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ARTICLE

IT IS TIME TO REEVALUATE THE TOXIC RELEASE INVENTORY

Susan E. Dudley*

I. INTRODUCTION

In 1986, on the heels of the deadly chemical release in Bhopal, India, Congress directed the Environmental Protection Agency ("EPA") to begin requiring certain industries to report on the presence and release of certain toxic chemicals on an annual basis.¹ The EPA considers this "Community Right-to-Know" program to be "among its most effective strategies for improving environmental performance,"² and it has expanded its scope significantly over the last sixteen years.³ Through regulation, the EPA has increased the number of industries required to report under the Toxic Chemical Release Inventory ("TRI") by 30 percent, and more than doubled the number of chemicals covered.⁴ In 1999, the Agency increased the required number of TRI reports for chemicals that persist and bioaccumulate in the environment⁵ and has considered expanding the required reporting further to include chemical use (tracking and reporting the amounts of chemicals moving through a facility), as well as chemical release.⁶ On January 17, 2001, the EPA lowered the reporting thresholds for lead and lead compounds from 25,000 lbs to 100 lbs.⁷

However, despite the EPA's enthusiasm for Community Right-to-Know,⁸ and its claims about the "success of the Right-to-Know programs,"⁹ it has not offered a thoughtful examination of the real impacts of the TRI program. The EPA has neither provided an objective account of the validity or usefulness of the information the program collects and disseminates, nor has it evaluated how well the TRI accomplishes the EPA's goals of protecting public health and the environment from chemical hazards. Perhaps more importantly in the "post-9/11 world," the EPA has not addressed the dangers of making chemical risk information broadly available to potential terrorists. In 2004, nearly twenty years after the Bhopal disaster, Americans face a new chemical threat. Terrorists have attacked on American soil, and have indicated an interest in using chemical and biological warfare against civilians. The information made public by the TRI may facilitate a terrorist network intent on causing a new chemical tragedy.

Particularly in light of this new threat, the EPA should thoughtfully examine its TRI program. Seventeen years after the first reports were required, it is time the EPA (1) reviewed the goals of the program,

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¹ Emergency Planning and Community Right-to-Know Act ("EPCRA"), 42 U.S.C. §§ 11001-11050 (2000).

² EPA, *TRI-Phase 3: Expansion of the EPA Community Right-to-Know Program to Increase the Information Available to the Public on Chemical Use* [hereinafter *Expansion of Community Right-to-Know*], at <http://www.epa.gov/tri/programs/trip3v6.htm> (last updated Mar. 2, 2004). The EPA notes on its website that this information, while accurate when first created, is now outdated. *Id.*

³ See *infra* Part II.

⁴ *Id.*

⁵ Persistent Bioaccumulative Toxic (PBT) Chemicals, 64 Fed. Reg. 58,666 (Oct. 29, 1999) (to be codified at 40 C.F.R. pt. 372).

⁶ EPA, *Expansion of the Toxics Release Inventory (TRI) to Gather Chemical Use Information: TRI-Phase 3: Use Expansion* [hereinafter *Expansion of TRI*], at <http://www.epa.gov/tri/programs/p3ip94.htm> (last updated Mar. 2, 2004). The EPA notes on its web site that this information, while accurate when first created, is now outdated. *Id.*

⁷ Lead and Lead Compounds, 66 Fed. Reg. 4,500 (Jan. 17, 2001) (to be codified at 40 C.F.R. pt. 372).

⁸ The EPA seventh goal in its 1997-2002 Strategic Plan was "Expansion of Americans' Right to Know About Their Environment." EPA, 1997-2002 STRATEGIC PLAN 50 (1997), available at <http://www.epa.gov/ocfo/plan/epastrat.pdf>.

⁹ *Id.*

(2) evaluated how well TRI has achieved those goals, and (3) looked ahead at what future course would best meet its goals of protecting public health and the environment from chemical hazards.

This article offers some insights for that examination. It begins with a review of the enabling legislation and the implementing regulations, including the most recent regulations governing the reporting of persistent bioaccumulative toxics and lead compounds. Then it considers the rationale for the TRI and examines whether the EPA's economic arguments justifying its expansions of the inventory are adequate. The article then evaluates whether the TRI in fact meets the purposes the EPA and others have identified for it: to provide useful information to communities and to reduce pollution. The article finds that the EPA's goals for the TRI are not adequately linked to health and the environment, that the TRI does not achieve its stated goals, and that the benefits of the recent expansions of the TRI are not commensurate with the costs. The article concludes with recommendations for making the TRI program more effective.

II. COMMUNITY-RIGHT-TO-KNOW REGULATORY HISTORY

In the wake of the catastrophic release of methyl isocyanate from a chemical plant in Bhopal, India, which killed thousands of people, and a subsequent serious, though not deadly, chemical release at a plant in West Virginia, Congress enacted the Emergency Planning and Community Right-to-Know Act of 1986 ("EPCRA").¹⁰

Section 312 of the EPCRA requires certain facilities to submit an annual inventory of the designated hazardous chemicals present at the facility.¹¹ Section 313 requires certain facilities that manufacture, process, or otherwise use more than a threshold amount of any listed "toxic chemical" to submit to both the EPA and the state in which the facility is located, a Toxic Chemical Release Inventory Report (Form R) for that chemical each year.¹² The Form R must identify the quantity of the listed chemical that is "released" to the environment.¹³ With the passage of the Pollution Prevention Act of 1990 ("PPA"), the definition of "release" was broadened to include TRI chemicals that were recycled or treated, as well as those that were transferred off-site as waste or routinely or accidentally released on-site into the air, land or water.¹⁴

Since passage of the Act, the EPA has added over 300 chemicals to the list of toxic chemicals subject to the TRI.¹⁵ In 1997, the EPA expanded the coverage of the TRI to encompass approximately 6,000 facilities in six additional industry sectors, including: mining, electric power generation, hazardous waste disposal, chemical distribution, petroleum wholesale, and solvent recovery.¹⁶

In 1993, the EPA initiated a "TRI-Phase 3" project to expand the TRI to include not only data on the presence or release of chemicals at facilities, but also data on the use and movement of chemicals within the facility.¹⁷ The EPA issued an advanced notice of proposed rulemaking in September 1996,¹⁸ along with an issue paper that stated, "[t]he Agency finds that materials accounting, which is a method for tracking the amounts of toxic chemicals moving through a facility, has promise for filling in Right-to-Know gaps that have

¹⁰ Emergency Planning and Community Right-to-Know Act, 42 U.S.C. §§ 11001-11050 (2000).

¹¹ *Id.*

¹² *Id.*

¹³ *Id.*

¹⁴ Pollution Prevention Act of 1990, 42 U.S.C. §§ 13101-13109.

¹⁵ EPA, *Changes to the TRI List of Toxic Chemicals (1987-2001)*, available at <http://www.epa.gov/tri/chemical/chemlistchanges02.pdf> (last visited Nov. 5, 2004).

¹⁶ Addition of Facilities in Certain Sectors, 62 Fed. Reg. 23,834 (May 1, 1997) (to be codified at 40 C.F.R. pt. 372).

¹⁷ *Expansion of TRI*, *supra* note 5.

¹⁸ EPA, Advanced Notice of Proposed Rulemaking (Sept. 25, 1996), available at www.epa.gov/tri/programs/anprpre.htm (last updated Mar. 2, 2004).

been identified in the present TRI data.”¹⁹ While the EPA has not issued any statements formally abandoning this “materials accounting” expansion, there appears to be no activity underway to pursue it.²⁰

Former Vice President Al Gore announced the Chemical Right-to-Know (“ChemRTK”) Initiative on Earth Day in 1998.²¹ This effort to increase the public availability of information on the toxicity of high production volume (“HPV”) commercial chemicals encourages voluntary efforts by companies to test the toxicity of the chemicals they produce.²² The Vice President also announced two forthcoming rulemakings: (1) a *Children’s Health Test Rule*, which would subject HPV chemicals of particular concern to children’s health to more detailed and extensive testing; and (2) an expansion of the TRI to focus more attention on toxic chemicals that persist and bioaccumulate in the environment.²³

The Children’s Health Test Rule has remained a voluntary evaluation program.²⁴ However, a rule was issued in October 1999 to expand the TRI.²⁵ Among other things, the rule added several persistent bioaccumulative toxic (“PBT”) chemicals to the list of chemicals that must be reported, eliminated options for streamlined reporting of PBT chemicals, and significantly lowered reporting thresholds for PBT chemicals.²⁶ PBT chemicals are chemicals that exist in the environment for a certain length of time (persist) before they are eliminated or transformed by natural processes.²⁷ While Congress set default reporting thresholds at 25,000 pounds for chemicals that are “manufactured” or “processed,” and 10,000 pounds for chemicals that are “otherwise used,” the 1999 rule lowered those to 0.1 grams for dioxin and dioxin-like compounds, 10 pounds for “highly persistent and highly bioaccumulative” chemicals, and 100 pounds for other PBT chemicals.²⁸

The EPA classified lead and lead compounds as PBT chemicals in January 2001.²⁹ This final rule lowered the reporting threshold for lead and lead compounds from 25,000 pounds to 100 pounds, which greatly increased the number of facilities reporting and the number of reports in the TRI, because of the ubiquity of low levels of lead in manufactured products.³⁰

III. THE RATIONALE FOR THE TRI

According to the EPA’s TRI fact sheet for the public, “EPCRA’s primary purpose is to inform communities and citizens of chemical hazards in their areas.”³¹ The EPA’s press information on the report observes:

¹⁹ *Expansion of Community Right-to-Know*, *supra* note 2.

²⁰ While information on Phase 3 is available on the EPA’s web site, the Agency disclaims that the information is outdated. EPA, *Program Development*, available at <http://www.epa.gov/tri/programs/program.htm> (last updated Mar. 2, 2004).

²¹ Press Release, EPA, EPA to Expand Chemical Right-to-Know Program and Provide Public with Better Health Data (Apr. 21, 1998) [hereinafter EPA Press Release], available at <http://www.epa.gov/history/topics/earthday/09.htm>.

²² EPA Office of Pollution Prevention and Toxics, *Voluntary Participation in the HPV Challenge Program*, EPA 745-F-98-002b, at 1 (July 2000), available at <http://www.epa.gov/chemrtk/hpvol2.pdf>.

²³ EPA Press Release, *supra* note 21.

²⁴ EPA, *Voluntary Children’s Chemical Evaluation Program (VCCEP)*, available at <http://www.epa.gov/chemrtk/vccep/index.htm> (last updated Sept. 28, 2004).

²⁵ Persistent Bioaccumulative (PBT) Chemicals, 64 Fed. Reg. 58,666. (Oct. 29, 1999) (to be codified at 40 C.F.R. pt. 372).

²⁶ *Id.*

²⁷ *Id.* at 58,668. “Bioaccumulation is a general term that is used to describe the process by which organisms may accumulate chemical substances in their bodies. The term refers to both uptake of chemicals from water (bioconcentration) and from ingested food and sediment residues.” *Id.* at 58,669.

²⁸ *Id.* at 58,669-70.

²⁹ Lead and Lead Compounds, 66 Fed. Reg. 4,500, 4,503-04 (Jan. 17, 2001) (to be codified at 40 C.F.R. pt. 372).

³⁰ *Id.* at 4,530.

³¹ EPA, *What is the Toxic Release Inventory (TRI) Program*, available at <http://www.epa.gov/tri/whatis.htm> (last updated June 14, 2004).

The TRI Program has been a tremendously successful program. The industries that have reported to TRI since its inception have reduced their on- and off-site releases of TRI chemicals by 54.5 percent or 1.72 billion pounds (for chemicals reportable in all years). Governments - federal, state, and local - have used TRI to set priorities, measure progress, and target areas of special and immediate concern. The public has used the TRI data to understand their local environment, to participate in local and national debates about the choices being made that may affect their health and the health of their children and, ultimately, to exert their influence on the outcome of these debates.³²

Informing the public about hazards in their community is an intuitively desirable social goal. Without knowledge of the likelihood of exposure to health hazards, families may pay more than they would otherwise to live in certain areas, or might take fewer precautions than they would with more information.³³ However, this does not establish that any information on chemical releases is desirable. The fundamental questions of *what* information will enhance the public's understanding of the risks they face, *how much* of it should be released, and *to whom*, must be directly addressed. To address these questions, it is important to recognize that information is costly to produce, and depending on how it is communicated and received, may confuse, rather than inform.³⁴ Even if we determine that information on the release of certain chemicals has a net social value, we cannot assume that more frequently reported information, or information on a broader range of chemicals would be *more* valuable.³⁵ Only when the social costs of information are weighed against the social benefits can a determination be made regarding what and how much information is optimal.³⁶

The EPA's set of goals for TRI is a largely missing a discussion of the goal of protecting public health and the environment. The EPA appears to assume, without justification, that these fundamental goals of the Agency³⁷ will be accomplished as a result of TRI's primary goals. Particularly since the catalyst for the EPCRA was the deadly chemical accident in Bhopal, it is disconcerting that the focus of TRI has become so detached from any assessment of risks to health or the environment.³⁸ In the PBT rule, for example, the EPA rejected a risk-based metric for reporting dioxin-like compounds in favor of its preferred weight-based option.³⁹ The EPA chose this approach despite the fact that the agency admitted that its preferred option would not allow communities to evaluate potential risks of releases from dioxin-like compounds.⁴⁰

³² EPA, *The Toxic Release Inventory (TRI) and Factors to Consider When Using TRI Data*, at 1, available at <http://www.epa.gov/tri/tridata/tri01/press/FactorsToConPDF.pdf> (last visited Oct. 28, 2004).

³³ See W. Kip Viscusi, *Alarmist Decisions with Divergent Risk Information*, 107 *Econ. J.* 1657, 1657 (1997) ("Increased knowledge about the risks we face will enable us to make sounder decisions and increase our expected utility judged on the basis of the true probabilities.").

³⁴ Recent empirical analysis reveals that individuals do not respond rationally to diverse information on risks, weighting opinions that suggested high risk much greater than opinions that evaluated a risk as lower, regardless of the source of those opinions (government, non-profit, or industry). See generally *id.*

³⁵ When more information is available, some of it will inevitably be conflicting and thus confusing to the general public. See *id.* at 1658.

³⁶ For a good discussion of the optimal level of information in product markets, see Howard Beales et al., *The Efficient Regulation of Consumer Information*, 24 *J.L. & Econ.* 491, 533-34 (1981).

³⁷ According to its most recent strategic plan, the EPA's mission is "to protect human health and the environment." EPA, 2003-2008 EPA STRATEGIC PLAN 2 (2003), available at <http://www.epa.gov/ocfo/plan/2003sp.pdf>.

³⁸ Emergency Planning and Community Right-to-Know, Pub. L. 99-499, 1000 Stat. 1728 (1986) (codified at 42 U.S.C. §§ 11001-05, 11021-23, 11041-50 (2000)).

³⁹ Persistent Bioaccumulative Toxic (PBT) Chemicals, 64 Fed. Reg. 58,666, 58,692-95 (Oct. 29, 1999) (to be codified at 40 C.F.R. pt. 372).

⁴⁰ *Id.* at 58,692-95.

It is unclear how information on the pounds of certain chemicals emitted from facilities, even if it were perfectly accurate, advances an individual's knowledge of the potential risks he faces by living near those facilities. Consider the alarm that might be engendered by the revelation that a plant near one's home emits quantities of the following toxic, and potentially carcinogenic, chemicals: acetaldehyde, benzaldehyde, caffeic acid, d-limonene, estragole, and quercetin glycosides. Informed citizens might demand that the facility minimize or prevent the use and release of these chemicals. In fact, these chemicals occur naturally and are likely to be found on a fresh fruit platter of apples, pears, grapes, and mangos.⁴¹

A. Costs and Benefits of TRI

Regulatory actions are unlikely to make people better off unless they are designed to remedy a significant market failure.⁴² As the EPA noted in the preamble to the PBT rule, two possible causes of market failure are externalities and information asymmetries.⁴³ It justified TRI reporting requirements based on the need to correct a "failure" of the market to provide adequate information to the public about the use and release of chemicals.⁴⁴ However, this analysis is superficial and neglects the key questions of *what* information and *how much* of it is optimal.

Information is a good, and like other goods, it is costly to produce.⁴⁵ Markets generally function well at determining the optimal level of production for different goods, including information.⁴⁶ Absent some market failure that results in a sub-optimal production of information, a federal mandate requiring the production of information is likely to divert scarce resources from other, more valued, social goals such as research and development, health care and education.⁴⁷

For both the final lead and PBT rules, the EPA relies on market failure arguments:

Two causes of market failure are externalities and information asymmetries. In the case of negative externalities, the actions of one economic entity impose costs on parties that are "external" to any market transaction. For example, a facility may release toxic chemicals without accounting for the consequences to other parties, such as the surrounding community, and the facility's decisions will fail to reflect those costs. The market may also fail to efficiently allocate resources in cases where consumers lack information. For example, where information is insufficient regarding toxic releases, individuals' choices regarding where to live and work may not be the same as if they had more complete information. Since firms ordinarily have little or no incentive to provide information on their releases and other waste management activities

⁴¹ See, e.g., American Council on Science & Health, *ACSH Holiday Dinner Menu 2004* (Oct. 12, 2004), available at http://www.acsh.org/publications/pubID.103/pub_detail.asp (last visited Nov. 3, 2004).

⁴² An Executive Order from President Clinton states that "Federal agencies should promulgate only such regulations as are required by law, are necessary to interpret the law, or are made necessary by compelling need, such as material failures of private markets to protect or improve the health and safety of the public, the environment, or the well being of the American people . . ." Exec. Order No. 12,866, 58 Fed. Reg. 51,735 (Sept. 30, 1993).

⁴³ PBT Chemicals, 64 Fed. Reg. at 58,740.

⁴⁴ *Id.*

⁴⁵ Beales et al., *supra* note 36, at 503. See also Alexander Volokh, et al., *Environmental Information: The Toxics Release Inventory, Stakeholder Participation, and the Right to Know. Part 1 of 2: Shortcomings of the Current Right-to-Know*, REASON PUBLIC POLICY INSTITUTE, POLICY STUDY NO. 247 (Dec. 1998), available at www.rppi.org/ps246.html.

⁴⁶ See Beales et al., *supra* note 36, at 503.

⁴⁷ Volokh, et al., *supra* note 45.

involving toxic chemicals, the market fails to allocate society's resources in the most efficient manner.⁴⁸

To a limited extent, some economists have accepted this notion. For example, Tietenberg and Wheeler argue:

Information about environmental risks is asymmetrically distributed. In a typical case the best knowledge about emission profiles is held by the polluters and/or regulators, not the victims. Furthermore the polluters are unlikely to share the information with victims in the absence of outside pressure to do so.⁴⁹

These analyses suffer from several failings. First, these analyses assume the toxic release reflects an external cost, when, in fact, the chemicals reported under TRI are all subject to numerous environmental and occupational regulations designed to internalize the social costs associated with release.⁵⁰ With the exception of accidental releases (which are less than 0.1 percent of reported releases and are reported elsewhere), reported TRI releases are routine emissions allowed by laws and regulations.⁵¹ Indeed, many TRI-reported "releases" reflect recycling.⁵²

Second, these analyses fail to recognize that information on releases is available through other sources. Companies must have operating permits on file with state and federal authorities specifying permitted releases to air and water.⁵³ For non-permitted releases, the Emergency Response Notification System, accessible on the Internet, reports notifications of spills and releases of oil and hazardous substances.⁵⁴

A third failing is that these analyses focus on *information* about environmental release, rather than the underlying concern of *environmental risk* itself. While it may be accurate that "polluters" are unlikely to share information on releases with "victims" unless required to do so, it is not accurate to assume that "polluters" do not have adequate incentives to reduce *risks* to potential "victims."⁵⁵ In the event of a release that harmed public health or the environment, the U.S. regulatory and legal system would certainly impose large costs on the perpetrator of the harm.⁵⁶ This potential liability and damage to a company's reputation provides strong incentives to minimize potential releases that could affect public health and the environment.⁵⁷

⁴⁸ The same language appears in both the final PBT and the final lead rule. PBT Chemicals, 64 Fed. Reg. at 58,666, 58,740: Lead and Lead Compounds, 66 Fed. Reg. 4,499, 4,500 (Jan. 17, 2001) (to be codified at 40 C.F.R. pt. 372).

⁴⁹ Tom Tietenberg & David Wheeler, *Empowering The Community: Information Strategies For Pollution Control*, Presented at the Frontiers of Environmental Economics Conference, at 11 (Oct. 23-25, 1998) (emphasis added), available at http://www.worldbank.org/nipr/work_paper/ecoenv/confpap.pdf.

⁵⁰ It is widely recognized in economics that the "optimal" level of pollution is not necessarily zero. The classic works on the concept of environmental externalities is Ronald H. Coase, *The Problem of Social Cost*, J.L. & ECON. 1 (1960).

⁵¹ For example, the Clean Air Act, the Safe Drinking Water Act, the Clean Water Act, the Toxic Substances Control Act, and the Resource Conservation and Recovery Act all regulate chemicals and their releases into different media.

⁵² Volokh, et al., *supra* note 45.

⁵³ For a description of federal and state permits, see EPA, *Basic Facts*, available at <http://www.epa.gov/air/oaqps/permits/> (last updated Mar. 19, 2003). See also Clean Air Act, 42 U.S.C. § 7661 (2000).

⁵⁴ The Emergency Response Notification System ("ERNS") contains release information that is required under several federal statutes including CERCLA, EPCRA, and the Hazardous Material Transportation Act of 1974 ("HMTA"). See generally ERNS, available at <http://www.nrc.uscg.mil/index.html> (last visited Nov. 3, 2004).

⁵⁵ Roger E. Meiners and Bruce Yandle, *The Common Law: How It Protects the Environment*, PERC Policy Series, No. PS-13 (Jane S. Shaw ed., May 1998), available at http://www.perc.org/publications/policyseries/commonlaw_full.php.

⁵⁶ "Industrial accidents, aside from potentially harming a community, also represent financial losses for the companies involved." Volokh, et al., *Environmental Information: The Toxics Release Inventory, Stakeholder Participation, and the Right to Know, Part 2 of 2: Nonregulatory Options for Environmental Information and Management* (Dec. 1998), at www.rppi.org/ps247.html.

⁵⁷ See Viscusi, et al., *ECONOMICS OF REGULATION AND ANTITRUST* 747 (3d ed. 2001).

Furthermore, the emphasis on providing information to communities assumes rational behavior on the part of the information recipients. Even if the TRI conveyed important information on potential risk, the recipients of the information may not interpret it correctly or rationally. Viscusi, in an empirical paper that won the Royal Economic Society Prize for 1997, found that individuals' responses to divergent risk information revealed "extreme violations of rationality," as individuals place "inordinate weight on the high risk assessment."⁵⁸ He concluded, "these results do not provide great comfort to economists who hypothesize that decisions will become more rational as we acquire more information to make these decisions."⁵⁹

Finally, the EPA's analysis neglects the fact that public availability of business information has its own associated risks.⁶⁰ The wide release of private business information makes it available to competitors and potential terrorists, as well as communities.⁶¹ Before the EPA further expands the number of facilities or chemicals covered, or requires more extensive information on the flow of chemicals through a facility, it should consider the possible negative consequences of the misuse of this information and weigh those costs against the benefits.

1. What are the benefits of TRI?

Despite almost twenty years of experience, the EPA has never attempted to quantify the benefits of TRI. Rather, in its most recent rulemakings expanding TRI coverage of persistent bioaccumulative toxic ("PBT") chemicals, the EPA suggests benefits accrue because the information it requires "may facilitate constructive activities that internalize the negative externality by bringing the marginal social cost curve and the marginal private cost curves closer together."⁶² As noted above, this presumes, without any analysis or evidence, that despite all the regulations and liability in place, there are still negative externalities associated with TRI chemical releases. Moreover, the discussion of benefits does not recognize that the "constructive activities" the information facilitates also involve costs, and those costs may well exceed the benefits of the activities. In fact, once these social costs are considered, all of the "benefits" discussed in the economic analysis supporting the PBT rule could represent *net* social costs, rather than *net* social benefits. Without a more objective and thorough analysis, one cannot determine whether the net social impact of TRI is positive or negative.

For example, the preamble to the January 1999 PBT proposal stated, "if publication of PBT chemical information leads to reductions in pollution, this generates 'external' benefits."⁶³ In other words, benefits would not only accrue to the group that lobbied for the pollution reductions, but to other members of the community as well. However, this would only be true *on net* if the external benefits of the reductions exceeded the external costs. These costs could take the form of higher prices for goods and services, or increased health and ecological risks from substitute chemicals or processes necessitated by the reduction in the TRI chemical.

In listing specific benefits of TRI information, the EPA cites use of the data by community and public interest groups to educate the public and exert pressure on companies to reduce emissions.⁶⁴ However, the examples it presents include reports with titles such as: "Manufacturing Pollution"; "Poisons in Our Neighborhoods"; "Troubled Waters: Major Sources of Toxic Water Pollution"; "Where the Wastes Are"; and

⁵⁸ Viscusi, *supra* note 33, at 1657.

⁵⁹ *Id.* at 1670.

⁶⁰ Volokh, et al., *supra* note 45.

⁶¹ Angela Logomasini, *When Terrorists Have a 'Right To Know.'* THE BUCKS COUNTRY COURIER TIMES, Feb. 11, 2002, available at <http://www.cei.org/gencon/019.02387.cfm>.

⁶² EPA Office of Pollution Prevention and Toxics, Economic Analysis of the Final Rule to Modify Reporting of Persistent Bioaccumulative Toxic Chemicals Under EPCRA Section 313 6-5 (Oct. 1999) [hereinafter Economic Analysis], available at <http://www.epa.gov/opptintr/economics/docs/eapbtfnl.pdf>.

⁶³ *Id.* at 6-11.

⁶⁴ *Id.* at 6-19.

“Toxic Hot Spots.”⁶⁵ These reports may serve more to frighten than to educate.⁶⁶ Whether such efforts provide net social benefits depends, in large part, on whether the alarm they generate is worthy of the risks they seek to mitigate, or whether it causes unnecessary fear and non-productive actions.⁶⁷ A classic example of the misuse of information to alarm consumers and incite unnecessary actions was the Alar scare of 1989.⁶⁸ As the American Medical Association stated in February 1992: “The Alar scare of three years ago shows what can happen when science is taken out of context or the risks of a product are blown out of proportion.”⁶⁹ When used in the approved, regulated fashion, as it was, Alar does not pose a risk to the public's health.⁷⁰

A more tragic illustration of how incomplete information on chemical risks can lead to counter-productive actions is the 1991 cholera epidemic in Peru.⁷¹ Based on the EPA studies showing the potential for a slight increase in cancer risk from trihalomethanes, a chlorination byproduct, local water officials in Lima stopped chlorinating the city's drinking water.⁷² The result was a cholera epidemic that claimed over 3,500 lives in 1991 alone.⁷³

The EPA also cites as a benefit to TRI the fact that the stock value of certain companies fell upon the release of their TRI data.⁷⁴ Whether this should be classified as a benefit or a cost of TRI depends on whether the TRI information led to a more or less accurate picture of the companies' true value.⁷⁵ Most likely, the shareholders of those companies would not consider a decline in the value of their investment a “benefit.”

The EPA also suggests that TRI offers benefits to regulated industries themselves by revealing information that encourages changes in processes and reduces costs.⁷⁶ However, nothing in economic theory would support the notion that mandating the public release of private information would offer the provider of the information any opportunities to increase efficiency and lower costs that it did not already have. On the contrary, while it is certainly possible that, driven by the information release, companies have greater incentives to reduce TRI chemicals, this does not imply a less costly, or even less risky, process. Contrary to what the

⁶⁵ *Id.*

⁶⁶ In addition, the scale economies in information generation and dissemination can lead to natural monopoly problems which convey high levels of market power on information intermediaries. Beales et al., *supra* note 36, at 505.

⁶⁷ “Media and advocacy groups often highlight the worst case scenarios, which tend to intensify the kinds of biases [in weighting high risk information more heavily than is rational] observed here [in his interactive computer survey].” Viscusi, *supra* note 33, at 1669.

⁶⁸ Kenneth Smith & Jack Raso. *An Unhappy Anniversary: The Alar ‘Scare’ Ten Years Later* (Feb. 1, 1999), available at <http://www.chem.ucsb.edu/~laverman/Chem101/PDF/Alar2.PDF>. Alar was developed in the 1960's to slow plant growth. *Id.* In 1989 its primary use was to prevent pre-harvest rotting of apples and cherries. *Id.* Despite relying on flawed studies, several groups, including *60 Minutes*, provoked public fear of Alar as a carcinogen. *Id.* As a result, apple orchards and apple processors lost over 375 million dollars. *Id.* The loss hit the entire apple market, even though at the time only 15 percent of the apple trees in the United States had been treated with Alar. *Id.*

⁶⁹ *Id.*

⁷⁰ *Id.*

⁷¹ Christopher Anderson. *Cholera Epidemic Traced to Risk Miscalculation*, 354 NATURE 255 (Nov. 28, 1991). In January 1991, more than 300,000 cases of cholera were reported in Peru and surrounding countries. *Id.* Experts found the outbreak was due to Peruvian officials not chlorinating the country's drinking water after relying on an EPA study that found chlorine to be a potential carcinogen.

Id.

⁷² *Id.*

⁷³ *Id.*

⁷⁴ Economic Analysis, *supra* note 62, at 6-12. See also EPA Office of Information of Analysis and Access, *How Are the Toxics Release Inventory Data Used?*, EPA-260-R-002-004, at 15 (May 2003) [hereinafter TRI Data], available at http://www.epa.gov/tri/guide_docs/2003_datausepaper.pdf.

⁷⁵ Since “releases” usually reflect responsible management of chemicals (legal disposal or recycling), declines in stock market value may suggest a misunderstanding of the environmental hazard posed. See Alexander Volokh, *The Pitfalls of Environmental Right-to-Know*, 2 UTAH L. REV. 805, 806 (2002). One such example is when steel company that reported releasing over 2 million pounds of a TRI chemical, which in fact was used by the local sewage authority, saved \$300,000 per year in chemical treatment costs. *Id.* at 830-31.

⁷⁶ TRI Data, *supra* note 74, at 9-10.

EPA suggests, the fact that companies undertook discharge reductions voluntarily in response to TRI does not mean that they reflected cost savings to the company or other social benefits to communities or consumers.⁷⁷ Moreover, the EPA's requirement that recycling of TRI chemicals be reported as "releases" likely discourages incentives to recycle and reuse chemicals.⁷⁸

The EPA cites several examples where, in response to the release of TRI data, unions negotiated with companies during contract discussions to reduce a facility's use and release of TRI chemicals.⁷⁹ However, this cannot be assumed to be a benefit to the company, the union employees, the surrounding community, or consumers of the goods and services provided by the facility without information on the risk those chemicals posed and the opportunity cost of those agreements. For example, perhaps instead the union could have negotiated a more comprehensive health and benefits package, or higher wages, which would have improved health and welfare more than the reduction in chemicals at the facility.⁸⁰ The positive correlation between income and health has long been recognized: not only are life expectancies longer and health better in wealthier nations, but wealthier individuals within nations tend to be healthier and live longer.⁸¹ Recent empirical studies have attempted to calculate this relationship quantitatively.⁸² They reveal that every \$15 million in regulatory costs, by reducing disposal income, results in one additional statistical death.⁸³ Given this significant effect, as well as other health-health tradeoffs, it is not sufficient to conclude that the reduction in TRI chemicals triggered by the release of the data had a net positive impact on health or welfare.

2. What are the costs of TRI?

The EPA estimates that facilities subject to reporting under the TRI spend 2,432,892 hours each year collecting and reporting the information required in Form R.⁸⁴ The EPA estimates that the costs to reporting facilities exceeds \$111 million per year. In addition to these costs, the EPA bears costs associated with data processing, outreach, and enforcement. Based on estimates that the EPA prepared for the PBT rule, these EPA costs may add roughly \$9 million more per year.⁸⁵

In comments to the EPA, the Small Business Administration estimates the direct cost to businesses of complying with the TRI to be more than \$300 million per year.⁸⁶ It suggests that in addition to these direct

⁷⁷ Public perception, whether founded in real risks or not, could drive companies to change processes. If not based on a risk-benefit tradeoff, such changes could increase costs to consumers or, if a company chose to shift to a more risky non-TRI chemical, it could actually increase risks.

⁷⁸ The TRI database does not distinguish between chemicals that are discharged to the environment and those that are recycled, so responsibly recycled chemicals can be reported to the public as "toxic waste ... thrown into the environment." Volokh, *supra* note 75, at 833. See also *id.* at 833 n.144.

⁷⁹ Economic Analysis, *supra* note 62, at 6-20.

⁸⁰ Information that focuses on certain factors (such as toxic chemical releases) can lead people to infer that other workplace issues (such as health benefits or salary) are less important to their health and safety. "Unless such inferences are correct, the scoring system may be used as an inappropriate signal," thus distorting the market. Beales et al., *supra* note 36, at 525.

⁸¹ BRUNO S. FREY & ALOIS STUTZLER, HAPPINESS AND ECONOMICS 81 (Princeton Univ. Press 2002).

⁸² See, e.g., Randall Lutter et al., *The Cost-Per-Life-Saved Cutoff for Safety-Enhancing Regulations*, 37 ECON. INQUIRY 599 (1999).

⁸³ *Id.* at 599.

⁸⁴ EPA, Toxic Chemical Release Reporting, OMB No. 2070-0093, at 84 (Oct. 2003) [hereinafter Release Reporting], available at http://www.epa.gov/tri-lawsandregs/ICR_SS_1363_13.pdf.

⁸⁵ The EPA estimated the private cost of the PBT rule at \$147 million in 2000, the first year that reports are required, and \$81.6 million in subsequent years. These costs comprise the cost to industry of (\$145 million in the first year and \$80 million in subsequent years) and costs to (\$2.0 million in the first year and \$1.6 million in subsequent years). Persistent Bioaccumulative Toxic (PBT) Chemicals, 64 Fed. Reg. 58,666, 58,741 (Oct. 29, 1999) (to be codified at 40 C.F.R. pt. 372).

⁸⁶ SBA Office of Advocacy, Proposed Reforms to the Toxics Release Inventory Program: Streamlining Reporting and Preserving Data Integrity, Prepared by Jack Faucett Associates, at 1 (April 2004) [hereinafter SBA Report], available at <http://www.sba.gov/advo/laws/comments/tri2004.pdf>.

compliance costs, “facilities bear substantial indirect costs from ‘piggyback’ requirements associated with a TRI listing,” such as federal storm water regulations and state taxes and pollution prevention programs.⁸⁷

These paperwork burdens and their associated costs are large, particularly for an action to which the EPA attributes no *direct* benefits. (The benefits attributed to the TRI will only be gained from subsequent activities, which would also involve additional costs.) However, they are not a complete estimate of the true social cost of the information collection mandate. First, they exclude the cost of complying with state, local, and federal requirements that are triggered when a chemical is placed on the TRI.⁸⁸ A 1994 study of the EPA’s proposed rule to expand the TRI estimated that the overall cost of these requirements could be as much as six times EPA’s estimate.⁸⁹ Furthermore, an estimate of the full social cost of the requirement must consider: the opportunity cost of the collection, any social costs due to actions based on inaccurate, incomplete, or misleading information; the disincentives for recycling created by the requirement that recycled chemicals be reported as released; and the social costs associated with misuse of the information, including industrial espionage and terrorist threats.⁹⁰

The Office of Advocacy of the Small Business Administration also notes that “[a] significant number of reports filed each year (as many as 60 percent for some chemicals) show zero to very small amounts of chemical waste.”⁹¹ It suggests changes to the reporting procedures that could reduce the costs of the TRI reporting without compromising benefits.⁹²

The time and money required to compile and report on the release of certain chemicals diverts resources from other activities, some of which may be more effective at protecting health and the environment. The literature on information disclosure in product markets offers interesting insights on this issue.⁹³ Requiring the disclosure of information on certain product attributes can shift competition among sellers into those attributes, and away from undisclosed attributes, potentially causing distortions in the product market.⁹⁴ For TRI disclosures, this distortion can result when the release of information encourages facilities to take actions to reduce their use or release of certain chemicals at the expense of other actions that may be more effective at protecting health and the environment, or at achieving other social goals. As noted in the discussion of benefits, above, all of the qualitative benefits the EPA attributes to the TRI also involve additional costs which may, in fact, have the effect of imposing additional net costs on citizens and consumers. To the extent the information reported is inaccurate or used to mislead people about threats to their health or well-being, it is very likely to result in actions that are not warranted by objective risk analysis and which divert scarce resources from actions that actually could reduce health risks and environmental harm.⁹⁵

⁸⁷ *Id.* at 8-9.

⁸⁸ See generally Release Reporting, *supra* note 84.

⁸⁹ SBA Report, *supra* note 86, at 9 (citing Price Associates, *Critique of USEPA’s Regulatory Impact Analysis of the Proposed Rule to Add Certain Chemicals to the Toxics Release Inventory* (May 2, 1994)). This study found that the most significant programs triggered by a TRI listing were: the federal storm water permit program, the federal procurement requirement that agencies reduce their purchases of products containing TRI chemicals, and various state requirements to develop and implement pollution prevention programs for TRI chemicals. *Id.*

⁹⁰ Alexander Volokh, et al., *supra* note 45.

⁹¹ Small Business Administration (“SBA”) Office of Advocacy, *Advocacy Urges EPA to Reduce Small Business Reporting Burdens under the Toxic Release Inventory*, available at http://www.sba.gov/advo/laws/comments/factsepa03_0902.pdf (last visited Nov. 4, 2004). This occurs because reporting is triggered based on the quantity of a chemical present at the facility, not the quantity released. *Id.*

⁹² Toxic Chemical Release Reporting; Alternate Threshold for Low Annual Reportable Amounts; Request for Comment on Renewal Information Collection, 68 Fed. Reg. 39,071 (proposed July 1, 2003).

⁹³ See, e.g., Beales et al., *supra* note 36, at 507-13.

⁹⁴ Volokh, et al., *supra* note 45.

⁹⁵ See generally HENRY I. MILLER & GREGORY CONKO, *THE FRANKENFOOD MYTH: HOW PROFIT AND POLITICS THREATEN THE BIOTECH REVOLUTION* (Praeger 2004). Fear of kernels of genetically modified corn donated by the United States lead the government of Zambia to keep the corn from its starving population, with President Levy Mwanawasa declaring, “We would rather

Also missing from the EPA's cost estimates are costs associated with the distribution of private information.⁹⁶ Wide release of private business information makes it available, not only to communities and governments, but also to competitors, potential saboteurs, and even terrorists.⁹⁷ As Professor Mary J. Culnan, a member of President Clinton's Commission on Critical Infrastructure Protection observed:

Once information gets on the Internet it can be manipulated in ways that were previously unfeasible and there is little accountability for how it is used. The more information that is made available, the more likely it will be used in ways that have nothing to do with the original reasons for collecting it.⁹⁸

The EPA argues that benefits of reporting will accrue to citizens, public interest groups, government agencies, and facilities themselves.⁹⁹ It should also recognize that benefits will also accrue to competitors, both national and international, as well as to terrorists seeking targets for chemical sabotage.

B. The Goals of TRI

In its final regulation lowering reporting thresholds for PBT chemicals, the EPA dismissed commenters' suggestions that potential health risks be a factor in the EPA decisions to list chemicals or set reporting thresholds.¹⁰⁰ Arguing that the potential risks of the chemicals in question are not relevant, the Agency insisted that its only obligation is to collect and disseminate information about releases, so as to empower communities to make informed decisions. It suggests that this public "report card" will inform communities and encourage businesses to pursue pollution prevention efforts. However, a review of TRI's record reveals that it falls short of even these goals.

1. Does TRI provide communities useful information?

Even if the information reported by TRI were accurate, the inventory may be misleading because it provides no insight into the different toxicities of the listed chemicals or the potential for exposure to them. A reviewer of the TRI data cannot easily ascertain whether the "release" reflects responsible management and recycling, emissions allowed by regulation, or accidental spills. The inventory certainly offers no insight into whether the benefits of a chemical outweigh the potential risks due to exposure. Thus, even if the quality of the TRI data was high, data on quantities of certain chemicals, without any insight into the risks they may pose, may serve to misinform and mislead communities about potential health and environmental risks.

starve than get something toxic." Henry I. Miller & Gregory Conko. *A Deadly Food Fight*, 2 HOOVER DIGEST (2003), available at <http://www.hooverdigest.org/032/millerh.html>.

⁹⁶ See Persistent Bioaccumulative Toxic (PBT) Chemicals, 64 Fed. Reg. 58,666, 58,741 (Oct. 29, 1999) (to be codified at 40 C.F.R. pt. 372).

⁹⁷ Logomasini, *supra* note 61.

⁹⁸ William H. Lash III, *Giving Away the Store: The Flaws in EPA's Expanded Right to Know Program*, CENTER FOR THE STUDY OF AMERICAN BUSINESS, NO. 92 (Aug. 1998), available at http://www.maurizioturco.it/echelon/banca_dati/CSAB%20Center%20for%20the%20Study%20of%20American%20Business/Giving%20Away%20the%20Store.htm#REFMADE33 (quoting Mary J. Culnan, *What Is Plain to See* . . . WASH. POST, July 13, 1997, at D1).

⁹⁹ Economic Analysis, *supra* note 62, at 6-11.

¹⁰⁰ Persistent Bioaccumulative Toxic (PBT) Chemicals, 64 Fed. Reg. at 58,687-58,695.

Furthermore, a review of available data on the quality of the information in the TRI database sheds doubt on its reliability, even as a simple inventory of pounds of chemicals released. As Tietenberg and Wheeler observe,

Information has both a quantity and quality dimension. Effective risk communication requires that the requisite information be reliable, as well as available. *Inaccurate or partial information can be worse than no information at all, if it promotes either a false sense of security or unjustified fears.*¹⁰¹

Since TRI data are self-reported and not checked for accuracy on an ongoing basis, it is difficult to determine the accuracy of the inventory. However, two EPA studies, one of the 1987 reporting year,¹⁰² and one of the 1994 and 1995 reporting years,¹⁰³ attempted to check the accuracy of reported releases at a sample of facilities. These studies reveal that a significant fraction of reported releases exhibit large errors. The 1990 report found that 16 percent of the releases reported in the 1987 database were off by more than a factor of ten, and 23 percent were off by more than a factor of two.¹⁰⁴ Despite these large errors in individual reporting, the direction of the errors tended to offset one another, allowing the EPA to conclude that the data were "surprisingly accurate in the aggregate."¹⁰⁵ The 1998 report, while not as clearly presented, reveals that the accuracy of the TRI data has not improved significantly since 1987.¹⁰⁶

The inaccuracy of the reported releases is not surprising. There are fundamental limits to how accurate release estimates can be. For example, to estimate non-stack air emissions at a mid-sized facility, one would have to consider hundreds or thousands of valves, flanges, and other release points.¹⁰⁷ Congress specified that no additional monitoring or measurement could be required for the purpose of reporting to TRI.¹⁰⁸ Thus, even the site-surveyed figures, used to estimate the quality of the data in the 1990 and 1998 EPA reports, are themselves only estimates and may not accurately reflect actual releases.

There are other problems with the TRI database. EPA studies reveal that the location data in the EPA-published TRI database contain significant errors.¹⁰⁹ Almost 3 percent of TRI latitudes and longitudes place the

¹⁰¹ Tietenberg & Wheeler, *supra* note 49, at 11 (emphasis added).

¹⁰² See Press Release, EPA, 1988 Toxic Release Inventory National Report Available (Oct. 3, 1990), available at <http://www.epa.gov/history/org/tri/02.htm>.

¹⁰³ See EPA Office of Pollution Prevention and Toxics, 1994 and 1995 TRI Data Quality Report, EPA 745-R-98-002, at i (Mar. 1998) [hereinafter 1994-95 Report], available at http://www.epa.gov/tri/tridata/data_quality_reports/1995/toc-ovr.pdf.

¹⁰⁴ EPA Office of Pollution Prevention and Toxics, 1998 TRI Data Quality Report (1990). Most of these errors in reported non-zero releases reflected *over-reporting* of the release. *Id.*

¹⁰⁵ *Id.* (emphasis in original). A major goal of the TRI is to correct market failures associated with incomplete information about chemical hazards in communities. 1994-95 Report, *supra* note 103, at i. Information that is accurate in the aggregate, but not at the local level, not only does not address this market failure; it can create new externalities by incorrectly identifying areas as hazardous that are not, and vice versa.

¹⁰⁶ The comments of The Mercatus Center's Regulatory Studies Program on the proposed PBT rule discusses the findings of these reports in more detail. See Susan Dudley, *Toxic Release Inventory (TRI)* (Apr. 1, 2004), available at www.mercatus.org/regulatorystudies/article.php/736.html and Susan Dudley, *TRI Reporting of Lead and Lead Compounds* (Dec. 15, 1999), available at www.mercatus.org/regulatorystudies/article.php/747.html.

¹⁰⁷ Nick Hanley, et al., *INTRODUCTION TO ENVIRONMENTAL ECONOMICS* 293 (Oxford Press 2001).

¹⁰⁸ The EPA provides instructions for completing Part II of the Form. See EPA Office of Information, *Toxic Chemical Release Inventory Reporting Forms and Instructions*, EPA 745-B-01-001 (Feb. 2001), available at <http://www.epa.gov/tri/report/rfi2000mar1901.pdf> (last updated Mar. 19, 2001).

¹⁰⁹ See, e.g., National Library of Medicine, *How Accurate Are TRI Locations in TOXMAP?*, available at http://toxmap.aquilent.com/toxmap/help_coordinateAccuracy.jsp (last visited Nov. 4, 2004) and 1994-95 Report, *supra* note 103, at i.

facilities in the wrong county, and 0.75 percent of the facilities are reported to be in the wrong state.¹¹⁰ EPA analysis of exposure to toxic chemicals in Brooklyn, NY found that about half of TRI latitude/longitude coordinates were good to within 150 meters or better, but that over 15 percent (out of a sample of eighty-seven facilities) were wrong by at least one kilometer, with one being misplaced from its actual location by almost seven kilometers.¹¹¹

Not only are reported releases from a facility in a given year unreliable, but changes in emissions from a facility from one year to the next may not reflect actual reductions or increases in releases. The EPA suggests that “inter-temporal and inter-facility data provided by TRI” provide unique information on “when facility ... releases are increasing over time.”¹¹² However, the EPA found that year-to-year changes in estimated releases at facilities are more likely to reflect estimation technique changes and other factors than physical, engineering and production changes.¹¹³ “Estimation technique changes” and “other factors” accounted for 82 percent of the increases reported between 1989 and 1990, and 67 percent of the 1989 to 1990 decreases.¹¹⁴

The EPA identifies one purpose of the TRI as “providing a complete profile of toxic chemical releases and other waste management activities.”¹¹⁵ Yet, the profile is hardly complete. The EPA’s 1997 National Air Quality and Emissions Trends Report reveals that the TRI data alone represent less than 9 percent (760,000 tons per year) of the total 8.1 million tons of air toxics released in 1993.¹¹⁶ It concludes that “the TRI’s lack of emission estimates from mobile and area sources” as well as “other significant limitations,” “severely limit its utility as a comprehensive air toxics emissions database.”¹¹⁷

In sum, the EPA’s 1990 and 1998 reviews of the TRI data quality suggest that, while in the aggregate, the TRI reflects the number of pounds of listed chemicals released, releases reported on a facility basis may contain large errors that make them unreliable for site-specific analysis. Furthermore, the EPA has recognized significant limitations associated with even the aggregate numbers, which severely limit the TRI’s utility as a comprehensive database.

2. Does it Prevent Pollution?

The EPA views TRI as a public “report card”¹¹⁸ for the industrial community, creating a powerful motivation for waste reduction, noting that, with the enactment of the Pollution Prevention Act, “businesses and neighboring communities can build on emerging pollution prevention practices for everyone’s benefit.”¹¹⁹ Other advocates and users of TRI stress “pollution prevention” as the ultimate purpose of the database. For

¹¹⁰ Talcott, et al., *Who Is Out There?*, Presented at the Air & Waste Management Association Meeting (Dec. 8, 1998) (on file with author).

¹¹¹ *Id.*

¹¹² Economic Analysis, *supra* note 62, at 1-19.

¹¹³ Volokh, *supra* note 75, at 805.

¹¹⁴ EPA Office of Pollution Prevention and Toxics, 1991 TRI Public Data Release Report, EPA 745-R-93-003, at 163 (May 1993) [hereinafter 1991 Report]. The example of how ammonia releases were reported illustrates this problem. In 1989, EPA changed its guidance to require facilities to report the quantity of ammonia contained in ammonium sulfate rather than the quantity of ammonium sulfate released. Volokh, *supra* note 75, at 817. This change in guidance caused the reported quantities of ammonium sulfate released to decline by 586.7 million pounds, when, in fact, net ammonia releases increased by an estimated 40 million pounds. *Id.* at 818.

¹¹⁵ Persistent Bioaccumulative Toxic (PBT) Chemicals, 64 Fed. Reg. 688, 690 (proposed Jan. 5, 1999) (to be codified at 40 C.F.R. pt. 372), available at <http://www.epa.gov/fedrgstr/EPA-TRI/1999/January/Day-05/tri34835.htm>.

¹¹⁶ EPA, National Air Quality and Emissions Trends Report 74 (1997) [hereinafter 1997 Trends Report], available at <http://www.epa.gov/oar/airtrends/aqtrnd97/chapter5.pdf>.

¹¹⁷ *Id.* See also *id.* at 83, n.4.

¹¹⁸ EPA, *What is the Toxics Release Inventory?*, at 2, available at http://www.unitar.org/cwm/prtr/pdf/cat2/tri_general.pdf (last revised Feb. 28, 2000).

¹¹⁹ *Id.* at 3.

example, Friends of the Earth observes, "the true role of a chemical inventory is to stimulate pollution prevention and waste reduction programs."¹²⁰ According to the EPA, from 1988 to 2002, manufacturing facilities decreased their on- and off-site disposal or other releases by 49 percent.¹²¹ However, given the inaccuracies in the database discussed above, it is not clear how much confidence we should place in these figures.

Assuming these statistics are accurate, however, they do not tell us the extent to which toxic emission reductions over the last decade are attributable to TRI versus other actions. As a Reason Foundation study observes, the use of industrial chemicals, including those on the TRI, has been declining relative to total output for several decades (before the introduction of the TRI): In the 1960s, each 1 percent of GDP growth increased the demand for industrial chemicals by 2.9 percent; this ratio fell to 1.5 percent in the 1970s, 1.0 percent in the 1980s, and 0.7 percent in the 1990s.¹²²

The study attributes this in part to a decline in "heavy industries that are big chemical users (automobiles, steel, housing) ... relative to more-sophisticated and less-chemical-intensive industries and as global competition increases."¹²³ The numerous air, water and waste regulations that have been implemented over the last decade have also contributed to the decline in emissions.¹²⁴ For example, implementation of maximum achievable control technology (MACT) standards, as required by the Clean Air Act Amendments of 1990, is estimated to have decreased air toxics emissions by 660,000 tons between 1993 and 1997,¹²⁵ and another 1.5 million tons per year over the next ten years.¹²⁶

V. CONCLUSIONS AND RECOMMENDATIONS

A. Conclusions

The EPA continues to expand the TRI without addressing the fundamental questions of *what* information will enhance the public's understanding of the risks they face, *how much* of it should be released, and *to whom*. Toxic releases, as defined under the TRI, are not equivalent to health or environmental hazards, so data on the pounds of chemicals released, as provided by TRI, fail to provide communities relevant data on risks that may be present.¹²⁷ As the Small Business Administration cautions,

data users could mistakenly conclude that "total production-related wastes" [as reported in the TRI] are entirely transmitted into environmental media and overlook the fact that this figure includes quantities treated, recycled, and consumed in energy recovery. Community members may also focus disproportionately on relative quantities of the wastes, not on the chemicals' varying risks.¹²⁸

¹²⁰ Mary Taylor, *Toxics in Your Backyard, Your Right to Know about Industrial Pollution – a Case Study at Avonmouth* (Mar. 25, 1997), available at <http://www.foe.co.uk/pubsinfo/briefings/html/19971215145345.html>.

¹²¹ EPA, 2002 TRI Public Data Release Report, EPA 260-R-04-003, at 4 (Jun. 2004), available at http://www.epa.gov/tri/tridata/tri02/pdr/tri_brochure.pdf.

¹²² Volokh, et al., *supra* note 63.

¹²³ *Id.*

¹²⁴ For example, regulations issued pursuant to the Clean Air Act Amendments of 1990, the Toxic Substances Control Act, the Clean Water Act and Safe Drinking Water Act.

¹²⁵ 1997 Trends Report, *supra* note 116, at 75.

¹²⁶ *Id.* at 80.

¹²⁷ Though EPA's mission is to protect human health and the environment, EPA, 2003-2008 EPA STRATEGIC PLAN 2 (Sept. 30, 2003), its TRI rulemakings have rejected risk-based approaches that would provide information on risks to human health and the environment, in favor of information on pounds of chemicals. Persistent Bioaccumulative Toxic (PBT) Chemicals, 64 Fed. Reg. 58,666, 58,692-95 (Oct. 29, 1999) (to be codified at 40 C.F.R. pt. 372).

¹²⁸ SBA Report, *supra* note 86, at 10.

Not only has the TRI information not been demonstrated to be relevant for measuring risks to health or the environment, it is neither accurate nor comprehensive. The EPA quality reviews suggest that, while in the aggregate, the TRI reflects the number of pounds of listed chemicals released; releases reported on a facility basis may contain large errors that make them unreliable for site-specific analysis. Furthermore, the EPA has recognized significant limitations associated with even the aggregate numbers, which severely limit the TRI's utility as a comprehensive database. While the EPA and others may have been successful at providing easy access to TRI data, there is no evidence that it has been successful at informing consumers and citizens of real health or environmental threats.

The EPA has not supported its recent regulations reducing reporting thresholds for certain PBT chemicals and lead compounds with available data. Despite extensive information available to the EPA on these chemicals, the reporting thresholds are not based on any quantitative analysis of the magnitude of releases that will be captured, nor the potential hazard posed by releases at different thresholds.

Information is a good, and like other goods, it is costly to produce.¹²⁹ More information is not necessarily more valuable, or more relevant to communities.¹³⁰ To avoid tragedies such as the cholera epidemic that ensued when officials in Lima, Peru heeded the EPA's warnings about the potential carcinogenicity of chlorination byproducts,¹³¹ the EPA should take its responsibility for informing, but not alarming, communities seriously.

The EPA estimates that the data collection and reporting costs of complying with the TRI alone are over \$100 million each year, and others suggest the costs are three times that.¹³² Yet, the EPA does not present any direct benefits of the TRI or the recent expansion in reporting requirements; instead the EPA justifies its rules qualitatively on the grounds that the new requirements will increase available information and facilitate further regulation of toxic chemicals. However, this overlooks the fact that for several of the key chemicals subject to these rules, extensive release data have already been compiled.¹³³ The EPA does not justify the need for additional, arguably less accurate, release information from TRI. Recent rulemakings lowering the threshold for reporting have required a significant number of reports to be filed that show zero to very small amounts of chemical waste released.¹³⁴

B. Recommendations

The TRI has been in place now for seventeen years. The EPA has sufficient information to take stock of what it has achieved and evaluate ways to make it more effective at providing communities with relevant information to enable them to protect their health and the environment. The recent PBT and lead rules do not appear to have benefited from the experience of the last seventeen years, nor from information made available through various other agency efforts to reduce health and environmental risks from toxic chemicals.

¹²⁹ Volokh, et al., *supra* note 63.

¹³⁰ See Viscusi, *supra* note 33, at 1657.

¹³¹ Anderson, *supra* note 73, at 255.

¹³² SBA Report, *supra* note 86, at 8.

¹³³ The Emergency Response Notification System ("ERNS") contains release information that is required under several federal statutes including CERCLA, EPCRA, the Hazardous Material Transportation Act of 1974 (HMTA), and the CWA. See ERNS, available at <http://www.nrc.uscg.mil/index.html> (last visited Nov. 4, 2004). The EPA's 1997 National Air Quality and Emissions Trends Report reveals that the TRI data alone represent less than 9 percent (760,000 tons per year) of the total 8.1 million tons of air toxics released in 1993. 1997 Trends Report, *supra* note 116, at 74.

¹³⁴ SBA Office of Advocacy, *supra* note 91.

The EPA should stop increasing the scope of chemicals covered by the TRI and should certainly not expand the program to require reporting of chemical processes within plants unless and until these changes are shown to produce net benefits in terms of human health and the environment.

Particularly now, the EPA owes it to the public to take an honest look at the value and the social cost of the data that are being reported under TRI. The mere act of making vast amounts of data on chemical quantities available to the public should not be assumed to provide value without a careful examination of whether reliable and meaningful information is being conveyed about health and environmental risk. The EPA may find that less data, targeted at higher risk chemicals and facilities, would provide more useful information than more data on more chemicals. The statute requires the EPA to make decisions regarding reporting frequency based on "experience from previously submitted toxic chemical release forms" and the extent to which the information has been used.¹³⁵ It also suggests that the EPA consider the burden on reporting facilities.¹³⁶

The EPA's experience from previously submitted toxic chemical release forms has revealed that year-to-year changes in estimated releases at facilities are more likely to reflect "estimation technique changes" and "other factors" than physical, engineering and production changes.¹³⁷ "Estimation technique changes" and "other factors" accounted for 82 percent of the increases reported between 1989 and 1990, and 67 percent of the 1989 to 1990 decreases.¹³⁸ As a result, reducing the frequency of reporting should not change the value of the information available to potential users. Of course, the EPA's experience with TRI would allow it to tailor reporting frequency to the attributes of different facilities and chemicals. For example, it might find that the value of the information provided would not be adversely affected (and might even be improved) if it reduced reporting frequency for all but newly-reporting facilities, facilities that have had major changes, or facilities that comprise the majority of releases.¹³⁹ It could also tailor reporting frequency to characteristics of the chemical. For example, the Small Business Administration recommended that PBT reporting be required "only every three to five years," noting that "because PBTs are trace elements in processes that are integral to industrial manufacturing, PBT emissions are unlikely to change significantly from year to year."¹⁴⁰

The EPA has conducted two data quality reviews of TRI reporting, which suggested significant errors in reported releases. They also reveal that, despite the extensive outreach, guidance documents, built-in error checking, and electronic reporting that have evolved since 1987, the reporting accuracy has not improved. The EPA should extend this examination to determine whether reports are more accurate for larger facilities or larger releases. If so, modifying thresholds to capture large releases from large facilities might actually improve the quality of the inventory.

¹³⁵ 42 U.S.C. § 11023(i)(2)(A)(i) (2000).

¹³⁶ *Id.*

¹³⁷ 1991 Report, *supra* note 114, at 163.

¹³⁸ *Id.*

¹³⁹ The SBA recommended in April 2004 changes to the reporting requirements which it estimates "have the potential to save facilities tens of millions of dollars every year in reporting and other regulatory costs while having minimal effect on the quality of TRI data." SBA Report, *supra* note 86, at 2.

¹⁴⁰ Memorandum from the SBA Office of Advocacy, to Jere Glover, EPA Chief Counsel, *SBA Recommendation on Draft TRI PBT Rule* (Dec. 8, 1998), available at <http://www.sba.gov/advo/laws/comments/tri.html>.