# TRI and Beyond

The Toxics Release Inventory (TRI) serves as a model for pollutant release and transfer inventories worldwide and how TRI relates to other EPA environmental and chemical management programs and laws.

The TRI is a powerful resource that provides the public with information about how TRI chemical wastes are managed by facilities in the United States. Beyond the TRI, there are many programs at EPA that also collect various types of information about TRI-listed chemicals and other regulated chemicals. The next figure is an overview of some of the laws that EPA implements, and the industrial activities or processes EPA regulates under these laws.

While many programs at EPA focus on one environmental medium, the TRI Program is unique in that it covers all environmental media by tracking chemical releases to air, water, and land, as well as chemical waste transfers. In addition, facilities submit TRI reports annually. As a result, TRI data provide some of the most up-to-date, comprehensive information available and can be used with other datasets to provide a more complete picture of national trends in chemical waste management practices.
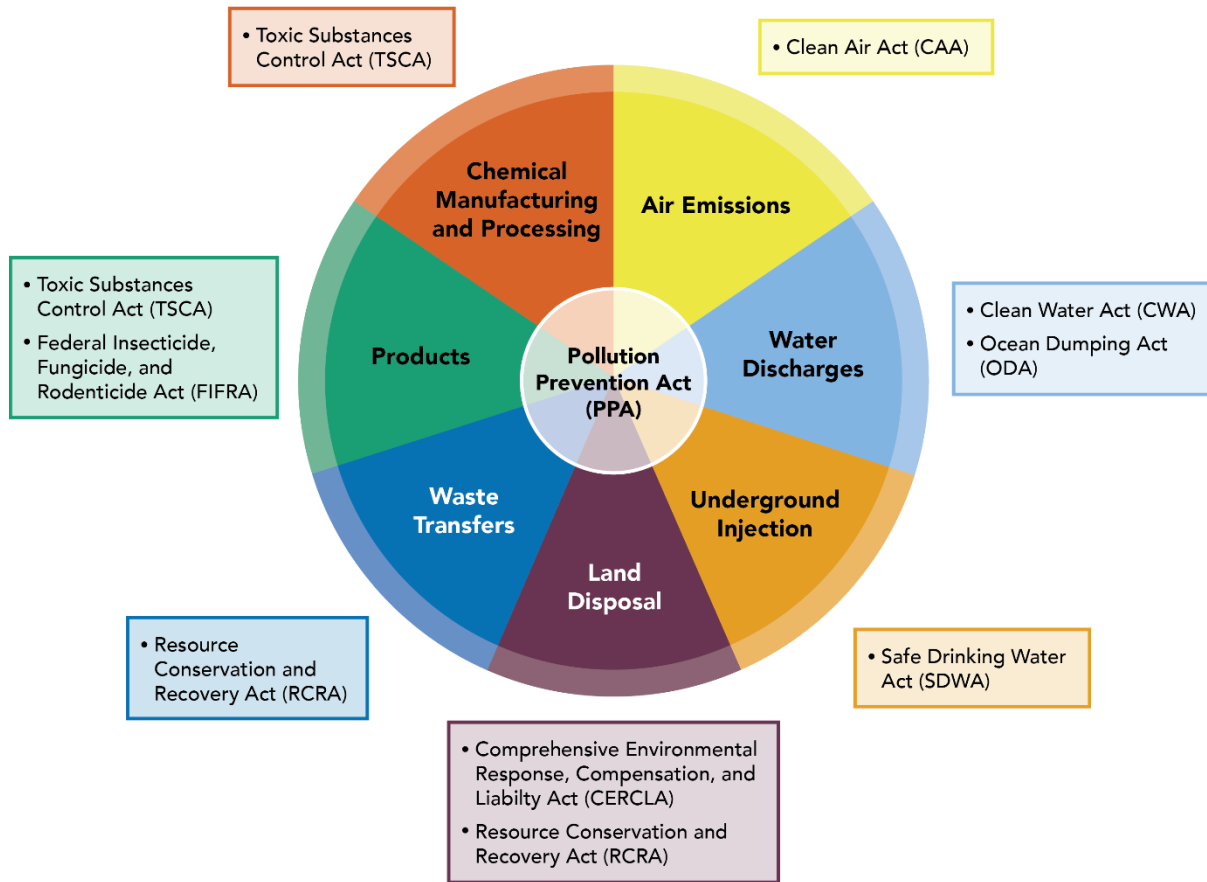
The Emergency Planning and Community Right-to-Know Act (EPCRA) establishes requirements for emergency planning, preparedness, and reporting on hazardous and toxic chemicals involving air releases, water releases, land disposal, waste transfers, and the quantities of chemicals on site, the type and location of storage of those chemicals, and their use. The TRI Program was established by EPCRA and covers the reporting of information pertaining to toxic chemicals; see the EPCRA section below for details.

Offices throughout EPA use TRI data to support their respective programmatic missions to protect human health and the environment. These uses include technical analysis for regulation, informing program priorities and projects, providing information to internal and external stakeholders, and many other applications.

TRI Around the World

In 1986, with the enactment of the Emergency Planning and Community Right-to-Know Act (EPCRA), the TRI was established as the first national Pollutant Release and Transfer Register (PRTR) in the world. Since then, environmental agencies in other countries have implemented their own PRTR programs modeled after the TRI Program. Currently, at least 50 countries have fully established PRTRs or have implemented pilot programs, as shown in the map below. More countries are expected to develop PRTRs in the future, particularly in Asia, South America, and Africa.
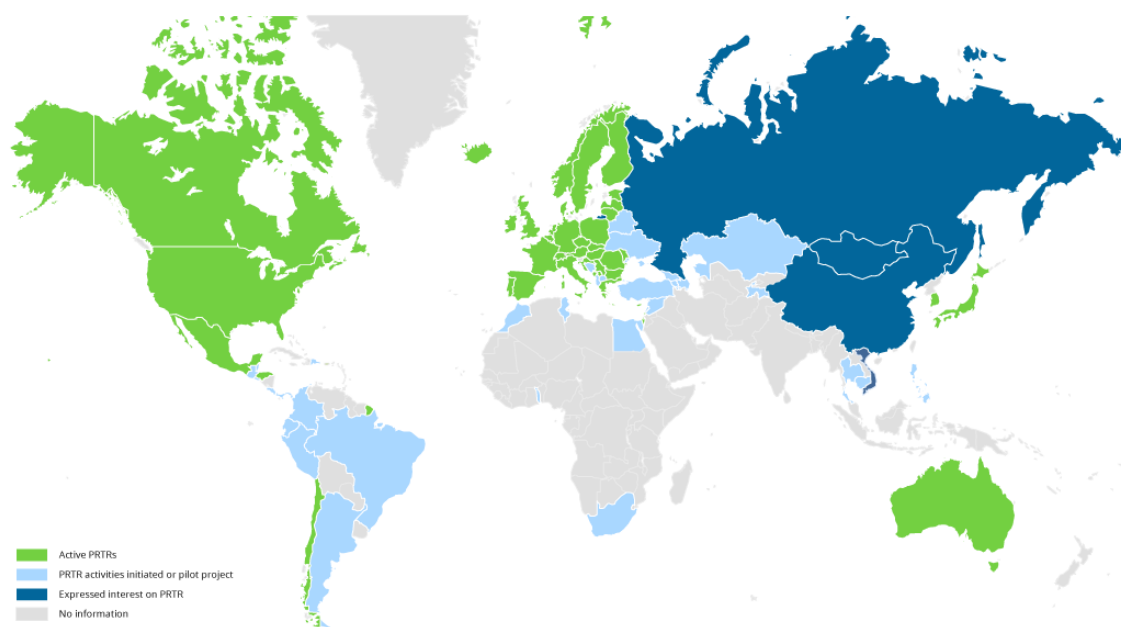
Source: United Nations Economic Commission for Europe PRTR Global Map

As global PRTR implementation continues to grow, the TRI Program will continue to work with international organizations to:

- Assist in the development of new PRTR programs,
- Promote data standards and core data elements to improve PRTR comparability and harmonization and allow global scale analyses, and
- Showcase the utility of PRTR data for assessing progress towards sustainability.

International Project Spotlight: Using PRTR Data to Assess Progress toward the U.N. Sustainable Development Goals

Watch a short video on the recently published report on global PRTRs

Background. The TRI Program collaborates with the Organization for Economic Cooperation and Development (OECD) on PRTR projects, including a project to use global PRTR data to assess progress toward the United Nations' (U.N.) Sustainable Development Goals (SDGs). These goals are designed to "shift the world on to a sustainable and resilient path" by setting targets that encompass the economic, environmental, and social dimensions of sustainability. As stakeholders act toward achieving the SDGs, the U.N. will measure progress toward the Goals using existing data where possible. One such existing data source for some of the SDGs may be found in countries' PRTR data.

Project Focus. The U.N. SDG Target 12.4 EXIT was identified as the target most directly relevant to PRTR data and focuses on reducing chemical releases to the environment.

Project Status. OECD recently published the project report EXIT based on aggregated data for multiple chemicals from multiple countries to provide insight into progress toward achieving SDG Target 12.4. The figure below from the report shows a comparison of 2008 and 2017 air and water releases of 14 pollutants from manufacturing facilities as reported to the 7 PRTRs analyzed in the project.

Next steps. EPA is working with OECD to define the next steps for building on the work completed to date. The findings may be included in the next update of the U.N. Sustainable Development Goals Report EXIT.

Change in releases of 14 pollutants, 2008 to 2017 (kg)

■ 2008　■ 2017
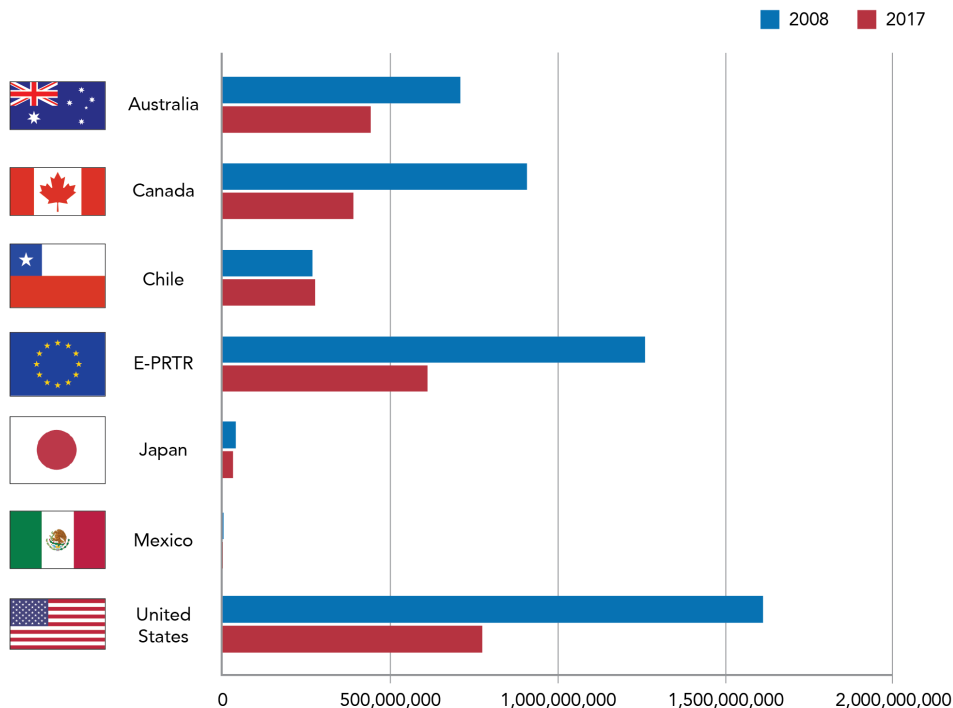
Note: PRTRs included in the analyses: Australia – National Pollutant Inventory (NPI), Canada – National Pollutant Release Inventory (NPRI), Chile – Registro de Emisiones y Transferencia de Contaminantes (RETC), European Union – European Pollutant Release and Transfer Register (E-PRTR), Japan Pollutant Release and Transfer Register (PRTR), Mexico – Registro de Emisiones y Transferencia de Contaminantes (RETC), United States – Toxics Release Inventory (TRI). *Chemicals included in the analyses*: 1,2-Dichloroethane, Benzene, Cadmium, Chromium, Di-(2-ethylhexyl) phthalate, Dichloromethane, Ethylbenzene, Mercury, Nickel, Particulate matter, Styrene, Sulfur oxides, Tetrachloroethylene, Trichloroethylene.

Mapping Cross-Border Transfers

Facilities must report on the TRI chemicals in wastes they transfer off site for management. Facilities report how the waste was managed off site and the name and address of the receiving facility.
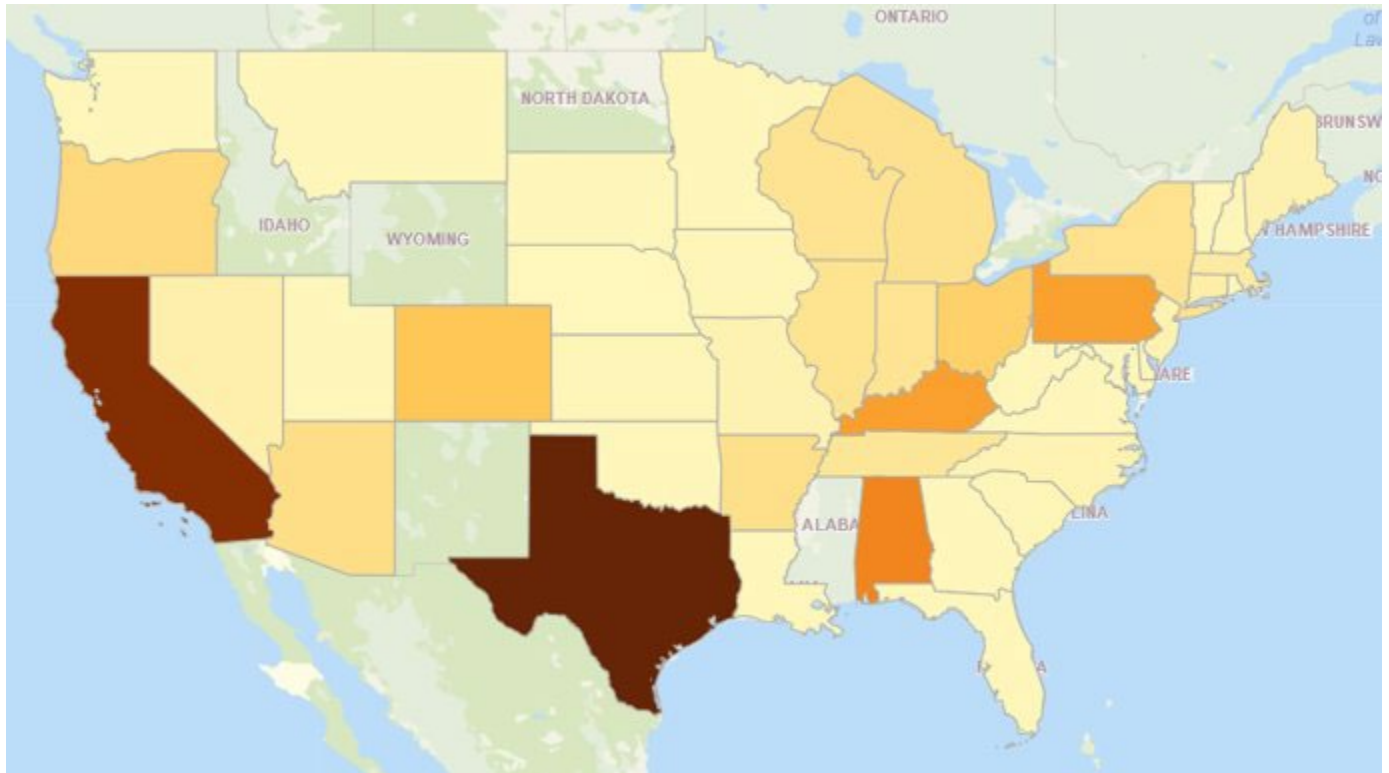
This interactive map shows states with TRI facilities that shipped waste containing TRI chemicals outside of the US. Click on a state to view sending facility locations in that state and countries receiving waste from facilities in that state. Explore this data in more depth in the full TRI National Analysis Dashboard.

More on EPCRA

The TRI was established by the Emergency Planning and Community Right-to-Know Act (EPCRA) in 1986. The creation of EPCRA was in response to what is widely considered to be the worst industrial chemical disaster in history. Beginning on December 2, 1984, methyl isocyanate gas was accidentally released from a chemical plant in Bhopal, India. Thousands of people died that night and many more were injured. Thousands more died in the following months and years as a result of their exposure, and survivors of the accident continue to suffer with permanent disabilities. Approximately six months after the Bhopal accident, a similar incident occurred at a facility in West Virginia. These two events raised concern about local preparedness for chemical emergencies and the availability of information on toxic chemicals.

EPCRA establishes requirements for federal, state and local governments, Indian tribes, and industry regarding **emergency planning** and **"Community Right-to-Know" reporting** on hazardous and toxic chemicals. These requirements are specified in EPCRA's four major provisions as shown in the figure below. Information collected under EPCRA helps states and communities develop a broad perspective of potential chemical hazards at individual facilities and in surrounding neighborhoods. Section 313 of EPCRA established the Toxics Release Inventory (TRI) which contributes to this broader perspective by making information about the management of toxic chemicals available to the public. This information supports informed decision-making by companies, government agencies, non-governmental organizations, communities, and others.
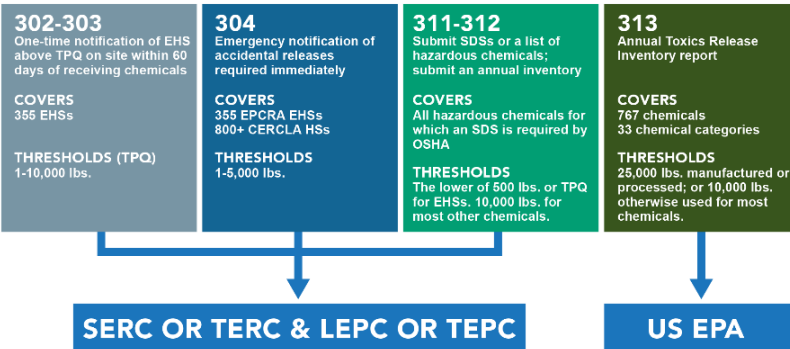
Key Elements of the Emergency Planning and Community Right-to-Know Act (EPCRA)

WHO PLANS FOR EMERGENCIES?

Section 301 of EPCRA established a structure to help the federal government, states, tribes, and communities prepare for emergencies

SERC State Emergency Response Commission
TERC Tribal Emergency Response Commission

LEPC Local Emergency Planning Committee
TEPC Tribal Emergency Planning Committee

- Designate emergency planning districts
- Appoint, oversee, and coordinate with LEPCs and TEPCs
- Develop procedures for receiving information requests
- Review emergency response plans from LEPCs and TEPCs

- Members include local officials, facility representatives, community groups, and media
- Develop emergency response plans and review them annually
- Disseminate information to public about chemicals present in community

EPCRA HAS FOUR MAJOR PROVISIONS

302-303 EMERGENCY PLANNING NOTIFICATION AND EMERGENCY RESPONSE PLANS

311-312 HAZARDOUS CHEMICAL INVENTORY REPORTING

304 EMERGENCY RELEASE NOTIFICATION

313 TOXICS RELEASE INVENTORY

CERCLA Comprehensive Environmental Response, Compensation, and Liability Act

(E)HS (Extremely) Hazardous Substance

SDS Safety Data Sheet

TPQ Threshold Planning Quantity

WHAT DO FACILITIES REPORT UNDER EPCRA?

302-303
One-time notification of EHS above TPQ on site within 60 days of receiving chemicals

COVERS
355 EHSs

THRESHOLDS (TPQ)
1-10,000 lbs.

304
Emergency notification of accidental releases required immediately

COVERS
355 EPCRA EHSs
800+ CERCLA HSs

THRESHOLDS
1-5,000 lbs.

311-312
Submit SDSs or a list of hazardous chemicals; submit an annual inventory

COVERS
All hazardous chemicals for which an SDS is required by OSHA

THRESHOLDS
The lower of 500 lbs. or TPQ for EHSs. 10,000 lbs. for most other chemicals.

313
Annual Toxics Release Inventory report

COVERS
767 chemicals
33 chemical categories

THRESHOLDS
25,000 lbs. manufactured or processed; or 10,000 lbs. otherwise used for most chemicals.

SERC OR TERC & LEPC OR TEPC

US EPA

WHAT'S IN AN EMERGENCY RESPONSE PLAN?

Section 303 requires LEPCs and TEPCs to develop emergency response plans, which dictate what should happen in the case of a chemical accident. These plans are reviewed annually and include:

- Facilities with EHSs above TPQs
- Routes for transporting EHSs
- Other facilities at risk or contributing to risk
- Community and facility emergency coordinator(s)
- Emergency notification procedures
- Methods to determine affected area and population
- Methods and timing to practice response drills
- Evacuation plan
- Training for emergency responders
- Emergency equipment with responsible facilities and persons

WHAT'S IN A FACILITY'S TRI REPORT?

Section 313 requires facilities that meet the reporting criteria to submit annual TRI reports that include data on the quantities of chemicals they released into four environmental media:

AIR   WATER   LAND   OFF-SITE

In 1990, EPA's Pollution Prevention Act expanded the TRI report to include information on facilities' activities to prevent or minimize waste generation and changes in production. In addition to releases, facilities are required to report the quantities of chemical wastes managed through:

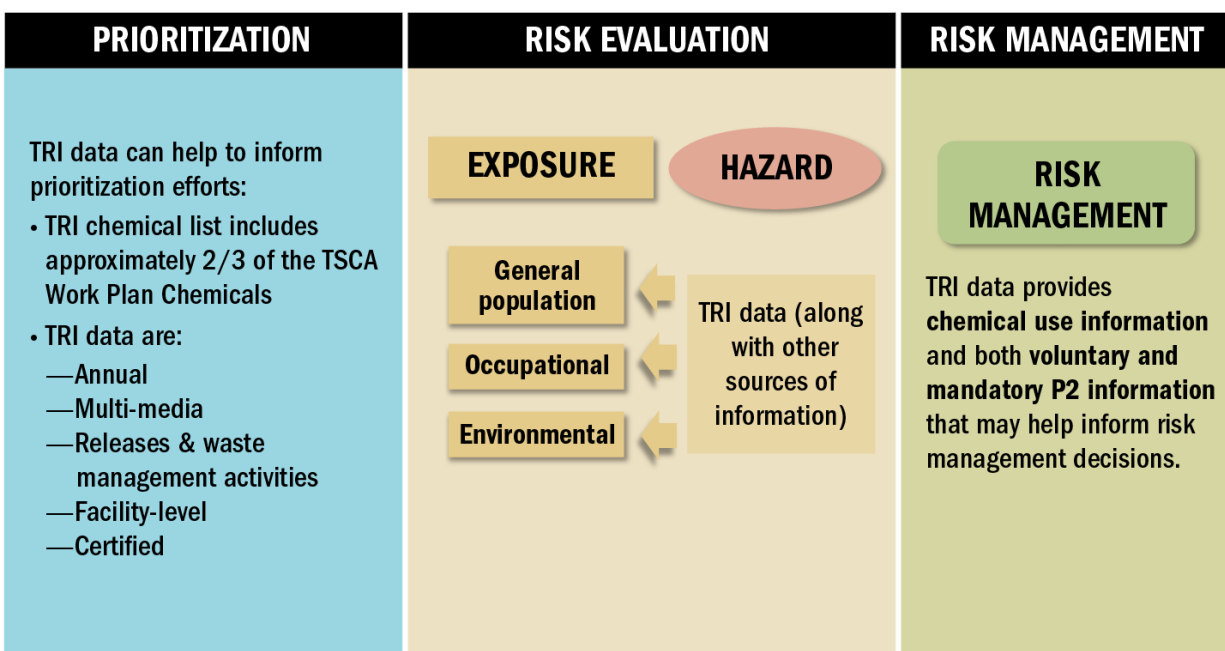RECYCLING   ENERGY RECOVERY   TREATMENT   RELEASES

208

TSCA and TRI

TRI data and information contribute to evaluating and ensuring the safety of chemicals under the Toxic Substances Control Act (TSCA). TSCA, as amended by the Frank R. Lautenberg Chemical Safety for the 21st Century Act, is the nation's primary chemicals management law and it requires EPA to evaluate the safety of chemicals in commerce. Many of the chemicals that EPA selects for evaluation are from the 2014 Update to the TSCA Work Plan, which helps to focus and direct EPA's activities. The Agency is required to conduct a transparent, risk-based evaluation process. TRI data serve as an important source of chemical and environmental information for assessing and managing chemicals under TSCA.

The three stages of EPA's process for evaluating the safety of existing chemicals (shown in graphic below) are prioritization, risk evaluation, and risk management. EPA first **prioritizes** chemicals in commerce through a risk-based screening process **evaluates** those chemicals to determine if they present unreasonable risks, and then if EPA identified unreasonable risk, **manages** the unreasonable risks to protect health and the environment. TRI data may be used for each step in this process.

TRI Data Use in TSCA Chemical Evaluations

PRIORITIZATION	RISK EVALUATION	RISK MANAGEMENT
TRI data can help to inform prioritization efforts: • TRI chemical list includes approximately 2/3 of the TSCA Work Plan Chemicals • TRI data are: —Annual —Multi-media —Releases & waste management activities —Facility-level —Certified	**EXPOSURE** **HAZARD** General population Occupational Environmental TRI data (along with other sources of information)	**RISK MANAGEMENT** TRI data provides **chemical use information** and both **voluntary and mandatory P2 information** that may help inform risk management decisions.

Prioritization. Approximately two-thirds of the chemicals identified in the 2014 update of the TSCA Work Plan are also included on the TRI list of chemicals. TRI data can inform EPA's

prioritization of chemicals for risk evaluation because the data are collected annually and include the location of facilities and the quantities of TRI chemicals they released to air, water and land, and transferred to off-site locations. In addition, trend analyses of TRI data can help identify changes over time in the location and quantities of releases, and the types of industrial sectors managing these chemicals.

Risk evaluation. A TSCA risk evaluation of a chemical is a comprehensive evaluation of the risks the chemical poses to health and the environment. EPA evaluates how the chemical is used, which may include manufacturing and import, processing, use, distribution in commerce, and disposal over the chemical's life cycle. During risk evaluation, EPA is required to assess hazards of and exposures to the chemical in the workplace, to the general population and to environmental (e.g., ecological) receptors. TRI and other data are used to support these assessments under TSCA.

Risk Management. If EPA determines that certain uses of a chemical pose an unreasonable risk to health or the environment, EPA will manage the risk through regulatory actions or other risk management options. These regulatory actions and options may include labeling with warnings and instructions for use, recordkeeping or notice requirements, restrictions on certain uses or activities to reduce exposure or environmental releases, or a ban of the chemical entirely. EPA may use TRI data, such as on chemical use and pollution prevention practices, to help inform these risk management decisions.

TSCA Risk Evaluation Update

In 2017, EPA published the scope documents for the initial ten chemicals undergoing risk evaluation under the amended TSCA in which nine of the ten chemicals are TRI-reportable chemicals (except for C.I. Pigment Violet 29).

In 2019, EPA designated 20 high-priority chemicals to undergo risk evaluation. These chemicals will move through the process required by TSCA to evaluate any unreasonable risks they may present to human health or the environment. This marks a major milestone for EPA in its efforts to ensure the safety of existing chemicals in the marketplace through its updated chemical management program. In 2020, EPA published the final scope documents for these 20 chemical substances, of which 13 are TRI-reportable chemicals.