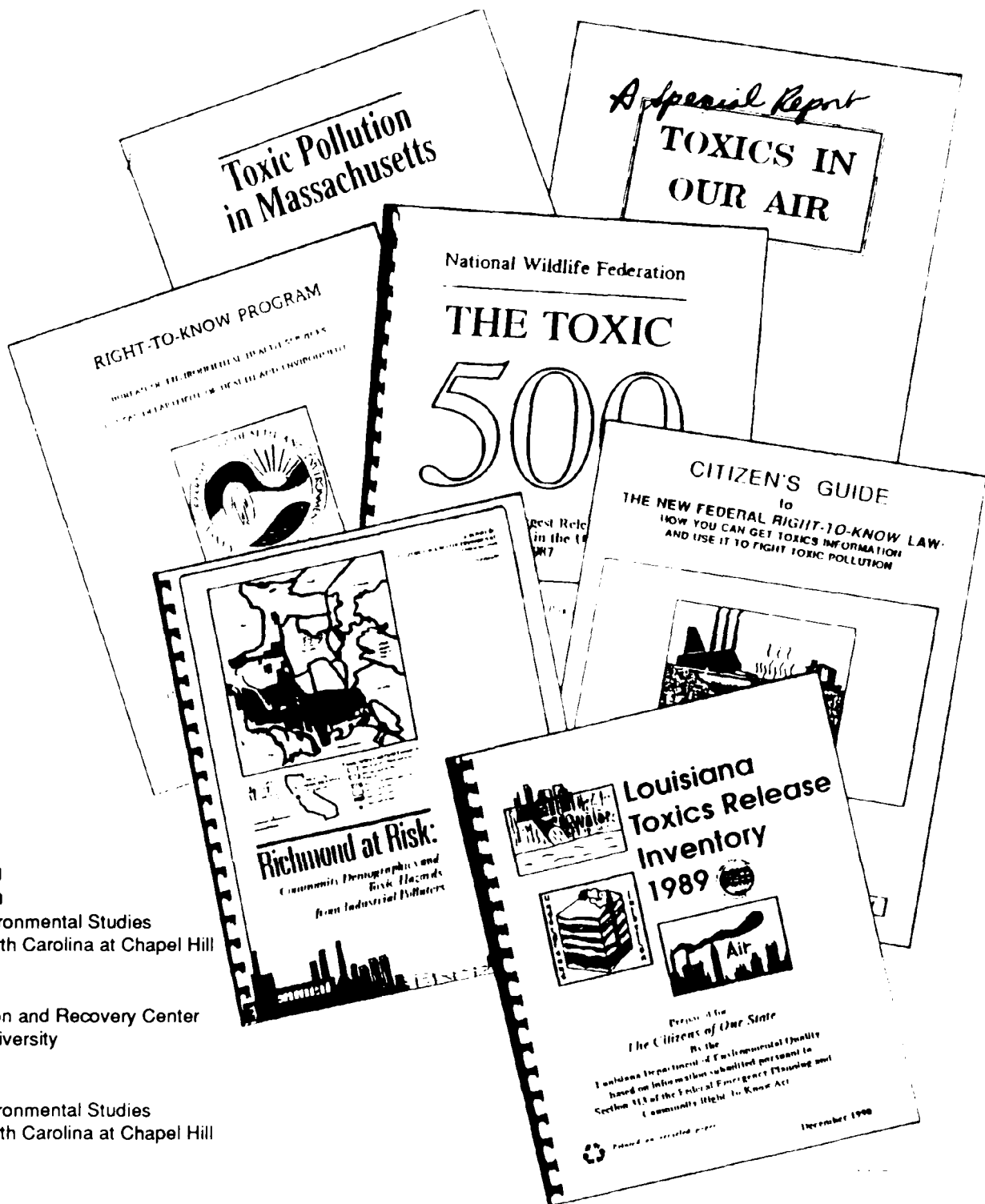


The Toxics Release Inventory Environmental Democracy in Action



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Introduction

This is a summary of a study that during 1991 evaluated the nation's use of the USEPA Toxic Release Inventory (TRI). It is intended for anyone who questions whether providing information to the public is useful in spurring improved environmental quality. It is also for those who question the accessibility and current format of the TRI, and wonder what, if any, changes could be beneficial. Thus, it is a "user report" for the nation's first, unique, open-access environmental database. The focus is on pinpointing the activities and opinions of TRI users, rather than analyzing the technical issues of the adequacy and accuracy of TRI data, compliance costs to industry, or health and ecological effects of the toxic emissions. The complete report, The Toxic Release Inventory: An Evaluation of Access, Use and Impact will be available from NTIS in Spring, 1992.

Overview of the TRI Section 313 of SARA Title III

The Toxic Release Inventory, mandated under Section 313 of the 1986 Emergency Planning and Community Right-to-Know Act, has proven to be one of the most unusual and effective pieces of environmental legislation of the past twenty years. Conventional regulatory laws set standards for pollution control and involve direct federal and state government enforcement of business, industry and community activities. The TRI demands from industry only information on toxic emissions and in principle makes that data available to the entire nation, including individual citizens, local and state officials, and the private sector.

The TRI program, administered by USEPA's Office of Toxic Substances (OTS), has been intended from its inception to spur voluntary action by business, citizens and local governments to reduce toxic pollutant emissions. EPA officials and others have described this approach as "information empowerment" for citizens and "environmental democracy" whereby putting information about toxics in the public's hands can lead to mutual efforts by citizens and industrial facilities to change existing practices. Writing in 1988, New York Times environmental journalist Philip Shabecoff reported that the "early returns" of this "toxic poll" indicated the potential for action and change, but only on the basis of scattered "anecdotal evidence." The great majority of potential TRI users at that time probably viewed it as "that data EPA would use for research."

The TRI in Brief

Section 313 of the Emergency Planning and Community Right-to Know Law requires manufacturers that produce, import, process, or use threshold amounts of any of more than 300 chemicals to report their estimated chemical emissions to land, air, and water, or shipments of waste off-site. For 1989, about 22,000 reporting facilities estimated almost 6 billion pounds of toxic chemical emissions of all types. Not all facilities — especially small ones — have reported as required.

Many technical as well as policy issues surround the TRI. Public interest groups have lobbied for expansion of the TRI, including an increase in the number of chemicals covered

and the extension of reporting requirements beyond the manufacturing sector. Questions have been raised about the ease of access to the TRI's huge database through personal computers and the National Library of Medicine's TOXNET system—one of the major methods chosen by EPA for storage of and public access to TRI data. Pressure for pollution prevention rather than pollution control has already resulted in Congress' expansion of future TRI reporting to require facilities to report their efforts to reduce sources of toxic pollutants. The TRI therefore could have even greater future potential for usefulness and impact.

"Government will never be able to come in from the outside and manage toxics safely. Industry and local people are the key. Our goal is to promote local awareness of toxic chemicals so that local people have the tools for seeking responsible management of toxic chemicals. They can get more accomplished at a Rotary meeting than two pounds of federal regulation but local people have to know the facts."

State official, survey respondent

That makes the present an ideal time to evaluate questions of public ease of accessibility, uses, and impact on the nation of the TRI during its initial years. More than an evaluation alone, this summary also illustrates many potential uses to which TRI data can be put and the different forms in which the data could be made more accessible to the public. As you will read here, public interest groups credit access to the TRI with creating pressure for new state toxics reduction legislation and action by individual industrial firms. State personnel feel that TRI-stimulated public actions enhanced their efforts for environmental quality. Industry acknowledges the role of the TRI in focusing their attention on cost-effective opportunities for toxics pollution reduction and accident prevention.

Study Approach in Brief

Information in this summary comes from a study commissioned by the U.S. EPA's Office of Toxic Substances conducted by a research team from the University of North Carolina-Chapel Hill and Texas A&M University. This evaluation focuses on a universe of TRI users from industry, state government and the public interest community who made active use of the TRI to analyze public policies or industrial production practices and/or to organize, summarize, or interpret the data for a wider

audience (e.g., other organizations, individual citizens, etc.). Thus, the focus of this evaluation was somewhat different than that of the U.S. General Accounting Office's 1990 study of state coordinators, NLM TOXNET users, and reporting facilities.

Information on TRI use was collected by two methods. First, the content of almost 100 published reports using TRI data was analyzed, in terms of focus on geographic summary areas, air/water/land releases, and different types of facilities, as well as coverage of human health risks and other information not provided by the TRI itself. Second, a detailed mail questionnaire was sent to all organizations producing written reports, as well as an equal number that were identified as active TRI users and to all 55 state and territorial Section 313 data coordinators. The 72% survey response rate includes 147 organizations. Although not a random sample, the organizations included in this study are highly representative of the most active TRI users across the nation. (See footnote 1 for more information on the sample.) This summary highlights the findings, looking at how groups used the data, the impact of this use, the most effective means of accessing the data, the role of these data users as interpreters for a wider public and recommended changes in data content and coverage.

Uses and Impact of the TRI: Citizen Groups, State Government, Industry

The uses to which the TRI data have been put have expanded continually since 1987 when industry first reported emissions. Public interest groups, state 313 agencies and industrial organizations were asked, in the survey, about which uses they have pursued from among a representative list (see inset). Of the various uses, the three most frequently chosen by state 313 agencies are comparing TRI data to permits (64%), source reduction efforts (48%), and comparing similar facilities (41%). Among public interest/environmental groups the three most frequent uses include pressuring facilities for change (85%), educating citizens (79%), and lobbying (75%). Among industry, the TRI is most frequently used for source reduction efforts (58%), educating citizens (53%), and company profiles (53%). Those patterns reflect both differences and similarities in priorities for TRI use. State agencies have focused most on using TRI to improve management of existing authorities (e.g., RCRA) and analyzing reduction possibilities, often in conjunction with new state statutes such as TUR (toxics use reduction) laws. Public interest groups and industry are similar in placing high weight on

using TRI data to educate the public. Public interest groups direct equal efforts to pressuring facilities and lawmakers for change, while industry's other uses are directed internally at their own production processes.

The impact of the TRI was felt at least modestly even before the first data were publicly reported. Many industrialists were surprised by the volume of emissions. On the eve of the first reporting deadline of July 1, 1988, Monsanto's CEO pledged to reduce his firm's air emissions 90% by 1992. The TRI also has galvanized and become an integral part of citizen group efforts to enact state legislation requiring pollution prevention planning and mandatory reduction goals. For example, the Public Interest Research Group (PIRG) incorporated TRI data into its state-focused toxics use reduction campaigns and PIRG chapters in Massachusetts, Oregon and New Jersey published multiple reports of their own leading to successful legislative campaigns. Those reports combined the TRI data with information on successful pollution reduction practices in industry, making the case for new policies.

Representative Uses of the TRI Data

Pressure facilities for change	Educate citizens
Lobby	Assess existing laws
Emergency planning	Effect source reduction
Epidemiological studies	Raise funds
Compare similar facilities	Identify hotspots
Compare to permits	Prepare litigation
Prepare company profile	
Spur direct citizen/industry negotiation	
Prepare recommended legislation/regulation	
Screen for socially responsible investment	
Conduct commercial marketing studies	

State agencies have used the TRI to improve multiple programs through linkage of data and linkage of performance. For example in Louisiana, the nation's second-ranked state in total annual TRI emissions (473.5 million tons), state survey respondents credit the data for helping pass their Air Toxics Law which requires 50% reductions by 1994. But Louisiana state agencies have also used TRI data to tighten existing water quality regulations, to target the twelve top emitters in air, water and land categories for required reduction plans, and in at least one case, to link a company's TRI record to the approval of industrial tax exemptions.

According to our survey, (see Fig. 1), 66% of the citizen groups report that legislation or regulatory action was stimulated, but so do 42% of industry respondents (Table 1). As is the case with state environmental agencies, public interest

“ The TRI has made those of us in corporate America aware of our collective problems and provided a stimulus for reductions ”

Industry official,
survey respondent

"We have helped citizens arrange and attend meetings with about a dozen industries and are continuing to help them negotiate reduced emissions"

Public interest group, survey respondent

groups have also used TRI data to improve the enforcement of existing regulations as well as promote new laws. For example, the Clean Water Action/Clean Water Fund used TRI data in its report on the Houston (TX) Ship Channel to urge regional EPA officials to include that body of water in the Texas Water Commission's list of Toxic Impaired Waters.

Industry respondents most frequently report that source reduction efforts actually have taken place (68%), but so do 46% of the public interest groups responding (Table 1). About equal proportions of state agency (20%) and citizen group (24%) respondents also report that litigation has resulted from use of TRI data.

Perhaps one of the most important findings about TRI impacts is that both citizen groups and industry agree the data's availability has prompted increased face-to-face meetings between community groups and industry. As one group put it in their added comments in the survey, "As industry finds out you know what you are talking about, they are pressured to meet." Most of that increased communication takes place at a local, decentralized level—only 16% of state 313 agencies were aware that such activities had occurred. Among the results of such meetings between citizens and industry have been plant tours and citizen inspections, establishment of community advisory boards to monitor industrial activities, and formal "Good Neighbor Agreements" with specific facilities.

Improving the TRI: Questions of Access

There is no question that the TRI has played a role in spurring both new regulatory effort below the national level as well as community-based communication, negotiation and action between industry and citizens. Whether or not the results have been adequate in terms of environmental quality and health is beyond the scope of this report. However, in order for the TRI to have the maximum impact as a tool of environmental democracy, it must be reasonably accessible to a wide cross-section of the public. Examined here are questions about the ease of access to and completeness of the TRI data, and the role of different organizations in promoting access to and understanding of the data by others.

Access for Primary Users

The EPA implemented the innovative public "outreach" objectives (see Fig. 2) for the TRI by providing seven mediums for access: 1. the annual National Report, 2. the National Library of Medicine database, 3. CD-ROM disks, 4. personal computer diskettes by state, 5. magnetic tape, 6. microfiche, and 7. printed listings. In addition, the organizations polled here have also produced a wide variety of written reports that focus on different parts of the TRI data for specific areas and which often link the TRI to other information on pollution, waste reduction and health effects issues. Some public interest groups such as the Natural Resources Defense Council have distributed state diskettes free. The OMB Watch and the Unison Institute with private and public funding currently operate an on-line TRI data base which is being used by 240 people, a little less than half of which represent public interest organizations.

TRI users were asked to judge the "Most" and "Least" useful forms of access, shown in Table 1. Without question, the majority of users have preferred "hard copy" printed forms of the data or personal computer-compatible data, including the annual National Report, listings from EPA, the state diskettes, and the "Other Reports" prepared by non-EPA sources. Microfiche, expected to provide a low cost, easy medium for citizens at the local level, is the least preferred and used form of data with only 2% of the citizens groups, 4% of state government, and no industry respondents finding it an effective means of access. Only industry finds the NLM data base most useful. CD-ROM and magnetic tape all found use by less than 11% of the respondents.

Impacts of Organizations' Efforts to Use TRI

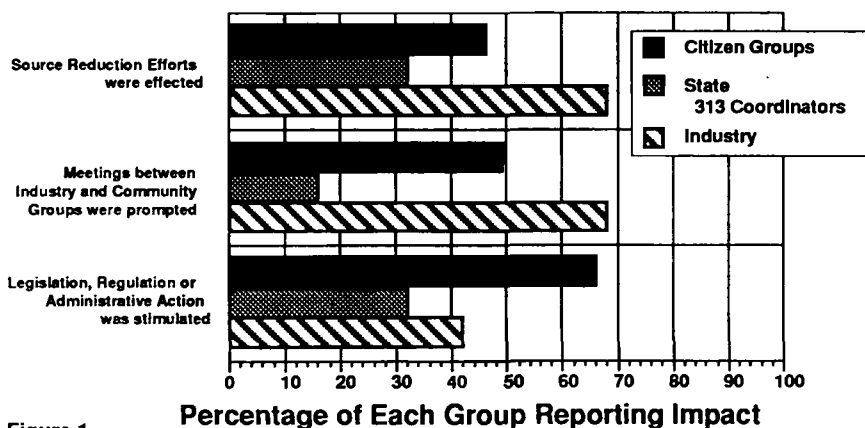


Figure 1

“While the USEPA has established a computerized database the information is not available in a user-friendly format which may be manipulated, sorted or extracted as needs demand. The state has found it necessary to establish its own database”

State official, survey respondent

Those results can be judged in two lights. First, they reflect the need that users have for the ability to manipulate the data (see inset). Second, they reflect limitations in equipment, resources and expertise among the wide community of users. While a printed report or state diskette can be the basis for creating a usable local database on widely available personal computers, the NLM database and CD-ROM, for example, present obstacles of connect time costs, lack of equipment, and rigid data format.

An analysis of the “other reports” across the nation, rated highly useful, shows that they tend to focus on the county and even municipal level. In particular, reports by public interest groups focus on specific groups of facilities, such as top emitters, focus on air emissions that have off-site consequences for nearby residents of facilities, and combine TRI data with other information on human health effects and pollution reduction opportunities.

For example, the Consumer Policy Institute used the TRI to identify the top polluters in each borough of New York City and combined that information with chemical profiles of each company. The Oregon Public Interest Research Group organized TRI emissions data in categories of health effects, such as cancer, reproductive disorders, and acute toxicity. Utah’s State Department of Health used TRI data to assign “investigative priorities” to air releases by combining emissions with additional data on local population density and environmental persistence of the substances emitted. Those are but a few examples of how manipulation of the TRI is necessary for users to achieve their objectives. Through 1990, such reports have been produced by state agencies and citizen groups in 24 states and the District of Columbia (see list of reports at the end of this summary).

Least and Most Useful Forms of the Data

Form		Citizen & Environmental Groups	State 313 Coordinators	Industry
Other Reports*	most	58%	59%	58%
	least	12	20	11
State Disk	most	55	61	21
	least	19	23	47
Printed List	most	51	61	53
	least	20	18	32
EPA Nat'l Report	most	42	59	53
	least	24	20	21
NLM	most	27	25	63
	least	39	52	26
CD/ROM	most	10	11	5
	least	51	68	63
Magnetic Tape	most	7	11	5
	least	60	73	79
Fiche	most	2	4	0
	least	63	75	79

N varies for each item, percentages do not sum to 100% due to non-response.
*Reports by state, environmental groups or industry that use the TRI data.

Public Interest Groups Serve as Access Points for Others

Table 1

Equally important, public interest groups and state 313 agencies have served as access points to the TRI for other governmental units, citizen groups, individual citizens and news media. Figure 2 shows the proportions of the TRI users surveyed that have received “Frequent” requests for information and assistance from various parties. Citizen groups, in particular, have received frequent requests for help from individual citizens who otherwise might not easily access TRI data.

As one respondent put it: “In general, people don’t ask for TRI data directly but it will help them with their problem ... most callers have never heard of TRI—they just call for help.” But state agencies and citizen groups are equally likely to receive frequent requests from other environmental groups and the news media. State agencies, however, are the target of requests from environmental consultants, while public interest groups are the ones contacted more frequently by community-level organizations. **In short, voluntary citizen organizations are the key point of access for grassroots requests from community groups and individuals who either cannot access the TRI easily or have never heard of it.**

“In our state as in many some of the worst polluters are in low socio-economic areas. How can people without college degrees use SARA 313 data? I have trouble and my education is good!”

Public interest group respondent

Organizations that Receive Frequent Requests for Help from Other TRI Users

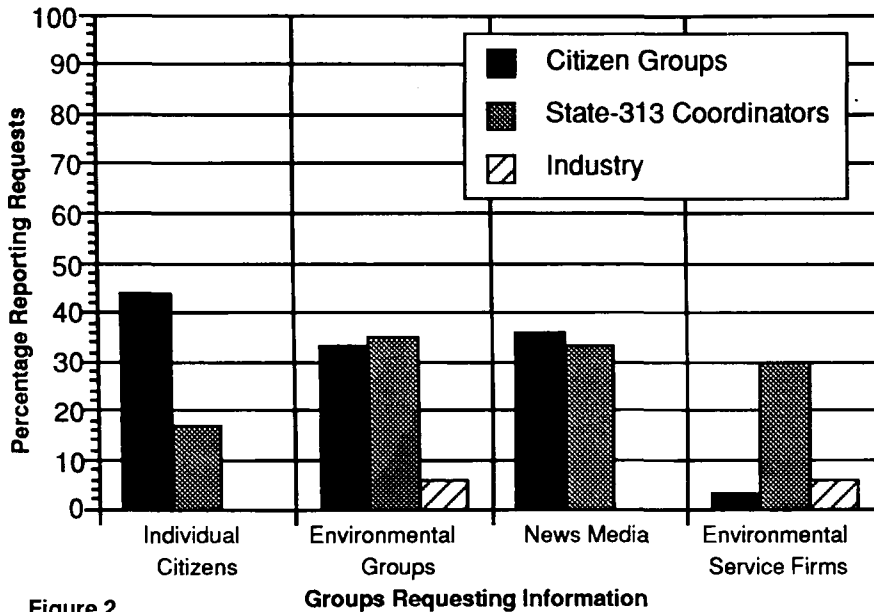


Figure 2

Needed Expansions and Refinements to TRI

High proportions of state government and public interest group users want additional information to maximize the usefulness of the existing TRI data coverage. As Table 2 shows, about half the state agencies and three-quarters of citizen groups want more information on specific facilities, on available emission control and waste minimization efforts, and on health effects and environmental impacts. Even among industry there are small numbers that would use such information to compare production processes in searching for both efficient operation and reduced pollution. Some but far from all of those concerns will be addressed by the expansions to the information required from facilities by TRI's Form R reporting requirements under the new Pollution Prevention Act of 1990. In addition, there is wide interest among citizen groups and some state agencies to expand the TRI to the large number of uncovered emission sources, such as incinerators, power plants, federal agencies and others outside the 20 SIC codes (industrial categories) covered by SARA Title III. Some states have expanded covered facilities as part of their own Toxics Use Reduction laws. Finally, many respondents to this survey commented about weakness in compliance with reporting requirements for the TRI.

Expansions to what information the TRI covers and how well it is complied with will

depend on the commitment of a very heterogeneous audience of users and reporters. To gauge opinions, all users were asked to express their support or opposition to a wide variety of purposes to which TRI data can be put (Figure 3). Not surprisingly, public interest groups are highly in favor of all of those representative uses. State 313 agency respondents, who are professional staff members, are also highly in favor of stricter toxic emissions regulation (83%), industry-public cooperation (93%), toxics use reduction legislation at state and federal levels (81%), and expanded news media coverage (71%). While many state 313 staff support voluntary local plant facility inspections (61%), fewer want to see mandatory inspections (46%). Industry, finally, is highly supportive of voluntary cooperation (100%) and mildly supportive of specific voluntary plant inspections (50%), and emission regulation (31%); but industry representatives are strongly opposed to new TUR laws, mandatory inspections, and local toxics zoning such as that proposed and defeated in Nevada's legislature.

Implications for the Future

It should be apparent that the TRI can only be successfully used to promote the reduction of toxics emissions, waste and use through a complex web of parties that have disparate interests as well as common ones. The findings here in some ways parallel those of a 1990 U.S. General Accounting Office evaluation of the TRI (2). Industry users are most likely to find the National Library of Medicine database a comfortable and adequate medium for accessing the TRI, but other users, especially citizens working through public interest groups, seek additional and flexible windows into TRI data compatible with their capabilities and needs. The GAO report concluded that the TRI is not well known to the individual citizen, and EPA continues to pursue steps to publicize TRI data availability and provide assistance to individual users of TRI data. But the findings here also show that public interest groups and the states play a key role in acting as bridging or intermediate organizations that are closer to and perhaps better able to help citizens understand how the TRI applies to their immediate needs and how it can be used. The challenge is to use effectively all of the available means for making the TRI useful. The EPA is undertaking a pilot project in Pennsylvania to work with local organizations. States can play a role by working closely with and even aiding citizen groups to promote TRI availability. Many industrial firms have already donated databases on SARA Title III Section

Additional Information Needed

Information Needed	Percent of Groups Stating Need		
	Citizen Groups	State 313 Coordinators	Industry
Specific Facility	85	48	21
Control Technology	79	50	21
Health/Environmental Impacts	78	48	26
Waste Minimization	72	57	26
The law (EPCRA)	18	9	5

Table 2

(Implications for the Future continued)

311-312, Extremely Hazardous Substances, and could play an equal role in helping make accessible the Section 313 TRI data. The nation's 3800 Local Emergency Planning Committees (LEPCs) are an underutilized point of access for TRI data at the most local level. A number of states, working with the National Oceanic and Atmospheric Administration (NOAA) and EPA, have helped LEPCs to acquire and use the CAMEO system software for emergency planning. CAMEO also is designed to provide a way to store and use TRI data as well, making it a resource local public agencies can provide to the entire community. Finally, the growing number of reports done using the TRI (see listing) are essential to interpreting the data in terms of local needs. No national database alone can substitute for those specific applications of the information by those closest to the needs.

Support for Actions Based on TRI Use

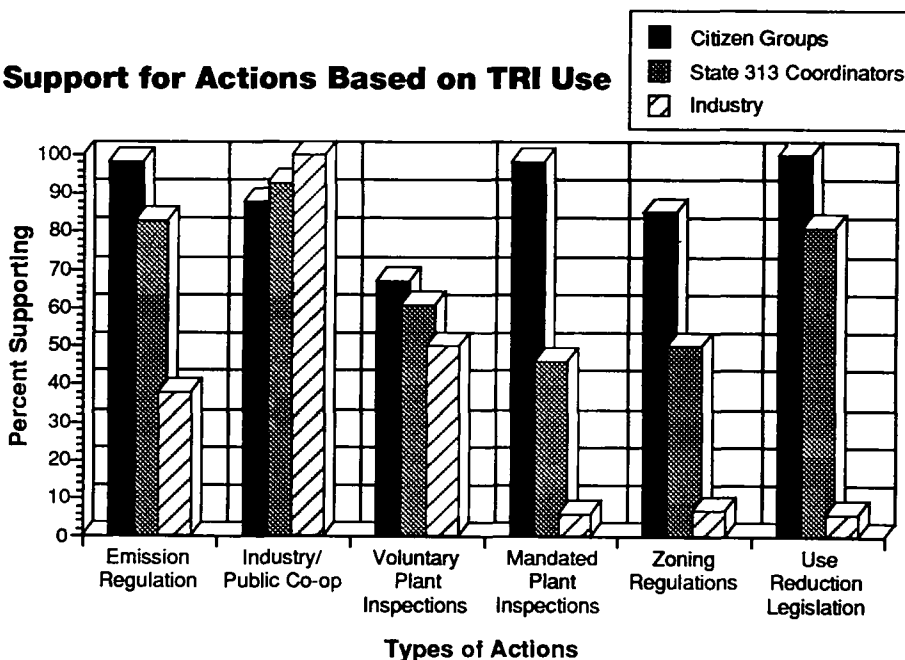


Figure 3

Footnotes

1. The research team used two methods in its evaluation: a content analysis of reports produced by public interest groups, state agencies and industry; and a written questionnaire of the same user community plus other organizations identified as active TRI users. A snowball method was used to identify organizations and was necessary because the population of user organizations was unknown and could not be randomly sampled. In order to identify organizations that had produced written reports, we contacted all 55 state and territorial 313 coordinators. We also contacted public interest and industrial organizations which had been identified by the EPA, the Working Group on Community Right-to-Know (a public interest group coalition) or the Chemical Manufacturers Association. Generally excluded from this study are environmental management consultants and the news media. In addition to requesting written documents from each organization, we asked each respondent for the names of other organizations that had produced reports using the TRI data. Through this snowball method we collected close to 95 reports produced from 1988 to 1990. Of the 95 documents, 70 were produced by public interest groups, 23 by state agencies and two by Congressional offices. Industry tended to rely on other means of dissemination such as public meetings and press releases. We included all organizations from whom we collected reports in our mail survey. Additional organizations identified brought the total of those surveyed to 205, including all state 313 coordinators. Among the 147 respondents were 44 of the 55 state and territorial coordinators, 67 citizen and environmental groups and 19 industrial representatives. The snowball method did result in a small number of organizations or individuals which did not fit our categories. These 19 included, among others, congressional staff and state employees from non-313 program offices which were not included in our statistical analysis but were surveyed to identify categories of users that will be included in further studies.

2. U.S. General Accounting Office (1991). Toxic Chemicals, EPA's Toxic Release Inventory is Useful but Can be Improved. Washington, D.C.: GAO (RCED-91-121).

Note:

This bulletin was written for EPA by Dr. Frances M. Lynn of the Institute for Environmental Studies, University of North Carolina at Chapel Hill, and Dr. Jack D. Kartz, Hazard Reduction and Recovery Center, Texas A&M University.

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Design:

Learning Resources Center, School of Public Health

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