PRTRs and impacts at national level
Benefits, practical uses and experiences
at global level

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Environmental Protection Agency
Republic of Serbia

Implementation of Pollutant Release and Transfer Registers (PRTRs) as a tool for Persistent Organic Pollutants (POPs) reporting, dissemination and awareness raising for Belarus, Cambodia, Ecuador, Kazakhstan, Moldova and Peru
25th – 27th March 2019, Siem Reap, Cambodia
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Republic of Serbia

• Republic of Serbia is a sovereign state situated at the crossroads of Central and Southeast Europe in the southern Pannonian Plain and the central Balkans.

• Serbia is a parliamentary republic, with the government divided into legislative, executive and judiciary branches.

• The country covers a total of 88,361 km².

• Politically Serbia is divide on 4 territories: North Serbia (Vojvodina), Central, East and West Serbia.

• There are 138 municipalities and 23 cities.

• Population in 2016 – 7,058,322
Environmental Protection Agency

The Environmental Protection Agency is a body within the Ministry of Environmental Protection, as a legal entity, performs professional tasks related to:

- Development, coordination and management of the national information system for environmental protection (monitoring of the state of environmental factors through environmental indicators, the registry of pollutants, etc.);
- The implementation of the national monitoring air and water quality;
- Management National Laboratory;
- The collection and compilation of environmental data, processing and preparation of State of the environment reports and implementation of environmental policy;
- The development of procedures for the processing of environmental data and their assessment;
- Keeping data on best available techniques and practices and their implementation in the field of environmental protection;
- Cooperation with the European Environment Agency (EEA) and the European Network for Information and Observation (EIONET), as well as other duties specified by law.
Environmental Protection Agency
National Register of Pollution Sources

Department of National Register of Pollution Sources

- National Register of Pollution Sources Department
  - Industrial and communal pollution Unit
  - Air Emission Inventories Unit
The National Register of Pollution Sources is a set of systematic information and data on environmental pollution sources. That is a register of all human activities that may have a negative impact on the quality of the environment in a given area.

This Register is an information subsystem of the Environmental Information System of the Republic of Serbia, which is managed by the Environmental Protection Agency in accordance with the Law on Ministries and the Law on Environmental Protection.

The National Register was established to meet the growing needs of state authorities, as well as the wider community, for information on sources and quantities of polluting substances emitted by the environment.
The activities of reporting and data collection started in 2007 with the establishment of the National Register of Pollution Sources.

During 2009 and 2010, a complete legal framework for managing the National Pollution Register was adopted.

In 2010 a set of by-laws was adopted, which regulated the reporting system.
It encompasses a series of thematic units:

- PRTR - Pollution Release and Transfer Register;
- Emissions to air;
- Emissions to water;
- Emissions to soil,
- Waste management;
- Products that become special waste streams after use.
The existing part of the register related to air emissions includes a series of databases and inventories such as:

- PRTR,
- Emissions to air in accordance with the Regulation on ELV,
- Large combustion plants,
- Inventory of main pollutants according to CLRTAP,
- Greenhouse Gas Inventory by UNFCCC,
- Inventory of unintentionally released long-lasting organic pollutants – Stockholm convention.
- VOC
- F gases
The existing part of the register related to water emissions includes:

- PRTR,
- Emissions to water from WWTP and communal water discharge system.

The current legal framework is not well developed and it is necessary to change it.
The area of the National Register related to waste management includes the following components:

- PRTR,
- Generation and management of municipal and industrial waste,
- Packaging and packaging waste,
- Products that after use become special waste streams,
- Special waste streams,
- Medical waste,
- Hazardous waste,
- Landfills and waste landfilling,
- Recovery, recycle of waste
- Imports and exports of waste,
- PCBs and RSV waste,
- Register of issued waste management licenses.
Eionet core data flows 2018

The preliminary scores presented below are based on 12 out of 12 data flows which will be evaluated for 2018.
National Register of Pollution Sources vs PRTR

Number of reported waste generated facilities and facilities participating in National Register of Pollution Sources

<table>
<thead>
<tr>
<th>Year</th>
<th>Waste generation</th>
<th>Waste reuse</th>
<th>Waste disposal</th>
<th>Waste import</th>
<th>Waste export</th>
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<td>94</td>
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</table>

Number of reported waste generated facilities and facilities participating in PRTR

### National Register of Pollution Sources vs PRTR

#### Number of submitted reports in National Register of Pollution Sources

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<tr>
<th>Year</th>
<th>Waste generation</th>
<th>Waste disposal</th>
<th>Waste reuse</th>
<th>Waste disposal</th>
<th>Waste import</th>
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<td>305</td>
<td>94</td>
<td>46</td>
<td>102</td>
<td>13374</td>
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</table>

### Number of reported waste generated facilities and facilities participating in PRTR

2011 – 2016 from 455 – 521 reports
National Register of Pollution Sources vs PRTR

Total waste generation amount in National Register of Pollution Sources in 2016

9.197.100 tons

Total waste generation amount in PRTR in 2016

7.864.400 tons

85.5%
SEPA started with implementation of PRTR protocol and E-PRTR directive in 2008.

Adopted PRTR protocol and E-PRTR directive 166/2006 through the Bylaw of National Register of Pollution Sources in 2010.

PRTR protocol ratified in 2011.

IS developed in 2012.

GIS developed in 2016.
Capacity thresholds (Annex I) are implemented.

Thresholds for releases (Annex II) are not implemented. All amounts of released pollutants must be reported.

All data in Format for the reporting of release and transfer (Annex III) are obligatory.

Additional data in forms:
1. Raw materials consumption, fuel consumption, amount of products;
2. Technical data about stacks, wastewater outlets, waste managements.

There is no confidentiality toward SEPA – All data must be reported. SEPA take care about confidentiality.

Data are collected once a year.
THE REPORTING FORMS

There are 5 different forms:
1. General data,
2. Emissions to air,
3. Emissions to water,
4. Emissions to land,
5. Waste management.

✓ The forms are not developed in line with PRTR protocol. We asked for more data than PRTR protocol.

✓ We want to avoid the possibility of mistakes, cheating and fake emission data using different methods (drop down lists, mandatory fields etc.)

✓ We asked for data which give us opportunity to use emission models to calculate their emissions as validation tools.
CONSTITUTION OF THE REPUBLIC OF SERBIA

Right to Healthy environment

Article 74

Everyone shall have the right to healthy environment and the right to timely and full information about the state of environment. Everyone, especially the Republic of Serbia and autonomous provinces, shall be accountable for the protection of environment. Everyone shall be obliged to preserve and improve the environment.
PRTR LEGAL SYSTEM

LAW ON ENVIRONMENTAL PROTECTION

- System of environmental protection - framework
- Polluter monitoring
- Reporting obligations
- Register of environmental pollution sources – methodology, forms, time framework, guidelines, data submission
- Control of data submission and accuracy of submitted data
- Fees
- Access to information
- Penalties

SECTORAL LAWS
Different kind of Guidelines in SEPA

- Guidelines for using SEPA IT system
- Guidelines for form filling
- Guidelines for emission estimation

These Guidelines have the purpose of reducing the possibility of errors.
Guidelines for emission estimation

These guidelines are part of bylaw and their use is obligatory.

The basis for guidelines developing are:

✓ 2016 EMEP/EEA air pollutant emission inventory guidebook
✓ 2006 IPCC Guidelines for National GHG Inventories

- Livestock
  - Broilers
  - Laying hens
  - Pigs and sows

- Mining - ongoing
- Household appliances
- Landfills - ?
Guidelines for emission estimation

The basis for guidelines developing are:

✓ 2016 EMEP/EEA air pollutant emission inventory guidebook
✓ 2006 IPCC Guidelines for National GHG Inventories version 2015
Guidelines for emission estimation

<table>
<thead>
<tr>
<th>Document</th>
<th>Download</th>
<th>Directions and emission calculators</th>
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<td>Appendix 5.</td>
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<td>5.2 Laying hens</td>
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<tr>
<td>5.3 Pigs and sows</td>
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<td>Form 1.</td>
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<td>Form 2.</td>
<td><img src="image" alt="Download" /></td>
<td><img src="image" alt="Calculators" /></td>
</tr>
</tbody>
</table>
Guidelines for emission estimation

Emission calculator

✓ Easy to use tool
✓ Simple Excel file
✓ The values from yellow cells must be typed into air emission PRTR forms
INFORMATION SYSTEM OF NATIONAL PRTR REGISTER

Information system of National PRTR register is one of the most important subsystems of the environmental information system in the Republic of Serbia, which is lead by Environmental Protection Agency.

This information system is completely developed in the Environmental Protection Agency.

By using the software tools of this information system, data has being collected and processed, verified and analyzed, and after all, delivered to interested parties.

Whole system is bilingual – Serbian and English.
INFORMATION SYSTEM NRIZ

- Created and follow the national legislation.
- Based on Microsoft platform.
- TEAMS SR used for development, SQL server chosen for a database.
- TEAMS ensures modular improvements of IS.
- Bilingual interface – Serbian and English
- IS is web oriented and available on webpage of Serbian Environmental Protection Agency. [http://www.sepa.gov.rs/](http://www.sepa.gov.rs/)
INFORMATION SYSTEM OF NATIONAL PRTR REGISTER

For all these activities it is necessary to establish strong IT support:

1. Modular IT system.
2. GIS component.

IT system is continually expanded with the goal that all implemented segments merged into a single system in accordance with national and international legislation (Single window reporting).

IT system needs to help operators to deliver their reports on the easiest way and as quickly as possible, but also help administrators to more easily verify data and prepare the necessary reports.
• Modular IT system.
• GIS component.
• Facilities have obligation to report using IT system of National register of Pollution Sources established in SEPA.
• No paper or Excel reporting for PRTR.
• IT system is continually expanded with the goal that all segments of National Register of Pollution Sources merged into a single system in accordance with national and international legislation,
SELECTION OF FORMS

Automatic system for selection of forms using a set of questions. Company select forms alone during input of master data.
COMPETENT AUTHORITY PORTAL
- Reporting -

The procedure of reporting i.e. data delivery is reduced to the simple filling of electronic forms. After entering, data is stored in the database.

The system has the history of the records. Each data change is recorded, and in that way significantly simplifies the tracking of data changes.

During the reporting period, according to the defined methodology, system administrators approve data submitted and then lock the reports. Data in locked reports can no longer be changed.

Data submitted is sent, after analytical processing, to the interested parties.
COMPETENT AUTHORITY PORTAL (CA)

CA solution is implemented in accordance with domestic and international legislation for reporting in the field of environmental protection.

The portal of the competent authority is an application which, according to its purpose, can be viewed from two aspects:

1. From the user’s side, this application is a system for data submitting of a company as a reporting entity.
2. On the side of the competent authority, the application is a system for analyzing the collected data, which provides a clear picture of the state of the environment in the Republic of Serbia.

Bearing in mind these aspects, user roles in the system are clearly defined, so appropriate access rights are automatically assigned to each user of the system.
SEPA AUTHORITY PORTAL (CA)
### SEPA AUTHORITY PORTAL (CA) – Tracking changes

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#### Vrste proizvoda po periodima

<table>
<thead>
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<th>Vrste proizvoda po periodima</th>
<th>Naziv proizvoda</th>
<th>Količina proizvoda stavljenih na tržište</th>
<th>PDV**</th>
<th>Dozvoljene korekcije</th>
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<th>Kreirao</th>
<th>Datum i vreme kreiranja</th>
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<th>Admin</th>
<th>Kreirao</th>
<th>Datum i vreme kreiranja</th>
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</table>
Based on collected data, IT system created dozens of analytical reports.
Portal for data submission trend monitoring
Portal for data submission trend monitoring

<table>
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<tr>
<th>PIB</th>
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<th>Nacionalni ID</th>
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<th>Obrazac 2</th>
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PRTR REGISTAR (REGISTAR VELIKIH IZVORA ZAGAĐIVANJA)
Predruče koja su dostavila kompletne izveštaje

Izveštajne godine: 2017
SEPA collect data from various fields of industrial and communal pollution:

- Emission to air
- Emission to water
- Waste generation and management
- Inland movement of waste
- Transboundary movement of waste
- Products that become special waste streams after use
- VOC
- F gasses
- CLRTAP and GHG inventories
- etc.
Data quality

Data providers are facilities.

• Two types of data:
  1. Master data – Name, Address, Technical data
  2. Annual data – Emissions, Consumption, Products

✓ All master data are mandatory and typed once, except in the case of changing. SEPA compare entered master data with other data sources such as Agency for Business Registration, Custom office etc.

✓ Annual data are mandatory for prescribed emission sources within facility and pollutants. All data cells are protected from incorrectly entered data. If all the required fields are not entered, the form can not be saved and user is forced to go back and correct mistakes.

Detailed control of entered numeric data is not possible but SEPA IT system, after entering, checks overlay values through the years.
Data quality

Data providers are facilities. They are not always interested to give a detailed answer, they want to avoid reporting, so it is necessary to encourage to fill data properly.

• Don’t give the opportunity to operators to make a mistake.
• Minimize free writing (everybody can make a typing mistakes) – especially in the cells which can be use for search or sort data
• Use code lists instead of words for search – waste code from European waste catalog, NACE codes for economic activities, business registers, etc.
• If the list code do not exist make your own.
• Use of all possible IT controls such as:
  ➢ drop down lists,
  ➢ previously prepared queries,
  ➢ previously prepared reports,
Data lists

- PRTR Master Data
  - Annex I Activity Codes
  - Country Codes
  - Medium Codes
  - Method Basis Codes
  - Method Type Codes
  - Method Types
  - Method Designations
  - NACE Activity Codes
  - NUTS Region Codes
  - River Basin District Codes
  - Waste Treatment Codes
  - Waste Type Codes
  - Unit Codes
  - Pollutant Codes
  - Pollutant Groups
  - Pollutant Thresholds
  - Sector Specific Pollutants
  - Coordinate Systems
  - Competent Authority Party
  - Confidentiality

- NRIZ Master Data
  - Air lists
  - Water lists
  - Waste lists
  - PTP2 lists
  - AAO1/AAO2 lists

- Other Master Data
  - Location list
  - Permits lists
  - APR list
Data quality check using overlay statistic method
Data validation

• Analytical reports – Dozens of different reports for internal use and reports preparation.
• Data validation reports
• Data compared through the years.
• Comparison between facilities
• Emission to air, emission to water, waste management reports
New Serbian PRTR data validation tool

Blockchain technology

This technology will be applied to the waste movement in Serbia and annual reporting on waste management.
Polluter pays principle

The ‘polluter pays’ principle is the commonly accepted practice that those who produce pollution should bear the costs of managing it to prevent damage to human health or the environment. For instance, a factory that produces a potentially poisonous substance as a by-product of its activities is usually held responsible for its safe disposal.

The polluter pays principle is part of a set of broader principles to guide sustainable development worldwide (formally known as the 1992 Rio Declaration).
Polluter pays principle

They have a dual function: fiscal and environmental. Their use provides financial resources, as well as an incentive for the private and business sector to align their behavior and activities with the policy objectives of the environment. Therefore, they have an incentive and criminal character.

According Serbian Environmental Law, all PRTR companies need to pay polluter pays fees.

- Emission to air,
- Waste generation and management,
- Emission to water.
Extended Producer Responsibility

Extended Producer Responsibility (EPR) is a policy approach under which producers are given a significant responsibility – financial and/or physical – for the treatment or disposal of post-consumer products.

Assigning such responsibility could in principle provide incentives to prevent wastes at the source, promote product design for the environment and support the achievement of public recycling and materials management goals. Within the many countries the trend is towards the extension of EPR to new products, product groups and waste streams such as electrical appliances and electronics.
Extended Producer Responsibility

Products:
- Tires,
- Motor oils
- Vehicles
- Electric and electronic equipment
- Batteries and accumulators

In the information system of the National Register, in the period from 2011 to 2018, collected data for fees in the amount of more than 62 billion RSD, or around 600 millions USD.
Challenges and Problems

Human Capacities in SEPA in 2008

In SEPA only one person was in charge on the PRTR.

Human Capacities in SEPA in 2018

In SEPA there are 3 permanent employees and 4 employees on contract in charge on the PRTR.
Challenges and Problems

The reporting obligations – spreading information

The report submitting entities attempt to evade their obligations in all possible ways, no matter of the field – Air or water emissions, water etc., stating that they were not aware of the obligation to report, that they cannot collect data or that they simply do not want to report.

It is not acceptable that companies do not know about reporting obligations after 8 years from passing the bylaws. It is visible from practice that report submitting entities very successfully exchange information among themselves. For the purpose to overcome this problem, the Agency sends a letter to all report submitting entities each year, early in April, in order to inform them that they did not fulfil their obligations.
Challenges and Problems

The reporting obligations – spreading informations

One of the main problems is that companies do not have reporting continuity, except large operators. Some of them change person submitting the report each year, leading to different results each year.

For the purpose of building capacities of report submitting entities, the employees of the National Register Department hold 15 and 20 seminars a year, independently or in cooperation with the Ministry or Chamber of Commerce on all the report-related topics, especially for the newly established reporting.

For example, 7 seminars in the entire Serbia were held for the Document on waste movement, as new reporting obligation. Average report submitting entities response is over 100, or even 200 attendees.
Challenges and Problems

Existing PRTR register is high level instrument which can be used for data collection and report preparation for different international conventions and other reporting obligations.

PRTR register with minor data changes and extensions can be used for fulfill many other reporting obligations.
Public Access to Data is prescribed by Environmental law.

Principle of public information and participation

In the exercise of the right to healthy environment everyone shall be entitled to be informed of the environmental status and to participate in the process of decision making whose implementation may have an effect towards the environment.
Different ways to present data to public:

1. Reports
   - State of Environment report
   - Sectoral reports – Waste, packaging and packaging waste, plastic bags, products etc.
2. Open data portal – E-government
3. PRTR portal with GIS component
4. NRIZ data portal
5. Waste GIS portal
Public Access to Data

Serbian National PRTR portal

Dear users.
Welcome to the Pollution Release and Transfer Register portal of Republic of Serbia. This Register is a part of National Register of Pollution Sources, leads by Serbian Environmental Protection Agency.

PRTR register is a special international treaty developed as a Protocol of the Aarhus Convention and it is a new kind of international agreements in the environmental field. For the first time and on a detailed and specific way environmental issues and human rights are linked.


Serbia started with implementation of the PRTR Protocol and E-PRTR directive in 2008. Information system was developed in 2012, and GIS was developed in 2016.

In 2011, Serbia began with the submission of data from the E-PRTR Register of the European Environment Agency in Copenhagen on a voluntary basis, which is positively rated by the European Commission in all EC Progress Reports.
Serbian National PRTR portal
Search engine
Serbian National PRTR portal
Search on maps
Serbian National PRTR portal

Reports
Serbian National PRTR portal
Navigation
Serbian National PRTR portal
Navigation
Serbian National PRTR portal Navigation
Serbian National PRTR portal
Navigation
NRIZ GIS
Waste management portal

Waste treatment facilities
NRIZ GIS
Waste management portal

Filters

- Geographical areas
- Waste codes
- Amount
NRIZ GIS
Waste management portal
Трибина "Мапирање циркуларне економије у Србији"

Агенција за заштиту животне средине је учествовала на трибини под називом "Мапирање циркуларне економије у Србији", одржаној 8. фебруара 2018. године у просторијама Привредне коморе Србије, у организацији Удружења индустрије отпада Србије "Храбри чистач", Групе за анализу и креирање јавних политика, а уз подршку компаније Veolia. Трибина је била део преко 60 догађаја који су се одржали широм света, у оквиру светске недеље посвећене теми циркуларне економије покренуте од стране Circular Economy Club (Клуб за циркуларну економију) из Лондона.

Трибина је имала за циљ да прикаже еколошке и економске предности, али и могућности и проблеме увођења циркуларне економије у Републици Србији. Представница Агенције за заштиту животне средине је истакла значајну улогу Агенције у тој области, јер Агенција активно сарадује са EEA и припрема Национални профил за Извештај EEA о ресурсној ефикасности, циркуларној економији и снабдевању сировинама "2018 More Less Report". Овде можете наћи претходни извештај "More from less - material resource efficiency in Europe", а Национални профил Републике Србије из 2016. године ОВДЕ.

Обвезници извештавања о производима који после употребе постају посебни токови отпада

На сајту Агенције за заштиту животне средине се од 7. фебруара налази списак предузећа која до сада нису доставила извештаје о производима који после употребе постају посебни токови отпада (Образац PTP2). Списак је направљен на основу статистичких дана упарених производа који исто време постоје и употребе посебни токови отпада (Образац PTP2).
## Open data portal

<table>
<thead>
<tr>
<th>Period from year</th>
<th>2010</th>
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<tbody>
<tr>
<td>Period to year</td>
<td>2016</td>
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- Region of facility
- Area of facility
- Municipality of facility
- Location of facility
- Principal business activity
- PRTR Code
- Company
- Facility
- Waste Group
- Waste Subgroup
- Index Number
Open data portal

Količine generisanog otpada - pregled po godinama

*Količine generisanog otpada prikazane su u t/sep.*

<table>
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<th>Mjesto postrojenja</th>
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<th>Preduzeće</th>
<th>Postrojenje</th>
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<th>Izvrsni izvr.</th>
<th>Opis otpada</th>
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✓ Development of different IT modules – VOC, F gasses, etc.
✓ Improvement of legal acts for waste reporting according new Circular economy directives.
✓ Blockchain technology for waste tracking.
✓ “NO PAPER REPORTING” according new Electronic documents Law.
✓ Development of GIS portal for air emissions and water emissions.
✓ Development of portals for UNFCCC and CLRTAP convention reports.
Implementation of PRTR protocol and development of National PRTR register is the best path to determine all pollution sources in country – air, water, soil, waste.

Who benefits from the established PRTR registry?

- Government
- Environmental authorities
- Industry
- Society
- Environmental consultants, laboratories etc
- NGO
- Science and development
- Environment
Benefits of PRTR register

BENEFITS TO THE INDUSTRY

• Improves the knowledge of industry on environment.
• Access to data on the level of emissions of a rival company.
• Industrial facilities can learn about their pollutants and obtain information on processes of which they may not be aware, and can utilize this knowledge for improving their image and obtain financial gain.
• Data provided by the industry gains official support through validation and dissemination.
• The concept of environment starts to become a priority as a result of competition among facilities; and pollution may be reduced.
• Information on air and water pollution can be extrapolated to new projects thereby costly environmental problems can be prevented.
Benefits of PRTR register

BENEFITS TO THE INDUSTRY

- The fact that the public can access information on facilities may make the industry more sensitive towards the environment, leading them to take measures to prevent pollution.
- For industrialists, their commitments to the environment can be monitored concretely, and are verifiable.
- E-PRTR data will help operators to find out whether there is a need for implementing best available technologies and practices.
- Reliable E-PRTR data enhances the opportunity for fair competition in international markets.
- E-PRTR may improve the acceptance of facilities by residents in the nearby area.
Benefits of PRTR register

BENEFITS FOR ENVIRONMENTAL AUTHORITIES

• Holistic, integrated collection of pollution data. One system – wide range of integrated information.
• Opportunity to compare data with other states when determining environmental policies.
• Gaining information on whether emissions are at a level that threatens the country.
• Opportunity to monitor improvements or declines in performance of industry.
• Better information on pollution helps to prevent pollution.
• Generation of empirical data for the development of environment management strategies, and coastal and environment plans.
• Enables to do inter-sectoral and inter-facility comparisons.
• Uncommon pollutants, in addition to common ones, will be visible.
Benefits of PRTR register

BENEFITS FOR THE ENVIRONMENT

• Helps to achieve global sustainability
• A reliable and easily accessible E-PRTR database will motivate firms to invest into clean technologies and will indirectly improve air, water and soil quality.
THANK YOU FOR YOUR ATTENTION