

Designing the Key Features of a National PRTR System

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UNITAR Guidance Series for Implementing a National Pollutant Release and Transfer Register (PRTR) Design Project

Complementary to the OECD *Guidance Manual for Governments* and based on the lessons learned through pilot initiatives in Mexico, the Czech Republic and Egypt, UNITAR has developed the following documents in a guidance series intended to assist countries in undertaking a national PRTR design project:

- Implementing a National PRTR Design Project: A Guidance Document
- Supplement 1: Preparing a National PRTR Infrastructure Assessment
- Supplement 2: Designing the Key Features of a National PRTR System
- Supplement 3: Implementing a PRTR Pilot Reporting Trial
- Supplement 4: Structuring a National PRTR Proposal

Additional documents, including technical support and general reference materials on various aspects of PRTR design and implementation, are also available from UNITAR.

This document has been prepared in the context of UNITAR's *Training and Capacity Building Programme to Facilitate the Design and Implementation of Pollutant Release and Transfer Registers (PRTRs)* which is financially supported by the U.S. Environmental Protection Agency.

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Annex I: References

1. INTRODUCTION TO THE DOCUMENT

This guide is the second of four supplements to the main guidance document in the UNITAR *Guidance Series for Implementing a National PRTR Design Project* (see box on inside front cover). The guidance series builds on the substantive and technical information contained in the OECD's *Pollutant Release and Transfer Registers (PRTRs): A Tool for Environmental Policy and Sustainable Development: Guidance Manual for Governments* by providing countries with a suggested step-wise approach for undertaking the design of a national PRTR system. Each of the supplementary documents in the series provides in-depth guidance on a specific stage of UNITAR's suggested approach for implementing a national PRTR design project. The guidance is not meant to be prescriptive and should be adapted by countries in a flexible manner according to their specific needs and circumstances.

The 6 suggested stages of a national PRTR design project are the following:

1. Identifying the Goals of the National PRTR System
2. Assessing the Existing Infrastructure Relevant to a National PRTR
- 3. Designing the Key Features of a National PRTR System**
4. Conducting a PRTR Pilot Reporting Trial
5. Finalizing the National PRTR Proposal
6. Organizing a National PRTR Implementation Workshop

This document provides specific guidance on implementing Stage 3 of the suggested PRTR design process. For each of the main features of the PRTR system to be designed by the NCT, the guide introduces key decisions that need to be taken and provides references to other documents where additional information can be found. A complete listing of the documents referred to throughout the text are provided in Annex I.

2. DEFINING THE SCOPE OF THE NATIONAL PRTR SYSTEM

After having agreed on the specific objectives of the national PRTR system, the National Coordinating Team (NCT) will make a series of decisions that will determine the scope of the PRTR system. The challenge is to consider practical issues such as feasibility and resources while ensuring that the PRTR will yield the types and depth of information needed to serve the objectives of the national PRTR.

Decisions to be made include, for example, the number and types of chemicals to be included on the PRTR list, whether non-point source and/or point source emissions data will be included, the economic sectors to be covered, and whether any exemptions to reporting will be made for specific categories of pollutant sources. Defining the data elements to be reported is also closely related to the scope of the PRTR. Some of the core data elements include identification of the facility or pollutant source (e.g., geographic coordinates, type of facility or activity), identification of the specific chemicals (e.g. Chemical Abstract Service (CAS) number), and the elements that describe the nature and quantity of the release or transfer (e.g., tons of emissions to air, water, land). Additional data elements to consider include information on chemical use, levels of energy or water use, information on recycling, on-going pollution prevention efforts, etc.

The decisions made by the NCT on all of these issues should be directly linked to the national objectives for the PRTR system. For example, if the goal is to get a comprehensive picture of all pollutant emissions, then the NCT may decide to collect data for both point and non-point emission sources. If the goal of the PRTR is to target a specific sector such as manufacturing industries, then it may not be necessary to include non-point sources in the PRTR. Similarly in regards to the chemicals list, if there are specific chemicals or chemical categories that are of concern in the country, the NCT will want to ensure that these are included on the list of substances to be reported.

The following section lists key considerations/questions that need to be taken into account in defining the scope of the PRTR system.

2.1 The list of chemicals

The list of chemicals determines what specific substances will be tracked through the PRTR. The final selection should reflect the priorities and particular objectives that the country envisages for its national PRTR. The following are some factors to consider in developing the PRTR chemicals list:

- What are the chemicals in current use and/or main pollutants of concern in the country?
- What pragmatic criteria can be used to develop a list of chemicals for the national PRTR? Criteria to consider include: toxicity, persistence, bioaccumulation, carcinogenicity, mutagenicity, reproductive or developmental effects, neurotoxicity, pathways of exposure, whether or not the substance is currently regulated, etc.
- How might existing national and international lists of chemicals (e.g., lists of regulated chemicals, substances targeted for risk reduction, PRTR lists used by other countries, etc.) be used as a starting point in developing the list of chemicals for the national PRTR?

2.2 The inclusion of point vs. non-point emission sources

A PRTR system can include point sources of emissions and/or non-point (diffuse) emission sources. An industrial facility emitting pollutants to air and/or water or generating wastes is an example of a point source. Fertilizer or pesticide run off from agricultural activities, run off from mining activities and emissions from transportation are examples of non-point source pollution.

Depending on a country's priorities and the particular nature of its major pollutant sources, the PRTR could include either one or a combination of both point and non-point source emissions. Key considerations in approaching this decision are:

- Are the priority concerns related to the chemicals on the PRTR list mainly associated with point sources or non-point source activities?
- If non-point source emissions are to be included in the PRTR, does the government currently collect statistics/data that would enable authorities to estimate pollutant contributions from these non-point sources?

2.3 Sectors to be covered

The decision regarding what specific industrial sectors and other economic activities will be included under the national PRTR system is an important element in determining the scope of the national PRTR system. Key considerations in making this decision include:

- What industrial sectors and other areas of economic activity are responsible for the most significant pollutant emissions and transfers in the country?
- Which of these sectors have the capacity to estimate their emissions/transfers of pollutants and report PRTR data? Of the sectors for which direct reporting would not be feasible, which should be included in the PRTR through use of government-generated estimates of chemicals emissions and transfers?

2.4 Reporting thresholds

PRTR reporting thresholds are the criteria which determine whether a facility or other pollutant source must file a PRTR report. Examples of reporting thresholds that might be used include facility size, number of employees, release/transfer of more than x number of tons of any listed chemical per year, etc. Key considerations in defining threshold criteria are:

- How might the reporting thresholds be defined so that they are easily understood and applicable to all potential reporters?
- Should the thresholds be linked to the amount of listed chemicals manufactured, processed, used or transferred, or to the number of employees working full time at the facility? What other criteria or combination of criteria should be considered?
- Should more potent toxic chemicals, such as dioxin, PCBs etc., have lower reporting thresholds than less hazardous emissions?

2.5 Exemptions from reporting requirements

There may be specific pollutant sources that the NCT will decide to exempt from reporting under the national PRTR system for pragmatic reasons. Relevant considerations in approaching this decision are:

- For which types of facilities or pollutant sources might reporting exemptions be justified? On what grounds should such exemptions be made?
- Are there other, more feasible ways to collect emissions information from such facilities?

2.6 Data elements to be collected

The extent and content of the information collected through the PRTR will be determined by the data elements included in the reporting format. Therefore it is critical to choose data elements that will capture all the information needed to support the applications planned for the PRTR data. PRTR data elements can be grouped into four general categories:

- data elements that identify the facility or pollutant source;
- chemical identification data elements;
- data elements that describe and quantify the releases/transfers of listed chemicals;
- other optional data elements such as energy and water use, emissions reduction measures, recycling methods, pollution prevention activities, chemical use information, etc.

The following are some relevant questions when deciding on the data elements to be included in the PRTR reporting format:

- What specific types of data are needed in order to meet the national objectives established for the PRTR system?
- What specific data elements are required for facility or source identification, chemical identification, releases/transfers description and quantification, and any other information to be collected through the PRTR?
- How can appropriate units of measurement for the various data elements (e.g., tons, kg, tons/year, flow measures, etc.) be defined according to local usage and still allow for international comparisons of data?
- How can the amount of requested information and any redundancies be minimized so that reporting is made as simple and efficient as possible?
- How can overlaps with existing reporting requirements be avoided? How useful is the information currently being collected through existing reporting requirements? Can this information be collected through the PRTR report to avoid duplicating reporting efforts?

2.7 Sources of additional information

The list of chemicals

- OECD, Pollutant Release and Transfer Registers (PRTRs): A Tool for Environmental Policy and Sustainable Development: Guidance Manual for Governments. Paris, 1996. Chapter 2 (pp. 26-57).

The inclusion of point vs. non-point emission sources

- OECD, Pollutant Release and Transfer Registers (PRTRs): A Tool for Environmental Policy and Sustainable Development: Guidance Manual for Governments. Paris, 1996. Chapter 3 (pp. 65-68; 75).
- Ministry of Housing, Spatial Planning and the Environment, *Emission Inventory in The Netherlands*. Gravenhage, 1994.

Sectors to be covered

- OECD, Pollutant Release and Transfer Registers (PRTRs): A Tool for Environmental Policy and Sustainable Development: Guidance Manual for Governments. Paris, 1996. pp. 17; 39-43; 65.

Reporting thresholds

- OECD, Pollutant Release and Transfer Registers (PRTRs): A Tool for Environmental Policy and Sustainable Development: Guidance Manual for Governments. Paris, 1996. Chapter 3 (p. 61).
- Multi-Stakeholder Advisory Committee, *A National Pollutant Release Inventory for Canada*, Final Report. December 1992. pp. 6-9, 16-17.

Exemptions from reporting requirements

- Multi-Stakeholder Advisory Committee, *A National Pollutant Release Inventory for Canada*, Final Report. December 1992. pp. 6-9.

Data elements to be collected

- OECD, Pollutant Release and Transfer Registers (PRTRs): A Tool for Environmental Policy and Sustainable Development: Guidance Manual for Governments. Paris, 1996. Chapter 3 (pp. 61, 76-80).
- Irwin, F., et al, for World Wildlife Fund, *A Benchmark for Reporting on Chemicals at Industrial Facilities*. Washington DC, 1995. pp. 13-17.
- Multi-Stakeholder Advisory Committee, *A National Pollutant Release Inventory for Canada*, Final Report. December 1992. pp. 10-12, 19-22, 46-49.
- Australian Commonwealth Environment Protection Agency, *National Pollutant Inventory: Public Discussion Paper*. February 1994.

3. ADDRESSING LEGAL IMPLEMENTATION ISSUES

At this stage of the PRTR design project, the National Coordinating Team should consider the various legal issues related to the national PRTR system. These include establishing the legal authority for collecting PRTR data from industrial facilities and other sources, particularly if reporting will be mandatory. The new PRTR reporting requirements may need to be integrated with existing legally mandated environmental reporting requirements. Ensuring that the PRTR reporting scheme is not unnecessarily duplicative of existing requirements is also important. In some cases, the development of the PRTR system may in fact provide a good opportunity to consolidate or rationalize existing environmental reporting requirements, thereby reducing reporting burden and administrative costs for both industry and government. Other important legal issues are the procedures for handling data confidentiality claims and the enforcement mechanisms to be used to ensure compliance with PRTR reporting requirements.

The following sections list key considerations/questions that need to be taken into account to ensure an adequate legal foundation for the PRTR system.

3.1 Mandatory vs. voluntary reporting

- Will PRTR reporting be mandatory or voluntary? Given local conditions and existing government-industry relations, what are the potential advantages and drawbacks of each?
- If PRTR reporting will be voluntary, is there likely to be a sufficiently high level of reporting so that an adequate database of releases and transfer of pollutants will be achieved?

3.2 Legal basis for PRTR reporting

- If PRTR reporting will be mandatory, is there sufficient legal authority under existing laws to require industry to submit PRTR data? If not, will a new law or regulation need to be created?
- What government agency or agencies are empowered under existing laws to implement a PRTR system?

3.3 Ensuring compliance

- If reporting will be mandatory, how will it be enforced? What mechanisms or linkages with existing regulations could government authorities use to enforce compliance with PRTR reporting? What penalties for non-compliance should be considered?
- If reporting will be voluntary, what strategies or incentives will be used to encourage facilities to report?

3.4 Potential linkages to other reporting requirements

- How will the new PRTR system relate to existing reporting requirements? How might duplication of requirements be avoided or minimized in the design of the PRTR system?
- Are there opportunities to rationalize and streamline environmental reporting requirements through the PRTR system? What potential is there to integrate current reporting on releases to separate environmental media into a single PRTR database covering releases and transfers across all media?

3.5 Data confidentiality issues

- What will be considered legitimate data confidentiality claims? What procedures will be used to handle data claimed as confidential that will adequately protect business interests while maintaining the integrity of the PRTR database and its intended uses?

3.6 Sources of additional information

Legal issues related to PRTRs (general)

- OECD, Pollutant Release and Transfer Registers (PRTRs): A Tool for Environmental Policy and Sustainable Development: Guidance Manual for Governments. Paris, 1996. p. 62.
- Ellison, M., Final Report to the Environmental Protection Agency: Development of Legislative Modelling for the National Pollutant Inventory and Associated Community Right-to-Know in Australia.

Mandatory vs. voluntary reporting

- OECD, Pollutant Release and Transfer Registers (PRTRs): A Tool for Environmental Policy and Sustainable Development: Guidance Manual for Governments. Paris, 1996. pp. 19-20.

Legal basis for PRTR reporting

- UNITAR, Preparing a National PRTR Infrastructure Assessment: Supplement 1. July 1997.
- Australian Centre for Environmental Law, *Toxics and the Community: Legislating the Right to Know*. Canberra, Australia.

Ensuring compliance

- U.S. EPA, Proceedings of the International Conference on Reporting Releases of Toxic Chemicals, Vienna, Austria, 1991. p. 43.
- Australian Centre for Environmental Law, *Toxics and the Community: Legislating the Right to Know*. Canberra, Australia.

Potential linkages to other reporting requirements

- UNITAR, Preparing a National PRTR Infrastructure Assessment: Supplement 1. July 1997.

Data confidentiality issues

- OECD, Pollutant Release and Transfer Registers (PRTRs): A Tool for Environmental Policy and Sustainable Development: Guidance Manual for Governments. Paris, 1996. p. 62.
- Australian Centre for Environmental Law, *Toxics and the Community: Legislating the Right to Know*. Canberra, Australia.

4. DEVELOPING DATA COLLECTION AND MANAGEMENT PROCEDURES

In designing the data collection and management procedures of the PRTR system, the National Coordinating Team will address a set of design tasks involving technical and administrative decisions. These tasks include the design of reporting forms and reporting instructions, the specifications for the PRTR hardware and software, and the development of procedures for database management, data collection, data quality control, and related matters.

The NCT will need to decide which government agency will host the database and identify the resources that will be needed for its operation including staff, computer systems and software, annual operating budget, etc. Precise data handling procedures, from the point that a facility files its report to the point when the data are finally entered into the PRTR database, also need to be defined. A data flow model should be created which outlines all of the data management procedures for every step of a complete PRTR reporting cycle.

Other PRTR data management features to be developed by the NCT include a mechanism to check the precision and accuracy of the figures submitted by reporters, and administrative controls to ensure that the reported data are entered fully, consistently and accurately into the PRTR database. An error correcting procedure should likewise be established. When data quality check procedures suggest errors in reporting, there should be an established mechanism by which the authorities will contact the reporter and correct the problem.

The treatment of PRTR data claimed as confidential is another data management issue that needs to be addressed. Clear and concise guidance must be provided to reporters on the conditions for claiming data as confidential, including instructions on how to file a confidentiality claim. Procedures for reviewing confidentiality claims and for handling the data once it is submitted should be clearly laid out. A procedure for filing generic information related to the data points held as confidential should be developed to avoid undermining the integrity and completeness of the PRTR database.

The following section lists key questions that need to be taken into account in developing data collection and data management procedures for a national PRTR system.

4.1 Governmental roles

- Are there trained government personnel to handle the various PRTR data collection and management procedures? What additional training might be needed?
- What role will regional and local authorities play in collecting and verifying the PRTR data? What will be the role of the central government? Will other entities (e.g., research institutions) be involved?
- How can effective coordination between central and local/regional authorities be strengthened for the purposes of PRTR data handling and management procedures?

4.2 PRTR software

- What software features are required for the national PRTR system in order to achieve the planned objectives and applications? (e.g., geographic information system (GIS) compatibility, on-line servicing of PRTR data to various government agencies, etc.)
- How might existing software be adapted to perform the required functions in the most cost-efficient manner?
- What local expertise and/or bilateral assistance from countries with PRTR systems could be utilized in developing the software for the national PRTR system?

4.3 Computer hardware

- What hardware configuration is required to host the national PRTR database? What is the expected size of the national PRTR database? What are the equipment requirements for installing the chosen PRTR software and database management capacities?
- What other communication hardware equipment will be required to implement PRTR data dissemination and access capabilities?
- What ancillary hardware is required to implement the types of analyses, applications and other uses of PRTR data that are planned?

4.4 Reporting format

- What format (diskette and/or paper) will be used to report PRTR data?
- How can a simple reporting form be developed that is easily understood by reporters but which still captures all the data elements and information necessary to achieve the objectives of the national PRTR?

4.5 Reporting instructions and guidance materials

- Given that PRTR reporting requires industry staff to estimate the emissions arising from their respective facilities, what type of reporting instructions and guidance materials are needed to ensure accurate reporting? What sources of local and international expertise can be tapped in preparing guidance materials to assist PRTR reporters in correctly estimating their emissions?
- What data elements to be included in the reporting format will require additional explanation? What terms (e.g., emission, transfer, units of measurement, chemical identification codes, etc.) will need to be explicitly defined?

4.6 Data estimation techniques

- Will emissions estimation guidance materials need to be adapted for each industry sector? (e.g., one estimation guide for emissions in the painting industry, a different guide for the electroplating industry, etc.) How can existing national and international materials be adapted to meet these needs?

- What types of support will be provided to industry for estimating their PRTR data? What are the training needs of government personnel who will handle industry questions and provide assistance on PRTR data estimation?
- What emissions estimation procedures will be used to estimate the contributions from non-point sources of pollution if these are to be included in the PRTR system? Are information and statistics currently available for estimating emissions from non-point sources? Will training be needed to ensure that government personnel are able to perform these estimation procedures?

4.7 Data entry and verification

- What government agencies and levels of government (local, regional, etc.) have experience in collecting data from industrial facilities? What can be learned from previous experience that will aid in establishing effective procedures for PRTR data collection, data quality assurance, and other PRTR database management procedures?
- What procedures will dictate the handling of data from the point that it is reported by a PRTR source to its transmittal to the agency ultimately responsible for the PRTR database, including verification of the data, error checking and correction?
- What mechanisms can be established to improve the quality of the PRTR data? (e.g. ensuring uniform and valid estimation methods, implementing quality control at all stages, including data entry, etc.)

4.8 Sources of additional information

Data collection and management (general)

- OECD, Pollutant Release and Transfer Registers (PRTRs): A Tool for Environmental Policy and Sustainable Development: Guidance Manual for Governments. Paris, 1996. Chapter 1 (p. 18-19); Chapter 3.
- U.S. EPA, Toxic Chemical Release Inventory Reporting Form R and Instructions. Washington DC, 1994.
- U.S. EPA, Proceedings of the International Conference on Reporting Releases of Toxic Chemicals. Vienna, Austria, 1991. pp. 45-47.

Data estimation techniques

- UNITAR, Guidance for Facilities on PRTR Data Estimation and Reporting. Final Draft, July 1997.
- UNITAR, Guidance on Estimating Non-Point Source Emissions. Final Draft, July 1997.
- U.S. EPA, Title III Section 313 Release Reporting Guidance. Washington DC, 1988.
- Australian Environment Protection Agency, *Emissions Estimation Techniques Report*, Volume 1 and Volume 2, 1996.

5. DEVELOPING DATA ANALYSIS AND DATA DISSEMINATION PROCEDURES

In the process of designing a national PRTR system, the National Coordinating Team will have to address various decisions in relation to PRTR data analysis and dissemination. Among the tasks that need to be addressed are developing appropriate data aggregation and analysis methodologies, so that useful information can be extracted from the raw PRTR data to achieve the objectives set forth for the national PRTR system. Examples of useful information that could be derived from PRTR data include: regional or national estimates of the total burden of specific pollutants, trends in chemical-specific emissions which can indicate the level of response to policy actions, geographic distribution of pollutant emissions and proximity to sensitive ecosystems or population centers, etc.

A national policy for dissemination of PRTR data will need to be agreed upon by the NCT with input from potential users of PRTR data. Decisions need to be made regarding the form and mechanisms through which the PRTR data will be made available to the public as well as to other interested parties.

The issue of data dissemination is very important because the incentive for improved environmental performance depends in part on the degree of transparency and public availability of the emissions data provided through the PRTR. Thus, the national PRTR system should be designed to promote information transparency and increase accountability for releases/transfers of pollutants as a means for ensuring its effectiveness as a policy instrument and to spur risk reduction efforts.

The following section lists key issues related to data analysis and dissemination:

5.1 Types of analyses

- What types of analyses will need to be conducted on the PRTR data to achieve the stated objectives for the national PRTR system? (e.g., aggregation of chemical-specific pollutant releases and transfers by industrial sector, region, and/or environmental media, identification of trends, GIS mapping of pollution sources, etc.)
- Are there previous national examples and existing methodologies for data analyses similar to those planned for the PRTR data? What can be learned from this existing expertise and how might the PRTR analyses be linked to on-going efforts?

5.2 Presentation of the data

- In what form will PRTR data be made available to interested parties at the national level? (e.g., annual reports, fact sheets, electronic dissemination, etc.)
- What level of specificity will be used in presenting PRTR data? Will data from specific facilities be released or will it be aggregated by sector, municipality, region, etc.?

5.3 Data access and dissemination

- Through which mechanisms will PRTR data be disseminated to interested parties such as other government ministries and agencies, public interest groups, industry, research institutes, etc.?
- What policies and procedures will be applied regarding access to PRTR data? Will different users of PRTR data have different rights regarding the extent or specificity of information that will be available to them?
- What specific mechanisms will be provided for public dissemination of PRTR data? (e.g. Internet, government reports, public libraries, academic institutions, upon individual request to the relevant government agency, etc.)

5.4 Sources of additional information

Data analysis and dissemination procedures (general)

- OECD, Pollutant Release and Transfer Registers (PRTRs): A Tool for Environmental Policy and Sustainable Development: Guidance Manual for Governments. Paris, 1996. Chapter 3.
- Irwin, F., et al, for World Wildlife Fund, *A Benchmark for Reporting on Chemicals at Industrial Facilities*. Washington DC, 1995. Part 4.
- U.S. EPA, Proceedings of the International Conference on Reporting Releases of Toxic Chemicals. Vienna, Austria, 1991.

6. CONCLUSION

This document has outlined the various components involved in the design of a national PRTR system, including some of the key decisions to be made by the NCT in completing each of the design tasks. This document is meant to be a starting point. The members of the NCT are encouraged to consult the references indicated throughout the text to obtain more in-depth information and guidance on the substantive issues related to each aspect of PRTR design.

ANNEX I: REFERENCES

Australian Centre for Environmental Law, *Toxics and the Community: Legislating the Right to Know*. Canberra, Australia.

Australian Commonwealth Environment Protection Agency, *National Pollutant Inventory: Public Discussion Paper*. February 1994.

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U.S. Environmental Protection Agency, *Title III Section 313 Release Reporting Guidance*. Washington DC, 1988.



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