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**National Implementation Pollutant Release and Transfer Register
(PRTR) including preparations for amendment of the 11. BImSchV**

Summary – Phase 1

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1 Introduction

This report describes and presents problems and aims, the detailed procedure and the results of UFOPLAN-project Nr. 203 19 237 „National Implementation Pollutant Release and Transfer Register (PRTR) including preparations for amendment of the 11. BImSchV“.

Phase 1 of the research project was carried out between the 01.12.2003 and the 30.11.2006 by LUBW State Institute for Environment, Measurements and Nature Conservation Baden-Württemberg on behalf of the Federal Environment Agency (UBA). During the whole implementation process expert support by the Federal Environment Agency (UBA) was given. Additionally the Federal States were supported by the research project in reporting their data for the second EPER reporting cycle to the EU-Commission. In the course of the research project, the data from the Federal States were compiled and put in the national Register of the EPER data. This national register, which was established during two preceding research projects for EPER and PRTR, is the basis for the national PRTR in Germany.

The research project was conducted by the LUBW together with several partners: legal advice and support was performed by ECOLOGIC – Institute for International and European Environmental Policy. Since 01.09.2006 Ecologic has also provided special technical expertise for the research project. The initial development of an XML-interface for a national PRTR-Software was carried out by RISA Sicherheitsanalysen GmbH Berlin as a subcontractor. The technical development and amendments of the EPER and PRTR web-sites for presentation of the German data and emissions from diffuse sources were carried out by kiwerkstatt®, Karlsruhe. The transformation of the coordinate systems in the second EPER reporting cycle was performed by AHK – Gesellschaft für angewandte Hydrologie, Freiburg - in cooperation with the IT-centre (ITZ) of the LUBW.

The whole process of preparing a national PRTR is dynamic. Therefore the results of this report are still under active development and reflect the best available knowledge by the end of the year 2006. The research project is prolonged until end of July 2009.

2 Scope of the project

The aim of the research project is the step-by-step development of a German PRTR according to the demands of the UN-ECE PRTR-Protocol, in line with the European E-PRTR. In order to avoid supplementary work and costs for the industry and authorities a 1:1 implementation of the European requirements will be adopted. During the negotiations of the European PRTR the German delegation needs support on legal and technical issues.

In the course of the project detailed drafting of contents, organisation and introduction of the German PRTR should be designed. Last but not least adequate public participation to the introduction of the PRTR should be enabled.

In due course the setup of the German PRTR should utilise findings from the national pollutant emission register, which was established in preceding projects to EPER and PRTR. Facility data should be extended regarding the data of the second EPER reporting and should be improved according to identified lacks of the first EPER-Reporting. Last but not least software tools for an effective workflow of the PRTR process should be prepared. Therefore suitable solutions for data collection and data transfer between facilities, regional and national authorities as well as for data presentation and data search on the internet should be provided.

3 UN-ECE-PRTR-Protocol and European E-PRTR Regulation

The active support during the implementation of the PRTR at EU-level was one of the key issues of the research consultant and its partner ECOLOGIC in the presented research project. Signing the PRTR-Protocol, EU committed itself to establish a European Register. In February 2004 a first proposal of the E-PRTR-Regulation was already presented by the EU-Commission realising the PRTR-Protocol and partially exceeding it. The E-PRTR-Regulation entered into force in February 2006 after long negotiations between EU-Commission, the Council and the EU-Parliament. The Regulation addresses the member states and with regard to the reporting requirements also to the operators of reporting facilities. Compared to the PRTR-Protocol the E-PRTR Regulation includes 5 additional pollutants, which have been included on demand of the Commission and the Parliament. Regarding further pollutants the Parliament achieved lowering of emission thresholds (dioxins and furans) and extending of thresholds from air to water.

Emissions into air, water and land as well as transfers of pollutants in waste-water for 91 pollutants and 65 industrial activities have to be reported. Further, transfers off-site of waste exceeding 2 tons per year for hazardous waste or 2,000 tons per annum for non-hazardous waste have to be reported. The first reporting year is 2007, followed by annual reporting. Besides the already mentioned facility-data emissions from diffuse sources have to be included into the register. For the reporting of emissions from diffuse sources no detailed guidelines are given by the EU.

Beginning with the first draft of the E-PRTR Regulation in February 2004 the research project has provided legal and technical support during the negotiations for the E-PRTR Regulation, the coordination between EU-Commission, the Council and the Parliament as well as the E-

PRTR-Guidance and the Rules of procedure of the European PRTR Regulation Article 19 Regulatory Committee.

4 Legal implementation of the PRTR in Germany

After the presentation of the coordinated draft of the E-PRTR Regulation of EU-Commission, the Council and the Parliament national implementation of the E-PRTR and the PRTR-Protocol into a national law to administrate and implement the PRTR-Protocol and the E-PRTR Regulation in Germany have started in autumn 2005. From a legal point of view Germany is only obliged to the content of the UN-ECE PRTR-Protocol. Politically however the government committed itself to align the content of the national PRTR with the E-PRTR. This avoids enlarging of the operating expense compared to the execution being necessary for E-PRTR-Regulation. As reporting requirements of the operators to the EU are already covered by the E-PRTR Regulation no national rules for reporting are necessary. The regulations in the national law mainly concern deadlines for data delivery from the operators to the competent authorities and the Federal Environment Agency, penalties, the protection of so-called whistle-blowers and confidentiality of data.

Parallel to this, an act for the ratification of the UN-ECE PRTR Protocol was prepared. The ratification of the protocol is envisaged for the beginning of 2007.

5 Public participation in PRTR-Process

At the beginning of the research project a concept for public participation in the PRTR-Process was established, which served as guide for public participation during the whole PRTR-Process in Germany. Article 13 of the PRTR-Protocol demands free public access to information on proposed measures concerning the development of its national pollutant release and transfer register and for the submission of any comments, information, analyses or opinions relevant for the decision-making process as well as adequate consideration of public inputs (Art. 13 paragraph 2) and timely publication of the decisions and the considerations on the establishment and significant changes of its register (Art. 13 paragraph 3).

The concept for public access provided early participation of the public. Following measures were realised:

- Free access to information: Continuing and expanding of web-sites created during preceding research projects concerning EPER and PRTR (www.prtr.de; www.eper.de; www.bmu.de) supported by press releases,
- Option to comment and consider public comments and inputs: ensured by above mentioned web-sites and implemented forums and contact data,

- Realisation of Workshops, expert-talk and technical discussions.

One major aim of the web-site development for www.eper.de and www.prtr.de was the availability of more comprehensive information for the public and to facilitate electronic access to emission data from facilities reporting under EPER and information on the implementation of the German PRTR. In the course of an online user survey the success of these measures was evaluated and finally confirmed.

Another measure for public information was the **PRTR-Newsletter** introduced at the beginning of 2005, followed by two more releases in 2005 and four newsletters in 2006. At <http://www.home.prtr.de/index.php?main=newsletter/newsletter.htm> the public can subscribe and unsubscribe to the newsletter. At the end of 2006 appr. 400 subscribers from various authorities, industry, research institutions, and industrial or environmental associations were registered, which reflects the range of the user spectrum during the online survey.

The third national Workshop „From EPER to PRTR“ took place from 9th to 10th May 2006 in Karlsruhe, Germany. Within the scope of this workshop the competent authorities and the industry could gain first hand information with regard to PRTR and its status quo at an early stage. 150 participants from competent authorities, industry, industrial and environmental associations from all over Germany and from European countries took this opportunity for an experience exchange and lively discussions in the congress centre of Karlsruhe. The agenda and all presentations of the workshop are available at

<http://www.home.eper.de/index.php?pos=/startseite/workshop2006/>.

At certain events press releases were published by the LUBW, the Environment Agency or the Federal Ministry for Environment. Furthermore several articles were published in expert journals.

To present the PRTR concept and its implications in Germany to experts and provide the opportunity for further proposals, active participation in various national and international expert meetings and expert groups was also part of the project..

6 Emissions from diffuse sources

Requirements concerning the addition of emissions from diffuse sources result from the PRTR-Protocol, the PRTR Guidance Document of the UNECE, the European E-PRTR Regulation, and the E-PRTR Guidance Document. Diffuse sources are defined as small or scattered sources from which pollutants may be released to land, air or water, whose combined impact on those media may be significant and for which it is impractical to collect reports from each individual source (Art. 2, paragraph 9, PRTR-Protocol). The Register shall include available data from the relevant authorities in an adequate spatial disaggregation; where no

such data exist, measures shall be taken to initiate reporting on these data in accordance with national priorities.

E-PRTR-Regulation does not provide reporting obligations of the member states for emissions from diffuse sources. The EU intends to include in its register data already reported by the member states from other reporting obligations. The addition of not yet available data shall be discussed in accordance with the Art. 19 procedure of the EU (Art. 8(2) E-PRTR Regulation).

The PRTR-Protocol allows links to existing web-sites. The aim of the inclusion of emissions from diffuse sources in the national PRTR was to manage-with the data being already available on national level (especially Federal Environment Agency). Separate inquiry concerning diffuse sources for the German PRTR should be avoided.

A web-site containing information on emissions from diffuse sources was developed and setup (<http://www.diffuse-quellen.prtr.de/>) in the course of the project. It links to existing web-sites and provides publicly available data on air emissions. The web-site on emissions from diffuse sources was released parallel to the launch of the German EPER-2 data on 23th November 2006. As a start this web-site enables Germany to comply with the requirements of the PRTR-Protocol on emissions from diffuse sources in line with Art. 7, paragraph 7 PRTR-Protocol.

Reported air emissions of Germany to UNFCCC and CLRTAP were provided by the Federal Agency and have been conditioned for public use in the course of the project. Source categories were limited to a distinct selection in order to facilitate data treatment and transmission by the Federal Agency. The selected source categories can differ from year to year, depending on the requirements of the above mentioned reporting obligations from which they were derived. Emissions for certain reporting years may change in a similar way, because they are recalculated for each reporting year according to current findings. In order to comply with these flexible requirements the project partner ki-werkstatt developed a flexible data base and query, which allows easy and periodic updates of the data and the corresponding queries. In the reporting year 2004 data from 47 source categories, 14 pollutants (CH₄, CO, CO₂, HFCs, N₂O, NH₃, NMVOC, NO_x, PFCs, PM₁₀, PM_{2,5}, SF₆, SO₂ and particulate matter) were prepared. Data queries can be done by selecting a pollutant first. After that the source category and the relevant year can be selected. Results are presented in a tabular format. In order to optimise the presentation of the results the project partner ki-werkstatt developed a method, which provides a coloured sequence of the emissions in relation to the current maximum of the time series. This way the differences between emissions from different source categories over time can be compared at a glance

For emissions from diffuse sources into water two links to existing web-sites from research projects of the Federal Agency were established. Beneath the above described data sources, links to further data sources were included, e.g. „Umweltdaten Deutschland“ (Data on the Environment in Germany) or “Emissionskataster” and “Umweltdaten” of the Federal States.

7 Facility data for the PRTR

The **national PRTR** needs to be compatible with the reporting requirements of the PRTR-Protocol and the E-PRTR of the EU with regard to the data from the facilities. Already during the preceding project to PRTR it was decided that the basis for the German PRTR will be the current EPER-data search on <http://www.eper.de/eper1/deutschlandkarte/karte.php>. This EPER-data search was established in line with the preceding EPER and PRTR research projects as a starting point for a national PRTR. In the meantime this data search is very popular and contains the data of the first EPER reporting in 2003 and the data of the second EPER reporting in 2006, which were collected and compiled in the course of this research project. Starting from the corporate web-site of EPER and PRTR (www.prtr.de or www.eper.de) facility data as well as emissions from diffuse sources (www.diffuse-quelle.prtr.de) can be viewed. Regarding PRTR this existing EPER data search has to be extended. The requirement for extension includes annual updates of the data, 41 additional pollutants, 9 additional industrial activities (e.g. urban waste-water treatment plants > 100 000 population equivalent, mining activities), reports on off-site transfers of waste and non-hazardous waste, releases to land, additional PRTR expert terms and pollutants and contact details for public requests. Further requirements include system design (one data base for data collection and presentation), features to present reports and graphs of results and time-series.

Concerning PRTR **data collection** the second EPER reporting made obvious that the Federal States collect the data more and more electronically. Usually the tools used were combined with the data collection concerning the emission declaration according to the 11. BImSchV.

The German draft PRTR Act demands electronic transmission of the data for the E-PRTR and the national PRTR. In order to save time and effort and provide for the operators a uniform data collection system the German government and the Federal States will develop a federal **uniform data base**. The scope of the software development is e.g. the online and offline collection of emission data by the operators, features to import data from operator owned systems via XML-interface, modules for plausibility and quality assurance, analysis and query functions, a module for data transfer to the EU Commission and a module for internet presentation. The steering group VKoopUIS accepted the proposed project „PRTR-

collecting and reporting system“ in its project list and supports it. The software development should be conducted with active and financial support of the Federal States. A detailed policy paper („BUBE-Online – facility based environment reporting) containing recommendations from the point of view of air emission expert groups concerning PRTR data collection was presented by the “Fachgespräch Emissionskataster” (expert discussion emission register). The software development will be based on the already existing EE-Online project, which was used for the second EPER reporting cycle by several Federal States. Parallel to this an XML-interface description (xsd-file) was developed in the course of the project, together with the research partner RISA Sicherheitsanalysen GmbH. As basis for the XML-scheme an **expert data model** was developed in advance containing the detailed requirements of the E-PRTR regulation and the German requirements of the draft PRTR Act. The vital unit of the expert data model is the „facility“ (analog to the EPER-software) with its different relations to the several units: E-PRTR-activities; releases of pollutants into air, water, land; off-site transfer of pollutants in waste-water; off-site transfer of non-hazardous waste; off-site transfer of hazardous waste > 2t/a within the country or transboundary off-site transfers of hazardous waste. Selection lists and relation lists complete the expert data model.

According to Art. 9 (quality assurance and assessment) paragraph 1 and 2 of the E-PRTR regulation operators and competent authorities are involved in **quality assurance and assessment** in different ways. According to paragraph 1 the operator of a reporting facility is obliged to assure the quality of the reported data regarding completeness, consistency and credibility. The competent authorities assess the quality of the reported data with regard to completeness, consistency and credibility. The method of assessment is not determined precisely. In the case of any discrepancies, uncertainties or doubts, the competent authorities may ask the operators for clarification.

Additional requirements by the E-PRTR especially arise from new (E-)PRTR-activities (e.g. urban waste-water treatment plants, mining activities), new (E-)PRTR-pollutants, identification of reporting facilities of the waste sector, plausibility of reporting of waste amounts and release to land.

In the course of the project the implementation of the PRTR in Germany was supported by several workings, e.g. a synopsis of the correlation of E-PRTR activities with IPPC-codes and the numbers of the Annex of the 4. BImSchV. Further Workings were a paper dealing with quality assurance, an interface description of the XML-file of the PRTR data collection software, a paper dealing with public access to the register and one dealing with confidentiality.

8 EPER-Reporting 2006

The reporting facilities and the competent authorities were intensively supported during the second EPER-reporting by the research project. Several updates were necessary for the second reporting cycle:

- Procedure of reporting of diffuse emissions from landfills
<http://www.home.eper.de/index.php?pos=/startseite/faq/>;
- Emission factors of intensive livestock farming (NH₃ and N₂O);
- Calculation of CO₂-emissions from biomass with emission factors
<http://www.home.eper.de/index.php?pos=/startseite/faq/>;
- Calculation of CO₂-emissions from fossil fuels and industrial processes with emission factors www.eper.de/FAQ;
- Synopsis of Annex I IPPC-Directive, 4. BImSchV and Annexes of the AbwVO
<http://www.home.eper.de/index.php?pos=/startseite/eperten/>;
- Adaptation of the XML-export functionalities of the EPER-software as well as the adaptation of the reference lists of the interface and data transfer;
- EPER-software version 1.321 as well as interface description and user manual for version 1.321.

The second EPER-reporting was performed similar to the first reporting cycle and was very successful. The data were reported to the EU completely and in time. Single problems occurred where geographical coordinates had to be corrected. Also some national identification codes (NICs) of the facilities differed in some Federal States from the first reporting cycle

In the following the **results of the second EPER reporting** of Germany (data from 30.9.2006 after the first correction phase) are presented. For the second EPER reporting in 2006 (reporting year 2004) Germany reported 1678 facilities. In comparison to the first EPER reporting in 2003 (reporting year 2001 alternatively 2000 or 2002) with its 1836 reported facilities this means a slight reduction of 158 EPER-facilities. The 1678 reported facilities can be specified as follows:

- 1359 EPER-facilities with emissions into air
- 175 EPER- facilities with emissions into water direct
- 324 EPER- facilities with emissions into water indirect
- 163 EPER- facilities with emissions into water and air
- 245 EPER-facilities from the landfill sector with CH₄-emissions

- 17 anonymous data sets concerning personal data

Figure 1 shows the comparison of reported EPER-1 and EPER-2 facilities regarding the total number and single media.

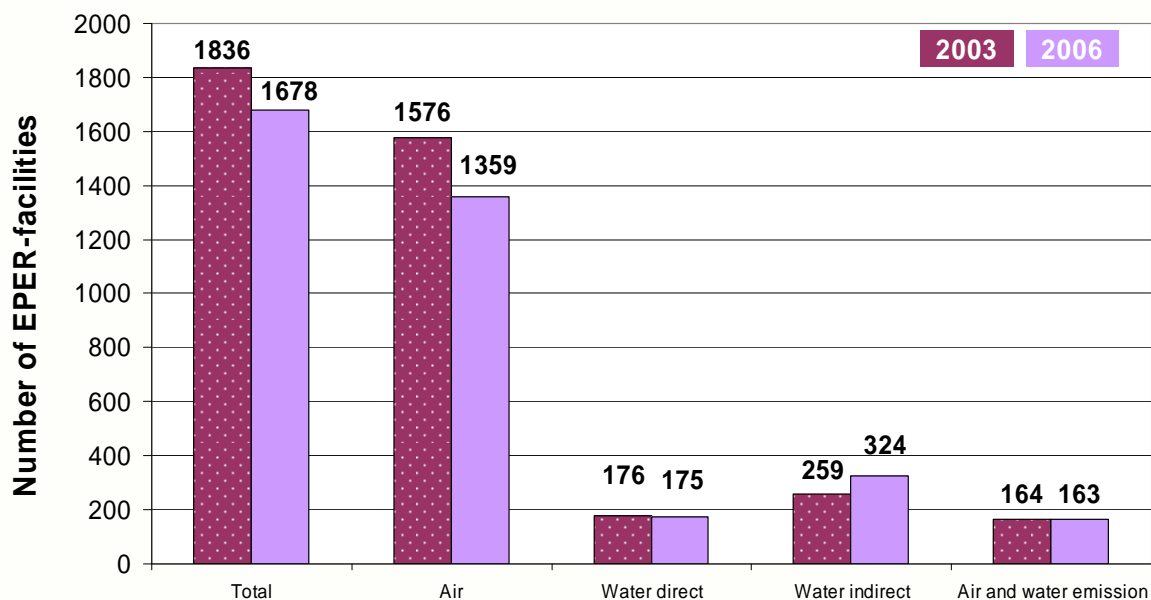


Figure 1: EPER 1+2 facilities Germany

Figure 2 shows the distribution to the IPPC source categories of the reporting facilities for both reporting cycles. The IPPC source category 6.6 (Intensive livestock farming) is the most frequently reported IPPC source category followed by IPPC source category 5.3/5.4 (landfills). In these two categories an obvious decrease can be seen. Reasons for the decrease in intensive livestock farming for EPER-2 can be given by the use of updated emission factors for the NH₃-determination. In contrary more facilities have been reported in the classical industrial sectors (IPPC source categories 4.1 organic chemicals, 6.1 paper and board, 6.4 food production).

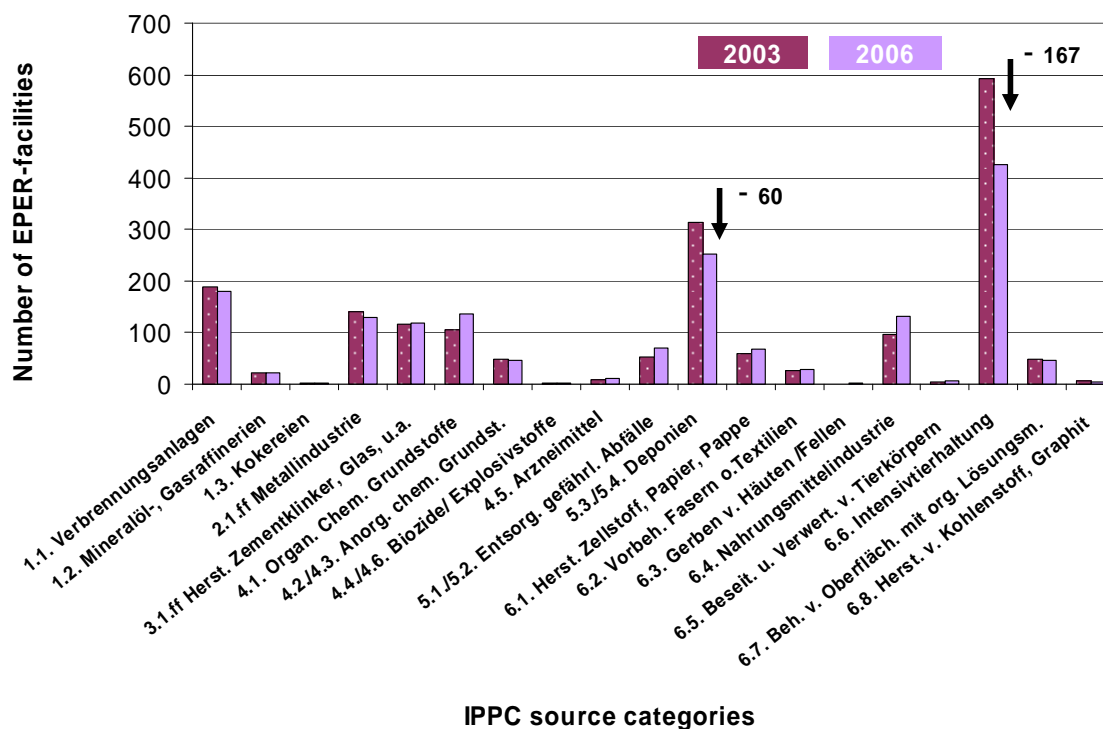


Figure 2: Distribution of IPPC source categories of EPER 1+2 facilities

The analysis of the fluctuation of EPER 1+2 facilities shows Figure 3. The difference of 158 EPER-facilities regarding the total number of EPER-1 and EPER-2 facilities is due to 649 actually deleted EPER-1 facilities and 491 new EPER-2 facilities. This results in a ratio of only 65% of identical EPER1+2 facilities. The use of updated emission factors mostly affected the fluctuation of the IPPC source category 6.6 (Intensive livestock farming). Here 335 deleted EPER-1 facilities face at 168 new EPER-2 facilities.

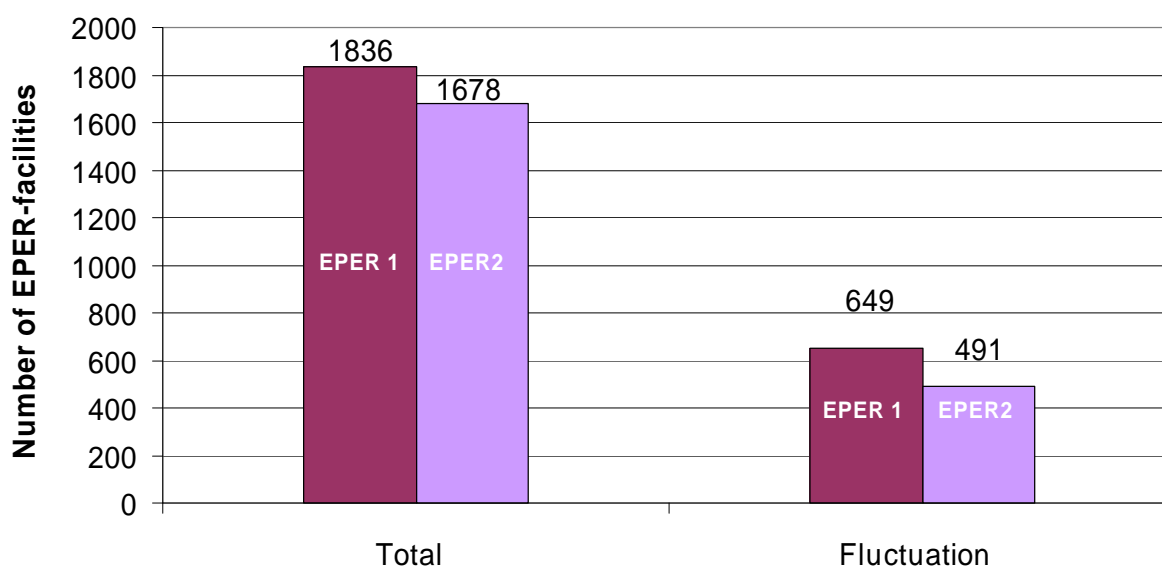


Figure 3: Fluctuation of EPER 1+2 facilities of reporting cycle 2003 (EPER-1) and 2006 (EPER-2) in Germany

The comparison across the EU shows a reduction of reported facilities for EPER-2 in the member states Germany and United Kingdom (see also Figure 4). Most of the other member states reported more facilities for EPER-2, especially Belgium Spain, France and The Netherlands.

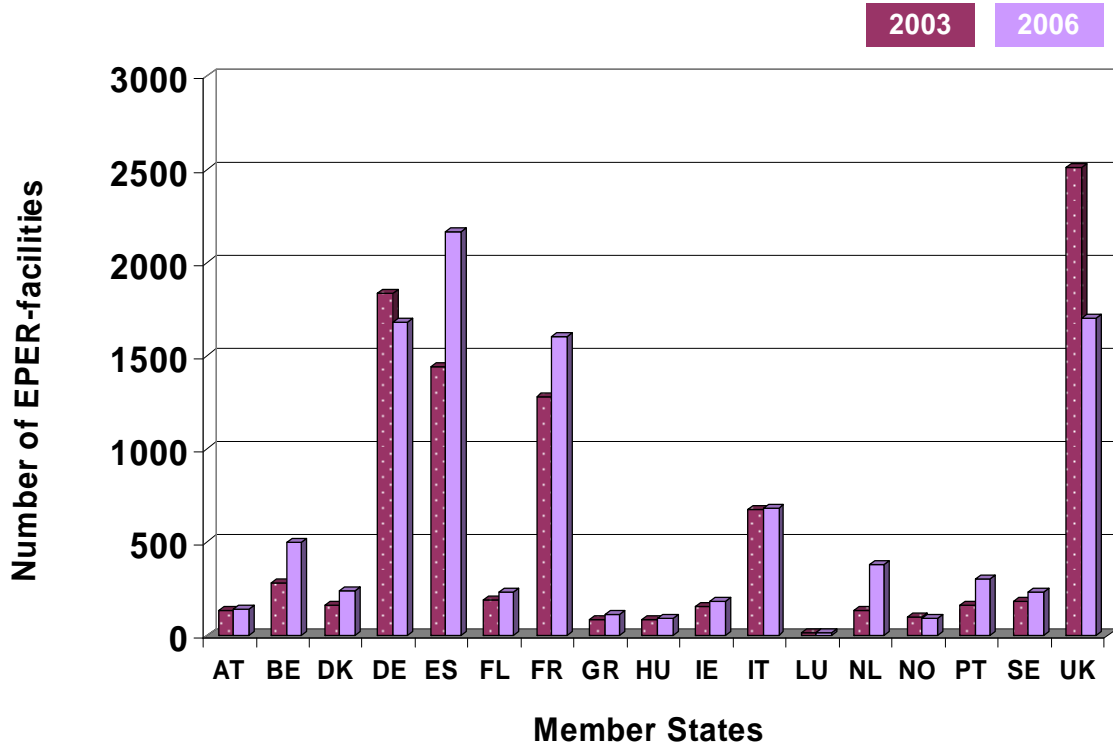


Figure 4: EU-wide EPER-data for EPER 1+2