0	0%	0	0%	0	0%
Lithuania	5	0	0%	2	40%	4	80%
Luxembourg	2	0	0%	0	0%	0	0%
Malta	0	0		0		0	
Netherlands	45	11	24%	6	13%	3	7%
Norway	7	3	43%	0	0%	7	100%
Poland	67	20	30%	27	40%	38	57%
Portugal	21	1	5%	0	0%	2	10%
Romania	17	5	29%	3	18%	12	71%
Slovakia	5	0	0%	0	0%	2	40%
Slovenia	5	1	20%	0	0%	0	0%
Spain	80	20	25%	1	1%	28	35%
Sweden	10	1	10%	8	80%	4	40%
Switzerland	15	0	0%	4	27%	6	40%
United Kingdom	137	4	3%	5	4%	14	10%
All countries	**905**	**193**	**21%**	**275**	**30%**	**232**	**26%**

Figure E.6 E-PRTR facilities with main or secondary activity *5.f* with potentially missing release report for total nitrogen (% compared to total E-PRTR facilities with main or secondary activity 5.f)



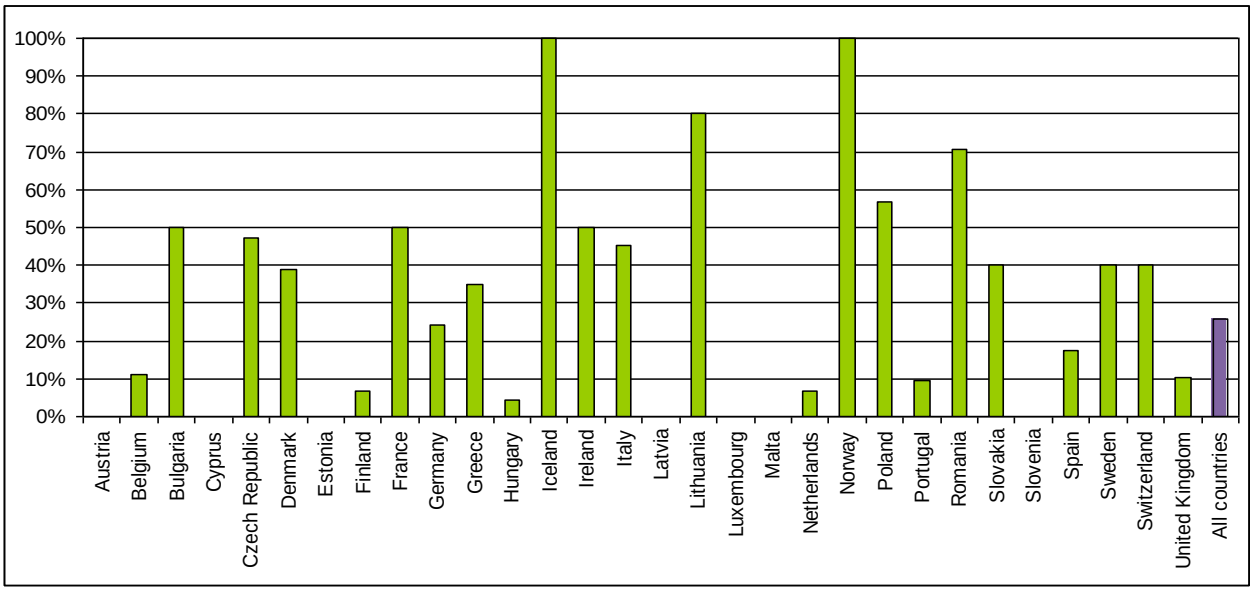
Note: *Cyprus and Malta did not report any UWWTPs under E-PRTR.*

Figure E.7 E-PRTR facilities with main or secondary activity *5.f* with potentially missing release report for total phosphorus (% compared to total E-PRTR facilities with main or secondary activity *5.f*)



Note: *Cyprus and Malta did not report any UWWTPs under E-PRTR.*

Figure E.8 E-PRTR facilities with main or secondary activity *5.f* with potentially missing release report for total organic carbon (% compared to total E-PRTR facilities with main or secondary activity *5.f*)



Note: *Cyprus and Malta did not report any UWWTPs under E-PRTR.*

Comments for individual countries that reported releases to the UWWTD dataset (referring only to the corresponding facilities found both in E-PRTR and UWWTD datasets):

Czech Republic: According to the UWWTD dataset, all releases from E-PRTR facilities are above the thresholds. However, for some reports errors in the same order of magnitude are suspected.

Germany: According to the UWWTD dataset, the UWWTP efficiency is significantly higher than the EU average, mainly for P. Almost all facilities with missing values for P in E-PRTR declare releases lower than 5.000 kg/year in the UWWTD dataset.

Denmark: According to the UWWTD dataset, the UWWTP efficiency is significantly higher than the EU average for both N and P. Almost all facilities with missing values for N and P in E-PRTR declare releases lower than E-PRTR thresholds in the UWWTD dataset.

Estonia: According to the UWWTD dataset, one UWWTP declares release below E-PRTR thresholds.

Italy: According to the UWWTD dataset, one UWWTP declares release below E-PRTR thresholds.

Lithuania: According to the UWWTD dataset, all releases from E-PRTR facilities are above the thresholds.

Luxembourg: No potentially missing pollutants found.

Latvia: No potentially missing pollutants found.

Poland: According to the UWWTD dataset, the UWWTP efficiency is somewhat higher than the EU average for both N and P. 10 facilities with missing values for N and P in E-PRTR declare releases lower than E-PRTR thresholds in the UWWTD dataset.

Romania: According to the UWWTD dataset, all releases from E-PRTR facilities are above the thresholds except for one.

For other countries it can be said that somewhat higher numbers of facilities with missing pollutants can be traced to Austria (P), Bulgaria (TOC), Finland (P), France (N and P), Norway (N and TOC), Spain (N and TOC), Sweden (P) and Switzerland (P and TOC).

F Lessons learned/ Next steps

F.1 Lessons learned

The increase of 3 % in the number of facilities between initial submissions of EPER 2007 and E-PRTR 2008 indicated that reporting of data in 2010 improved in most of the countries. The slight decrease in number of facilities in E-PRTR 2008 compared to the resubmission of E-PRTR 2007 in 2010 is probably due to incomplete reporting. We assume that data completeness will improve after the review.

Comparing E-PRTR 2007 and 2008 according to release/transfer reports we observe a similar effect: An increase if comparing the two initial reports and a decease comparing E-PRTR 2008 with the resubmission 2007. Besides the reason mentioned above it is also possible that in 2008 more releases/transfers lie below the E-PRTR threshold than in 2007.

According to the E-PRTR submission 2008 a small number of facilities often make a large overall contribution to the total release/transfer of a certain pollutant in a specific media. For instance, five large combustion plants were collectively responsible for more than 20 % of all E-PRTR SO_2 emissions to air, another five facilities were responsible for 33 % of total NH_3 emissions to air.

Moreover, almost 30 % of total N_2O, respectively 33 % of total CH_4 E-PRTR emissions were produced by five facilities only. Within the group of heavy metals the top five facilities contributed between 16 and 34 % to total E-PRTR emissions.

A number of pollutants was reported by one single facility or by one single country in Europe. For other pollutants individual facilities seem to produce more than 50 % of total emissions in Europe (e.g., 77 % of PCDD/PCDF emissions was reported by a facility in Portugal; 64 % of HCB emissions by a facility in Belgium). Such findings have to be further investigated by Parties since they might indicate that a) the concerning E-PRTR thresholds are too high, b) reporting in other countries is not complete c) there are errors in reported data (e.g. wrong units) and/or d) emissions are not reported under the correct activity and/or media.

The review observes constraints concerning the comparability with emissions reported under CLRTAP and UNFCCC due to the differing structure of the reported data. The assessment of the comparison of EU-ETS and E-PRTR is also limited by the different definition of sectors (EU ETS) and activities (E-PRTR).

The 2009 review highlighted a number of anomalies which could be corrected and as follow-up a number of countries resubmitted more consistent 2007 E-PRTR data. However, the Stage 1 review in 2010 again revealed a number of data anomalies that were communicated to E-PRTR countries giving them the opportunity to improve their 2008 E-PRTR data until the resubmission deadline in fall 2010. The stage 2 review highlighted potential inconsistencies in reporting under different obligations, which also have to be checked by countries.

Some data has not been imported in the E-PRTR register due to technical issues related to the data format, confidentiality claims or delays in data collection, validation and compilation[58]. This has an effect on the completeness of the E-PRTR 2007 and E-PRTR 2008 datasets and thus influences the results of the review. These technical problems are expected to be mostly solved for the submission of the 2009 dataset during 2011 reporting round.

[58] For those data, reporting countries have provided a list of facility names, which can be found at: http://eea.eionet.europa.eu/Members/irc/eionet-circle/e-prtr/library?l=/e-prtr/country_feedback/2010_2008_dataset/stage_stage_august_2010/incompleteness_e-prtr/facilities_germanypdf/_EN_1.0_&a=d"

With the current structure of reporting the review can easily identify outliers. Gaps in reporting are, however, difficult to detect. Information on production, fuel consumption and thermal capacity of single facilities could significantly improve the possibility to assess the quality and completeness of reporting under E-PRTR.

F.2 Next steps

The stage 1 and 2 review of E-PRTR data is planned also for upcoming years. The way the results will be presented might however change in the future. For future reports it could be considered to also include information on emissions per capita or area.

The E-PRTR informal review 2011 will be carried out alongside the formal review in accordance with Article 17 of the E-PRTR Regulation. The informal review is expected to start in 2011 on 1st of May after the publication of the E-PRTR data (the latest by 30 April 2011).

Units and Abbreviations

kg ..... 1 kilogram = 10^3 g (gram)
t..... 1 tonne (metric) = 1 megagram (Mg) = 10^6 g
Mg..... 1 megagram = 10^6 g = 1 tonne (t)
Gg..... 1 gigagram = 10^9 g = 1 kilotonne (kt)
Tg ..... 1 teragram = 10^{12} g = 1 megatonne (Mt)
TJ..... 1 terajoule

As ..... arsenic
Cd..... cadmium
BOD..... Biochemical Oxygen Demand
CDR ..... central data repository of EEA's Eionet Reportnet
CEIP ..... EMEP Centre on Emission Inventories and Projections
CH_4 ..... methane
CLRTAP..... LRTAP Convention
CO ..... carbon monoxide
CO_2 ..... carbon dioxide
COD..... Chemical Oxygen Demand
Cr ..... chromium
CRF..... UNFCCC common reporting format for greenhouse gases
Cu..... copper
DDT dichlorodiphenyltrichloroethane
EEA..... European Environment Agency
EEA..... European Economic Area
EFTA..... European Fair Trade Association
Eionet European Environment Information and Observation Network
EPER European Pollutant Emission Register
EMEP..... Co-operative programme for monitoring and evaluation of the long-range transmissions of air pollutants in Europe
E-PRTR..... European Pollutant Release and Transfer Register
ETC/ACC..... European Topic Centre on Air and Climate Change
EU ..... European Union
EWL..... European Waste List
GHG ..... greenhouse gas
HCB ..... hexachloro-benzene
HCFCs..... hydrochlorofluorocarbons
HCH 1,2,3,4,5,6-hexachlorocyclohexane
HFCs ..... hydrofluorocarbons
HW ..... hazardous waste
HWIC..... hazardous waste (transferred) inside the country
HWOC ..... hazardous waste (transferred) outside the country (transboundary waste movement)
Hg..... mercury
HMs..... heavy metals
IOWWTP ..... Independently operated waste water treatment plant
KCA ..... key category analysis

LRTAP Convention ..... UNECE Convention on Long-range Transboundary Air Pollution
N_2O ..... nitrous oxide
NACE ..... Nomenclature statistique des activités économiques dans la Communauté européenne - Nomenclature of economic activities
NECD ..... National Emission Ceilings Directive (2001/81/EC)
NFR ..... UNECE nomenclature for reporting of air pollutants
NH_3 ..... ammonia
NHW ..... non hazardous waste
Ni ..... nickel
NMVOCs ..... non-methane volatile organic compounds
No ..... number
NO_2 ..... nitrogen dioxide
NO_x ..... nitrogen oxides
NP ..... nonylphenol
NPEs ..... nonylphenol ethoxylates
PAH ..... polycyclic aromatic hydrocarbons
Pb ..... lead
PCB ..... polychlorinated biphenyl
PCDD ..... polychlorinated dibenzodioxins (PCDDs) - dioxines
PCDF ..... polychlorinated dibenzofurans (PCDF) - furans
PCP ..... pentachlorophenol
p.e. ..... population equivalent
PFCs ..... perfluorocarbons
PM ..... particulate matter
PM_{10} ..... particles measuring 10 µm or less
$PM_{2.5}$ ..... particles measuring 2.5 µm or less
POPs ..... persistent organic pollutants
PRT ..... pollutant release and transfer (release into air, water, land and transfer in water)
PR ..... pollutant release
PT ..... polutant transfer
RBD ..... river basin district
Se ..... selenium
SF_6 ..... sulphur hexafluoride
SO_2 ..... sulphur dioxide
SO_x ..... sulphur oxides
SoE ..... State of the Environment
TOC ..... total organic carbon
UNECE ..... United Nations Economic Commission for Europe
UNFCCC ..... United Nations Framework Convention on Climate Change
UWWTD ..... Urban Waste Water Treatment Directive
UWWTP ..... urban waste water treatment plant
VOCs ..... volatile organic compounds
WFD ..... Water Framework Directive
WT ..... waste transfer
w/o ..... without
Zn ..... zinc
..... number of

APPENDIX I– Pollutants* included in E-PRTR

As published 4.2.2006 in *Official Journal of the European Union.*

No	CAS number	Pollutant (1)	Threshold for releases (column 1)		
			to air (column 1a) kg/year	to water (column 1b) kg/year	to land (column 1c) kg/year
1	74-82-8	Methane (CH_4)	100 000	— (2)	—
2	630-08-0	Carbon monoxide (CO)	500 000	—	—
3	124-38-9	Carbon dioxide (CO_2)	100 million	—	—
4		Hydro-fluorocarbons (HFCs) (3)	100	—	—
5	10024-97-2	Nitrous oxide (N_2O)	10 000	—	—
6	7664-41-7	Ammonia (NH_3)	10 000	—	—
7		Non-methane volatile organic compounds (NMVOC)	100 000	—	—
8		Nitrogen oxides (NO_x/NO_2)	100 000	—	—
9		Perfluorocarbons (PFCs) (4)	100	—	—
10	2551-62-4	Sulphur hexafluoride (SF_6)	50	—	—
11		Sulphur oxides (SO_x/SO_2)	150 000	—	—
12		Total nitrogen	—	50 000	50 000
13		Total phosphorus	—	5 000	5 000
14		Hydrochlorofluorocarbons (HCFCs) (5)	1	—	—
15		Chlorofluorocarbons (CFCs) (6)	1	—	—
16		Halons (7)	1	—	—
17		Arsenic and compounds (as As) (8)	20	5	5
18		Cadmium and compounds (as Cd) (8)	10	5	5
19		Chromium and compounds (as Cr) (8)	100	50	50
20		Copper and compounds (as Cu) (8)	100	50	50
21		Mercury and compounds (as Hg) (8)	10	1	1
22		Nickel and compounds (as Ni) (8)	50	20	20
23		Lead and compounds (as Pb) (8)	200	20	20
24		Zinc and compounds (as Zn) (8)	200	100	100
25	15972-60-8	Alachlor	—	1	1
26	309-00-2	Aldrin	1	1	1
27	1912-24-9	Atrazine	—	1	1
28	57-74-9	Chlordane	1	1	1

*) *Releases of pollutants falling into several categories of pollutants shall be reported for each of these categories.*

No	CAS number	Pollutant (1)	Threshold for releases (column 1)		
			to air (column 1a) kg/year	to water (column 1b) kg/year	to land (column 1c) kg/year
29	143-50-0	Chlordecone	1	1	1
30	470-90-6	Chlorfenvinphos	—	1	1
31	85535-84-8	Chloro-alkanes, C10-C13	—	1	1
32	2921-88-2	Chlorpyrifos	—	1	1
33	50-29-3	DDT	1	1	1
34	107-06-2	1,2-dichloroethane (EDC)	1 000	10	10
35	75-09-2	Dichloromethane (DCM)	1 000	10	10
36	60-57-1	Dieldrin	1	1	1
37	330-54-1	Diuron	—	1	1
38	115-29-7	Endosulphan	—	1	1
39	72-20-8	Endrin	1	1	1
40		Halogenated organic compounds (as AOX) (9)	—	1 000	1 000
41	76-44-8	Heptachlor	1	1	1
42	118-74-1	Hexachlorobenzene (HCB)	10	1	1
43	87-68-3	Hexachlorobutadiene (HCBD)	—	1	1
44	608-73-1	1,2,3,4,5,6-hexachlorocyclohexane(HCH)	10	1	1
45	58-89-9	Lindane	1	1	1
46	2385-85-5	Mirex	1	1	1
47		PCDD + PCDF (dioxins + furans) (as Teq) (10)	0,0001	0,0001	0,0001
48	608-93-5	Pentachlorobenzene	1	1	1
49	87-86-5	Pentachlorophenol (PCP)	10	1	1
50	1336-36-3	Polychlorinated biphenyls (PCBs)	0,1	0,1	0,1
51	122-34-9	Simazine	—	1	1
52	127-18-4	Tetrachloroethylene (PER)	2 000	10	—
53	56-23-5	Tetrachloromethane (TCM)	100	1	—
54	12002-48-1	Trichlorobenzenes (TCBs) (all isomers)	10	1	—
55	71-55-6	1,1,1-trichloroethane	100	—	—
56	79-34-5	1,1,2,2-tetrachloroethane	50	—	—
57	79-01-6	Trichloroethylene	2 000	10	—
58	67-66-3	Trichloromethane	500	10	—
59	8001-35-2	Toxaphene	1	1	1
60	75-01-4	Vinyl chloride	1 000	10	10
61	120-12-7	Anthracene	50	1	1
62	71-43-2	Benzene	1 000	200 (as BTEX) (11)	200 (as BTEX) (11)
63		Brominated diphenylethers (PBDE) (12)	—	1	1

No	CAS number	Pollutant (1)	Threshold for releases (column 1)		
			to air (column 1a) kg/year	to water (column 1b) kg/year	to land (column 1c) kg/year
64		Nonylphenol and Nonylphenol ethoxylates (NP/NPEs)	—	1	1
65	100-41-4	Ethyl benzene	—	200 (as BTEX) (11)	200 (as BTEX) (11)
66	75-21-8	Ethylene oxide	1 000	10	10
67	34123-59-6	Isoproturon	—	1	1
68	91-20-3	Naphthalene	100	10	10
69		Organotin compounds(as total Sn)	—	50	50
70	117-81-7	Di-(2-ethyl hexyl) phthalate (DEHP)	10	1	1
71	108-95-2	Phenols (as total C) (13)	—	20	20
72		Polycyclic aromatic hydrocarbons (PAHs) (14)	50	5	5
73	108-88-3	Toluene	—	200 (as BTEX) (11)	200 (as BTEX) (11)
74		Tributyltin and compounds (15)	—	1	1
75		Triphenyltin and compounds (16)	—	1	1
76		Total organic carbon (TOC) (as total C or COD/3)	—	50 000	—
77	1582-09-8	Trifluralin	—	1	1
78	1330-20-7	Xylenes (17)	—	200 (as BTEX) (11)	200 (as BTEX) (11)
79		Chlorides (as total Cl)	—	2 million	2 million
80		Chlorine and inorganic compounds (as HCl)	10 000	—	—
81	1332-21-4	Asbestos	1	1	1
82		Cyanides (as total CN)	—	50	50
83		Fluorides (as total F)	—	2 000	2 000
84		Fluorine and inorganic compounds (as HF)	5 000	—	—
85	74-90-8	Hydrogen cyanide (HCN)	200	—	—
86		Particulate matter (PM10)	50 000	—	—
87	1806-26-4	Octylphenols and Octylphenol ethoxylates	—	1	—
88	206-44-0	Fluoranthene	—	1	—
89	465-73-6	Isodrin	—	1	—
90	36355-1-8	Hexabromobiphenyl	0.1	0.1	0.1
91	191-24-2	Benzo(g,h,i)perylene		1	

(1) *Unless otherwise specified any pollutant specified in Annex II shall be reported as the total mass of that pollutant or, where the pollutant is a group of substances, as the total mass of the group.*

(2) *A hyphen (—) indicates that the parameter and medium in question do not trigger a reporting requirement.*

(3) *Total mass of hydrogen fluorocarbons: sum of HFC23, HFC32, HFC41, HFC4310mee, HFC125, HFC134, HFC134a, HFC152a, HFC143, HFC143a, HFC227ea, HFC236fa, HFC245ca, HFC365mfc.*

(4) *Total mass of perfluorocarbons: sum of CF4, C2F6, C3F8, C4F10, c-C4F8, C5F12, C6F14.*

(5) *Total mass of substances including their isomers listed in Group VIII of Annex I to Regulation (EC) No 2037/2000 of the European Par- liament and of the Council of 29 June 2000 on substances that deplete the ozone layer (OJ L 244, 29.9.2000, p. 1). Regulation as amended by Regulation (EC) No 1804/2003 (OJ L 265, 16.10.2003, p. 1).*

(6) *Total mass of substances including their isomers listed in Group I and II of Annex I to Regulation (EC) No 2037/2000.*

(7) *Total mass of substances including their isomers listed in Group III and VI of Annex I to Regulation (EC) No 2037/2000.*

(8) *All metals shall be reported as the total mass of the element in all chemical forms present in the release.*

(9) *Halogenated organic compounds which can be adsorbed to activated carbon expressed as chloride.*

(10) *Expressed as I-TEQ.*

(11) *Single pollutants are to be reported if the threshold for BTEX (the sum parameter of benzene, toluene, ethyl benzene, xylenes) is exceeded.*

(12) *Total mass of the following brominated diphenylethers: penta-BDE, octa-BDE and deca-BDE.*

(13) *Total mass of phenol and simple substituted phenols expressed as total carbon.*

(14) *Polycyclic aromatic hydrocarbons (PAHs) are to be measured for reporting of releases to air as benzo(a)pyrene (50-32-8), benzo(b)fluo- ranthene (205-99-2), benzo(k)fluoranthene (207-08-9), indeno(1,2,3-cd)pyrene (193-39-5) (derived from Regulation (EC) No 850/2004 of the European Parliament and of the Council of 29 April 2004 on persistent organic pollutants (OJ L 229, 29.6.2004, p. 5)).*

(15) *Total mass of tributyltin compounds, expressed as mass of tributyltin.*

(16) *Total mass of triphenyltin compounds, expressed as mass of triphenyltin.*

(17) *Total mass of xylene (ortho-xylene, meta-xylene, para-xylene).*

APPENDIX II- List of E-PRTR ANNEX I Activities

Code	Description
1	**Energy sector**
1.(a)	Mineral oil and gas refineries
1.(b)	Installations for gasification and liquefaction
1.(c)	Thermal power stations and other combustion installations
1.(d)	Coke ovens
1.(e)	Coal rolling mills
1.(f)	Installations for the manufacture of coal products and solid smokeless fuel
2	**Production and processing of metals**
2.(a)	Metal ore (including sulphide ore) roasting or sintering installations
2.(b)	Installations for the production of pig iron or steel (primary or secondary melting) including continuous casting
2.(c)	Installations for the processing of ferrous metals
2.(c).(i)	- Hot-rolling mills
2.(c).(ii)	- Smitheries with hammers
2.(c).(iii)	- Application of protective fused metal coats
2.(d)	Ferrous metal foundries
2.(e)	Installations:
2.(e).(i)	- For the production of non-ferrous crude metals from ore, concentrates or secondary raw materials by metallurgical, chemical or electrolytic processes
2.(e).(ii)	- For the smelting, including the alloying, of non-ferrous metals, including recovered products (refining, foundry casting, etc.)
2.(f)	Installations for surface treatment of metals and plastic materials using an electrolytic or chemical process
3	**Mineral industry**
3.(a)	Underground mining and related operations
3.(b)	Opencast mining and quarrying
3.(c)	Installations for the production of:
3.(c).(i)	- Cement clinker in rotary kilns
3.(c).(ii)	- Lime in rotary kilns
3.(c).(iii)	- Cement clinker or lime in other furnaces
3.(d)	Installations for the production of asbestos and the manufacture of asbestos-based products
3.(e)	Installations for the manufacture of glass, including glass fibre
3.(f)	Installations for melting mineral substances, including the production of mineral fibres
3.(g)	Installations for the manufacture of ceramic products by firing, in particular roofing tiles, bricks, refractory bricks, tiles, stoneware or porcelain
4	**Chemical industry**
4.(a)	Chemical installations for the production on an industrial scale of basic organic chemicals, such as:
4.(a).(i)	- Simple hydrocarbons (linear or cyclic, saturated or unsaturated, aliphatic or aromatic)
4.(a).(ii)	- Oxygen-containing hydrocarbons
4.(a).(iii)	- Sulphurous hydrocarbons
4.(a).(iv)	- Nitrogenous hydrocarbons
4.(a).(ix)	- Phosphorus-containing hydrocarbons
4.(a).(v)	- Halogenic hydrocarbons
4.(a).(vi)	- Organometallic compounds
4.(a).(vii)	- Basic plastic materials (polymers, synthetic fibres and cellulose-based fibres)
4.(a).(viii)	- Synthetic rubbers

Code	Description
4.(a).(x)	- Dyes and pigments
4.(a).(xi)	- Surface-active agents and surfactants
4.(b)	Chemical installations for the production on an industrial scale of basic inorganic chemicals, such as:
4.(b).(i)	- Gases
4.(b).(ii)	- Acids
4.(b).(iii)	- Bases
4.(b).(iv)	- Salts
4.(b).(v)	- Non-metals, metal oxides or other inorganic compounds
4.(c)	Chemical installations for the production on an industrial scale of phosphorous-, nitrogen- or potassium-based fertilisers (simple or compound fertilisers)
4.(d)	Chemical installations for the production on an industrial scale of basic plant health products and of biocides
4.(e)	Installations using a chemical or biological process for the production on an industrial scale of basic pharmaceutical products
4.(f)	Installations for the production on an industrial scale of explosives and pyrotechnic products
5	**Waste and wastewater management**
5.(a)	Installations for the recovery or disposal of hazardous waste
5.(b)	Installations for the incineration of non-hazardous waste in the scope of Directive 2000/76/EC of the European Parliament and of the Council of 4 December 2000 on the incineration of waste
5.(c)	Installations for the disposal of non-hazardous waste
5.(d)	Landfills (see note in Guidance Document)
5.(e)	Installations for the disposal or recycling of animal carcasses and animal waste
5.(f)	Urban waste-water treatment plants
5.(g)	Independently operated industrial waste-water treatment plants which serve one or more activities of this annex
6	**Paper and wood production and processing**
6.(a)	Industrial plants for the production of pulp from timber or similar fibrous materials
6.(b)	Industrial plants for the production of paper and board and other primary wood products
6.(c)	Industrial plants for the preservation of wood and wood products with chemicals
7	**Intensive livestock production and aquaculture**
7.(a)	Installations for the intensive rearing of poultry or pigs
7.(a).(i)	- With 40 000 places for poultry
7.(a).(ii)	- With 2 000 places for production pigs (over 30kg)
7.(a).(iii)	- With 750 places for sows
7.(b)	Intensive aquaculture
8	**Animal and vegetable products from the food and beverage sector**
8.(a)	Slaughterhouses
8.(b)	Treatment and processing intended for the production of food and beverage products from:
8.(b).(i)	- Animal raw materials (other than milk)
8.(b).(ii)	- Vegetable raw materials
8.(c)	Treatme nt and processing of milk
9	**Other activities**
9.(a)	Plants for the pre-treatment (operations such as washing, bleaching, mercerisation) or dyeing of fibres or textiles
9.(b)	Plants for the tanning of hides and skins
9.(c)	Installations for the surface treatment of substances, objects or products using organic solvents, in particular for dressing, printing, coating, degreasing, waterproofing, sizing, painting, cleaning or impregnating
9.(d)	Installations for the production of carbon (hard-burnt coal) or electro-graphite by means of incineration or graphitisation

Code	Description
9.(e)	Installations for the building of, and painting or removal of paint from ships

APPENDIX III - Number of facilities per activity and country E-PRTR 2008

Annex I Activity		Austria	Belgium	Bulgaria	Cyprus	Czech Republic	Denmark	Estonia	Finland	France	Germany	Greece	Hungary	Iceland	Ireland	Italy	Latvia	Liechtenstein	Lithuania	Luxembourg	Malta	Netherlands	Norway	Poland	Portugal	Romania	Slovakia	Slovenia	Spain	Sweden	Switzerland	United Kingdom	All countries
1	1.(a)	1	5	1		4	7	2	2	14	22	4	3		1	4			1			5	7	10	2	9	3		10	3	1	32	153
	1.(b)									3														2						1		30	36
	1.(c)	20	37	26	3	64	27	10	64	128	243	27	37		22	105	9		11	1	2	53	3	211	16	37	26	7	133	57	5	227	1611
	1.(d)					2				2	4		1			1							2	7					2				21
	1.(e)									14	1													1									16
	1.(f)						1			1	3																						5
2	2.(a)		5						1	3	2											2		2		1	1			2		1	20
	2.(b)	3	12	4		8	2		5	31	32	5	3			14			1	4		2	1	10	2	9	2	3	27	8	1	27	216
	2.(c)	1	8	2		14	5	1	5	33	148	3	5			51	1			5		7	1	35	9	9	3	1	42	11	4	17	421
	2.(d)	3	6	1		31	4		9	50	151		2			36						10	8	41	8	7	6	13	28	8	2	1	425
	2.(e)	5	8	8	1	23	8	2	8	79	214	14	10	5	3	72	1			3		20	28	45	11	13	5	11	53	15	10	72	747
	2.(f)	12	28	3	1	58	29	3	43	460	441	3	38		12	196	1			1		56	12	108	50	12	20	22	209	61	17	199	2095
3	3.(a)	2		4		14		2	7	3	36	3	15		4	38							3	83	3	9		1	25	5	2	14	273
	3.(b)	1	15	4	5	8	1	6		56	14	7	3		20	2							1	38	4	3	2		45	2	1	101	339
	3.(c)	5	20	8	2	9	5	2	6	45	54	8	7	1	5	31	1		1	1		2	6	16	11	10	12	5	57	8	7	29	374
	3.(e)	5	12	4		20	5	1	4	43	71	1	10		2	20	1		2	2		8	3	30	8	4	4	4	43	2	1	28	335
	3.(f)					2			6	8	5		2	1		4			1			1	2	3	3		1	2	1	3	1	2	48
	3.(g)	3	11	4		12	14	2	3	28	39	5	17		1	105	1		2			29	2	41	23	5	8	5	242	3	3	46	654
4	4.(a)	12	84	2		40	32	2	33	244	349	7	22	1	6	78	1		3	1		78	16	71	18	11	13	10	132	37	23	217	1543
	4.(b)	5	18	1		7	2		12	51	85	2	6		1	17						19	8	13	9	8	2	4	46	11	2	93	422
	4.(c)		2	2		1		1	2	4	4	1	3			1			2			4	2	7	2	6			20	1		2	67
	4.(d)	1	3	1		2	1			13	6		2			2						3		4					13		4	10	65
	4.(e)	2	15	2		10	13		5	35	34		11		29	47	2				3	5	3	14	2	3	2	3	54	11	32	37	374
	4.(f)		2			6		1	2	14	10		1		1	3							1	3			1		5	4	1	3	58
5	5.(a)	13	234	1		42	12	22	17	155	680	5	20		14	112			9	1	1	49	29	36	21	3	9	3	84	19	11	227	1829
	5.(b)	6	10			3	22		2	127	76		1			20				1		10	13	1	1		1		9	16	27	18	364
	5.(c)	11		3		1	5		9	23	151	1	2		38	66	1				2	37	2	9	2		1	1	10	8	2	196	581
	5.(d)	12	20	17	1	2	40	8	50	149	226	7	16	2	38	67			8	2		26	45	103	43	47	13	35	117	52	2	251	1399
	5.(e)	1	3	1	1	4	7	1	1	7	20		10		3	7	2					4	13	6	6	1		3	21			10	132
	5.(f)	12	18	15	1	23	36	5	17	110	212	8	24	2	4	33	1		5	2		46	7	70	21	17	5	5	88	10	15	142	954
	5.(g)	3	2			3				30	4					3								10		3			1			4	63
6	6.(a)	1	5	1		1	3	2	16	31	3		1			3						1	11	3	5	1	1		10	39	1	44	183
	6.(b)	10	9	3		18		4	34	56	149	8	9		4	62			3	1		20	7	32	19	11	5	9	70	14	9	18	584
	6.(c)		3	1			5	1	3	20	11								1					3	1				2				51
7	7.(a)		94	41	48	224	50	16	83	755	460	5	376	9	57	338	13		55			83	1	175	170	216	66	21	1410	48		547	5361
	7.(b)				2	1								5							4		223					4			94	333

Annex I Activity		Austria	Belgium	Bulgaria	Cyprus	Czech Republic	Denmark	Estonia	Finland	France	Germany	Greece	Hungary	Iceland	Ireland	Italy	Latvia	Liechtenstein	Lithuania	Luxembourg	Malta	Netherlands	Norway	Poland	Portugal	Romania	Slovakia	Slovenia	Spain	Sweden	Switzerland	United Kingdom	All countries
8	8.(a)	4	11		1	7	17	2	8	88	68		10		22	6						15	12	55	13	5	5	8	52	5		71	485
	8.(b)	6	35			25	18		7	157	102	10	17		6	40		1	4			48	29	61	27	7	7	4	118	11	5	203	948
	8.(c)	3	9			3	16	2	9	121	70	3	3		14	9	1		5	1		17	8	26	9	1	1	2	27	13	5	53	431
9	9.(a)	1	14	1		8	1	1		29	31	2	1			22						3			23	4	1	1	10		3	60	216
	9.(b)						1			1	1											1					1		1	1		2	9
	9.(c)	11	23			16	9	6	18	148	226	6	4		6	70			4	2		24		41	24	9	10	5	71	19	14	16	782
	9.(d)									8	11											1		1		1	2		3	1		4	32
	9.(e)		1	4			6		3	11	24	5									1	26	4	6	2	3			10	1			107
Grand Total		**172**	**782**	**165**	**66**	**716**	**404**	**105**	**494**	**3388**	**4493**	**150**	**692**	**26**	**313**	**1685**	**36**	**1**	**118**	**28**	**13**	**715**	**513**	**1433**	**568**	**485**	**239**	**188**	**3305**	**510**	**211**	**3148**	**25162**

Legend

Highest amount of facilities per country

2rd highest amount of facilities per country

3nd highest amount of facilities per country

APPENDIX IV – E-PRTR 2008 Number of releases to air per pollutant and country

Pollutant group / Pollutant	Austria	Belgium	Bulgaria	Cyprus	Czech Republic	Denmark	Estonia	Finland	France	Germany	Greece	Hungary	Iceland	Ireland	Italy	Latvia	Lithuania	Luxembourg	Malta	Netherlands	Norway	Poland	Portugal	Romania	Slovakia	Slovenia	Spain	Sweden	Switzerland	United Kingdom	All countries
Chlorinated organic substances																															
1,1,1-trichloroethane			1						1														1							20	23
1,1,2,2-tetrachloroethane		2																												5	7
1,2-dichloroethane (DCE)	1	3							8	5										2	1	2	1	1	1			1		4	30
Hexabromobiphenyl		1																													1
Hexachlorobenzene (HCB)		2						1		1																	1				5
PCDD + PCDF (dioxins + furans) (as Teq)		13			16	4		6	22	31	2	4	1	2	3			1		5		29	10	4		2	25	12	1	19	212
Pentachlorobenzene		3						1															1							3	8
Pentachlorophenol (PCP)		3																									2				5
Polychlorinated biphenyls (PCBs)		11				2		1	1	2	1	1			15			3			1						5		2	14	59
Tetrachloroethylene (PER)		3			2				11	3		1										2	3				2		2	6	35
Tetrachloromethane (TCM)		3			1				3	3					1					3	1		1							2	18
Trichlorobenzenes (TCBs) (all isomers)		1								1													1				1			8	12
Trichloroethylene		2			1				7	1										1			1		1		3	2	1	8	28
Trichloromethane		3							10	1		2				1				1		1	6						2	9	36
Vinyl chloride		2			1				8	10		1								3	2	1		1	1		3	1		5	39
Greenhouse gases																															
Carbon dioxide (CO2)	32	66	28	5	73	24	9	81	224	387	36	37	4	20	109	2	5	7	2	82	29	136	28	57	29	7	202	90	28	250	2089
Carbon dioxide (CO2) excluding biomass				1			9												2	52	29			9		5		88		5	200
Greenhouse gases (confidential)			2							1																					3

Pollutant group / Pollutant	Austria	Belgium	Bulgaria	Cyprus	Czech Republic	Denmark	Estonia	Finland	France	Germany	Greece	Hungary	Iceland	Ireland	Italy	Latvia	Lithuania	Luxembourg	Malta	Netherlands	Norway	Poland	Portugal	Romania	Slovakia	Slovenia	Spain	Sweden	Switzerland	United Kingdom	All countries
Hydrochlorofluorocarbons(HCFCs)	1	30			3	10			74	31	4			14	7				1	106	2	53	8			2	12	3	7	346	714
Methane (CH4)	15	21	20	7	4	18	7	39	171	199	9	1	8	62	89	1	14	2	2	42	5	90	44	81	8	32	178	19	1	374	1563
Nitrous oxide (N2O)	3	19	1	2	3	10	2	20	85	141	8	1	1	6	12	3	1			22	4	27	15	16		2	69	39	3	116	631
Perfluorocarbons (PFCs)		2							6	5	1		3	1						1	7	1		1		1	4	1		9	43
Sulphur hexafluoride (SF6)		1							3	5				1	5													1	2	8	26
Heavy metals																															
Arsenic and compounds (as As)		11	2	4	22	3	4	6	42	36	8	1	1	2	3			2	2	3	3	24	18	1	9	1	40	6	1	25	280
Cadmium and compounds (as Cd)		16	8	2	25		3	4	59	24	6			1	3			1	2	4	4	17	29	7	3		58	2	1	14	293
Chromium and compounds (as Cr)	2	17	3		4		4	3	36	21	9	1		1	3			1		4	2	18	11	4	2	1	25	4	1	23	200
Copper and compounds (as Cu)		9	4	1	6		2	5	31	25	7	2			4		1			3	3	28	11		4	1	30	1		22	200
Lead and compounds (as Pb)	3	11	8		17		4	3	41	22	4	1		1	11			1		8	2	20	11	4	2	3	36	2	5	24	244
Mercury and compounds (as Hg)	3	24	3	2	45	15	3	7	68	98	15	7		1	8			3		11	3	30	23	7	11	1	62	5	16	35	506
Nickel and compounds (as Ni)	1	26	5	4	17	1	3	16	72	55	11	2		3	14		1	1	2	7	3	24	47	7	4	1	89	26	2	51	495
Zinc and compounds (as Zn)	2	21	5	4	10	2	3	15	92	28	9	2		2	15			3	2	11	8	48	25	8	3	2	65	20	11	39	455
Inorganic substances																															
Asbestos										1																				1	1
Chlorides (as total Cl)																					4										4
Fluorides (as total F)																					14										14
Particulate matter (PM10)	3	13	11	5	29	9	5	18	23	57	33	2	4	5	4	6	2		3	12	22	141	39	31		4	119	19		67	686
Total nitrogen																					1										1
Other gases																															
Ammonia (NH3)	4	116	50	48	232	53	16	91	793	518	10	375	10	59	357	7	56			98	7	107	189	216	38	22	1444	73	9	422	5420
Carbon monoxide (CO)	8	25	9	2	15	3	2	12	45	93	20	10	1	4	17		6	3		25	1	53	16	13	18	7	84	16	7	72	587
Chlorine and inorganic compounds (as HCl)	2	23			35	8	2	33	39	84	4	4		1	8			2			2	86	15	3	6	5	97	9		46	514
Chlorofluorocarbons (CFCs)		3			1	1			4	15	1			7						33		1					2	2	4	234	308
Fluorine and inorganic compounds (as HF)		11			20	16		14	24	32	11	1	3		2		1			18	1	16	4	2	3	3	165	6		26	379

Pollutant group / Pollutant	Austria	Belgium	Bulgaria	Cyprus	Czech Republic	Denmark	Estonia	Finland	France	Germany	Greece	Hungary	Iceland	Ireland	Italy	Latvia	Lithuania	Luxembourg	Malta	Netherlands	Norway	Poland	Portugal	Romania	Slovakia	Slovenia	Spain	Sweden	Switzerland	United Kingdom	All countries
Halons		1							1																			1	1	4	8
Hydro-fluorocarbons (HFCs)		15						1	42	17	1			3	5					11	1	10	1			2	12	19	1	50	191
Hydrogen cyanide (HCN)	2	10			3	2			7	10		1			1							10			1		21			6	74
Nitrogen oxides (NOx/NO2)	29	97	33	6	91	49	10	93	275	437	46	43		26	140	6	8	7	2	78	26	179	56	58	38	12	343	71	11	314	2584
Non-methane volatile organic compounds (NMVOC)	8	78	3	1	14	5	3	16	194	116	8	3		2	37	1	2	2		29	13	30	28	14	5	8	99	34	7	152	912
Other gases (confidential)			4							3																					7
Sulphur oxides (SOx/SO2)	8	54	22	4	78	23	8	61	169	201	32	13	4	11	39	2	5	2	2	29	24	216	34	33	19	6	135	29	7	93	1363
Other organic substances																															
Anthracene		2																		1							2	1		2	8
Benzene	2	15	2		2	1		4	41	59	5	4			20		1	1		16		18	9	1	4	4	33	7	6	39	294
Benzo(g,h,i)perylene																				1											1
Di-(2-ethyl hexyl) phthalate (DEHP)		5			1					1		1										4					14	1		3	30
Dichloromethane (DCM)		18			2	1		2	47	3	3	6		4	3	2				7		6	2				5	1	6	18	136
Ethylene oxide		1							2	1										1		2			1		1			1	10
Naphthalene		6			2			3	10	9		1						2		3		3	2		1	2	10	2	1	25	82
Phenols (as total C)																					6									2	8
Polycyclic aromatic hydrocarbons (PAHs)		10			6			2	16	8		1	3	1	2			1		1	16	31	6			1	36	3	1	4	149
Toluene																														5	5
Total organic carbon (TOC) (as total C or COD/3)																					19										19
Xylenes																														1	1
Pesticides																															
1,2,3,4,5,6-hexachlorocyclohexane (HCH)									1																						1
Grand Total	**129**	**829**	**224**	**98**	**781**	**260**	**99**	**558**	**2808**	**2801**	**304**	**529**	**43**	**240**	**937**	**31**	**103**	**45**	**22**	**734**	**266**	**1464**	**696**	**579**	**212**	**137**	**3534**	**617**	**147**	**3030**	**22257**

Legend

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Note: *Liechtenstein did not report any release reports to air and is thus not included in the table.*

**…no threshold for air included in Annex II of the E-PRTR Regulation for these pollutants*

APPENDIX V – E-PRTR 2008 Number of releases to water per pollutant and per country

Pollutant group / Pollutant	Austria	Belgium	Bulgaria	Cyprus	Czech Republic	Denmark	Estonia	Finland	France	Germany	Greece	Hungary	Iceland	Ireland	Italy	Latvia	Lithuania	Luxembourg	Malta	Netherlands	Norway	Poland	Portugal	Romania	Slovakia	Slovenia	Spain	Sweden	Switzerland	United Kingdom	All countries
Chlorinated organic substances																															
1,2-dichloroethane (DCE)		1			2				7	6		1			2					1		3		2	1		5		1	24	56
Brominated diphenylethers (PBDE)		2							2						3															1	8
Chloro-alkanes, C10-C13					1									2	1					1			1	1	1		2				10
Dichloromethane (DCM)		6			2			1	15	11					2					1		2					2		1	45	88
Halogenated organic compounds (as AOX)	3	11			8	1		17	38	45	1	3								13		6	10		6	2	42	23	2	114	345
Hexabromobiphenyl															1					1			1								3
Hexachlorobenzene (HCB)									1						3							2									6
Hexachlorobutadiene (HCBD)					1				3						3							3								1	11
PCDD + PCDF (dioxins + furans) (as Teq)		2						1	2	4										8		2					1			1	21
Pentachlorobenzene															3															2	5
Pentachlorophenol (PCP)		2								2					3							4	3		1		3			10	28
Polychlorinated biphenyls (PCBs)		1			1				6	2				2	4					1		1	5		1	1	1			2	28
Tetrachloroethylene (PER)		3							11	2				1	2							4		1	2		2			12	40
Tetrachloromethane (TCM)		2							5	4					5					1		5	1	1	1	1	2			22	50
Trichlorobenzenes (TCBs) (all isomers)					2				2	2					3							5					1			5	20
Trichloroethylene		1							6	1				1	1							3		1	2		2	2		6	26
Trichloromethane		5			1			1	11	6					2					7		12	3	4	1		15	1		55	124
Vinyl chloride		1			1				5	1											1						2			4	15
Heavy metals																															
Arsenic and compounds (as As)	2	30	6		14	30	2	23	38	49	3	2	3	6	33	1		1	2	54	17	41	17	1	2	2	32	35	2	181	629
Cadmium and compounds (as Cd)	2	11	8		13		2	16	21	35	1	1		4	19	1			1	9	8	50	15	11	4		18	21	3	59	333

Pollutant group / Pollutant	Austria	Belgium	Bulgaria	Cyprus	Czech Republic	Denmark	Estonia	Finland	France	Germany	Greece	Hungary	Iceland	Ireland	Italy	Latvia	Lithuania	Luxembourg	Malta	Netherlands	Norway	Poland	Portugal	Romania	Slovakia	Slovenia	Spain	Sweden	Switzerland	United Kingdom	All countries
Chromium and compounds (as Cr)	4	16	9		8	9	2	12	33	43	4	3	2	2	25	1	3			12	8	34	14	11	2	3	25	18	2	75	380
Copper and compounds (as Cu)	8	19	10	1	17	29	5	23	99	157	3	2	3	3	34	1	3		2	45	21	48	43	11	2	1	37	36	6	213	882
Lead and compounds (as Pb)	2	18	8		9	6	2	14	62	83	1	2	2	5	32	1	2	1	2	30	11	60	16	17	1	3	14	27	4	132	567
Mercury and compounds (as Hg)	1	7	1		24	35		10	38	67	3	2	2	3	28	1	1			13	5	49	11	7	7	2	34	16	5	48	420
Nickel and compounds (as Ni)	9	53	5		20	36	2	35	121	198	5	2	3	5	46	1	5		1	59	15	71	23	16	3	5	38	53	6	193	1029
Zinc and compounds (as Zn)	9	59	11		17	37	5	45	149	235	5	2	3	6	48	1	6	2	4	73	166	95	42	22	4	10	78	54	7	278	1473
Inorganic substances																															
Asbestos																														98	98
Chlorides (as total Cl)		31			8			13	26	117		1		2	13		3			44	1	59	15	8	4	1	56	8	10	97	517
Cyanides (as total CN)	2	7	5		8			2	10	19		1	1	2	8					30	3	6	1	4	1	1	5	4		48	168
Fluorides (as total F)	3	25	1		7			10	35	53	2	3	2	3	3		1	1	1	38	9	20	4	1	3	1	47	12	3	131	419
Total nitrogen	11	26	12	1	21	13	3	39	112	190	9	19	7	3	40	1	6	3	3	61	107	67	27	20	11	5	84	40	19	215	1175
Total phosphorus	7	31	16	2	13	10	2	19	112	93	12	21	7	5	43	1	4	3	4	69	176	47	33	18	10	5	101	22	13	223	1122
Other gases																															
Ammonia (NH3)																					2										2
Chlorine and inorganic compounds (as HCl)																					2										2
Sulphur oxides (SOx/SO2)																					6										6
Other organic substances																															
Anthracene			1											1	1					1							1	1		18	24
Benzene					2				4											1		3								77	87
Benzo(g,h,i)perylene									1						2												3	1		9	16
Di-(2-ethyl hexyl) phthalate (DEHP)	3	1			3	38		6	18	14				2	3					39	3	2	7		3	2	13	5		18	180
Ethyl benzene									2											2										44	48
Fluoranthene		3							3	4				1	2					1		1					7	2		24	48
Naphthalene									1					1						1		1	1				4	1		64	74
Nonylphenol and Nonylphenol ethoxylates (NP/NPEs)	2	2				28		4	8	12				2	7						3	4	6		1	4	14	6		134	237

Pollutant group / Pollutant	Austria	Belgium	Bulgaria	Cyprus	Czech Republic	Denmark	Estonia	Finland	France	Germany	Greece	Hungary	Iceland	Ireland	Italy	Latvia	Lithuania	Luxembourg	Malta	Netherlands	Norway	Poland	Portugal	Romania	Slovakia	Slovenia	Spain	Sweden	Switzerland	United Kingdom	All countries
Octylphenols and Octylphenol ethoxylates	1	1						3	2	7					3							3	6			1	13			122	162
Organotin compounds (as total Sn)										3					2								1		1		5				12
Phenols (as total C)	5	16	7		11	23		8	47	10	3	4		3	20	1				5	5	50	7	20	6		22	10	1	106	390
Polycyclic aromatic hydrocarbons (PAHs)		2				5		1	1	3				2	4						12	4	4	1	5		11	2		24	81
Toluene									4	1										4		1					2			74	86
Total organic carbon (TOC) (as total C or COD/3)	18	44	12		17	27	6	52	212	227	12	28	1	2	42	1	1	3	4	73	187	45	34	17	12	9	88	48	15	269	1506
Xylenes									3											2		1								70	76
Pesticides																															
1,2,3,4,5,6-hexachlorocyclohexane (HCH)									2	2					2							1		1						2	10
Alachlor									1					1	1															2	5
Aldrin															6																6
Atrazine		1												2	2												1			12	18
Chlordane															1															1	2
Chlordecone															1																1
Chlorfenvinphos															1															8	9
Chlorpyrifos									1						1															1	3
DDT														1	1															1	3
Dieldrin														2	6																8
Diuron	1	1							6	5				2	2					1		1	4				14			49	86
Endosulphan									1	1				1	1															1	5
Endrin															6							1								1	8
Heptachlor															1																1
Isodrin														2	5																7
Isoproturon		1							3	2					2					2							1				11
Lindane					1				1						2							1					6				11
Mirex															1																1
Simazine		1													2								1				7			1	12
Tributyltin and compounds	1									2					1							1					1			2	8

Pollutant group / Pollutant	Austria	Belgium	Bulgaria	Cyprus	Czech Republic	Denmark	Estonia	Finland	France	Germany	Greece	Hungary	Iceland	Ireland	Italy	Latvia	Lithuania	Luxembourg	Malta	Netherlands	Norway	Poland	Portugal	Romania	Slovakia	Slovenia	Spain	Sweden	Switzerland	United Kingdom	All countries
Trifluralin															1															2	3
Triphenyltin and compounds	1									1					1															2	5
Grand Total	**95**	**443**	**112**	**4**	**232**	**327**	**31**	**355**	**1291**	**1719**	**64**	**97**	**36**	**80**	**543**	**12**	**35**	**14**	**24**	**703**	**768**	**819**	**356**	**196**	**98**	**59**	**862**	**448**	**100**	**3433**	**13356**

Legend

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***Note**: Liechtenstein and Estonia did not report any release reports to water and is thus not included in the table.*

**…no threshold for water included in Annex II of the E-PRTR Regulation for these pollutants*

APPENDIX VI – E-PRTR 2008 Number of transfers in water per pollutant and per country

Pollutant goup / Pollutant	Austria	Belgium	Bulgaria	Cyprus	Czech Republic	Denmark	Estonia	Finland	France	Germany	Greece	Hungary	Ireland	Italy	Lithuania	Netherlands	Poland	Portugal	Romania	Slovakia	Slovenia	Spain	Sweden	Switzerland	United Kingdom	All countries
Chlorinated organic substances																										
1,2-dichloroethane (DCE)	1				2				2	2						1	1	1						1	3	14
Brominated diphenylethers (PBDE)										1								1				1			1	4
Dichloromethane (DCM)	1	1			2				8	3			3	2		2		1			1	2		4	4	34
Halogenated organic compounds (as AOX)	4	1			2				8	27						1	3					4		5	1	56
Hexabromobiphenyl														1												1
Hexachlorobenzene (HCB)					1																					1
Hexachlorobutadiene (HCBD)														1												1
PCDD + PCDF (dioxins + furans) (as Teq)								1	5	4												1				11
Pentachlorobenzene														1												1
Pentachlorophenol (PCP)														2											1	3
Polychlorinated biphenyls (PCBs)									3	1				3												7
Tetrachloroethylene (PER)					1				3					1											1	6
Tetrachloromethane (TCM)					1				2	1							2								2	8
Trichlorobenzenes (TCBs) (all isomers)		1			1																				1	3
Trichloroethylene																1	2								1	4
Trichloromethane	1				2				3	1						1	3					3			5	19
Vinyl chloride										7				1		1	1	1				1			2	14

Pollutant goup / Pollutant	Austria	Belgium	Bulgaria	Cyprus	Czech Republic	Denmark	Estonia	Finland	France	Germany	Greece	Hungary	Ireland	Italy	Lithuania	Netherlands	Poland	Portugal	Romania	Slovakia	Slovenia	Spain	Sweden	Switzerland	United Kingdom	All countries
Heavy metals																										
Arsenic and compounds (as As)		5			1			2	6	19			1	4		8	7	9				21			12	95
Cadmium and compounds (as Cd)	1	3							5	7						1	8	8	1			14			6	54
Chromium and compounds (as Cr)		3	2		3	1		1	6	12	1			7		3	8	12		2	1	21	1	2	14	100
Copper and compounds (as Cu)		1	2		2	2		2	11	51		2	3	1		9	14	10	1		2	21		3	30	167
Lead and compounds (as Pb)	1		1		3				11	18		1	1	3		5	19	7	1			13		2	18	104
Mercury and compounds (as Hg)	1			1	4				9	13			2	2		3	9	5		2		15	1	1	9	77
Nickel and compounds (as Ni)	3	6		3	6	1		2	23	63		1	2	12		10	29	16	2			54	2	7	46	288
Zinc and compounds (as Zn)	2	9	5		7			4	22	47		1	2	7		13	29	9	4	1	5	36	6	7	41	257
Inorganic substances																										
Asbestos																							1			1
Chlorides (as total Cl)		2			2	4			6	27				1		8	12	2				6	2	5	3	80
Cyanides (as total CN)	1	1			4			1	2	15		1				3	3	2				1	1		9	44
Fluorides (as total F)	3	3			2			1	7	17		1	2	1		2	3	1	1			6		4	8	62
Inorganic substances (confidential)										1																1
Total nitrogen	3	3	1		11	12	2	8	22	71	1	2	2	6		20	15	9	1	3	5	19	6	9	21	252
Total phosphorus	2	4			7	15		15	61	86		5	2	4	2	22	28	4	2	1	5	28	11	11	22	337
Other organic substances																										
Anthracene		1								1				1								1			1	5
Benzene	1				2			1		5						3	1								8	21
Benzo(g,h,i)perylene														1												1
Di-(2-ethyl hexyl) phthalate (DEHP)						1			1					1								1			2	6

Pollutant goup / Pollutant	Austria	Belgium	Bulgaria	Cyprus	Czech Republic	Denmark	Estonia	Finland	France	Germany	Greece	Hungary	Ireland	Italy	Lithuania	Netherlands	Poland	Portugal	Romania	Slovakia	Slovenia	Spain	Sweden	Switzerland	United Kingdom	All countries
Ethyl benzene					1					3		1				2	1									8
Ethylene oxide									1	2						1										4
Fluoranthene					1				2	3				1		2						3			1	13
Naphthalene					2			1	2	3							1					2		1	2	14
Nonylphenol and Nonylphenol ethoxylates (NP/NPEs)						1				3			1			1	1	2				1	2	1	7	20
Octylphenols and Octylphenol ethoxylates										2							1					1				4
Organotin compounds (as total Sn)										1							1					1				3
Other organic substances (confidential)										1																1
Phenols (as total C)	4	8	1		7	1		5	25	46		1	3	6		14	26	16	2		2	38	4	2	25	236
Polycyclic aromatic hydrocarbons (PAHs)	1	2			3	1			2	6				1			3	9				6	1		2	37
Toluene	1	1			1				5	13		3	1	1		3	3	1		1		1	1	11	14	61
Total organic carbon (TOC) (as total C or COD/3)	20	34	4	1	9	41		39	198	316	2	13	2	26		51	36	26	6	10	9	55	19	25	156	1098
Xylenes	2				1				1	4		1				3	1							6	6	25
Pesticides																										
1,2,3,4,5,6-hexachlorocyclohexane (HCH)																									1	1
Aldrin														2												2
Atrazine														1												1
DDT														1											1	2
Dieldrin														2												2
Diuron														1												1
Endosulphan														1												1
Endrin														2												2
Heptachlor														1												1

Pollutant goup / Pollutant	Austria	Belgium	Bulgaria	Cyprus	Czech Republic	Denmark	Estonia	Finland	France	Germany	Greece	Hungary	Ireland	Italy	Lithuania	Netherlands	Poland	Portugal	Romania	Slovakia	Slovenia	Spain	Sweden	Switzerland	United Kingdom	All countries
Isodrin														1												1
Simazine														1												1
Tributyltin and compounds																									1	1
Grand Total	**53**	**89**	**16**	**5**	**91**	**80**	**2**	**83**	**462**	**903**	**4**	**33**	**27**	**111**	**2**	**194**	**271**	**152**	**21**	**20**	**30**	**377**	**58**	**107**	**488**	**3679**

Legend

< 6

Note: *Liechtenstein did not report any transfer reports in water and is thus not included in the table.*

APPENDIX VII– Summary table of the number of UWWT plants for each category of the E-PRTR and the UWWT Directive dataset

Country	E-PRTR					UWWTD				
	Count of facilities in category **A**	Count of facilities in category **B**	Count of facilities in category **C**	Count of other facilities	Count of **all** facilities in E-PRTR	Count of UWWTPs in category **I**	Count of UWWTPs in category **II**	Count of UWWTPs in category **III**	Count of UWWTPs in category **IV**	Count of **all** UWWTPs in UWWTD
Austria	11	1	2	17	31	35	0	8	607	650
Belgium	18	0	1	112	131	17	0	15	535	567
Bulgaria	12	0	0	23	35	no data	no data	no data	no data	852
Cyprus	0	0	0	3	3	3	0	1	9	13
Czech Republic	17	0	1	45	63	26	0	13	1041	1080
Denmark	36	0	2	16	54	30	0	9	387	426
Estonia	4	0	0	3	7	7	0	0	37	44
Finland	17	0	1	58	76	14	0	16	190	220
France	102	0	13	325	440	130	15	83	3052	3280
Germany	201	2	3	183	389	247	5	167	3903	4322
Greece	8	0	0	17	25	12	0	13	214	239
Hungary	22	0	0	12	34	25	2	4	617	648
Iceland	2	0	0	8	10	no data	no data	no data	no data	no data
Ireland	4	0	0	7	11	7	0	6	438	451
Italy	31	0	8	72	111	178	2	85	5461	5726
Latvia	1	0	0	0	1	7	0	1	126	134
Lithuania	5	0	0	3	8	9	0	0	88	97
Luxembourg	2	0	0	3	5	1	0	4	29	34
Malta	0	0	0	7	7	1	0	0	7	8
Netherlands	42	3	18	63	126	61	0	27	327	415
Norway	7	0	1	243	251	no data	no data	no data	no data	no data
Poland	67	0	6	88	161	94	15	33	1222	1364
Portugal	21	0	0	72	93	32	0	9	420	461
Romania	17	0	2	38	57	29	6	2	546	583
Slovenia	5	0	0	14	19	5	0	1	138	144
Slovenia	5	0	0	15	20	15	1	3	274	293
Spain	80	0	0	116	196	191	3	58	2174	2426
Sweden	10	0	0	86	96	no data	no data	no data	no data	353
Switzerland	15	0	0	13	28	no data	no data	no data	no data	no data
United Kingdom	133	4	4	321	462	no data	no data	no data	no data	no data
All countries	895	10	62	1983	2950	1176	49	558	21842	24830

APPENDIX VIII– Analysis of UWWTPs in big cities - summary results

City	UWWTPs from E-PRTR	potentially missing UWWTPs in E-PRTR
Wien	0	1
Bruxelles / Brussel	1	1
Sofia	1	NA
Praha	1	0
Berlin	4	2
Bremen	2	0
Dortmund	2	0
Dresden	1	0
Duisburg	4	0
Düsseldorf	2	0
Essen	1	1
Frankfurt am Main	2	0
Hamburg	1	0
Hannover	2	0
Köln	2	1
Leipzig	1	0
München	2	0
Nuremberg	2	0
Stuttgart	4	0
København	2	0
Barcelona	2	0
Madrid	10	1
Málaga	2	1
Sevilla	5	0
Valencia	0	5
Zaragoza	0	2
Helsinki	2	0
Bordeaux	3	0
Lille	3	0
Lyon	1	1
Marseille	1	0

City	UWWTPs from E-PRTR	potentially missing UWWTPs in E-PRTR
Nantes	1	0
Paris	10	0
Toulouse	1	0
Athina	2	0
Budapest	2	0
Dublin	1	0
Genova	0	4
Milano	2	0
Napoli	0	3
Palermo	0	3
Roma	0	4
Torino	0	2
Vilnius	1	0
Riga	1	0
Amsterdam	1	3
Rotterdam	1	0
Oslo	1	NA
Krakow	2	0
Lodz	1	0
Poznan	1	0
Warszawa	2	0
Wroclaw	2	0
Lisboa	4	1
Bucuresti	0	NA
Stockholm	0	NA
Birmingham	4	NA
Glasgow	2	NA
Leeds	0	NA
London	8	NA
Sheffield	2	NA

Note: *NA: data was not available*

APPENDIX IX– Results of total nitrogen emissions comparison SoE and E-PRTR

RBD	period SoE data [1]	N UW ratio EPRTR to SoE (>100,000 p.e.)	N industry ratio EPRTR to SoE	N total ratio EPRTR to SoE
AT1000	2007	30%	100%*	18%
AT2000	2007	104%	NA	54%
AT5000	2007	NA	NA	NA
BE_Escaut_RW	2005	NA	44%	127%
BE_Meuse_RW	2005	NA	58%	16%
BE_Rhin_RW	2005	NA	NA	NA
BE_Seine_RW	2005	NA	NA	NA
BEMaas_VL	2008	NA	NA	0%
BESchelde_VL	2008	118%	NA	38%
BG1000	2007	NA	NA	4126%
BG2000	2008	NA	NA	5317%
BG3000	2007	NA	NA	251%
BG4000	2007	NA	NA	NA
CZ_RB_1000	2006	NA	NA	13%
CZ_RB_5000	2006	NA	NA	32%
CZ_RB_6000	2006	NA	NA	30%
EE1	2008	90%	NA	71%
EE2	2008	86%	NA	34%
EE3	2008	NA	NA	NA
FIVHA1	2008	NA	90%	50%
FIVHA2	2008	NA	55%	59%
FIVHA3	2008	NA	66%	40%
FIVHA4	2008	NA	44%	33%
FIVHA5	2008	NA	92%	52%
FIVHA6	2008	NA	100%	61%
FIVHA7	2008	NA	NA	NA
FIWDA	2008	NA	NA	NA
FRA	2007	110%	40%	58%
FRB1	2007	NA	NA	22%
FRB2	2007	NA	NA	NA
FRC	2007	96%	60%	46%
FRD	2007	77%	30%	41%
FRE	2007	NA	NA	0%
FRF	2007	153%	48%	60%
FRG	2007	103%	41%	40%

RBD	period SoE data (1)	N UW ratio EPRTR to SoE (>100,000 p.e.)	N industry ratio EPRTR to SoE	N total ratio EPRTR to SoE
FRH	2007	187%	136%	139%
CH10	2007	NA	198%	98%
CH50	2007	NA	104%	283%
CH60	2007	NA	NA	16919%
IS1	2008	NA	40%	396%
LT1100	2008	96%	86%	64%
LT2300	2008	NA	NA	0%
LT3400	2008	100%	NA	41%
LT4500	2008	NA	NA	NA
LVDUBA	2008	NA	NA	83%
LVGUBA	2008	NA	NA	0%
LVLUBA	2008	NA	NA	0%
LVVUBA	2008	NA	NA	0%
RO1000	2008	37%	38%	33%
SE1	2006	NA	95%	71%
SE2	2006	NA	65%	48%
SE3	2006	NA	NA	0%
SE4	2006	NA	76%	38%
SE5	2006	NA	54%	38%

(1) SoE data is not always available for 2008 (reporting year for the E-PRTR dataset) - Therefore it could be that a potential inconsistency is due to the difference in reporting years

17%	Potentially inconsistent
114%	Inconsistent

** Austria provided flag that the value was reported in E-PRTR*

APPENDIX X– Results of total phosphorus emissions comparison SoE and E-PRTR

RBD	period SoE data (1)	P UW ratio EPRTR to SoE (>100,000 p.e.)	P industry ratio EPRTR to SoE	P total ratio EPRTR to SoE
AT1000	2007	21%	100%*	11%
AT2000	2007	0%	NA	0%
AT5000	2007	NA	NA	NA
BE_Escaut_RW	2005	NA	35%	125%
BE_Meuse_RW	2005	NA	133%	61%
BE_Rhin_RW	2005	NA	NA	NA
BE_Seine_RW	2005	NA	NA	NA
BEMaas_VL	2008	NA	NA	0%
BESchelde_VL	2008	106%	NA	52%
BG1000	2007	NA	NA	6628%
BG2000	2008	NA	NA	3666%
BG3000	2007	NA	NA	5259%
BG4000	2007	NA	NA	NA
CZ_RB_1000	2006	NA	NA	6%
CZ_RB_5000	2006	NA	NA	11%
CZ_RB_6000	2006	NA	NA	8%
EE1	2008	88%	NA	57%
EE2	2008	66%	NA	20%
EE3	2008	NA	NA	NA
FIVHA1	2008	NA	55%	31%
FIVHA2	2008	NA	45%	47%
FIVHA3	2008	NA	67%	36%
FIVHA4	2008	NA	68%	24%
FIVHA5	2008	NA	90%	54%
FIVHA6	2008	NA	NA	NA
FIVHA7	2008	NA	NA	NA
FIWDA	2008	NA	NA	NA
FRA	2007	87%	61%	44%
FRB1	2007	NA	0%	0%
FRB2	2007	NA	NA	0%
FRC	2007	85%	35%	21%
FRD	2007	84%	18%	33%
FRE	2007	NA	NA	0%
FRF	2007	92%	41%	30%
FRG	2007	78%	17%	23%

RBD	period SoE data (1)	P UW ratio EPRTR to SoE (>100,000 p.e.)	P industry ratio EPRTR to SoE	P total ratio EPRTR to SoE
FRH	2007	58%	102%	40%
CH10	2007	NA	5067%	120%
CH50	2007	NA	85%	344%
CH60	2007	NA	NA	NA
IS1	2008	NA	26%	345%
LT1100	2008	89%	0%	37%
LT2300	2008	NA	182%	21%
LT3400	2008	0%	NA	0%
LT4500	2008	NA	NA	0%
LVDUBA	2008	NA	NA	65%
LVGUBA	2008	NA	NA	0%
LVLUBA	2008	NA	NA	0%
LVVUBA	2008	NA	NA	0%
RO1000	2008	26%	7%	19%
SE1	2006	NA	90%	31%
SE2	2006	NA	67%	28%
SE3	2006	NA	65%	19%
SE4	2006	NA	47%	18%
SE5	2006	NA	58%	34%

(1) SoE data is not always available for 2008 (reporting year for the E-PRTR dataset) - Therefore it could be that a potential inconsistency is due to the difference in reporting years

17%	Potentially inconsistent
114%	Inconsistent

** Austria provided flag that the value was reported in E-PRTR*

APPENDIX XI– Results of total organic carbon emissions comparison SoE and E-PRTR

RBD	period SoE data (1)	TOC UW ratio EPRTR to SoE (>100,000 p.e.]	TOC industry ratio EPRTR to SoE	TOC total ratio EPRTR to SoE
AT1000	2007	NA	100%*	24%
AT2000	2007	NA	NA	100%
AT5000	2007	NA	NA	NA
BE_Escaut_RW	2005	NA	17%	165%
BE_Meuse_RW	2005	NA	123%	30%
BE_Rhin_RW	2005	NA	NA	NA
BE_Seine_RW	2005	NA	NA	NA
BEMaas_VL	2007	NA	5428%	5428%
BESchelde_VL	2007	NA	227%	394%
FRA	2007	NA	873%	2725%
FRB1	2007	NA	NA	1129%
FRB2	2007	NA	NA	NA
FRC	2007	NA	174%	257%
FRD	2007	NA	291%	976%
FRF	2007	NA	1474%	2001%
FRG	2007	NA	795%	1403%
FRH	2007	NA	313%	1290%
CH10	2007	NA	3470%	388%
CH50	2007	NA	114%	206%

(1) SoE data is not always available for 2008 (reporting year for the E-PRTR dataset) - Therefore it could be that a potential inconsistency is due to the difference in reporting years

17%	Potentially inconsistent
114%	Inconsistent

** Austria provided flag that the value was reported in E-PRTR*