

Unclassified

English - Or. English

5 May 2023

**ENVIRONMENT DIRECTORATE
CHEMICALS AND BIOTECHNOLOGY COMMITTEE**

Uses of PRTR Data and Tools for their Presentation

**Series on Pollutant Release and Transfer Registers
No. 27**

JT03518263

OECD Environment, Health and Safety Publications
Series on Pollutant Release and Transfer Registers
No. 27

Uses of PRTR Data and Tools for their Presentation

IOMC

INTER-ORGANIZATION PROGRAMME FOR THE SOUND MANAGEMENT OF CHEMICALS

A cooperative agreement among **FAO, ILO, UNDP, UNEP, UNIDO, UNITAR, WHO, World Bank and OECD**

Environment Directorate

ORGANISATION FOR ECONOMIC COOPERATION AND DEVELOPMENT

Paris 2023

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OECD Environment, Health and Safety Publications

Foreword

The OECD adopted the first Recommendation on Establishing and Implementing Pollutant Release and Transfer Registers (PRTRs) in 1996. Since then, the OECD has worked with governments, industry, and non-governmental organisations to develop practical tools that facilitate implementation efforts by member countries, provide outreach to partner countries, and coordinate international activities. To help member countries implement efficient and effective PRTRs, the OECD Working Party on PRTRs (WP-PRTRs) develops and disseminates practical tools and guidance with a focus on improving PRTR data quality, exploring PRTR data applications and harmonising PRTRs across countries.

With respect to the use of PRTR data, the first version of the document, “Uses of PRTR Data and Tools for Their Presentation”, was published in 2005 [ENV/JM/MONO(2005)3]. The WP-PRTRs then updated one section by adding good practices of PRTR data use by local government in 2019 [ENV/JM/MONO(2019)35]. However, the rest of the contents had not been updated.

The latest Recommendation, adopted in 2018, recommends using PRTR data *‘to derive indicators for measuring environmental performance and progress toward meeting local, national, and international commitments to environmental and health protection goals and targets, evaluating the impact of environmental policies, assessing the risks of pollutants, identifying environmental hot-spots, and addressing chemical accidents as suggested in the series of OECD Guidance Documents on PRTRs’*.

To better facilitate the use of PRTR data in line with the Recommendation, the WP-PRTRs launched a sub-group in 2021 to gather good practices of PRTR data use for the update of this document. Sub-group meetings were held four times from 2021 to 2022 with delegates from Canada, Chile, Israel, Japan, Spain, Sweden, the US, the EU, the European Environmental Bureau, and the UNECE Secretariat. This document was drafted by the US by compiling the information gathered through the sub-group meetings, finalised under the supervision of the WP-PRTRs, and published under the responsibility of the Chemicals and Biotechnology Committee.

The contents of the document are also displayed on the OECD website as an interactive database with filtering options.

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Abbreviations

APEI	Air Pollutant Emission Inventory (Canada)
BAT	Best Available Techniques
CEC	Commission for Environmental Cooperation
CMP	Chemicals Management Plan (Canada)
CSCL	Chemical Substances Control Law (Japan)
EEA	European Environmental Agency
E-PRTR	European Pollutant Release and Transfer Register
ESG	Environmental, Social and Governance
GWP	Global Warming Potential
HAPs	Hazardous Air Pollutants
HMT	Hexamethylenetetramine
IEDs	Industrial Emissions Directive
NAPRTR	North American PRTR Initiative
NEI	National Emissions Inventory (the US)
NIES	National Institute for Environmental Studies (Japan)
NITE	National Institute of Technology and Evaluation (Japan)
NPRI	National Pollutant Release Inventory
ODS	Ozone Depleting Substances
OECD	Organisation for Economic Co-Operation and Development
PACs	Polycyclic aromatic compounds
P2	Pollution prevention
PRTR	Pollutant Release and Transfer Register
RETC	Registro de Emisiones y Transferencia de Contaminantes
RSEI	Risk-Screening Environmental Indicators
RUEA	Atmospheric Emissions Unique Report System
SDGs	Sustainable Development Goals
SOER	State of The Environment Report
TRI	Toxics Release Inventory (the US)
TSCA	Toxic Substances Control Act (the US)
US EPA	United States Environmental Protection Agency
UNECE	United Nations Economic Commission for Europe
UNEP	United Nations Environment Programme
WHO	World Health Organization
PRTR-España	Registro Estatal de Emisiones y Fuentes Contaminantes/Spanish Register of Emissions and Pollutant Sources

Executive Summary

A Pollutant Release and Transfer Register (PRTR) is a publicly accessible database or inventory of chemicals or pollutants released to air, water and soil and transferred off-site for treatment. It brings together information about which chemicals are being released, where, how much and by whom. PRTRs provide a rich source of data for multiple uses and purposes.

The OECD Council Recommendation on Establishing and Implementing PRTRs [[OECD/LEGAL/0284](#)], adopted in 2018, includes a recommendation on using PRTR data to derive indicators for measuring environmental performance and progress toward meeting local, national, and international commitments to environmental and health protection goals and targets, evaluating the impact of environmental policies, assessing the risks of pollutants, identifying environmental hot-spots, and addressing chemical accidents as suggested in the series of OECD Guidance Documents on PRTRs.

For facilitating better uses of PRTR data, this document compiles good practices of the data uses and tools for their presentation, which were gathered from member countries. It could illustrate the varied uses of PRTR data and encourage additional audiences to access PRTR data.

The examples of the data uses were classified by; 1. Policymaking, 2. Environmental Performance Assessment, 3. Risk Assessment, 4. Education and Research, 5. Environmental Justice, and 6. Building Partnerships/Supporting Public Trust.

1. Policymaking

PRTRs provide valuable data for policymaking activities, such as identifying sectors or chemicals for prioritisation purposes. Generally, as policymaking is a government activity, governments are the primary stakeholder group using PRTR data for this purpose, although other groups may use PRTR data in advocating for certain policies.

2. Environmental Performance Assessment

PRTR data provide crucial time series data to assess trends in environmental performance. Environmental performance evaluations may be performed by governments to assess industry trends or impacts of policies; by companies or industry groups to assess their own or their sectors' performance; by international organisations, such as to identify regions or chemicals of particular concern; and by others such as the investment community, who may use environmental performance assessments to evaluate potential investments.

3. Risk Assessment

PRTRs include data on quantities of pollutants released to the environment and transferred in wastes. Many PRTR-listed pollutants are toxic chemicals or present other risks, which vary by chemical. Governments and other stakeholders use PRTR data as one of the sources of information to characterise the risks posed by chemicals or other pollutants tracked by PRTRs.

4. Education/Research

PRTR data represent a valuable source of information to educate students and the public about pollutant releases, and also provide a valuable resource for researchers seeking to understand pollutant releases and transfers.

5. Environmental Justice

Historically, certain communities have been burdened with disproportionate impacts from pollution and other environmental harms, often because these communities are made up of marginalised groups. Environmental justice means ensuring all communities are treated fairly, regardless of their socioeconomic status. Because PRTR data are at the facility level, they show the precise location of pollutant releases and can be combined with other data, such as demographic data, to help identify environmental justice concerns.

6. Building Partnerships/Supporting Public Trust

Governments, community groups, and industries use PRTR data to make connections and build partnerships between regulated facilities, impacted communities, and regulators (i.e., governments). These partnerships can be leveraged to disseminate information, encourage pollution prevention, and help residents understand the types and sources of pollution in their communities.

The examples of PRTR data tools are sorted by; 1. Presentation of PRTR data, 2. Ranking, 3. Geographic Information Systems/Mapping, 4. Toxicity Weighting, 5. Data Visualisations.

1. Presentation of PRTR data

PRTR data are presented in basic formats on the websites of national governments.

2. Ranking

Because PRTR data are facility-specific, they can be used to compare facilities' environmental performance and rank facilities.

3. Geographic Information Systems/Mapping

PRTR data on an aggregate basis are informative for many types of analyses, but maps are especially useful for understanding conditions in specific geographic areas.

4. Toxicity Weighting

PRTRs include information on many different pollutants, sometimes numbering in the hundreds of different substances. Pollutants have different toxicities, so comparing kilograms of releases of one pollutant to kilograms of another is not an accurate way to rank or compare the relative risks the pollutants may pose to humans and the environment. Toxicity weighting tools apply factors to weight releases based on the toxicity of the pollutant, helping users to better understand risk-related factors from pollutant releases.

5. Data Visualisations

PRTR databases are usually large databases that require database or spreadsheet software to analyse. Understanding and analysing PRTR data can be challenging for users who aren't well-versed in the types of information included in PRTRs. Data visualisations are often developed by PRTR programmes and other stakeholders to present data to the public or other audiences in an easy-to-understand format.

The compiled information is displayed on the OECD website as an interactive database. Users can search for the example in line with their interests by using the filtering functions. This database is intended to be updated continuously by adding new good practices through the review by the WP-PRTRs.

1 PRTR Data Uses

PRTRs are designed as “access to information” programmes; that is, one fundamental and common goal of PRTRs is to provide the public with access to information about facilities’ pollutant releases in their communities. In addition to the public, there are many other users who access PRTR data to support a wide range of diverse goals. To illustrate the varied uses of PRTR data and to encourage additional audiences to access PRTR data, OECD’s Working Party on PRTRs compiled the examples highlighted in this chapter. These examples can be classified by type of use and stakeholder (see Table 1).

Table 1. Classifications of PRTR data use examples compiled in this document

Stakeholders	Data Uses					
	Policy making	Environmental Performance Assessment	Risk Assessment	Education and Research	Environmental Justice	Building Partnership/Supporting Public Trust
National Government (Incl. National Agency)	X	X	X	X	X	X
Local Government	X	X	X	X	X	X
International Government	X	X				
International Organisation		X				
Industry		X				X
Investment/Financial Community		X				
Media			X		X	
Academia				X		

1.1. Policymaking

PRTRs provide valuable data for policymaking activities, such as identifying sectors or chemicals for prioritisation purposes. Generally, as policymaking is a government activity, governments are the primary stakeholder group using PRTR data for this purpose, although other groups may use PRTR data in advocating for certain policies. Examples of PRTR data use in policymaking are summarised in Table 2.

Table 2. PRTR data use in policymaking

Stakeholder	Data Use	Description
National Government (Israel)	Identifying various environmental aspects that require policy making	This site provides access to Israel’s PRTR information and includes tools and information for policymaking, such as: <ul style="list-style-type: none"> Identifying increased emissions of pollutants from a specific industrial sector.

Stakeholder	Data Use	Description
		<ul style="list-style-type: none"> Identifying challenges of environmental justice such as increased emissions in poor areas.
National Government (Chile)	Provided affected establishments list for new tax reform of Green Taxes (Spanish)	Green Taxes went into effect in 2017 on CO ₂ , PM, SO ₂ and NO _x emissions from point sources with boilers and turbines. The PRTR programme developed the Boilers and Turbines Unique National Registry and the Atmospheric Emissions Unique Report System (RUEA). By 2024, the levy will apply to the effective total emissions produced by point sources of the facilities (not only boilers and turbines). The tax will be applied to a group of facilities based on what they reported in the RUEA about their effective emissions in 2023.
National Government (Japan)	Ministry of the Environment: Selection of monitoring stations of Hazardous Air Pollutants (HAPs) (Japanese)	The Ministry of the Environment of Japan developed the “Guidelines for selection of monitoring stations of Hazardous Air Pollutants (HAPs),” to guide selection of monitoring stations around HAPs emission sources. The guidelines recommend considering the results of air dispersion modelling that uses individual facilities’ air emission data as reported under the PRTR system.
International Government (EU)	EU's State of the Environment Report (SOER)	The State of The Environment Report (SOER) provides a set of assessments of the current state of Europe’s environment, its likely future state, what is being done and what could be done to improve Europe’s environment, how global megatrends might affect future trends, and more. The report is published every 5 years by the European Environment Agency (EEA). The 2020 edition identified serious gaps between the state of the environment and existing EU near- and long-term policy targets. Chapter 12 of the latest SOER covers “Industrial Pollution” and uses E-PRTR as one the main sources for providing information about industry’s contribution to the state of the environment in Europe.
International Government (EU)	European Industrial Emissions Portal	The European Industrial Emissions Portal integrates the European PRTR (E-PRTR) with other industrial dataflows reported at the EU level. The Portal includes information on releases and transfers from industrial facilities in Europe and combines and integrates information reported under the PRTR Regulation and the Industrial Emissions Directive (IED). Users can explore the whole database or a series of visualisers to identify the most polluting sectors and identify and assess the permitting status, regulatory exemptions, and use of Best Available Techniques (BAT), for IED installations located within E-PRTR facilities in the EU.
Local Government (Japan)	Kawasaki City Environmental Indicator	PRTR data within the city has been used to provide information about the current state of chemicals in the city with the public or businesses during a seminar.
National Government (Chile)	Oversight and ensuring compliance of Recycling Law (EPR) (Spanish)	Chile’s PRTR incorporated a traceability system for waste. PRTR data are key to oversight and ensuring compliance with collection and recovery goals for priority products. The Recycling Law, based on the Extended Producer Responsibility model, makes the producer liable to organise and finance the collection, storage, transportation, and treatment of priority product waste. Annually, producers must report to the PRTR on the amount of priority products put in the national market and the waste management of those products.
Local Government (Japan)	Kawasaki City: Prioritisation for developing policies and regulations (Japanese)	Japan’s PRTR emission data and toxicity data of PRTR chemicals are used for the selection and prioritisation of chemicals during planning and formulation of policies, for risk assessment and during the environmental state survey of chemicals.
National Government (Spain)	PRTR-España in the National Statistic Plan (Spanish) Programa Nacional de Control de la Contaminación (Spanish)	Spain’s PRTR data are used by competent authorities as one of the main sources of information in policymaking issues both at national and regional level. Some examples are given on the linked website. They are also used in defining the industrial activity prioritisation in relation to the Environmental Liability legislation at national level.

1.2. Environmental Performance Assessment

PRTR data provide crucial time series data to assess trends in environmental performance. Environmental performance evaluations may be performed by governments to assess industry trends or impacts of policies; by companies or industry groups to assess their own or their sectors’ performance; by international organisations, such as to identify regions or chemicals of particular concern; and by others such as the investment community, who may use environmental performance assessments to evaluate potential investments. Examples of PRTR data use in Environmental Performance Assessment are summarised in Table 3.

Table 3. PRTR data use in Environmental Performance Assessment

Stakeholder	Data Use	Description
International Organisation (OECD)	Using PRTR Information to Evaluate Progress Towards the Sustainable Development Goal 12	The Organisation for Economic Cooperation and Development (OECD) undertook an analysis to integrate and analyse release data from 7 PRTRs on 14 pollutants to examine drivers of releases and trends in releases of these pollutants.
International Organisation (CEC)	Commission for Environmental Cooperation's North American PRTR Initiative	The Commission for Environmental Cooperation's (CEC's) North American PRTR Initiative (NAPRTR) Project compiles and disseminates data reported by facilities to Canada's NPRI, Mexico's Registro de Emisiones y Transferencia de Contaminantes (RETC) and United States' Toxics Release Inventory (TRI). The CEC's NAPRTR makes the North American PRTR data available to the public through their flagship Taking Stock report series which aims to enhance the understanding of the sources, locations and handling of industrial substances to promote pollution prevention and support the integration of PRTR data into an overarching framework for managing pollutants in North America. It also promotes use of the data for priority-setting and decision-making to protect the health of North American communities and ecosystems, support chemicals management, and reduce pollution.
International Government (EU)	EU's State of the Environment Report (SOER)	The State of The Environment Report (SOER) provides a set of assessments of the current state of Europe's environment, its likely future state, what is being done and what could be done to improve Europe's environment, how global megatrends might affect future trends, and more. The report is published every 5 years by the European Environment Agency (EEA). The 2020 edition identified serious gaps between the state of the environment and existing EU near- and long-term policy targets. Chapter 12 of the latest SOER covers "Industrial Pollution" and uses E-PRTR as one the main sources for providing information about industry's contribution to the state of the environment in Europe.
National Government (Chile)	Chile's Environment Report (Spanish)	The <i>State of the Environment</i> is the main official publication of Chile's Ministry of the Environment. It monitors the state of the environment, as well as public actions and policies to address solutions to environmental problems. The <i>State of the Environment</i> is published every four years, with annual update reports. The 2020 edition contains more than 370 indicators in 17 topics, including indicators assessing the UN Sustainable Development Goals (SDGs).
National Government (Israel)	Israel's Environmental Impact Index	Israel's Environmental Impact Index provides the public and investors with information that allows them to make comparisons between major Israeli companies regarding companies' environmental performances and risks. Compiled by the Ministry of Environmental Protection, the Index is the first tool of its kind put together by a government source. This enables investors to receive a simple and direct indication of the level of their financial risk, based on companies' actions and activities.
National Government (Canada)	Canada's NPRI Data Highlights	The National Pollutant Release Inventory's (NPRI) data helps track pollution patterns and trends across Canada. This webpage highlights recent NPRI reporting and trends in the data from facilities about the pollution they release to the air, water or land. The NPRI also collects data about the disposal and transfer of pollutants.
National Government (US)	TRI National Analysis	The US Toxics Release Inventory (TRI) National Analysis is developed annually and interprets the data facilities report to EPA on their management of toxic chemicals, including releases to the environment, and examines trends in releases, waste management practices, and pollution prevention (P2) activities.
Local Government (Canada)	ChemTRAC	The City of Toronto Public Health has identified 25 priority substances (i.e., chemicals) of concern to local air quality. Toronto businesses must report these 25 chemicals annually under the ChemTRAC programme. Businesses report the amounts of these chemicals manufactured, processed and otherwise used, and the amounts released. The information collected by this local PRTR is similar to information collected by national programmes, such as Canada's NPRI, but is tailored to the needs of municipalities and includes a wider variety of facilities. It should be noted that the ChemTRAC programme is, however, temporarily suspended for the moment.
International Government (EU)	Industrial pollutant releases to air in Europe	The European Environment Agency (EEA) publishes annual indicators on air emissions from industry, based on data reported to the E-PRTR.
International Government (EU)	Industrial pollutant releases to water in Europe	The European Environment Agency (EEA) publishes annual indicators on water emissions from industry, based on data reported to the E-PRTR.

Stakeholder	Data Use	Description
Industry (Japan)	Sharp Environmental Performance	Sharp has established a system for efficiently collecting and managing data on company-wide environmental performance. Collecting and analysing such data helps Sharp grasp the current state of its sustainable management, identify problems, and formulate measures. PRTR data are used as a performance indicator.
Industry (Japan)	Panasonic Human Environmental Impact	Panasonic developed the Human Environmental Impact indicator as an internal indicator (calculated based on chemical hazardousness factor and the total release and transfer amount, as reported to Japan's PRTR) to promote efforts to ensure reductions of highly hazardous substances with greater environmental impacts, such as carcinogens and ozone depleting substances, according to the risk level.
National Government (Japan)	Japan's Ministry of the Environment and Ministry of Health, Labour and Welfare: Investigation of facilities in relation to water quality accident (Japanese)	When a water quality accident was caused by formaldehyde at the Tone River system in 2012, the PRTR substance hexamethylenetetramine (HMT) was identified as a formaldehyde precursor based on research by national institutes. Then, local governments investigated facilities who reported PRTR data of HMT at the Tone River system about their handling or treatment situation of the substance and identified the probable source of the contamination.
National Government (US)	Impact of P2 on TRI Toxic Releases from Manufacturing	Data from EPA's TRI (US's PRTR) was used to conduct the first quasi-experimental retrospective evaluation of how implementing a source reduction (pollution prevention) project affects the quantity of toxic chemicals released to the environment by an average industrial facility.
Local Government (Japan)	Kawasaki City: Environmental Indicator (Japanese)	PRTR data have been used as one of the indicators in the priority objective of the Kawasaki City Basic Environmental Plan. The 2011 revision set a target 30% reduction of the notification amount of highly toxic PRTR chemicals by 2018 compared to 2008.
Industry (US)	P2 Impact: How a Competitor's Data can Help Your Company Cut Pollution	As part of annual reporting, the TRI (US's PRTR) collects pollution prevention (P2) data and makes the information on P2 trends and specific activities performed by facilities easy to access through the TRI Pollution Prevention Search Tool. By comparing facilities across a sector or between parent companies, users can see who is leading the way in implementing meaningful P2 activities.
National Government (Japan)	Ministry of the Environment: Annual Report on Ozone Layer Monitoring (Japanese)	Japanese PRTR data of Ozone Depleting Substances (ODS) and calculated Ozone Depletion Potential (ODP) and Global Warming Potential (GWP) are used to develop annual reports on the ozone layer.
National Government (Canada)	Canadian Environmental Sustainability Indicators (CESI)	Environmental indicators on air, climate, water, nature, and human influence.
Investment/Financial Community (US)	Calvert Investments	Calvert Investments uses data from TRI (US's PRTR) to screen investments. Calvert's research strives to create a holistic view by identifying which specific Environmental, Social and Governance (ESG) factors are most relevant (i.e., financially material) within a given industry.
Investment/Financial Community (US)	Neuberger Berman	Neuberger Berman, an investment management firm, uses TRI (US's PRTR) data to screen investments.
National Government (Spain)	Public reports (Spanish) Dynamic Times series on line (Spanish/English)	PRTR data are regularly used by national authorities to prepare different types of public reports and information, and also to encourage consistency with other reporting requirements (i.e. national inventories, CLRTAP, GHGs, Hg, MED/POL, waste –INE/EUROSTAT, UWWTP)
Regional Governments (Spain)	Regional reports on the State of Environment (Spanish)	PRTR data are also used by the regional competent authorities to prepare the corresponding annual reports on the state/assessment of the environment. Reports of this type are published/accessible to the public on the regional web pages. At regional level, PRTR data also are used in preparing the regional inspection plans for the main industrial activities.
Industry (Spain)	Sectorial assessment and guidance, i.e. cement industry. (Spanish)	Industry uses PRTR data reports for internal use (<i>mainly</i>). Trends/evolution over the years. Monitoring /grounds its environmental performance; being in line (consistent) with other reporting requirements. Development of sectorial guidance for determining releases /off-site transfers data (national/regional level).

1.3. Risk Assessment

PRTRs include data on quantities of pollutants released to the environment and transferred in wastes. Many PRTR-listed pollutants are toxic chemicals or present other risks, which vary by chemical. Governments and other stakeholders use PRTR data as one of the sources of information to characterise

the risks posed by chemicals or other pollutants tracked by PRTRs. Examples of PRTR data use in Risk Assessment are summarised in Table 4.

Table 4. PRTR data use in Risk Assessment

Stakeholder	Data Use	Description
National Government (Japan)	PRTR data use for tiered-Risk Assessment under the Chemical Substances Control Law (Japanese)	Environmental exposures (environmental concentration, human intake) can be estimated from PRTR data (released amount), by using mathematical models (G-CIEMS etc.).
National Government (Japan)	Technical Guidance for Risk Assessment of Priority Assessment Chemical Substances under the Chemical Substances Control Law (Japanese)	Japan's government uses the PRTR data for tiered-Risk Assessment of industrial chemical substances to designate substances, which shall be restricted from manufacturing and import to reduce the environmental risk, in the Chemical Substances Control Law (CSCL).
Local Government (US)	Duwamish Valley Cumulative Health Impacts Analysis	A community based participatory research project used data from TRI (US's PRTR) to quantify health risks for areas of a community impacted by Superfund site contamination.
National Government (US)	Risk Evaluations for Existing Chemicals under TSCA	The Toxic Substances Control Act (TSCA) requires the US EPA to evaluate the safety of chemicals in commerce. TRI (US's PRTR) data are used to prioritise chemicals for risk evaluation, to evaluate how a chemical is used, and to inform decisions on risk management actions.
National Agency and Local Government (Japan)	Quantifies the human health risk in areas surrounding factories (Japanese)	The National Institute of Technology and Evaluation (NITE) and local governments in Japan collaborated to develop a simulation technique to estimate the atmospheric concentrations of chemical substances in areas surrounding factories by using PRTR data for risk assessment. By using the estimated atmospheric concentrations in conjunction with hazard information, users can conduct a risk assessment to quantify the level of human health risk via the air in areas surrounding factories.
National Agency (Japan)	Activities to promote risk reduction in local areas by using PRTR data and the risk assessment results (Japanese)	National Institute of Technology and Evaluation (NITE) has provided business operators with information on the risk assessment results and simulation techniques by using PRTR data to promote risk reduction in local areas. This information is expected to contribute to the promotion of appropriate chemical management for business operators. This activity is finally aimed at fostering awareness of importance on chemical management among business operators.
National Government (Canada)	Chemicals Management Plan	The Chemicals Management Plan (CMP) is a Government of Canada initiative aimed at reducing the risks posed by chemicals to Canadians and their environment. Data from chemical inventories, such as the NPRI, serve as sources of information for risk assessment of chemicals.
National Government (Canada)	Polycyclic Aromatic Compounds Analysis	<i>Analysis of polycyclic aromatic compounds (PACs) in the Canadian environment: Sources and emissions.</i> Research article presenting current knowledge on Canadian PAC emissions, based on data from the NPRI and Canada's Air Pollutant Emissions Inventory.
Media (US)	Floods are Getting Worse and 2500 Chemical Sites Lie in the Water's Path	A New York Times analysis of federal floodplain and industrial data, using TRI (US's PRTR) facility data, shows that about 1400 sites that handle toxic chemicals are located in areas at highest risk of flooding, with another 1100 sites in areas of moderate flooding risk.

1.4. Education/Research

PRTR data represent a valuable source of information to educate students and the public about pollutant releases, and also provide a valuable resource for researchers seeking to understand pollutant releases and transfers. Examples of PRTR data use in Education/Research are summarised in Table 5.

Table 5. PRTR data use in Education/Research

Stakeholder	Data Use	Description
National Government (Canada)	Partnerships with the National Pollutant Release Inventory	The National Pollutant Release Inventory (NPRI) (Canada's PRTR) organises activities in collaboration with museums, government, industry, international organisations, academia, non-governmental organisations, and more. The activities are tailored to each group to promote a broader understanding of the NPRI and pollution tracking in Canada. The NPRI delivers information sessions, mentors students, presents at events, and provides tailored products to stakeholder groups to help inform visitors, clients or partners.
National Government (Canada)	Canada Agriculture and Food Museum	The National Pollutant Release Inventory collaborated with Canada Agriculture and Food Museum to raise awareness of the impacts of pollutants released into the air, water and land. Examples of activities include: <ul style="list-style-type: none"> An educational activity kit for high school students that presents the impacts of land cultivation and livestock farming on the environment; An exhibition panel on tracking pollutants in Canada for the soil lab; Two articles published on Ingenium Channel focusing on the NPRI and pollution created through Canadian food production.
National Government (Canada)	Canada Science and Technology Museum	The National Pollutant Release Inventory collaborated with Canada Science and Technology Museum to develop an activity guide to explore pollution release in the country, as well as to highlight the uses and limits of such a database. This activity kit includes: <ul style="list-style-type: none"> A guide for educators and introductory presentation slides; A link to a NPRI student dashboard created in Tableau and available on the Tableau public website (link below) - a simplification of the NPRI Data Search Tool; Curriculum connections (included in the guide for educators); Student handouts (included in the guide for educators).
Local Government (Japan)	Kawasaki City: seminars to the public (Japanese)	PRTR emission and release data within Kawasaki City has been used to provide information to the public and businesses about the current state of chemicals in the city.
Academia (US)	Toxic Release: a high-touch educational game	Toxic Release is a high-touch educational game created by students and faculty at SUNY Plattsburgh. The simulation is designed to overcome barriers to teaching and learning about toxics and environmental governance. The project is supported by the Environmental Protection Agency's (EPA) Toxics Release Inventory (US's PRTR) University Challenge, an outreach programme intended to spur creative research and education about the threats posed by hazardous pollutants.
National Government (Canada)	Use of the National Pollutant Release Inventory in environmental research: a scoping review	A review of peer-reviewed research found 225 journal articles that used NPRI data and identified the most common data elements and chemicals studied.
Academia (Canada)	Pollution Reporter App	The Pollution Reporter Mobile App Version 2.0 translates and connects government, industry-reported, and peer-reviewed sources of data (including Canada's NPRI data) into accessible information about the known health effects of pollutants. Users can search by polluter, by chemical pollutant or by health category or symptom.

1.5. Environmental Justice

Historically, certain communities have been burdened with disproportionate impacts from pollution and other environmental harms, often because these communities are made up of marginalised groups. Environmental justice means ensuring all communities are treated fairly, regardless of their socioeconomic status. Because PRTR data are at the facility level, they show the precise location of pollutant releases and can be combined with other data, such as demographic data, to help identify environmental justice concerns. Examples of PRTR data use in Environmental Justice are summarised in Table 6.

Table 6. PRTR data use in Environmental Justice

Stakeholder	Data Use	Description
National Government (US)	EJScreen	The EJScreen mapping tool combines many socioeconomic, demographic, health, and other indicators with information about the location of TRI (US's PRTR) facilities and TRI release quantities as well as other environmental datasets.
Local Government (US)	California Communities Environmental Health Screening Tool: CalEnviroScreen 4.0	The California Communities Environmental Health Screening Tool: CalEnviroScreen 4.0 is a screening methodology that can be used to help identify California communities that are disproportionately burdened by multiple sources of pollution. The CalEnviroScreen 4.0 results are available as a mapping tool. Data from TRI (US's PRTR) are used in several of the indicators available in the tool.
National Government (US)	Pollution Prevention-Environmental Justice Mapping	This mapping tool allows users to identify industrial facilities located in or adjacent to communities with EJ concerns. The Tool uses data from US EPA's TRI, as well as other US EPA data sources, and combines it with data on the demographics of the communities where the facilities are located.
Media (Canada)	Le Journal de Montréal: 100 most polluting factories in Quebec (French)	Users can view overall rankings for companies with the largest emissions for the year 2020. Individual facility details, such as CO ₂ emissions, yearly trends, and other statistics are also shown on the site. Le Journal de Montréal uses several data sources, including Canada's NPRI data, to create the list.
National Government (Israel)	Identify areas with high emission intensity: Haifa Bay Report Low Emission Zone The Future of Haifa Bay	Haifa is the municipality with the highest number of reporting facilities to the Israeli PRTR (17 reports in 2020). Many of the facilities are in the old industrial area of Haifa Bay, where petrochemical industries are currently active. In the annual PRTR report of 2013 (published in October 2014), Haifa led the list of localities in non-methane volatile organic compounds (NMVOC) emissions. Haifa also had the highest emission density (kg emission per square kilometre). As a result, the Government passed the decision <i>National plan for decreasing air pollutants and diminishing environmental hazards in Haifa 2015-2020</i> .
National Government (Israel)	Examine correlation between emissions and socio-economic status (<i>not yet published</i>)	The purpose of this work is to use PRTR data to examine the relationship between the level of emissions to air in a municipality and its socio-economic index. The level of emissions to air is represented by the external cost of emissions.

1.6. Building Partnerships/Supporting Public Trust

Governments, community groups, and industries use PRTR data to make connections and build partnerships between regulated facilities, impacted communities, and regulators (i.e., governments). These partnerships can be leveraged to disseminate information, encourage pollution prevention, and help residents understand the types and sources of pollution in their communities. Examples of PRTR data use in Building Partnerships/Supporting Public Trust are summarised in Table 7.

Table 7. PRTR data use in Building Partnerships/Supporting Public Trust

Stakeholder	Data Use	Description
Local Government (US)	Community/industry partnerships in Minneapolis, Minnesota (video)	Concerned about local air pollution, residents of the Southeast Como neighbourhood near Minneapolis, Minnesota, used data from EPA's Toxics Release Inventory (TRI) to identify nearby industrial facilities with the largest air emissions.
National Government (Canada)	National Pollutant Release Inventory Multi-Stakeholder Work Group	The NPRI Multi-Stakeholder Work Group (Work Group) is the primary consultative body for the NPRI. The Work Group has been active in providing input and making recommendations regarding the programme since its inception. The Work Group will continue to operate as a part of the broader NPRI consultation process that includes all interested Canadian stakeholders and the general public.
National Government (Canada)	Partnerships with museums and festivals	The National Pollutant Release Inventory (NPRI) organises a number of activities in collaboration with museums, government, industry, international organisations, academia, non-governmental organisations, and more. The activities are tailored to each group to promote a broader understanding of the NPRI and pollution tracking in Canada.
Industry (US)	Spotlight on US EPA Region 5's Food Manufacturing and Processing Industry	In 2015, the Great Lakes Regional Pollution Prevention Roundtable (GLRPPR) began a project to analyse public data sets, including TRI, to determine the impact of manufacturing on the economy and environment of the six states in US EPA Region 5. The goal of this project was to use the analysed results to assist pollution prevention technical assistance programmes (P2 TAPs) with targeting their assistance efforts.

Stakeholder	Data Use	Description
National Government (US)	TRI P2 Spotlight Series	This bulletin series focuses on specific toxic chemicals and describes the pollution prevention (P2) efforts of certain TRI (US's PRTR) industry sectors and facilities. EPA provides this information to highlight TRI P2 accomplishments by facilities, spur discussion on possible alternatives, and encourages industry to move towards preferred waste management practices and safer alternatives.

2 PRTR Data Tools

PRTR agencies and other groups create an array of tools for the visualisation and interpretation of PRTR data. Examples of these tools are presented in this chapter, classified by the following;

- Presentation of PRTR data
- Ranking
- Geographic Information Systems/Mapping
- Toxicity Weighting
- Data Visualisations

2.1. Presentation of PRTR data

PRTR data are presented in basic formats on the websites of national governments. The examples of PRTR data presentation are summarised in Table 8.

Table 8. Examples of PRTR data presentation

Stakeholder	Tool	Description
EU	European Industrial Emissions Portal	The website presents information on the largest industrial complexes in Europe, releases and transfers of regulated substances to environmental media, waste transfers as well as more detailed data on energy input and emissions for large combustion plants in EU Member States, Iceland, Liechtenstein, Norway, Serbia, Switzerland and the United Kingdom*.
Japan	PRTR Information Plaza	The “PRTR Information Plaza” provides PRTR related information such as the overview of the Japanese PRTR, results of compiled PRTR data, and background on related laws and regulations.
Canada	NPRIWebsite	Canada’s National Pollutant Release Inventory (NPRI) data can be viewed using the National Pollutant Release Inventory data search tool (1993 to 2020 data) and the National Pollutant Release Inventory Dashboard (2011 to 2020 data). Both tools can be accessed from the NPRI website and allow users to search by pollutant, industry, and location.
US	TRI Data and Tools	Access nationwide data from TRI (US’s PRTR) from a variety of tools, organised by topic of interest and users’ familiarity with TRI data.
Commission for Environmental Cooperation (CEC)	Commission for Environmental Cooperation’s North American PRTR Initiative	The North American PRTR Initiative (NAPRTR) Project compiles and disseminates data reported by facilities to Canada’s NPRI, Mexico’s Registro de Emisiones y Transferencia de Contaminantes (RETC) and United States’ Toxics Release Inventory (TRI) and makes these data available to the public through Taking Stock Online which allows users to explore North American PRTR data.
Organisation for Economic Cooperation and Development (OECD)	Global Inventory of Pollutant Releases	The OECD compiles data from seven PRTR systems on select chemicals and presents releases by PRTR, by chemical, by sector, and by medium in a data exploration tool.
Norway	Norwegian PRTR	Norway’s PRTR gathers and presents data on emissions from facilities in Norway. Norway presents data from facilities that are required to report, supplemented with other data sources to calculate emissions from non-reporting sources.
Japan	NITE Information on PRTR	National Institute of Technology and Evaluation (NITE) provides PRTR related information on its website.

Stakeholder	Tool	Description
Canada	Air Pollutant Emissions Inventory	Canada's Air Pollutant Emission Inventory (APEI) is a comprehensive inventory of air pollutants at the national, provincial and territorial levels, based in part on NPRI (Canada's PRTR data). The APEI compiles emissions of 17 air pollutants contributing to smog, acid rain and poor air quality since 1990.
Spain	PRTR-España (Spanish/English)	PRTR-España is the <i>Spanish Register of Emissions and Pollutant Sources</i> . It provides information to the public on the pollutant releases of more than 100 substances to air, water and land, and off-site transfers of wastes from the main industrial facilities according to the international, European and national regulation. It is also the official IED installation inventory. Information is available both at facility and at aggregated level. Different ways of accessing /getting the information are offered.

Note: Following the UK's withdrawal from the EU, the UK will not submit data to the E-PRTR. Therefore, UK data is only available for the years 2007-2019 on E-PRTR, and continues to be available from 2007 onwards on UK PRTR. From 2020 onwards, Northern Ireland will submit [UK Registry](#) information in the scope of the Northern Ireland Protocol to the E-PRTR.

2.2. Ranking

Because PRTR data are facility-specific, they can be used to compare facilities' environmental performance and rank facilities. The examples of Ranking are summarised in Table 9.

Table 9. Examples of Ranking

Stakeholder	Tool	Description
EEB (EU)	Industrial Plants Data Viewer (IPDV)	Allows visualisation and comparison of air emissions from Large Combustion Plants, with externalised health pollution costs, permit conditions comparability, lowest/highest emitters in category with search filters. The tool uses multiple data sources including E-PRTR data.
US	TRI P2 Search Tool	Compare release and waste management quantities among selected facilities, and get pollution prevention information by industry sector, chemical, geography or parent company.
Spain	PRTR-España search options	In all options available for searching/consulting information on the web site there is the possibility of "ranking" the obtained results just by clicking on the corresponding table headers.

2.3. Geographic Information Systems/Mapping

PRTR data on an aggregate basis are informative for many types of analyses, but maps are especially useful for understanding conditions in specific geographic areas. Some examples of PRTR mapping tools and other tools that include mapping of PRTR data are shown in Table 10.

Table 10. Examples of Geographic Information Systems/Mapping

Stakeholder	Tool	Description
Japan	PRTR Data Map Display System (Japanese)	"PRTR Data Map Display System" maintained by Ministry of the Environment of Japan enables users to search and browse individual PRTR data notified by business entities on the map.
Japan	NITE PRTR Map: GIS Mapping (Japanese)	National Institute of Technology and Evaluation (NITE) has published the PRTR map for PRTR utilisation on the NITE website, which shows two types of data: 1) released amount as reported by business operators shown on a topographical map by municipality unit; and 2) the estimated atmospheric concentrations of chemical substances using PRTR data on a topographical map. Moreover, NITE has published files for the PRTR map data using the shapefile format, which is used by the Geographic Information System (GIS) tool. By using these shapefiles, users can analyse them in GIS.
US	TRI Where You Live	A map-based exploration of TRI (US's PRTR) facilities and releases by state, metropolitan area, watershed, and tribe. <i>Where You Live</i> also includes a Community Profile that allows users to see the demographic information for the communities where TRI-reporting facilities are located.

EU	European Industrial Emissions Portal	The general public can use the Portal to identify industrial facilities in their vicinity, check their emissions (including accidental releases), transfers and assess whether their associated Industrial Emissions Directive (IED) installations comply with permitting requirements and EU Member State enforcement actions in that regard, granted IED derogations, BAT application in permits and other useful information. The Portal is based on several data sources including E-PRTR.
Canada	View NPRI Maps	In addition to data tools, NPRI (Canada's PRTR) data can be viewed as a series of maps showing facility locations, air pollutants, water pollutants, land pollutants, and disposals or transfers of pollutants.
Spain	PRTR-España Facility level. View PRTR-España maps.	Geographical information/location is offered to the public both at facility/installation level and the national level (selecting industrial activity codes. In this case, specific facility information is available by clicking on the map spot).

2.4. Toxicity Weighting

PRTRs include information on many different pollutants, sometimes numbering in the hundreds of different substances. Pollutants have different toxicities, so comparing kilograms of releases of one pollutant to kilograms of another is not an accurate way to rank or compare the relative risks the pollutants may pose to humans and the environment. Toxicity weighting tools apply factors to weight releases based on the toxicity of the pollutant, helping users to better understand risk-related factors from pollutant releases. Some examples of Toxicity Weighting are shown in Table 11.

Table 11. Examples of Toxicity Weighting

Stakeholder	Tool	Description
US	EasyRSEI (Risk-Screening Environmental Indicators) Dashboard	The screening-level RSEI model characterises trends in the potential hazards and relative potential risks of releases reported to TRI (US's PRTR). With EasyRSEI, users can compare and help identify geographic areas, industry sectors, and chemical releases that may be associated with significant potential human health risks.
Organisation for Economic Cooperation and Development (OECD)	Global Inventory of Pollutant Releases	The OECD compiled data from seven PRTR systems and applied toxicity weighting factors to account for chemicals' varying toxicity and the impact of release medium.

2.5. Data Visualisations

PRTR databases are usually large databases that require database or spreadsheet software to analyse. Understanding and analysing PRTR data can be challenging for users who aren't well-versed in the types of information included in PRTRs. Data visualisations are often developed by PRTR programmes and other stakeholders to present data to the public or other audiences in an easy-to-understand format. Some examples of Data Visualisations are shown in Table 12.

Table 12. Examples of Data Visualisations

Stakeholder	Tool	Description
Canada	NPRI Overviews	Tools and resources for accessing, analysing and interpreting National Pollutant Release Inventory (NPRI; Canada's PRTR) data on pollutant releases and transfers in Canada.
US	TRI Toxics Tracker	Access nationwide TRI (US's PRTR) data from the past 12 years and easily explore by geography, facility, industry, chemical, or specific data elements.
US	National Emissions Inventory Report	The National Emissions Inventory (NEI) is an inventory of emissions of air pollutants compiled and aggregated from data submitted at the state level. Missing data are back-filled in part with TRI (US's PRTR) data. The NEI report presents NEI data as charts and maps, allowing users to filter to geographic areas and pollutant types of interest.

Spain	PRTR-España	Different options to access the information are available. Per each option selected dynamic menus are also offered to the public to facilitate the customised information required: i.e. data at facility level , releases by industrial activities , pollutant releases , waste transfers , waste transfers by industrial activity , time series pollutant releases , time series waste transfers , etc.)
Spain	PRTR-España home page	Directly to the information from the home page, showing the main results and also links to the other query options.

3 OECD Database on the Uses of PRTR data and Tools for their presentation

This document was intended to be prepared as a dynamic/living resource rather than only a static PDF so that it can be updated more regularly. This is especially important given how quickly the technologies underlying data access/analyses/visualisation tools change. This idea resulted in developing a modernised database compiling all the examples of the uses of PRTR data and Tools for their presentation, which is incorporated into the OECD website, Global Inventory of Pollutant Releases¹ (see Figure 1).

This interactive database has filtering options, which enable users to search for examples in accordance with their interests by types of stakeholders and uses, and countries/organisations.

For the objective to keep it dynamic/living, the database would be updated regularly by adding new examples. Stakeholders are thus encouraged to provide the OECD Secretariat (ehs.contact@oecd.org) with relevant examples. The WP-PRTRs will then review the provided examples before incorporating them to maintain the quality of the information.

Figure 1. Screenshot of the draft database on PRTR data use

Category: All	Data Use	Description
<input type="checkbox"/> (Blank) <input type="checkbox"/> Building Partnerships/Supporting Public T... <input type="checkbox"/> Education/Research <input type="checkbox"/> Environmental Justice <input type="checkbox"/> Environmental Performance Assessment <input type="checkbox"/> Policymaking <input type="checkbox"/> Risk Assessment	ACanada Agriculture and Food Museum	The National Pollutant Release Inventory collaborated with Canada Agriculture and Food Museum to raise awareness of the impacts of pollutants released into the air, water and land. Examples of activities include: <ul style="list-style-type: none"> - An educational activity kit for high school students that presents the impacts of land cultivation and livestock farming on the environment; - An exhibition panel on tracking pollutants in Canada for the soil lab; - Two articles published on Ingenium Channel focusing on the NPRI and pollution created through Canadian food production.
<input type="checkbox"/> (Blank) <input type="checkbox"/> Academia <input type="checkbox"/> Industry <input type="checkbox"/> International Government <input type="checkbox"/> International Organization <input type="checkbox"/> Investment/Financial Community <input type="checkbox"/> Local Government	Activities to promote risk reduction in local areas by using PRTR data and the risk assessment results (Japanese)	National Institute of Technology and Evaluation (NITE) has provided business operators with information on the risk assessment results and simulation techniques by using PRTR data to promote risk reduction in local areas. This information is expected to contribute to the promotion of appropriate chemical management for business operators. This activity is finally aimed at fostering awareness of importance on chemical management among business operators.
<input type="checkbox"/> (Blank) <input type="checkbox"/> Canada <input type="checkbox"/> CEC <input type="checkbox"/> Chile <input type="checkbox"/> EU <input type="checkbox"/> Israel <input type="checkbox"/> Japan	California Communities Environmental Health Screening Tool: CalEnviroScreen 4.0	The California Communities Environmental Health Screening Tool: CalEnviroScreen 4.0 is a screening methodology that can be used to help identify California communities that are disproportionately burdened by multiple sources of pollution. The CalEnviroScreen 4.0 results are available as a mapping tool. Data from TRI (US's PRTR) are used in several of the indicators available in the tool.
	Calvert Investments	Calvert Investments uses data from TRI (US's PRTR) to screen investments. Calvert's research strives to create a holistic view by identifying which specific Environmental, Social and Governance (ESG) factors are most relevant (i.e. financially material) within a given industry.
	Canada Science and Technology Museum	The National Pollutant Release Inventory collaborated with Canada Science and Technology Museum to develop Student handouts (included in the guide for educators).
	Canada's NPRI Data Highlights	The National Pollutant Release Inventory's (NPRI) data helps track pollution patterns and trends across Canada. This webpage highlights recent NPRI reporting and trends in the data from facilities about the pollution they release to the air, water or land. The NPRI also collects data about the disposal and transfer of pollutants.

¹ <https://www.oecd.org/chemicalsafety/pollutant-release-transfer-register/>