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REGULATION AND INFORMATION DISCLOSURE: PARALLEL UNIVERSES AND BEYOND

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I. INTRODUCTION

The "social costs" of economic production are those costs, like pollution, that are not borne directly by product purchasers and therefore cannot be reduced to an optimum level by individual consumer choice. Although controlling social costs has long been a basic government function, direct government commands currently stand in low regard as a means of controlling them. In response, Congress has begun to enact, and agencies have begun to establish, programs that require regulated industries to disclose information about the social costs they create. Such "social cost disclosure" programs differ significantly from more traditional product labeling efforts, whose primary goal is to assist individual choice among products by informing purchasers about the hidden risks that a given product might impose on *them*. Rather, such programs require the disclosure of information that will urge non-federal governments to consider regulation to reduce the social cost being addressed, and will pressure the creators of that cost to consider voluntary action to reduce it.[1] Proponents of social cost disclosure programs claim they empower communities and citizen groups to address the problems disclosure reveals without the inefficiencies and the overriding of local preferences that inevitably attend national regulation.[2]

This Article argues that the growth of social cost disclosure programs could lead to far-reaching changes in the status and function of federal regulatory agencies—but only if the agencies seize that opportunity themselves. The agencies must take affirmative responsibility for the

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[1] The late Albert Hirschman identified two methods of reforming an institution. "Exit" occurs when the organization loses adherents—or when a firm loses customers—and creates an incentive for reform to stem the loss. When the organization's adherents stay in place and press for change directly, they seek reform through "voice." *See* ALBERT O. HIRSCHMAN, EXIT, VOICE AND LOYALTY 4, 21–44 (1970). Social cost disclosure programs appeal to voice, calling on those affected to stay where they are (sometimes because they have no choice) and reform the offending conduct, while product labeling programs appeal to exit by disclosing to the reader possible reasons not to buy the offending product.

For another description of the two types of disclosure programs and the differences between them, see Cass R. Sunstein, *Informational Regulation and Informational Standing: Akins and Beyond*, 147 U. PA. L. REV. 613, 619 (1999).

[2] *See, e.g.*, *infra* notes 51 and 60.

accuracy, both in content and presentation, of the public message such programs convey. Without such an effort, social cost disclosure may duplicate most of the defects of our existing system of command-and-control regulation. Conversely, an agency that makes the effort will discover that social cost disclosure programs both require, and can help accomplish, a closer engagement of the agency in the dialogue that shapes goals for social cost control. That closer engagement could, in turn, encourage significant revisions to the command-and-control system itself.

Part II begins by discussing the Environmental Protection Agency's ("EPA") "toxics release inventory" ("TRI") program—the oldest, most established, and best publicized federal social cost disclosure program. TRI requires selected factories and other establishments over a certain size to annually report their environmental releases of certain toxic chemicals. TRI in its present form does not and cannot achieve its ostensible goal of accurately informing the public about toxic releases. It omits many environmentally significant chemicals and focuses on sources that account for a small fraction of releases. It largely fails to note distinctions between more and less risky pollutants or modes of release. Finally, EPA has administered TRI in isolation, without coordination with other programs that might correct its defects. As a result, TRI fails to portray accurately the extent and the possible impacts of the chemical releases it purports to cover or to provide a basis for comparing those impacts with other uncovered risks.

Part III argues that the disclosure program duplicates in a parallel universe most of the defects of the command-and-control system from which it ostensibly departs. TRI has led to rapid and major release reductions by functioning like regulation rather than by broadening public understanding. It presents information in a manner designed more to advertise the need for emission reductions than to portray objectively health or environmental dangers.

EPA has been reluctant to take any action to correct these defects. That reluctance conforms to widely accepted views of agencies as lacking the political capacity to address effectively issues in the absence of an express political mandate. If Congress has failed to define meaningful goals for an agency, the agency itself is powerless to fill that gap. EPA may consider itself too weak compared to outside interests to supplement TRI data or to offer its own evaluation of it at acceptable political cost.

Part III argues further that EPA's passivity is both reflected in, and caused by, the absence of well-established goals to guide either TRI or traditional command-and-control efforts. An agency that possessed goals strong enough to guide a program's direction and choice of methods effectively would be better able to implement and, where necessary, change the means of pursuing them. Conversely, a weak agency that receives its direction from interest group pressure will be unlikely to possess such goals and will therefore have little power to set its own agenda.

Part IV argues that social cost disclosure programs, such as TRI, can help cure agency passivity. Any disclosure program will lead those affected to demand correction of errors and misleading impressions. Although new substantive regulations also lead to requests for relief, such demands are inherently harder to resist in the field of information disclosure than if relief from a regulation were sought.

As an agency responds to these natural pressures, its disclosure activities will move increasingly toward presenting information in a balanced manner and responding to legitimate criticism with corrections, rather than deploying a partial account of a problem for immediate rhetorical effect.[3] The sources of social cost themselves often report much of the initial data for a social cost disclosure program. However, as commenters on that data, or the data itself, raise more complex questions, relying on sources to answer them may become too expensive, or simply unacceptable, if the source has self-interested reasons to slant its answer. In such cases, only some other actor, often the agency itself, can provide an acceptably balanced clarification or response. As these questions multiply, the agency will need to determine exactly where and in what manner to invest its resources and its credibility in addressing them. Such determinations in themselves will require an agency with an active concept of its own mission.

Addressing these questions will also require a more active agency approach to gathering and managing data. Everything an agency does requires it to collect, evaluate, and disclose information. The information developed for one purpose will often be relevant to other issues, and gathering new data for each purpose will quickly become unacceptably expensive and inefficient. As a result, the question of how an agency should invest in gathering or repackaging information for a single social cost disclosure program cannot be separated from the questions of how it should gather, manage, and present *all* of its information.

Part IV suggests that an agency could organize such decisions by arranging its disclosure needs along a "disclosure spectrum." Information needed to define a new social goal—for example, to adopt a program to combat global warming—would fall at the top. Such information could be quite generic. Very specific information needed to implement a narrow and clearly established requirement—for example, regulation enforcement—would fall at the bottom. Intermediate steps, such as the adoption of regulations to implement a statute, would require information of intermediate specificity.

Only by determining the proper goals for each disclosure activity can an agency make sure that it occupies an appropriate place on the disclosure spectrum. However, since these disclosure activities mirror the

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[3] That in itself would mark a significant change in the way in which TRI information is at least implicitly presented. *See infra* text accompanying note 76.

full range of activities which the agency might undertake, or for which it might seek a new mandate through public dialogue, any assignment of disclosure activities to particular spectrum points must rest on a conception of the agency's present and future goals and the priorities among them. In this manner, the operation of a social cost disclosure program should lead an agency to better define the goals it believes it is entitled to pursue.

Part V argues, from a different perspective, for an active agency role in shaping the message of social cost disclosure programs. It shows that traditional burden of proof analysis justifies such a role. An active role also gives the agency a market-like incentive to improve the performance of its functions, just as the TRI reporting obligation has spurred reporting sources to improve their environmental performance.

An agency that clarified its goals and increased its public credibility by administering social cost disclosure in the dialogic manner described above would lay the foundation for reform of its regulatory and legislative mandates as well. Information and debate about its meaning are the raw materials from which such mandates are derived. Command-and-control rules administered by passive agencies have led to inefficient regulation, in part due to the lack of general goals around which a coherent regulatory system could be organized.[4] However, social cost disclosure programs by nature extend an invitation to consider such general goals and are likely to extend it more compellingly as they present more information in a nuanced manner as a result of the evolutionary process described above.

Part VI argues that such an evolution would encourage specific substantive changes in the regulatory system itself. These reforms might move towards a system of fewer, more general federal commands combined with greater deference to state and local decision-making and greater willingness to experiment with different approaches to a problem.

The more widespread and sophisticated use of social cost disclosure programs would have benefits running beyond increasingly capable federal agencies and reformed systems of substantive regulation. Dialogue and public debate can create public goals that are more than the sum of the private interests of those affected. This Article seeks to spell out the concrete implications for agency conduct and management of a "civic republican" effort to strengthen our national ability to create shared goals by public dialogue.[5] It argues that social cost disclosure programs pro-

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[4] *See generally* William F. Pedersen, *"Protecting the Environment"—What Does That Mean?*, 27 LOY. L.A. L. REV. 969 (1994).

[5] Mark Seidenfeld writes,

> The civic republican model rejects the pluralistic assertion that government can, at best, implement deals that divide political spoils according to the pre-political preferences of interest groups. Instead, government's primary responsibility is to

vide a stepping stone by which our current agencies can move toward that ideal.

II. THE TRI

This Part sets out the legal structure and regulatory history of the TRI program. It then examines four aspects of TRI's performance and structure, namely:

- TRI's success in bringing about voluntary emissions reductions from the facilities it covers;
- TRI's failure to account for most releases of TRI chemicals, since it does not address most sources of these releases;
- TRI's failure to include releases of other chemicals as hazardous or more hazardous than chemicals already listed; and
- EPA's failure to explain the risks posed by TRI releases or equip the public to assess those risks itself.

A. The Congressional Framework

1. The Statute

When Congress in 1986 amended the nation's basic hazardous waste cleanup statute,[6] it also enacted a set of emergency planning and disclosure requirements collectively known as the Emergency Planning and Community Right-to-Know Act ("EPCRA").[7] Section 313 of EPCRA established TRI. Congress confined TRI programs to industrial facilities, particularly excluding small businesses, governments, and farmers.[8] It required each facility over a threshold size in twenty of ninety-seven defined Standard Industrial Classification ("SIC") categories[9] to report to

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enable the citizenry to deliberate about altering preferences and to reach consensus on the common good.

Mark Seidenfeld, *A Civic Republican Justification for the Bureaucratic State*, 105 HARV. L. REV. 1511, 1514 (1992).

[6] Superfund Amendments and Reauthorization Act of 1986 ("SARA"), Pub. L. No. 99-499, 100 Stat. 1613.

[7] 42 U.S.C. §§ 11001–11050 (1994). EPCRA was Title III of SARA.

[8] *See infra* notes 33–36.

[9] More specifically, the program applied initially to facilities in SIC Codes 20 through 39, as in effect on July 1, 1985. *See* EPCRA § 313(b)(1), 42 U.S.C. § 11023(b)(1) (1994). The SIC Codes are used by the Census Bureau to classify all economic establishments in the country. SIC Codes 20–39, which are listed in OFFICE OF MANAGEMENT AND BUDGET, EXECUTIVE OFFICE OF THE PRESIDENT, STANDARD INDUSTRIAL CLASSIFICATION MANUAL (1987), cover a wide range of manufacturing activities.

EPA added federal government activities to TRI in 1993, *see infra* note 55, and added seven new SIC Codes to TRI in 1997, *see infra* note 56. Even as extended, however, TRI omits all establishments engaged in agriculture, forestry, and fishing (SIC Codes 1 through

EPA every year on a standard form[10] ("Form R") its environmental "release[s]"[11] of any one of about three hundred identified chemicals.[12] The requirement only applied to plants that (1) "manufactured, processed, or otherwise used" between 5 and 12.5 tons of the chemical each year and (2) had ten or more employees.[13] These facilities also had to report the maximum quantity of each chemical on-site during the reporting year.[14] In 1991, Congress expanded the reporting obligation to cover amounts recycled on and off site.[15] In addition, the TRI reporting form required that facilities report the uses of covered chemicals as well as the exact point and manner of the environmental release.[16] This form was designed to allow the public to focus on the releases at issue and the activities that gave rise to them.

Facilities may base such reports on existing data. Congress specifically prohibited the imposition of any new monitoring requirements to implement TRI.[17] Failing to report and misreporting, however, are subject to civil penalties.[18]

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9), oil and gas extraction (13), mining and quarrying of nonmetallic minerals (14), construction of any type (15 through 17), any form of transportation or communication (40 through 48), any form of electric, gas, or sanitary services, except for generating electricity by burning coal or oil, or handling materials expressly defined by EPA regulation as hazardous wastes (compare SIC Code 49 with 40 C.F.R. § 372.22 (b) (1998)), any form of wholesale or retail trade, including gas stations and building and garden material supply stores (50 through 59), any service activity, including running a hospital, any form of dry-cleaning operation, a photographic plant, a pest control service, or an auto repair shop (70 through 89), and any state or local government activity (91 through 97).

[10] *See* EPCRA § 313(a), (g), 42 U.S.C. § 11023(a), (g) (1994).

[11] The statute defines "release" as "any spilling, leaking, pumping, pouring, emitting, emptying, discharging, injecting, escaping, leaching, dumping, or disposing into the environment (including the abandonment or discarding of barrels, containers, and other closed receptacles)." EPCRA § 329(8), 42 U.S.C. § 11049(8) (1994). It defines "environment" in turn to include "water, air, and land and the interrelationship which exists among and between water, air and land and all living things." EPCRA § 329(2), 42 U.S.C. § 11049(2) (1994).

[12] Congress devised a list particularly for this purpose. *See* EPCRA § 313(c), 42 U.S.C. § 11023(c) (1994).

[13] EPCRA § 313(a), (b), 42 U.S.C. § 11023(a), (b) (1994). In 1988, EPA estimated that the ten employee requirement "exempts 48 percent of all manufacturing facilities in SIC codes 20 through 39" from TRI reporting. Toxic Chemical Release Reporting; Community Right-to-know, 53 Fed. Reg. 4500, 4523 (Feb. 16, 1988) (to be codified at 40 C.F.R. pt. 372).

[14] *See* EPCRA § 313(g)(1)(C)(ii), 42 U.S.C. § 11023(g)(1)(C)(ii) (1994).

[15] *See* Pollution Prevention Act of 1990 ("PPA") § 6607(b)(2), 42 U.S.C. § 13106(b)(2) (1994).

[16] *See* OFFICE OF POLLUTION PREVENTION AND TOXICS, EPA, TOXIC CHEMICAL RELEASE INVENTORY REPORTING FORM R AND INSTRUCTIONS, Form R, Part II, §§ 3, 5 (rev. 1995).

[17] "Nothing in this section requires the monitoring or measurement of the quantities, concentration, or frequency of any toxic chemical released into the environment beyond that monitoring and measurement required under other provisions of law or regulation." EPCRA § 313(g)(2), 42 U.S.C. § 11023(g)(2) (1994).

[18] *See* EPCRA § 325(c), 42 U.S.C. § 11045(c) (1994) (authorizing the federal assessment of civil penalties up to $25,000 per day of violation for failure to comply with TRI requirements). EPA can seek civil penalties either administratively or by bringing an action

Congress also gave EPA authority to lower the chemical use threshold at which reporting would be required,[19] define the types of chemical "use" that trigger reporting,[20] impose reporting requirements on individual facilities outside the mandatory categories,[21] expand or contract both the mandatory categories[22] and the list of chemicals for which reporting is required,[23] and adjust the frequency of reporting.[24] EPA may take these

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in federal district court. *See* EPCRA § 325(c)(4), 42 U.S.C. § 11045(c)(4) (1994). *See, e.g.*, Steeltech, Ltd. v. EPA, 105 F. Supp. 2d 760 (W.D. Mich. 2000). EPCRA § 326, 42 U.S.C. § 11046 (1994), authorizes suits for injunctive relief by states and private citizens in cases where the federal government has not acted. It also authorizes the award of attorneys' fees to successful litigants, but requires sixty days notice before the complaint is filed. *See, e.g.*, Atl. States Legal Found. Inc. v. United Musical Instruments, U.S.A., Inc., 61 F.3d 473 (6th Cir. 1995); Atl. States Legal Found., Inc. v. Whiting Roll-Up Door Mfg. Corp., 772 F. Supp. 745 (W.D. N.Y. 1991); Del. Valley Toxics Coalition v. Kurz-Hastings, Inc., 813 F. Supp. 1132 (E.D. Pa. 1993). In 1998, the Supreme Court held that citizens did not have constitutional standing to bring suits for violations that were wholly past at the time the complaint was filed since those citizens would not qualify for any statutory relief. Steel Co. v. Citizens for a Better Env't, 523 U.S. 83 (1998). This decision severely curtails the power of citizen suits to serve as a practical enforcement mechanism for TRI since almost every source should be able to cure its violation within the sixty day notice period. That in turn would defeat the ability of a potential plaintiff to recover attorneys' fees and deter the filing of suits.

[19] *See* EPCRA § 313(f)(2), 42 U.S.C. § 11023(f)(2) (1994). The statute expressly allows such adjustments for "classes of chemicals or categories of facilities." *Id.* The only condition it places on the exercise of this authority is that it should "obtain reporting on a substantial majority of total releases of the chemical at all facilities subject to the requirements of this section." *Id.* Since this appears to restrain undue relaxation of reporting thresholds, only the general purposes of the section constrain the establishment of tighter reporting thresholds.

[20] The statute imposes reporting obligations on any facility that "manufactures, processes, or otherwise uses" more than threshold amounts of chemicals. EPCRA § 313(b)(2), 42 U.S.C. § 11023(b)(2) (1994). Since the law does not define the term "otherwise use," EPA can give it any meaning consistent with its extremely broad natural meaning. *See* Chevron U.S.A. Inc. v. NRDC, 467 U.S. 837, 842–43 (1984) (stating that reasonable agency statutory interpretations must prevail unless Congress has directly addressed the question at issue).

[21] Individual facilities not otherwise subject to TRI can be required to report

> if the Administrator determines that such action is warranted on the basis of toxicity of the toxic chemical, proximity to other facilities that release the toxic chemical or to population centers, the history of releases of such chemical at such facility, or such other factors as the Administrator deems appropriate.

EPCRA § 313(b)(2), 42 U.S.C. § 11023(b)(2) (1994).

[22] EPA may add new SIC codes to the reporting list, "but only to the extent necessary to provide that each [SIC] Code to which this section applies is relevant to the purposes of this section." EPCRA § 313(b)(1)(B), 42 U.S.C. § 11023(b)(1)(B) (1994). Since the purposes of this section are about as broad as possible, *see infra* note 25, this condition should not impose any restraint on the listing of any SIC category whose members release appreciable amounts of listed toxics.

[23] *See* EPCRA § 313(d), (e), 42 U.S.C. § 11023(d), (e) (1994).

[24] *See* EPCRA § 313(i), 42 U.S.C. § 11023(i) (1994). However, because the statute contains no express authority to reduce the ten employee reporting threshold, EPA believes it lacks authority to do this. *See* Persistent Bioaccumulative Toxic (PBT) Chemicals; Lowering of Reporting Thresholds for Certain PBT Chemicals; Addition of Certain PBT Chemicals; Community Right-to-Know Chemical Reporting, 64 Fed. Reg. 58,666, 58,673

steps to advance the purposes of the statute. Because Congress defined these purposes comprehensively,[25] EPA enjoys very broad discretionary authority from a strictly legal perspective to reshape the coverage of the program.[26]

EPA also enjoys broad power to determine the information disclosed under TRI. Congress did not specify the contents of individual facility reports or the use that EPA should make of them. The original 1986 legislation simply required an estimate of "[t]he annual quantity of the toxic chemical entering each environmental medium."[27] Upon receiving the reports, EPA must use them to create a "computer data base" and make them publicly available.[28] Legislation in 1990 added requirements to report the amounts recycled and to distinguish between continuing releases and releases from singular events.[29] The law, however, neither requires nor forbids EPA to characterize for the public the risks of TRI chemicals or the percent of total chemical releases that TRI covers.[30]

2. The Legislative History

The legislative history shows that Congress enacted TRI without considering the policy issues it raises. In 1985, a sudden chemical release at a Union Carbide plant in Bhopal, India, killed more than 3000 people. A much smaller release at another Union Carbide plant in West Virginia demonstrated that chemicals in this country could pose the same dangers.[31] Congress responded by adding provisions to the first environ-

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(Oct. 29, 1999) (to be codified at 40 C.F.R. pt. 372).

[25] Those purposes are:

> to provide information to the Federal, State and local governments and the public, including citizens of communities surrounding covered facilities . . . to inform persons about releases of toxic chemicals to the environment, to assist governmental agencies, researchers, and other persons in the conduct of research and data gathering, to aid in the development of appropriate regulations, guidelines, and standards, and for other similar purposes.

EPCRA § 313(h), 42 U.S.C. § 11023(h) (1994).

[26] As EPA has said of the provision allowing changes in reporting levels:

> This provision provides EPA with broad, but not unlimited, authority to establish thresholds for particular chemicals, classes of chemicals, or categories of facilities, and commits to EPA's discretion the determination that a different threshold is warranted [and] . . . the determination of the levels at which to establish any alternate thresholds.

Persistent Bioaccumulative Toxic (PBT) Chemicals, 64 Fed. Reg. at 58,667.

[27] EPCRA § 313(g)(1)(iv), 42 U.S.C. § 11023(g)(1)(iv) (1982 & Supp. IV 1986).

[28] EPCRA § 313(j), 42 U.S.C. § 11023(j) (1994).

[29] *See* PPA § 6607(b), 42 U.S.C. § 13106(b) (1994).

[30] See *infra* note 75 for a discussion of the broad scope of agencies' inherent power to disclose information.

[31] TRI was "enacted in response to an environmental crisis. Heightened fears of toxic

mental legislation available that required all companies that held more than specified amounts of acutely hazardous chemicals on-site to inform both their local emergency planning agencies and the public of their presence.[32] Congress added TRI to the same law as a supplemental disclosure provision.

TRI, however, does not address Bhopal-type dangers from chemical accidents. Instead, it targets the risk of illness posed by routine releases. While Bhopal-type disasters involve large spills of indisputably acute toxics, materials that cause lesser or longer-term effects are much harder to characterize medically and are released in a much wider variety of ways from a much wider set of sources. Providing a full picture of such releases poses formidable problems of data gathering and management. Explaining their absolute and comparative significance poses equally formidable problems of risk assessment and public communication.

The first of these challenges surfaced immediately during the House debate on an amendment to require reporting and disclosure from "any person" releasing chemicals that are "known to cause or . . . . suspected of causing cancer, birth defects, heritable genetic mutations, or other chronic health effects in humans."[33] The House first adopted the amendment after heated debate[34] and then dropped it after arguments that it would impose a duty to report any release of thousands of unspecified chemicals on farmers, gas stations, printers, dry cleaners, hospitals, and beauty parlors.[35] In response, the conferees adopted the elaborately structured program specifications summarized earlier and gave EPA broad power to vary them. The sponsor of the rejected House disclosure provision asserted that Congress, despite these restrictions, had intended the establishment of a comprehensive inventory of *all* toxic releases, and that EPA should use its discretion to expand TRI obligations to the extent necessary to achieve that purpose.[36] In all other respects, however, the policy issues inherent in the TRI approach went unaddressed.

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chemicals occasioned by the Bhopal disaster and a similar but less serious domestic incident led Congress to require industrial polluters to report toxic emissions." William M. Sage, *Regulating Through Information: Disclosure Laws and American Health Care*, 99 COLUM. L. REV. 1701, 1823 n.462 (1999) (*citing* Rebecca S. Weeks, *The Bumpy Road to Community Preparedness: The Emergency Planning and Community Right-to-Know Act*, 4 ENVTL. L. 827, 831–34 (1998)).

[32] These amendments became EPCRA §§ 311–312, 42 U.S.C. §§ 11021–11022 (1994).

[33] 131 CONG. REC. 34,758 (1985).

[34] *See* 131 CONG. REC. 34,759–66 (1985).

[35] *See* 131 CONG. REC. 35,657 (1985). TRI currently covers none of these source categories.

[36] *See* 132 CONG. REC. 29,747 (1986) (statement of Rep. Edgar).

B. TRI and Release Reduction

Legislatures have long required the labeling of individual products with information for the guidance of the purchaser.[37] The TRI program rests on a different and less individualistic philosophy.[38] The facility-by-facility reports on toxic releases that it requires are of more interest to the media and the public-at-large than to those who purchase or use the facility's product. A social cost disclosure program like TRI thus addresses the public in a calculated effort to provoke either collective action to address the topics of disclosure or a considered decision against such action.[39] Detailed disclosure of pollution releases will facilitate state and

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[37] The federal government has long required health warnings on cigarettes, 15 U.S.C. § 1333(a), (b) (1994), nutritional labeling on food, 21 U.S.C. §§ 341–350b (1994), and use instructions on drugs, 21 U.S.C. § 352 (1994), and pesticides, 7 U.S.C. 136a(c)(9) (1994). In more recent years Congress has required warning labels on alcoholic beverages, 27 U.S.C. § 215(a), (b) (1994), disclosure of real interest rates on consumer loans, 15 U.S.C. §§ 1601(a), 1610, 1632, 1637, 1646 (1994), disclosure of the condition of land purchased in an interstate sale, 15 U.S.C. § 1703(a) (1994), and energy efficiency labels on appliances, 16 C.F.R. § 305 (2000), as well as gas mileage information on automobiles, 49 U.S.C. § 32908(b) (1994), and posting of octane ratings on gasoline pumps, *see* 16 C.F.R. § 306.10 (2000). The requirement imposed under the Occupational Safety and Health Act that employers disclose to their employees the levels of toxic chemicals in the workplace, 29 C.F.R. § 1910.1200 (1999), is of the same nature—it is in effect a label on the job, which is the "product" for which the worker is the "customer." Similarly, the requirements of the Securities Exchange Act for full affirmative disclosure of the market condition of companies offering securities, 15 U.S.C. § 78(l)(b)(1) (1994), is effectively a label on the security being offered. The FTC has also promulgated binding rules requiring the labeling of fiberglass materials, quick-freeze aerosol sprays, and clothing tags. *See* Jamie A. Grodsky, *Certified Green: The Law and Future of Environmental Labeling*, 10 YALE J. ON REG. 147, 171 (1993).

[38] Of course, even a labeling program may also have social cost disclosure consequences. "A statute that requires companies to place 'eco-labels' on their products may produce little in the way of consumer response, but shareholders and participants in the democratic process may attempt to punish those whose labels reveal environmentally destructive behavior." Sunstein, *supra* note 1, at 619.

[39] TRI is not the only social cost disclosure program. The National Environmental Policy Act's requirement for an environmental impact statement before undertaking a "major federal action" that might significantly affect the environment was designed in part to inform the public and to allow them to bring pressure before such actions were taken. *See* Sunstein, *supra* note 1, at 621–22.

EPA has begun to experiment with other non-TRI social cost disclosure programs. *See infra* text accompanying notes 175–182. In addition, a few non-EPA federal programs share these characteristics. "[T]he Home Mortgage Disclosure Act, requiring disclosure of the geographic sources of a bank's deposits and geographic distribution of its loans, is designed to discourage banks from refusing to lend to particular neighborhoods or communities." STEPHEN G. BREYER, REGULATION AND ITS REFORM 161–62 (1982). According to one respected banking consultant, this program has been highly effective both in modifying bank conduct and in leading to a detailed dialogue with local communities. A bank that is forced to disclose a mortgage rejection rate for minorities higher than its rejection rate for applicants in general will feel pressed either to change its conduct if it economically can, or, if it cannot, to undertake the difficult task of explaining to the relevant community why the numbers do not mean what they appear to say, or why they reflect objective economic factors and not discrimination. *See* Interview with Karen Shaw Petrou, Executive Vice President, Institute for Strategy Development, in Washington, D.C. (Aug. 9,

local regulation of a source and promote voluntary release reduction by a source that sees the increased risk and wants to forestall it.[40] If disclosure shifts public preferences, both local regulation and voluntary control become even more likely. These reductions can be achieved without the costs and delays of a federal rulemaking, and perhaps without any rulemaking at all.[41]

Social cost disclosure itself articulates no substantive legal requirements. In fact, the conduct disclosed will be generally completely legal.[42] A social cost disclosure program only justifies its costs to the extent that it reveals information with a realistic chance of triggering new regulations. To pass that test, a social cost disclosure program must: (1) address topics that existing regulatory programs can readily address, and (2) specifically identify the potential targets of regulatory action. Meeting these conditions maximizes the chances that disclosure will lead to regulation or that sources will act preemptively to forestall regulation.

A social cost disclosure program that does not lead to regulation or self-regulation can still be legitimately counted as successful if it increases public understanding of the issues and leads to a more informed decision not to disturb the status quo.[43] However, promoting such public

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1997). Similarly, the Animal Welfare Act requires the filing of reports by laboratories on their treatment of animals. *See* 7 U.S.C. §§ 2131–2159 (1994).

California's Safe Drinking Water and Toxic Enforcement Act of 1986, CAL. HEALTH & SAFETY CODE § 25249.5–.13 (1999), adopted by referendum in 1986 ("Proposition 65"), embodies an approach somewhere between release disclosure and product labeling. It requires every product or workplace in certain specified categories that contains a product "known to the state to cause" cancer, birth defects, or reproductive harm to be labeled to that effect, *id.* § 25249.5, unless "the person responsible" for an exposure can show that the risk of that exposure falls below "no significant risk" levels established by the state. *Id.* § 25249.10. *See generally* Michael Barsa, *California's Proposition 65 and the Limits of Information Economics*, 49 STAN. L. REV. 1223 (1997). California also requires the filing of a pesticide use report after each use of a restricted pesticide. *See* CAL. FOOD & AGRIC. CODE §§ 12979, 14011.5 (1999). Based on these reports, "Californians for Pesticide Reform was able to assemble a comprehensive analytical report . . . and a series of internet-accessible maps showing total use for different regions of the state." J.B. Ruhl, *Farms, Their Environmental Harms, and Environmental Law*, 27 ECOLOGY L.Q. 263, 338 (2000).

[40] By reducing the transaction costs of regulation by a community, release disclosure makes it easier for such communities to take actions that reflect their true preferences. This strengthens the case for allowing communities to make the decision to regulate or not to regulate on their own, rather than being preempted by overriding federal regulation. *See* Paul R. Kleindorfer & Eric W. Orts, *Informational Regulation of Environmental Risks*, 18 RISK ANALYSIS 155 (1998).

[41] In theory, the process costs of many local rulemakings might exceed the process costs of a single federal rulemaking. However, when public disclosure precedes regulation, the pressure for release reduction created by the disclosure program may make the industry in question reluctant to oppose the regulation too vigorously.

[42] If it were not, social cost disclosure would lose much of its purpose since society would already have decided, at least initially, how to address these releases. Information that is more precise and technically valid than the information a social cost disclosure program provides would probably be needed to enforce the regulations that embodied that decision.

[43] Information disclosure can also be used to spur regulatory actions other than release controls. As noted earlier, Proposition 65 exempts from mandatory disclosure activities

understanding may not be as rewarding to advocates or program managers as actual changes in conduct. For that reason, supporters and managers of a social cost disclosure program may stand in institutional danger of exaggerating the magnitude of the costs it describes.[44] By the same token, TRI may be in institutional danger of exaggerating the need to reduce releases.[45]

TRI meets both of the conditions described above for a successful social cost disclosure program. States and local governments have long-established systems for regulating pollution from factories, and the TRI reports identify the regulatory targets.

TRI's history dramatically confirms the power of a social cost disclosure approach in these circumstances. The first round of TRI reports uncovered chemical release levels from big factories far higher than most people, including the management of the firms owning the factories, had suspected.[46] This was front-page news. This disclosure in turn led to "voluntary" efforts that reduced release levels from these sources far more quickly and efficiently than any mandatory regulation,[47] and with-

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that result in a risk from exposure to covered chemicals below a de minimis level established by the State of California. *See supra* note 39. That gives those responsible for the exposure an incentive to cooperate in the state's efforts to establish such de minimis levels for them. Accordingly,

> to date nearly 300 [such] standards have been set without a single legal challenge. This experience prompted a review panel appointed by California Governor Pete Wilson to declare that "by federal standards, Proposition 65 has resulted in 100 years of progress in the areas of hazard identification, risk assessment and exposure assessment."

Barsa, *supra* note 39, at 1240. For suggestions for extending this approach, see *infra* text accompanying notes 146–149.

[44] The very act of disclosure may tend toward exaggeration due to "'alarmist bias,' as frightening information is more salient and potent than comforting information, regardless of what is true." Sunstein, *supra* note 1, at 627. This bias may be more potent when political action, rather than changes in individual conduct, is the natural response, since "[p]eople often believe themselves to be immune from risks that they acknowledge are significant and real with respect to others." *Id.* at 628.

[45] Products subject to Proposition 65 generally bear a label reading "WARNING: this product contains a chemical known to the State of California to cause [the harm in question]." Barsa, *supra* note 39, at 1227–28. Critics have argued that such disclosure requirements exaggerate the risks presented by the chemical at issue through use of the word "WARNING" and by failing to give any indication of the magnitude of the risk. *See id.* at 1228–31. Critics also claim that Proposition 65's proponents deliberately designed it this way because they were more interested in generating pressure on users of toxic chemicals to reduce their releases than in informing the public accurately about toxic risks. *See id.* at 1238–39.

[46] "[The first TRI data] shocked a lot of the industry folks, the magnitude of these releases. It really hit home. People from boardrooms all the way down to plants recognized they had to get aggressive to try to find ways to reduce these emissions." Dan Borne, Louisiana Chemical Association, TIMES-PICAYUNE, Feb. 17, 1991, *quoted in* ENVIRONMENTAL DEFENSE FUND, TOXIC IGNORANCE 39 (1997).

[47] "Facilities currently covered by the TRI have reduced their reported releases of toxic chemicals by 44 percent, or 1.6 billion pounds, since 1988." Addition of Reporting Ele-

out any additional cost to the government beyond the expenses of TRI itself.[48] Moreover, the TRI example has led some state and local governments to enact similar programs, which sometimes cover more sources and chemicals than the federal TRI.[49]

A decade later, this success has made TRI a poster child for the argument that new forms of environmental regulation that combine less bureaucracy with more effectiveness lie within our reach. President Clinton has advanced that claim at least three times recently, once in his 1996 State of the Union message.[50] The past success of TRI helped defeat a "regulatory reform" bill in the 104th Congress that attempted a legislative rollback of the scope of TRI.[51]

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ments; Toxic Chemical Release Reporting; Community Right-to-Know, 61 Fed. Reg. 51,322, 51,322 (proposed Oct. 1, 1996) (to be codified at 40 C.F.R. pt. 372).

[48] The TRI program runs on a budget of about $25 million a year and covers 26,000 facilities. A major "best technology" rule would cost $5–10 million a year over 5 or 10 years to develop and would cover a couple of hundred facilities. *See* Interview with Mark Greenwood, former Director, EPA Office of Pollution Prevention and Toxics, in Washington, D.C. (May 9, 1997).

[49] TRI-type programs have been adopted by Massachusetts, Minnesota, New Jersey, Washington, and Oregon. The Massachusetts program moves beyond the TRI framework to require both more information and the development of peer reviewed plans by subject facilities to reduce their releases of covered chemicals, although the degree of reduction is left to the judgment of the facility. *See* Michael C. Dorf & Charles F. Sabel, *A Constitution of Democratic Experimentalism*, 98 COLUM. L. REV. 267, 379–82 (1998). "Australia, Canada, the Czech Republic, Egypt, Mexico, the Netherlands, Norway, the Philippines, and the United Kingdom have all established 'pollution release and transfer registries' . . . many explicitly based on TRI." Bradley C. Karkkainen, *Information As Environmental Regulation: TRI and Performance Benchmarking. Precursor to a New Paradigm?*, 89 GEO. L.J. (forthcoming 2001) (manuscript at 213, on file with the *Harvard Environmental Law Review*).

Many EPA programs are developing "pollution disclosure" programs with important similarities to TRI. EPA's Office of Water, for example, is working on a program that would comprehensively portray the environmental health of 2100 watersheds and the forces threatening them. *See* Interview with Mark Greenwood, *supra* note 48. EPA's Office of Enforcement is working on an extremely controversial initiative that would gather and make electronically accessible a full range of compliance information on individual facilities. *See id.* EPA's Air Program is similarly seeking to make more widely available the comprehensive data on air emissions that it collects. *See id.* In 1999, 70,000 facilities began to report in greater detail the amounts of acutely hazardous materials present at their facilities, together with a worst case analysis of the consequences if they should be released. *See* 40 C.F.R. § 68.10, .25 (1999); Accidental Release Prevention Requirements: Risk Management Programs Under Clean Air Act Section 112(r)(7), 61 Fed. Reg. 31,668, 31,670 (June 20, 1996) (to be codified at 40 C.F.R. pt. 68). These plans too must be made publicly available. *See* 40 C.F.R. § 68.210 (1999).

[50] *See* Address Before a Joint Session of the Congress on the State of the Union, 32 WEEKLY COMP. PRES. DOC. 90, 95 (Jan. 23, 1996). *See also* Remarks to the Community in Hackensack, New Jersey, 32 WEEKLY COMP. PRES. DOC. 462, 465 (Mar. 11, 1996); Remarks to Participants in Project XL, 31 WEEKLY COMP. PRES. DOC. 1976, 1977 (Nov. 3, 1995).

[51] The Comprehensive Regulatory Reform Act of 1995, S. 343, 104th Cong., also known as the Dole-Johnston Bill, among many other changes to the federal regulatory process, proposed major changes to the procedures by which chemicals were added to and deleted from TRI. The bill gave EPA 180 days from the bill's enactment to reassess the characterization of all chemicals that had been added to TRI since November 1994. *Id.* A proposed amendment to the bill suggested that chemicals be evaluated according to a risk-

That clear initial success, however, should not blind us to the ways in which TRI fails to inform the public of the true extent of either toxic releases or the toxic risks that they face. The most important weaknesses are: (1) the failure to cover all sources of listed TRI chemicals; (2) the failure to include in TRI all chemicals that match or exceed the hazard posed by chemicals already listed; and (3) the failure to characterize either the hazards or the risks of TRI releases.[52]

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based standard, on the basis of whether they presented a "foreseeable significant risk to human health or the environment." 141 CONG. REC. S9293 (daily ed. June 28, 1995). A later amendment added that EPA could make decisions based "on the rule of reason, including a consideration of the . . . levels of the chemical in the environment that may result from reasonably anticipated releases." 141 CONG. REC. S9550 (daily ed. June 30, 1995).

Opponents of the bill argued that these changes would gut TRI and pointed out TRI's many asserted advantages. They cited the fact that since 1986, TRI had contributed to a 40% reduction in the level of toxic releases into the atmosphere. *See* 141 CONG. REC. S9412 (daily ed. June 29, 1995). Senators noted an emissions reduction of two billion pounds. *See* 141 CONG. REC. S9764 (daily ed. July 12, 1995). Second, they hailed TRI as a sunshine law that did not impinge on anyone in any way, did not prevent chemical plants from producing or using chemicals, and just required companies to tell the people in the community what they were emitting. *See* 141 CONG. REC. S9412 (daily ed. June 29, 1995). Third, TRI was praised because it had encouraged "businesses to reduce waste for the sake of their own bottom line." 141 CONG. REC. S9886 (daily ed. July 13, 1995) (statement of Sen. Lautenberg). Finally, supporters of TRI noted that TRI helps fire departments, "the men and women who have to fight the local chemical plant fires and clean up chemical spills." 141 CONG. REC. S10,094 (daily ed. July 17, 1995) (statement of Sen. Glenn).

In the end, Senator Dole never brought his own legislation to a vote.

[52] Toxic chemical assessment measures a chemical's "hazard" by its ability to produce harm when an organism is directly exposed to a specified quantity in a specified manner—for example, in a laboratory feeding study. A chemical's "risk" describes the probability that it will produce harm in the real world. *See* STEPHEN BREYER, BREAKING THE VICIOUS CIRCLE 9–10 (1993). A "risk assessment" therefore requires not just a hazard evaluation, but also an estimate of the extent and manner of actual releases of that chemical, and the degree to which it will persist in the environment, so that the exposure of people or other living things can be projected. In rough terms, a chemical's risk is equal to its hazard times the degree of exposure to that hazard. *See* ROBERT V. PERCIVAL ET AL., ENVIRONMENTAL REGULATION: LAW, SCIENCE, AND POLICY 427–32 (3d ed. 2000).

EPCRA § 313(d)(2)(A), 42 U.S.C. § 11023(d)(2)(A) (1994), requires the listing of any chemical that "is known to cause or can reasonably be anticipated to cause significant acute human health effects at concentration levels that are reasonably likely to exist beyond facility site boundaries as a result of continuous, or frequently recurring, releases." However, where "chronic" effects like cancer, or serious or irreversible birth defects, or neurological disorders are concerned, EPCRA requires listing whenever a chemical "is known to cause or can reasonably be anticipated to cause" those effects in humans. *Id.* § 313(d)(2)(B), 42 U.S.C. § 11023(d)(2)(B).

EPA has interpreted this language to require a risk assessment before the listing of chemicals for acute effects, while chronic effects can be listed based solely on hazard. The EPCRA language authorizing the listing of chemicals for environmental effects falls between the two formulations quoted above, and EPA has therefore interpreted it to require some consideration of exposure, but not a full risk assessment. The courts have sustained all of these positions. *See* Troy Corp. v. Browner, 120 F.3d 277, 284–86 (D.C. Cir. 1997).

There is no logical reason for declining to publicize the risk of a TRI chemical even if it is not listed based on risk. Moreover, EPA does not publicize the different hazards of TRI chemicals, even though they can vary over many orders of magnitude.

C. Failure to Cover all Sources of TRI Chemicals

Congress in 1986 carefully restricted TRI coverage to major industrial sources. These sources, however, have been so intensively regulated for so many years that they now make up a relatively small and diminishing part of most pollution inventories.[53] According to an early, imperfect estimate, the sources covered by the legislative TRI specifications account for less than five percent of the environmental releases of the legislatively listed chemicals.[54]

In 1993, President Clinton required all Executive Branch facilities to comply with TRI.[55] On Earth Day 1997, Vice President Gore announced an expansion of the reporting obligation to facilities in seven additional SIC codes.[56] In 1999, EPA drastically lowered the reporting thresholds for releases of "persistent bioaccumulative toxic" ("PBT") chemicals.[57]

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[53] Water discharges now come largely from "non-point sources," run-off from farms and urbanized areas, not from factories. *See* OFFICE OF WATER, EPA, THE QUALITY OF OUR NATION'S WATERS: A SUMMARY OF THE NATIONAL WATER QUALITY INVENTORY: 1998 REPORT TO CONGRESS 7, 9 (2000) (agriculture and run-off both outrank all point source discharges as sources of water quality impairment in rivers and lakes). Similarly, only 20% of emissions of "toxic air pollutants" comes from factories. *See* H.R. REP. NO. 101-490, pt. 1, at 316–17 (1990). The same low figure holds true for the volatile organic compounds that help cause ozone. *See* Richard E. Ayres, *Developing a Market in Emission Credits Incrementally: An 'Open Market' Paradigm for Market-Based Pollution Control*, 25 ENV'T REP. (BNA) 1522, 1528–29 (Dec. 2, 1994). A recent EPA report identified not just industrial facilities, landfills, and hazardous waste sites and generators as important causes of groundwater pollution, but also "underground storage tanks . . . septic systems . . . aboveground storage tanks . . . spills, fertilizer and pesticide applications, pipelines and sewer lines . . . animal feedlots . . . urban runoff, [and] salt storage and road salting." OFFICE OF WATER, EPA, SAFE DRINKING WATER ACT, SECTION 1429 GROUND WATER REPORT TO CONGRESS 12 (1999). *See id.* at 12–18.

[54] *See* GENERAL ACCOUNTING OFFICE, TOXIC CHEMICALS: EPA'S RELEASE INVENTORY IS USEFUL BUT CAN BE IMPROVED 3 (1991). *See also Expansion of the Right to Know Program: Hearing Before the Subcomm. on Superfund, Ocean, and Water Protection of the Comm. on Env't and Pub. Works*, 102d Cong. 41 (1991) (detailing specific examples of major releases not subject to TRI). Many of these releases are still uncovered.

[55] Exec. Order No. 12,856, 58 Fed. Reg. 41,981 (Aug. 3, 1993). However, Section 5-502 of the Order makes the judicial enforcement provisions of EPCRA inapplicable to federal agencies. This omission also shields government agencies from "citizen suits," which have been an important EPCRA enforcement mechanism.

EPA has also excluded state and local government facilities from TRI coverage, stating that although they "may manage significant quantities of [TRI] chemicals, the manner in which they manage these chemicals raises several cross-governmental issues EPA is continuing to address." Addition of Facilities in Certain Industry Sectors; Toxic Chemical Release Reporting; Community Right-to-Know, 61 Fed. Reg. 33,588, 33,592 (proposed June 27, 1996) (to be codified at 40 C.F.R. pt. 372).

[56] *See* Addition of Facilities in Certain Industry Sectors; Revised Interpretation of Otherwise Use; Toxic Release Inventory Reporting; Community Right-to-Know, 62 Fed. Reg. 23,834 (May 1, 1997) (to be codified at 40 C.F.R. pt. 372).

[57] *See* Persistent Bioaccumulative Toxic (PBT) Chemicals; Lowering of Reporting Thresholds for Certain PBT Chemicals; Addition of Certain PBT Chemicals; Community Right-to-Know Chemical Reporting, 64 Fed. Reg. 58,666 (Oct. 29, 1999) (to be codified at 40 C.F.R. pt. 372). Because the new rule would only cover facilities that exceed the ten employee TRI threshold and fall within the SIC codes covered by TRI, the lower thresh-

However, no one pretends that TRI, even as amended, covers the majority of environmental releases of listed chemicals, much less that it provides a full inventory.[58] In fact, EPA claims to possess no official estimate of the percentage of chemical releases that are in TRI.[59]

This is a remarkable fact. Numerous EPA pronouncements echo the law in describing TRI as intended to inform local governments and the public about the toxic exposures they face.[60] It cannot achieve this pur-

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olds would be unlikely to provide an accurate picture of releases of these chemicals.

[58] According to Environmental Defense ("ED"), the environmental group that tracks EPA's implementation of TRI most closely, "Pollution sources that are not covered by TRI probably account for the vast majority of environmental releases of most chemicals." ED, *Which Pollution Sources Are Covered By TRI?*, *at* http://www.scorecard.org/general/tri/tri_source.html (last visited Nov. 30, 2000) (on file with the *Harvard Environmental Law Review*).

ED's more recent statements are less definitive, but the message is the same. ED now says, "Although these reports include many of the most important releases from manufacturing facilities, they do not cover all toxic chemicals that are being released to the environment. The reports do not cover other important sources of toxic chemical releases such as cars, small businesses, and electric utilities." ED, *Caveats*, *at* http://www.scorecard.org/about/txt/caveats.html (last visited Nov. 30, 2000) (on file with the *Harvard Environmental Law Review*). Also:

> Cars, trucks, and small businesses are responsible for most of the health risks associated with poor air quality. Of the air cancer risk estimated for the US as a whole, 51% is from mobile sources and 28% from small-business area sources, with the remaining 21% from industrial point sources.

ED, *What's New*, *at* http://www.scorecard.org/about/txt/new.html (last visited Nov. 30, 2000) (on file with the *Harvard Environmental Law Review*).

[59] EPA, in its most recent proposal to expand TRI, replied as follows to suggestions from other agencies that it estimate the total amount of TRI chemicals released from all sources:

> EPA has not estimated the total national releases to all media for the toxic chemicals in this proposed rule (and in previous proposed and final rules) because EPA believes that (1) there is insufficient information currently available for these chemicals and (2) there is insufficient information on the numerous processes involved to calculate a comprehensive release estimate for the sector.

Persistent Bioaccumulative Toxic (PBT) Chemicals; Lowering of Reporting Thresholds for Certain PBT Chemicals; Addition of Certain PBT Chemicals; Amendments to Proposed Addition of a Dioxin and Dioxin-Like Compounds Category; Toxic Chemical Release Reporting; Community Right-to-Know, 64 Fed. Reg. 688, 718 (proposed Jan. 5, 1999) (to be codified at 40 C.F.R. pt. 372).

[60] For the law itself, see *supra* note 25. The most comprehensive statement of EPA's position is set forth in EPA's recent lowering of TRI reporting thresholds for PBT chemicals. In discussing the benefits of TRI generally, the notice says that TRI

> empowered the Federal government, State governments, industry, environmental groups, and the general public to fully participate in an informed dialogue about the environmental impacts of toxic chemicals in the United States . . . . Since the TRI program's inception in 1987, the public, government, and the regulated community have had the ability to understand the magnitude of chemical releases in the United States and to assess the need to reduce the uses, releases, and other waste management of toxic chemicals. TRI enables all interested parties to establish credible baselines, to set realistic goals for environmental progress over time,

pose if the information disclosed omits large categories of exposure, since the partial information will not convey a true picture of risk to local governments, the public, or anyone else.[61] Yet ten years after TRI was

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> and to measure progress in meeting [them]. The TRI program is a neutral yardstick by which progress can be measured by all stakeholders.

Persistent Bioaccumulative Toxic (PBT) Chemicals, 64 Fed. Reg. at 58,742. The proposal also praises TRI in more strictly economic terms. "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." *Id.* at 58,740. The preamble goes on to say that TRI repairs this information gap and "enables individuals to make choices that enhance their overall well-being," *id.*, and to "make informed decisions on where to work and live," *id.* at 58,742, and that it "assists Federal, State and local authorities in making better decisions on acceptable levels of toxic chemicals in the environment," *id.* For very similar statements, see Addition of Facilities in Certain Industry Sectors; Revised Interpretations of Otherwise Use; Toxic Release Inventory Reporting; Community Right-to-Know, 62 Fed. Reg. 23,834, 23,884 (May 1, 1997) (to be codified at 40 C.F.R. pt. 372).

But clearly, a TRI program that omits most of the releases of the chemicals that it covers will not enable a more informed dialogue, lead to more informed choices as to where to live and work, identify hot spots, monitor trends, or assist in the development of more efficient controls. On the contrary, by suggesting that only listed releases from major sources need to be considered, it may lead to less informed and efficient decisions in each of these areas.

[61] Public commenters have urged comprehensive expansion of the TRI program since its beginnings. When EPA issued the proposal that established the reporting system,

> [c]omments from trade associations, private companies, State agencies, public interest groups and academia requested that EPA use its authority under section 313(b)(1)(B) to include other facilities. These commenters noted that other kinds of facilities beyond those in the manufacturing sector can have significant releases of toxic chemicals. They contend that if the current scope of reporting is not expanded, the public will not realize that manufacturing releases constitute only a part of the total releases of these chemicals into the environment.

Toxic Chemical Release Reporting; Community Right-to-know, 53 Fed. Reg. 4500, 4503 (Feb. 16, 1988) (to be codified at 40 C.F.R. pt. 372).

Similarly, when EPA expanded the TRI categories in 1997, environmental commenters asserted "that EPA should abandon the process of adding individual industry groups, and should instead require any facility exceeding the EPCRA section 313 reporting thresholds to comply with current reporting requirements, while steadily lowering the reporting thresholds over time." Addition of Facilities in Certain Industry Sectors, 62 Fed. Reg. at 23,844.

EPA responded to the 1988 comment by saying that it would consider the issue, but flatly rejected the 1997 comment, saying that the law required the agency to proceed SIC code by SIC code. EPA added:

> It may not be appropriate or relevant to add all industry groups or facilities. Further, EPA believes it important to expand the section 313 program in an orderly manner to optimize the information previously collected by TRI. EPA believes that incremental additions may provide greater continuity to the wealth of information maintained and made available in TRI.

Id. See also id. at 23,856.

The agency's defense is striking in its reliance on the details of the present TRI program to avoid dealing with the central point of the comments being rejected—namely, that

established, it continues to contain exactly such omissions. Indeed, EPA has flatly rejected numerous public requests to correct them.

Most substantive regulatory control systems resemble TRI in addressing far stricter commands to large discrete sources of risk than to small sources, even though a strict quantitative comparison suggests the risk from the small sources may be both greater and more cost-effective to control. Nuclear power plants are regulated more strictly than kerosene space heaters, and commercial airliners more than automobiles. Analysts in recent years have argued that such a quantitatively disproportionate targeting of large sources need not reflect irrational policy judgments. Large sources may pose public risks that are as qualitatively different from the more private risks posed by smaller sources. Risks from large sources, for example, may be more likely to occur as large catastrophic events and may be less intuitively understood, less voluntarily assumed, and perceived as less controllable than small source risks. Because so many factors beyond strict magnitude distinguish the two types of risk, a preference for controlling public risk over private risk cannot be termed irrational even if a quantitative comparison would not support it.[62]

Whatever the merits of this position in the field of substantive risk regulation, it does not support restricting TRI to large sources. Since a molecule of benzene, or any other chemical, has the same impact whatever the size of the emitting source, most of the points of distinction between large and small sources generally relied upon do not apply in the TRI context. More philosophically, the very act of disclosing source emissions through their inclusion in TRI may shift the public view of the risk they pose from private to public.[63] Since undisclosed risks tend to be private, to oppose inclusion of small sources in TRI because the risks they pose are private is to engage in circular reasoning. That is particularly true for a program that does not impose direct control obligations, but simply aims to assist decisions by others. The citizens of one locality may decide to regulate benzene from refineries far more strictly than benzene from gas stations for a variety of non-quantitative reasons. Because this is their choice, a program designed to assist local regulation of toxics should provide quantitative information on the importance of both

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the TRI program is so underinclusive that it cannot achieve its designated purpose of informing the public of toxic risks.

[62] *See* Clayton P. Gillette & James E. Krier, *Risks, Courts and Agencies*, 138 U. PA. L. REV. 1027, 1071–85 (1990). *See also* Richard H. Pildes & Cass R. Sunstein, *Reinventing the Regulatory State*, 62 U. CHI. L. REV. 1, 48–63 (1995); Donald T. Hornstein, *Reclaiming Environmental Law: A Normative Critique of Comparative Risk Analysis*, 92 COLUM. L. REV. 562, 584–629 (1992).

[63] As Robert Reich has written, "the act of participation [in a debate on public policy deliberately framed to include certain issues] has turned private concerns into appropriate subjects of public debate and—by implication—of public action." Robert B. Reich, *Public Administration and Public Deliberation: An Interpretive Essay*, 94 YALE L.J. 1617, 1627 (1985).

source types. Failure to provide the citizens with that information will prejudge the issue of controlling smaller sources by denying them the tools they need to address it.

D. Failure to Cover Certain Hazardous Chemicals

TRI is intended to give the public a full picture of releases of environmentally hazardous chemicals. For that reason, the same consistency arguments that support extending TRI coverage to all sources of listed chemicals also support extending TRI coverage to all chemicals above some defined hazard level[64] and dropping chemicals below that threshold. To its credit, EPA has made advances in correcting TRI undercoverage and overcoverage.[65] EPA addressed undercoverage in a single massive rulemaking, now upheld by the courts, that doubled the number of TRI chemicals listed.[66] The delisting of seventeen chemicals in response to industry petitions addressed overcoverage.[67]

From a wholesale perspective, however, TRI covers only a fraction of chemicals.[68] Moreover, EPA has been unable to extend TRI coverage

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[64] That suggestion does not necessarily accept as good policy the current legal requirement for basing many TRI listings solely on hazard. Instead, it uses that requirement as a starting point in order to show that EPA's current approach lacks justification even on its own terms.

[65] To some extent, chemical coverage cannot be separated from source coverage. For example, TRI coverage of chemicals that are toxic at very low thresholds would require the imposition of reporting obligations on sources smaller than are otherwise covered. EPA's approach to such mixed questions has reflected the weaknesses of its approach to source coverage generally. Although EPA has proposed increasing the number of PBT chemicals listed in TRI and establishing particularly low thresholds for reporting their release, *see* Persistent Bioaccumulative Toxic (PBT) Chemicals; Lowering of Reporting Thresholds for Certain PBT Chemicals; Addition of Certain PBT Chemicals; Amendments to Proposed Addition of a Dioxin and Dioxin-Like Compounds Category; Toxic Chemical Release Reporting; Community Right-to-Know, 64 Fed. Reg. 688 (proposed Jan. 5, 1999) (to be codified at 40 C.F.R. pt. 372), the agency has not proposed either to expand the number of sources that would have to report or to supply the unreported data from its own resources. Absent such an adjustment the reporting of these releases is bound to be at least incomplete and probably misleading.

[66] *See* Addition of Certain Chemicals; Toxic Chemical Release Reporting; Community Right-to-Know, 59 Fed. Reg. 61,432 (Nov. 30, 1994) (to be codified at 40 C.F.R. pt. 372). *See also* Troy Corp. v. Browner, 120 F.3d 277, 280 (D.C. Cir. 1997).

[67] *See* EPA, *Major Findings from the CEIS Review of EPA's TRI Database—Reference Section*, *at* http://www.epa.gov/ceisweb1/ceishome/ceisdocs/tri/referenc.htm (last visited Nov. 30, 2000) (on file with the *Harvard Environmental Law Review*).

[68] According to ED,

> EPA has never systematically reviewed available environmental health data to ascertain how many chemicals actually meet these TRI criteria and should be subject to TRI's reporting requirements. The 650 substances currently covered by TRI represent less than 1% of the over 75,000 chemicals manufactured in the U.S. according to EPA's Toxic Substances Control Act Inventory.

ED, *Which Toxic Chemicals Are Covered By TRI?*, *at* http://www.scorecard.org/general/tri/tri_chem.html (last visited Nov. 30, 2000) (on file with the *Harvard Environmental Law*

to the hazardous substances released in the greatest quantities. Every year, about 150 million tons of pollutants for which EPA has set air quality standards enter the air—about forty times the total amount of all TRI releases.[69] (The most recent TRI report reflecting inventory expansions listed total releases of all TRI pollutants at about 3.7 million tons.)[70] These pollutants are comparable in hazard to many TRI chemicals and present the greatest possible danger of exposure through their air release. Yet they were not on the original congressional TRI list, and EPA has failed to add them though subsequent regulatory action. Because these standards are the center of the Clean Air Act regulatory effort, EPA and states already collect extensive data on them. TRI expansion to include them foundered on the argument, advanced by the regulated industry, that inclusion would duplicate those existing collection efforts.[71]

E. Failure to Characterize the Risks of TRI Chemicals

TRI by itself provides nothing more than a quantitative list of various chemical releases. Even if that list included all releases of all chemicals above some designated hazard level, it would not accurately inform communities of the risks those releases pose. A discharge directly into the air or water is far riskier, other things being equal, than a shipment to

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Review). This may in part be due to a lack of data on such chemicals. *See infra* text accompanying notes 146–148.

[69] *See* EPA, *The National Emission Trends 1900-1998, at* http://www.epa.gov/ttn/chief/trends/trends98/index.html (last visited Nov. 30, 2000) (on file with the *Harvard Environmental Law Review*).

[70] *See* EPA, 1998 TOXIC RELEASE INVENTORY (TRI) DATA SUMMARY 2 (2000). Even if this is only 10% of the total amount of TRI chemicals released, so that the true total is 37 million tons, the air pollution numbers are still far higher.

[71] In 1994, EPA proposed to list four of the "criteria" pollutants for which it has set "national ambient air quality standards" as part of a major expansion of TRI coverage. *See* Addition of Certain Chemicals; Toxic Chemical Release Reporting; Community Right-to-Know, 59 Fed. Reg. 1788, 1801 (carbon monoxide), 1826 (nitrogen dioxide), 1827 (ozone), 1837 (sulfur oxides) (proposed Jan. 12, 1994) (to be codified at 40 C.F.R. pt. 372). EPA asked with respect to each proposal whether "the information collected under the [Clean Air Act was] sufficient for public right-to-know purposes," and how that information could be deployed to serve the purposes of TRI.

When EPA promulgated its final listing it omitted three of the four pollutants subject to air quality standards. (Ozone, the only exception, is rarely emitted by sources directly and therefore did not pose an appreciable reporting burden.) EPA said:

> Many commenters opposed the addition of . . . criteria pollutants . . . to the EPCRA 313 list since extensive data on these chemicals is already collected under the [Clean Air Act].
>
> EPA agrees with the commenters that there are many complex issues associated with the extensive collection of data on these chemicals under the Clean Air Act. Therefore, EPA is deferring the listing of these chemicals . . . to address some of the issues involving the availability of data collected under the [Clean Air Act].

Addition of Certain Chemicals, 59 Fed. Reg. at 61,460.

a landfill for disposal. (Both Form R and EPA's annual reports on TRI releases do specify the medium (air, water, or land) into which the releases occur.) Landfill disposal is riskier than legitimate recycling into a new and benign product. A release of pollutants in an area that exceeds air or water quality standards will often be riskier than a release in an area that does not since the environment and the human body are often able to tolerate small amounts of pollutants without detectable harm. Risk also varies with the type of chemical.[72] Natural forces can quickly neutralize some chemicals on the TRI list, while others will circulate in the environment for years.[73] Finally, confining the reporting requirement to "releases" of waste materials may reflect environmental risk poorly. Some forms of waste disposal are far less environmentally damaging than the sale of a product that becomes an environmental hazard when discarded or is released directly into the environment like fertilizers or pesticides. No such item of characterization may be as clearly necessary as broader coverage to make TRI a source of accurate information on the risks posed by the chemicals it covers. But a truly informative TRI would need to characterize different risks in addition to broadening release coverage.

While expanding TRI might require regulatory action, EPA in many cases could expand or vary its TRI presentation with no regulatory preliminaries at all. Regulatory agencies, like all other entities in our society, benefit from our national faith, embodied in the First Amendment, that only the most minimal legal restraints should apply to discourse on any public issue.[74] Fragmentary case law makes clear that absent special

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[72] "The chemicals on the TRI list . . . vary more than 10,000 fold in their acute and chronic toxicity as well as toxicity to aquatic species." George M. Gray, *Forget Chemical Use, Let's Report Risk!*, RISK IN PERSPECTIVE, Apr. 1997, at 1, 2.

[73] According to Daniel Esty,

> Particulates in the air, organic wastes in water, and most solid wastes disposed of on land can be seen as "flow" pollution that degrades relatively rapidly and for which the environment has some assimilative or absorptive capacity. Pollutants of this type pose a threat only when they are concentrated spatially and temporally. "Stock" pollutants, on the other hand, such as some radioactive materials, heavy metals, certain toxic chemicals, and other bioaccumulative substances, degrade much more slowly. Because the environment has little or no absorptive capacity for these substances, they have an additive or cumulative effect that makes connecting particular proportions of observed harms to specific sources of pollution difficult.

Daniel C. Esty, *Revitalizing Environmental Federalism*, 95 MICH. L. REV. 570, 579 (1996).

[74] *See* Dun & Bradstreet, Inc. v. Greenmoss Builders, Inc., 472 U.S. 749, 759 (1984) (holding that speech on matters of public concern is more important under the First Amendment and deserves special protection); First Nat'l Bank of Boston v. Bellotti, 435 U.S. 765, 766 (1978) (speech on matters of public concern is "at the heart of the First Amendment's protections"); Roth v. United States, 354 U.S. 476, 484 (1957) (explaining that the First Amendment's purpose is to ensure the "unfettered interchange of ideas" for developing public policies that best serve the interests of the people).

factors, courts will not oversee agency decisions on how to publish and publicize information that they already possess.[75]

In the absence of characterization, TRI may mislead its users. Simple reporting of the number of pounds of "toxic chemicals" released conveys an implicit message that the total presents a significant risk—otherwise why would it be reported at all? If the government does not balance that initial information with other information on exposure and degree of hazard, the former may lead communities to take regulatory actions that they would not have taken had they been supplied with all the relevant facts. Indeed, a simplistic approach to regulating TRI chemicals might increase risks if a source reduced the quantity of those releases by substituting smaller amounts of more toxic chemicals for larger amounts of less toxic chemicals or reducing chemical use while increasing the risk of accidents.[76] EPA has rejected suggestions for a more refined characteri-

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[75] Agencies have often successfully relied on an "inherent authority" not expressed in any statute to issue information on matters within their overall jurisdiction. *See* Ernest Gellhorn, *Adverse Publicity by Administrative Agencies*, 86 HARV. L. REV. 1380, 1384 (1973) (Despite its issuance of such landmark documents as the Surgeon General's report on cigarette smoking, "[l]ike most administrative agencies, the [Public Health Service] is not specifically authorized to issue adverse publicity; it relies on an implied authority to inform and warn the public about perils to public health."); *id.* at 1432 (although all agency acts must be within statutory authority, "courts have generously construed statutory authority to issue press releases, even if their effect is admittedly punitive. As long as the publicity can be justified as being within the agency's express or implied authority to inform or warn the public, the press release is allowed.").

This judicial willingness to accept a broad agency power of disclosure relates to a judicial reluctance to find that agency information disclosure is a judicially reviewable "final action." *See* Indus. Safety Equip. Ass'n v. EPA, 837 F.2d 1115, 1117–18 (D.C. Cir. 1988) (finding that an EPA recommendation that of the 13 brands of respirators that EPA had approved for protection against airborne asbestos, only 2 should actually be used, was neither a "rule" nor a "sanction" and thus was not subject to judicial review under the Administrative Procedure Act). A more generic analysis not targeted so closely to a particular product would, of course, have been even more clearly unreviewable. A damages action was likewise barred, since under the Federal Tort Claims Act, the government is not accountable in damages for either libel or slander. *See* 28 U.S.C. § 2680(h) (1994). The judicial tendency both to construe disclosure authority broadly and to find disclosure nonreviewable suggests that the questions whether such authority exists, and of the boundaries to its use, present political issues for congressional oversight to resolve more than they present detailed questions of legal construction for litigators and courts.

Against this background, the recommendations for greater disclosure in the TRI context of information about excluded releases and risk effects would be amply justified as a strictly legal matter, simply by their consistency with the purposes of TRI itemized in EPCRA § 313(h), 42 U.S.C. § 11023(h) (1994).

None of this makes the question of statutory authority irrelevant. However, it indicates that the question of statutory authority will be determined more by the experimental process of mandate testing and mandate building discussed in this Article than through judicial proceedings.

[76] According to a science advisor to the Massachusetts analog to TRI, which, like TRI, reports only chemical use and not risk or hazard,

> Firms have an incentive to search for substitute chemicals not on the list . . . .
>
> You can easily imagine the problems with list-driven chemical substitution. Although not on the list, a substitute chemical may be more toxic than the original.

zation of TRI data as unauthorized invasions of the right of local communities to decide the meaning of that data.[77] However, it is hard to see how such an invasion would occur from providing the community with EPA's best judgment of risk, as long as there is no obligation to accept it or to act on it.

EPA's position, moreover, is somewhat inconsistent. The agency has developed a general screening model that can be used to evaluate the risks from TRI releases.[78] Like any other model, it incorporates many assumptions and policy judgments. EPA does not apply that model, however. It simply makes the model available for others to use.[79] Application of the model by EPA would prejudge the issue of which model to use

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> Even if less toxic, the substitute may be more volatile, may be required in greater quantities, or may be more easily absorbed. There may be greater exposure and, therefore, greater risk. Many chemicals on lists of toxics are there precisely because they are well characterized toxicologically. Few chemicals not on these lists are as well studied. This means companies often trade a known, and manageable, hazard for one much less well understood.
>
> Finally, chemical substitution may lead to exchanges of different types of risk . . . . I have seen very small chronic health risks from solvents exchanged for what are likely more substantial fire risks.

Gray, *supra* note 72, at 1–2. *See also* Karkkainen, *supra* note 49 (manuscript at 174–75).

[77] EPA received comments on its recent expansion of reporting requirements for PBT chemicals that urged it to "provide some context about releases . . . of PBT chemicals beyond what is provided by the [quantitative TRI reports]. By this the commenter means: a) information on the quantities of toxic chemicals emitted by non-TRI sources (to the extent that these data are available); and b) information on the human health and ecological risks of the various TRI chemicals (again, to the extent that these data are available)." OFFICE OF POLLUTION PREVENTION AND TOXICS, EPA, RESPONSE TO COMMENTS RECEIVED ON THE JANUARY 5, 1999 PROPOSED RULE (64 FR 688) TO LOWER THE EPCRA SECTION 313 REPORTING THRESHOLDS FOR PERSISTENT, BIOACCUMULATIVE TOXIC (PBT) CHEMICALS AND TO ADD CERTAIN PBT CHEMICALS TO THE EPCRA SECTION 313 LIST OF TOXIC CHEMICALS AND RESPONSE TO COMMENTS RECEIVED ON THE MAY 7, 1997 PROPOSED RULE (62 FR 24887) TO ADD A CATEGORY OF DIOXIN AND DIOXIN-LIKE COMPOUNDS TO THE EPCRA SECTION 313 LIST OF TOXIC CHEMICALS 547 (1999). EPA replied that it

> disagrees with the commenter's suggestion that [TRI administration] should include exposure or risk considerations. EPA believes that a risk-based approach to [TRI] is at odds with the basic premise of [TRI], which is to get information about the use, disposition, and management of toxic chemicals into the public domain, enabling the users of this information to evaluate the information and draw their own conclusions about risk. The intent of [TRI] is to move the determination of which risks are acceptable from EPA to the communities in which the releases occur.

Id. at 548.

[78] *See* EPA, *Environmental Indicators Home Page*, *at* http://www.epa.gov/opptintr/env_ind/index.html (last visited Nov. 30, 2000) (on file with the *Harvard Environmental Law Review*).

[79] In fact, ED uses the model to evaluate the risks posed by individual TRI sources and posts the results on its "Scorecard" Web site. *See* ED, *Pollution Rankings*, *at* http://www.scorecard.org/ranking (last visited Nov. 30, 2000) (on file with the *Harvard Environmental Law Review*).

only slightly more than does making the model available for others to use and would have important offsetting benefits. EPA could apply the model more efficiently and accurately than lay users. Most important, presenting to the public the results of the model's actual use would also present the questions raised by modeling in general more forcefully than simply making the model available. EPA could and should assist that inquiry process and negate any possibility of prejudgment by pointing out in each analysis the assumptions and policy judgments in the model and its limitation in not including all hazardous chemicals and their sources.[80]

TRI expressly aims to enable states and local communities to reach their own judgments about risk management. Those who celebrate the legitimacy of such local decisions do so by pointing to the ability of such decisions to balance the different factors in a manner that uniquely promotes local values. If this is true, it seems reasonable that an EPA program aimed at facilitating local action should present those local communities with as much of the relevant data as the agency can command.[81]

III. TRI AND THE DEFECTS OF REGULATION

Our current TRI, despite its accomplishments, also reflects some of the most criticized aspects of substantive environmental control regulation. Both sets of defects rest on a failure to define general goals for the programs concerned.

A. TRI Now Looks Like Command-and-Control Regulation

Although TRI is often portrayed as a fundamental break from old ways of controlling pollution, in important respects it is as similar to those old ways as it is different. Our current regulatory approach to envi-

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[80] The Web site for the model does contain a general description of its strengths and limitations. *See* EPA, *Indicators Strengths and Limitations*, *at* http://www.epa.gov/opptintr/env_ind/strength.htm (last visited Nov. 30, 2000) (on file with the *Harvard Environmental Law Review*).

[81] "Through regulatory-impact analyses, people should be allowed to see the diverse effects of regulations for themselves, and to make judgments based on an understanding of the qualitative differences." Pildes & Sunstein, *supra* note 62, at 65. *See also id.* at 90–91 (describing a promising experience in communicating expert perspectives to the public); *id.* at 105 (stating:

> [P]eople often seem unaware of how the risks from new technologies compare to the level of background risk [which often comes from smaller sources] in the natural environment. They sometimes do not have a clear sense of the relationships among different risks that are confronted in everyday life. Information of this sort ought to be widely available. The fact that it is not creates a significant failure in government regulation. At least equally important, it presents a large obstacle to citizenship . . . . Local communities, seeking to decide whether to allow toxic waste sites or plants that produce sulfur dioxide, need to be in a position to make informed choices.).

ronmental releases relies heavily on regulations that direct "major sources" to install the "best technology" to reduce them. The reductions that a given plant can achieve at some "reasonable" cost generally determine "best technology." Although the framers of these programs presumably thought that they would produce new social benefits, standards under them are set without considering the resulting degree of environmental benefit in any particular case.[82]

For decades now, critics have described five salient defects in the best technology approach. Specifically:

1. The best technology approach focuses its attention on major sources and overlooks the smaller, less traditionally regulated facilities that now make up most of the pollution inventory. This approach leaves out increasingly important causes of environmental degradation and signals, contrary to fact, that major industrial sources are the main causes of environmental problems.[83]

2. The best technology approach reduces environmental risk in an economically inefficient way. It treats all sources and all pollutants roughly alike, while an economically rational control system would require greater control at sources that can reduce their releases more cheaply or at sources where those releases cause more environmental damage.[84]

3. Best technology systems will not deepen society's understanding of the environmental effects of pollution. Because understanding these effects is irrelevant to the framing or enforcement of best technology controls, there is no institutional incentive to develop such knowledge.[85]

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[82] Best technology approaches come in a wide variety of formulations and origins. Some expressly forbid any consideration of the environmental benefit to be achieved by applying them. *See* Clean Air Act ("CAA") § 111(a), 42 U.S.C. § 7411(a) (1994) (new source performance standards); Clean Water Act ("CWA") § 304(b)(1)(A), 33 U.S.C. § 1314(b)(1)(A) (1994) ("best practicable control technology" standards). Others require strict controls unless the agency can conclude that higher emission levels would not adversely affect human health. *See* CAA §§ 112(d), (d)(4), 42 U.S.C. §§ 7412(d), (d)(4) (1994) (requiring the "maximum degree of reduction in emissions of the hazardous air pollutants" for all "major sources" unless they can show that a threshold below which health effects do not occur has been established for the chemical in question); CWA § 301(g), 33 U.S.C. § 1311(g) (1994) (authorizing relaxation of certain discharge requirements if the discharger can show that no water quality damage will result).

Most best technology standards are required by statute, but EPA has sometimes adopted that approach even when the law did not require it. *See* Hazardous Waste Treatment Council v. EPA, 886 F.2d 355, 363 (D.C. Cir. 1989) (affirming EPA's selection of a "best demonstrated available technology" approach to treating hazardous waste before its land disposal).

[83] *See supra* note 53. *See also* William F. Pedersen Jr., *Can Site-Specific Pollution Control Plans Furnish an Alternative to the Current Regulatory System and a Bridge to a New One?*, 25 ENVTL. L. REP. (ENVTL. L. INST.) 10,486 (Sept. 1995).

[84] *See* Bruce A. Ackerman & Richard B. Stewart, *Reforming Environmental Law*, 37 STAN. L. REV. 1333, 1335 (1985).

[85] Wendy Wagner writes,

> [S]ince the effects of varying concentrations of a toxic substance on health and the environment are largely irrelevant in setting technology-based standards, once

4. The best technology approach forces the agency to document the technical and economic feasibility and performance of every candidate technology in a target industry at the time the best technology standard is written. This knowledge, however, will quickly become obsolete as technology changes. It makes no permanent contribution to ecological understanding. Indeed, a best technology approach affirmatively drains away resources that might have been used to study ecological subjects because "the EPA is so overwhelmed by fact finding tasks required to implement a technology-based approach that it has relatively few resources left for exploration of risks posed by new pollutants."[86]

5. The best technology approach divides its efforts into separate tasks to be performed in isolation from each other and without reference to any general goal such as attaining a given level of air or water quality.[87]

TRI currently reflects identical weaknesses. By including only major sources, it erroneously signals that such sources are the overwhelming cause of releases of TRI pollutants. By failing to distinguish among the environmental effects of reported releases, it suggests that all reported releases have the same significance and should be controlled equally. A TRI designed simply to list certain releases from certain plants, rather than describe environmental effects, provides no incentive to EPA to deepen its understanding of such effects or the role of non-TRI activities in causing them. Since TRI is not keyed toward environmental effects, TRI's operating needs have required the agency to address questions whose resolution has no environmental significance.[88]

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a substance is selected for regulation, the incentives and potentially the funding for additional research on the adverse effects and environmental pervasiveness of the substance might be reduced.

Wendy E. Wagner, *The Science Charade in Toxic Risk Regulation*, 95 COLUM. L. REV. 1613, 1695 (1995).

[86] Ackerman & Stewart, *supra* note 84, at 1359. *See also* BRUCE A. ACKERMAN & WILLIAM T. HASSLER, CLEAN COAL/DIRTY AIR 103 (1981) (arguing that the best technology approach adopted by EPA in setting emissions standards for coal-fired power plants made the ecological information most needed to develop sound public policy irrelevant to the standard-setting debate).

[87] *See* BREYER, *supra* note 52, at 41–42.

[88] Much of the analysis in EPA's proposal to add SIC categories to TRI revolved around the environmentally irrelevant question whether the inclusion of facilities in certain SIC codes obliged to report under certain conditions of "manufacturing, processing, or otherwise using" certain chemicals, would provide enough information to be justified. *See generally* Addition of Facilities in Certain Industry Sectors; Toxic Chemical Release Reporting; Community Right-to-Know, 61 Fed. Reg. 33,588 (proposed June 27, 1996) (to be codified at 40 C.F.R. pt. 372). For a discussion of how to draw the lines between SIC codes, see Toxic Chemical Release Reporting; Community Right-to-know, 53 Fed. Reg. 4500, 4501–03 (Feb. 16, 1988) (to be codified at 40 C.F.R. pt. 372), and for a discussion of the definitions of "manufacture," "process," and "otherwise use," see *id.* at 4504–07; Addition of Facilities in Certain Industry Sectors; Revised Interpretation of Otherwise Use; Toxic Release Inventory Reporting; Community Right-to-Know, 62 Fed. Reg. 23,834, 23,846–53 (May 1, 1997) (to be codified at 40 C.F.R. pt. 372).

The TRI-best technology parallel is not exact, however. The best technology approach provides no incentive to improve control performance beyond the limit that the regulation prescribes—although it creates definite incentives to discover how to achieve that limit more cheaply.[89] By contrast, TRI does not define when a source has reduced its TRI releases "sufficiently," but leaves that question to the judgment of each community. This potentially establishes a market-like competition in release reductions as each source responds to those community pressures. If a source does not want to or cannot reduce emissions, the community pressure will give it an incentive to develop and present to the public the data on "acceptable risk" that our current TRI leaves out. In addition, because TRI does not require any controls, it does not command the "one size fits all" approach to dissimilar sources for which best technology is so often criticized.[90]

Even with these qualifications, however, the parallels between the weaknesses of TRI and the weaknesses of the regulatory system are strong enough to suggest the presence of a common cause.

B. Lack of Goals as a Cause of Regulatory Problems

Both the particular TRI defects itemized above and the way they parallel similar defects in the best technology system can be traced back to a lack of generally and operationally meaningful goals. One could, of course, articulate goals for both TRI and best technology programs simply by restating their actual requirements. The TRI goal, for example, could be: "To make sure that all major manufacturing industries report the amount of their toxic releases." The best technology goal could be: "To make sure that all major industrial sources control all their environmental releases to the extent technically feasible." However, these formulations in no way reflect any basic social value, such as informing the public about toxic risk or achieving a given level of environmental purity, to which instrumental statements must be related if they are to guide the control program in any significant way.

Of course, even a TRI program that aspired to include every source of chemical releases would have to impose (1) lesser burdens on smaller sources and (2) exempt the least important sources or source categories from reporting requirements altogether and use sampling or estimates instead to project their emissions. Drawing these lines, however, would further the goal of collecting comprehensive release information in a cost-effective manner, a goal to which the current definitional tasks have an indirect relation at best.

[89] *See, e.g.*, Ackerman & Stewart, *supra* note 84, at 1336; Wagner, *supra* note 85, at 1695.

It provides a disincentive to seek improvements since any improvement at one plant will likely result in an eventual tightening of the best technology standards for the entire industry.

[90] Such uniform best technology requirements "waste many billions of dollars annually by ignoring variations among plants and industries in the cost of reducing pollution." Ackerman & Stewart, *supra* note 84, at 1335.

As both popular writers on organizational reform[91] and congressional government reformers[92] have recognized, without generic and operationally significant goals, an agency (or a society) will have no standard by which to measure the success or failure of its efforts. In the absence of such goals, it is easy to overlook the failure of a best technology program to produce a clean environment. Similarly, it has proven easy to overlook such fundamental TRI defects as its failure to account for all sources of the chemicals it purports to cover, or to establish a common measure by which chemicals are included or excluded.

In the absence of general goals to relate one action to another, individual regulatory decisions lose their connection to any larger purpose and fragment in the manner described earlier. The best technology approach was designed to disaggregate such decisions in this manner.[93] Similarly, the TRI program has focused on releases from individual sources rather than on a comprehensive description of total environmental releases or their environmental significance.

An agency cannot relate one program to another or manage their common elements together without general goals to provide synthesizing principles. EPA's failure to reconcile, or even attempt to reconcile, its TRI data with its regulatory programs or its other environmental databases rests at least in part on the resulting tendency to view programs in isolation.

Programs without goals will follow the course of least bureaucratic or political resistance. Both TRI and the command-and-control system have focused on major sources largely because such sources are bureaucratically and politically easy to regulate. They are bureaucratically easy to regulate because their owners can afford experts to cope with the procedural and substantive demands of the regulatory system.[94] They are

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[91] *See generally* DAVID OSBORNE & TED GAEBLER, REINVENTING GOVERNMENT: HOW THE ENTREPRENEURIAL SPIRIT IS TRANSFORMING THE PUBLIC SECTOR (1992).

[92] The legislative history of the Government Performance and Results Act of 1993, Pub. L. No. 103-62, 107 Stat. 285, which requires agencies to set goals for their activities, observes that a "common weakness in [agency] program performance plans is an over-reliance on output measures, to the neglect of outcomes. Eligible clients completing a job training program are outputs; an increase in their rate of long-term employment would be an outcome." S. REP. NO. 103-58, at 15 (1993). The Senate report also stated, "Federal managers, too, are greatly disadvantaged in their own efforts to improve program efficiency and effectiveness by that same lack of clear goals and information on results." *Id.* at 3.

[93] Because the best technology system was designed to operate without goals, it will have difficulty reacting to new problems. "Simply regulating to the hilt whatever pollutants happen to get on the regulatory agenda may preclude an agency from dealing adequately with more serious problems that come to scientific attention later." Ackerman & Stewart, *supra* note 84, at 1337. On a more general note, the best technology system "conflates means and ends, preventing the intelligent assessment of either." *Id.* at 1340.

[94] The government will face far greater transaction costs reducing the social cost of ten smaller sources than one large source because there will be ten times as many organizations to deal with and separate circumstances to consider. *See* Karkkainen, *supra* note 49 (manuscript at 13 n.17). In addition, the ten managements of the ten small sources may

politically easy to regulate, in part because they are bureaucratically easy to regulate, and in part because large corporations know that they are easy political targets. Without goals, our regulatory system has little incentive to broaden its coverage to smaller, politically far more troublesome, but substantively more important, sources.

This lack of goals helps perpetuate captivity of agencies to interest group pressure. Pressure groups will be dramatically more effective when addressing an agency that lacks its own clear picture of how to act in the broader public interest.[95] Best technology programs give an agency little motive to generate the data needed to measure progress toward goals. Without such data, an agency will lack the tools to set clear and defensible environmental goals and defend them to the public. To pick an elementary example, EPA is in a far weaker position to push for expansion of TRI release coverage than it would be if it knew the percentage of releases of TRI chemicals that were not currently reported.

C. EPA as a Typical Passive Agency

EPA's failure to correct the defects in Congress's original TRI enactment seems consistent with a widespread view of regulatory agencies as essentially passive. As Louis Jaffe argued long ago, when Congress legislates in general terms, it often expects power to be exercised within much narrower and more familiar boundaries than the broad language might suggest. Congress and its members have many ways of underlining that point to an agency that exceeds those limits.[96]

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collectively have more political power and access than the management of the single big source, even though the management of the single big source is likely to have more power and access than any single small source. For an example of that power, see *supra* note 35, describing how the prospect of regulating farmers, gas stations, printers, dry cleaners, hospitals, and beauty parlors led to the defeat of the broad initial version of TRI.

[95] As Judge Friendly said thirty-five years ago in reference to this very issue, "Lack of definite standards creates a void into which attempts to influence are bound to rush; legal vacuums are quite like physical ones in that respect. Although pressure produces diffuse decisions, it is likewise true that diffuse decisions produce pressure." HENRY J. FRIENDLY, THE FEDERAL ADMINISTRATIVE AGENCIES: THE NEED FOR BETTER DEFINITION OF STANDARDS 22–23 (1962). Judge Friendly, however, did not address how agencies can empower themselves to set such standards. This Article attempts to supply that missing piece by arguing that a social cost disclosure program can lead by incremental steps to the generation of new public goals that would make standard-setting easier.

[96] On this view, EPA's broad power to vary the scope of TRI probably conveys less real power to act than the precise congressional specification of chemicals and source categories for setting up the initial TRI. "[T]he extent to which an agency is open—influenced by and responsive to a political process—is determined by the definiteness and specificity of the congressional expression of the agency's methods and objectives." Louis L. Jaffe, *The Illusion of the Ideal Administration*, 86 HARV. L. REV. 1183, 1188 (1973). "[T]here is no reason to believe that the agency will be able to rise above power conflicts to achieve solutions that the legislature itself cannot or does not choose to provide." *Id.* at 1190. That same Article addressed and minimized any attempt to appeal to objective arguments for a given regulatory action by saying that "the criticisms of administration must be recognized as themselves a component of the political process, and critics' invocation of the 'public

Related "models" of regulatory functioning see agency actions as determined solely by the interests and political capabilities of the numerous pressure groups that surround them.[97] However, because there are many interest groups to satisfy and even more political pressures to accommodate, these demands cut the regulatory system into a patchwork quilt so that the pressures surrounding each decision can be individually balanced. This disaggregation then reinforces the political timidity and aversion to general goals with which it began. The agency, as a result, loses the capacity to function in any other manner and becomes little more than the vector sum of the political forces that bear on it.[98] In this model, factional pressures prevail over the general good if, indeed, the "general good" retains any meaning at all.[99]

The two perspectives are intimately related since the vector sum of forces that governs an agency will be crystallized in the congressional expectations behind its governing statutes. If an agency has no power to

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interest' as a standard with readily discoverable content should be viewed as but a useful tactic in the political debate." *Id.* at 1191.

This Article argues, in effect, that Professor Jaffe overstated his thesis by inserting the word "but" in the passage just quoted. Although appeals to the public interest certainly do have political significance, they can also have a large measure of objective validity. In addition, information disclosure programs by nature can potentially claim a wider scope of objective validity than the issuing of regulatory commands.

[97] One recent study identifies two separate models of pressure group influence. In the "public choice" model, concentrated economic interests possess organizational advantages over the public at large that virtually assure that regulatory decisions will promote their interests rather than the interests of more diffuse groups. In the "neopluralist" model, agency decisions are still considered a function of interest group pressure, but there is no clear presumption as to which group will prevail. *See* Steven P. Croley, *Theories of Regulation: Incorporating the Administrative Process*, 98 COLUM. L. REV. 1, 5, 34–65 (1998).

[98] *See, e.g.*, Richard B. Stewart, *The Reformation of American Administrative Law*, 88 HARV. L. REV. 1669, 1681–88 (1975). "Today, the exercise of agency discretion is inevitably seen as the essentially legislative process of adjusting the competing claims of various private interests affected by agency policy." *Id.* at 1683. Similarly, Reich describes as follows the job of a regulatory official under an "interest group pluralism" model:

> The job of the public administrator, according to this vision, was to accommodate—to the extent possible—the varying demands placed upon government by competing groups. The public administrator was a referee, a skillful practitioner of negotiation and compromise. He was to be accessible to all organized interests while making no independent judgment of the merits of their claims. Since, by this view, the "public interest" was simply an aggregation and reconciliation of these claims, the administrator succeeded to the extent that he was able to placate the competing groups.

Reich, *supra* note 63, at 1620.

[99] Reich describes the interest group accommodation approach as conveying the "implicit messages . . . that there are no public values to be discovered, and that the 'public interest' is no more than an accommodation or aggregation of individual interests." Reich, *supra* note 63, at 1637. Similarly, Croley states that under a "pluralist" approach to regulation, "Regulators . . . function largely as conduits and aggregators for the preferences and demands of private groups." Croley, *supra* note 97, at 58.

act beyond that vector sum, it will become increasingly passive as its statutory mandate loses immediacy and relevance over time.

EPA's unwillingness to take any independent position on TRI issues outside its express congressional mandate confirms this perspective. As Jaffe would have predicted, EPA has employed its powers to change the shape of the TRI program in inverse proportion to the discretion that Congress afforded it. EPA has done little to explain the meaning of TRI data or combine it with data from other programs, even though many such changes would be legally unconstrained.[100]

EPA has somewhat more aggressively expanded the source categories covered by TRI, which required issuing regulations under a broad statutory authorization. EPA has been most vigorous in listing and delisting chemicals, even though that step must comply with demanding statutory specifications.

This pattern suggests that EPA's actions are largely determined by a weak sense of its own right to articulate policy without the shield of express congressional endorsement. When the agency must act without that shield, it sticks close to familiar precedents. Such an agency will have little ability to respond to even the most compelling policy arguments if they require stepping outside these boundaries.

Commenters who have addressed EPA's TRI regulations from a general viewpoint have consistently supported comprehensive inclusion of

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[100] EPA's TRI program manager contended that EPA would be sued "the next day" if it issued a public document that distinguished among TRI chemicals according to what the agency experts believed to be their different levels of toxicity, and that this fear provided one major reason why no such report had been issued. *See* Interview with Susan Hazen, Director, Environmental Assistance Division, EPA Office of Pollution Prevention and Toxics, in Washington, D.C. (Apr. 23, 1997). Since the case law clearly establishes that an agency cannot be sued for good faith disclosure of information, *see supra* note 75, that seems like a strong impact for a legally empty fear. That in turn leads to speculation that the expressed fear of litigation may also imply some fear of the political consequences were EPA to take a highly visible step not expressly authorized by Congress.

The comments from one of the ED attorneys responsible for that group's highly successful effort at publicizing TRI releases substantiate that view. He writes:

> [I]n the final analysis, I don't think it is plausible to expect EPA to become the principal interpreter of the raw environmental data it collects. Given the current polarization between stakeholders in the risk characterization arena, there is simply no way that the agency will be able to politically settle on risk assessment methods which could be used to provide this interpretation. [The development of the risk screening model, *see supra* text accompanying notes 78–80] illustrates this dilemma in spades: EPA has all the information required to make risk statements in this tool, but instead opted to produce extremely difficult to interpret "risk indicators" instead of conventional risk statements. They did this because they don't have the political nerve to actually apply their cancer risk assessment guidelines and conduct a national screening level risk characterization using TRI data.

E-mail from William S. Pease, ED, to William F. Pedersen, Author (Feb. 14, 2000) (on file with the *Harvard Environmental Law Review*).

all sources of TRI chemicals.[101] These commenters, of course, do not include the local governments, small businesses, and farmers that might be included in such an expansion. The success of these groups in shaping the original congressional TRI mandate to exclude them may well have fortified EPA's own reluctance to depart from that framework. Similarly, characterizing TRI data would almost inevitably displease those who found the damages under or overstated. EPA may have been reluctant to take that risk because Congress did not affirmatively authorize it.[102]

By contrast, Congress described the standards for listing and delisting individual chemicals with more specificity than the framework for modifying other elements of TRI. Those standards require EPA to characterize the risks of individual chemicals, a familiar task with several analogs under other statutory provisions.[103] The petition process makes the regulated industry delisting's most persistent advocate. Finally, and perhaps most importantly, listing and delisting can be accomplished without any basic change to the structure or political meaning of TRI. Source coverage and reporting obligations remain the same, while EPA can portray the addition or deletion of chemicals as required by the application of long-accepted scientific principles without any significant interpolation of value choices.

Some have claimed that agency reliance on cost-benefit analysis and other tools of policy science will lead to unbalanced decisions because the agency will address only those topics that it has the tools to address.[104] However, that begs the question of what tools will be used if cost-benefit analysis is foregone. EPA's implementation of TRI gives one answer. In the absence of a systematic analysis of the purpose for which regulatory obligations are imposed, even such obvious regulatory defects

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[101] *See supra* note 61.

[102] On a more cynical view, EPA may not have wanted to undermine the congressional suggestion inherent in the structure of TRI that such releases are excessive and should be controlled. But that too would represent an acquiescence in congressional pre-conceptions.

[103] The Toxic Substances Control Act calls for barring or removing chemicals from the market if they present an "unreasonable risk" of harm to human health or the environment. *See* 15 U.S.C. §§ 2604(e)(1), 2606(f) (1994). Under CAA § 112(c)(9)(B)(ii), 42 U.S.C. § 7412(c)(9)(B)(ii) (1994), "hazardous air pollutants" must eventually be regulated tightly enough to "protect human health" with an "ample margin of safety." Similarly, the standards for cleaning up hazardous waste sites under Superfund must be "protective of human health and the environment." 42 U.S.C. § 9621(b)(1) (1994). Evaluating the "hazard" of the chemicals involved is necessary to perform any of these tasks, although it is not sufficient.

[104] Hornstein writes,

> [T]he existence of a large, risk-oriented infrastructure at EPA raises the prospect of . . . "the law of the instrument": in making risk *management* decisions, EPA will emphasize those aspects of risk that its scientific bureaucracy has the tools to measure (expected losses) at the expense of less easily measured, but not necessarily less important, aspects of risk-bearing.

Hornstein, *supra* note 62, at 575. *See also* Pildes & Sunstein, *supra* note 62, at 46.

as the failure to include all sources of a given chemical hazard may go almost unnoticed, simply because legal definitions and inherited practices monopolize regulatory attention.

IV. Social Cost Disclosure Programs as a Cure for the Passive Agency

Regulatory agencies were originally seen as sources and storehouses of expert information that the agency would then apply objectively to solve social problems.[105] That view assumes a concept of the public interest shared by both agencies and the general public. Agencies will be more likely to pursue the public interest when they are under public scrutiny, since that helps overcome the effect of interest group pressures. An alternate view sees agencies as called on, not to apply their expert information directly, but to take part in a civic republican dialogue among all components of society on the proper goals for our collective actions.[106] Because these two visions of the agency both assert that the agency's motivation is not just to promote its own "self-regarding interests, but also the broader interests of the entire political community,"[107] such a basically "other-regarding" agency might conform either to one vision or the other in different circumstances. For example, an agency might conclude that its mandate to address one problem was strong enough to support direct action, while its less certain mandate to address a second problem was better discharged by starting a public dialogue on the proper way to address it.

Increasing reliance on social cost disclosure may promote the evolution of agencies that can overcome interest group pressures and advance an independent concept of the public good by reclaiming their original charter as objective experts. Social cost disclosure inevitably generates incentives for the administering agency to correct any errors or misleading emphases in its presentation of that disclosure and to improve both the management and public presentation of all the information under its control. These developments will increase the objectivity and persuasive

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[105] *See* Stewart, *supra* note 98, at 1677–78. *See also* James M. Landis, The Administrative Process 23–24, 68–70 (1938).

[106] The two models are discussed and distinguished in Croley, *supra* note 97, at 76–86. In contrast to his previous two theories, these two "both contemplate other-regarding behavior on the part of regulatory decision makers." *Id.* at 78.

Croley's analysis concludes that none of his four models provides a comprehensive explanation of regulatory behavior, and that the most appropriate explanation may be in part a function of the procedures used for regulatory decision making. "The question at hand is whether . . . administrative decision making processes promote selfish rent-seeking, or public-spirited deliberation, or something in between." *Id.* at 106.

This Article, in a similar spirit, examines the potential of social cost disclosure programs to move us from the first pole toward the second, and the conditions that would have to be met for that effort to succeed.

[107] *Id.* at 78.

value of agency statements. That, in turn, should increase the ability of the agency to suggest substantive goals for society to pursue within the agency's sphere of expert knowledge.

A. Social Cost Disclosure Begins a Dialogue That Moves Agencies Toward Objectivity

A social cost disclosure program's initial form rarely will present the information society needs in the most socially useful format. We have seen how imperfectly TRI attempts to attain that ideal. Such an imperfect start may be necessary regardless of the merits of the initial design—the validity and usefulness of a social cost disclosure program may simply need to be confirmed through a process of dialogue and response after it begins operating. That dialogue will be triggered by the agency's initial disclosure, since any selection and presentation of data always contains an implicit message with which some sectors of society are likely to disagree. Even if an agency could portray the quantitative cancer risk posed by one hundred chemicals with complete accuracy, any special effort to publicize those risks would inevitably invite opposition from, for example, the manufacturers and users of the chemicals ranked as the riskiest.

Such interests might argue that the aggregate social problem represented by these risks was not great enough to justify singling it out by a disclosure obligation. That, however, is a weak objection in a society committed to using free discussion as an indispensable method for clarifying public issues.[108] Opponents of disclosure fare better by contending that the disclosure in question is factually wrong or misleadingly out of context.

These arguments should find particular resonance when deployed against a regulatory agency.[109] Such agencies are not individuals or pri-

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[108] *See* Whitney v. California, 274 U.S. 357, 375–76 (1926) ("[F]reedom to think as you will and to speak as you think are means indispensable to the discovery and spread of political truth; that without free speech and assembly discussion would be futile; that with them, discussion affords ordinarily adequate protection against the dissemination of noxious doctrine; that the greatest menace to freedom is an inert people; that public discussion is a political duty; and that this should be a fundamental principle of the American government."); Abrams v. United States, 250 U.S. 616, 630 (1919) (Holmes, J., dissenting) ("[T]he ultimate good desired is better reached by a free trade in ideas—that the best test of truth is the power of the thought to get itself accepted in the competition of the market, and that truth is the only ground upon which their wishes safely can be carried out.").

[109] According to Ted Greenwood,

> To discredit an agency or to mobilize political strength to effect change, interest groups of whatever stripe cannot merely complain in public that the agency acted contrary to their preferences. Such complaints would be discounted readily as advocacy by all except those who share the critic's interests or policy preferences. To argue that an agency is incompetent, however, is to raise an issue that both commands attention and erodes the agency's authority and legitimacy. No one disagrees with the assertion that agencies should be competent.

vate groups, but public institutions created for specific purposes. When such a body speaks in its institutional voice through an institutional program of social cost disclosure, it can hope for widespread acceptance only of statements that reflect that assigned competence.

Indeed, the agency's right to make such statements rests at least implicitly on the old model of the agency as a source of expert information. An agency that consistently issues ostensibly factual reports that can be attacked as inaccurate or misleading will tend to forfeit both its claim to fit this model and any derivative claim to autonomy that such conforming agencies can enjoy.

An information disclosure program offers hope of reclaiming the idea of an "objective" agency that regulation cannot offer. A regulatory program by nature cannot be objective. Even if all the facts are agreed on, the question of whether they justify the particular action will still remain.

Accuracy, by contrast, is far more the central touchstone of the value of information. Moreover, accuracy can be provided retroactively. If the information an agency presents is not generally accepted as objective, the agency can seek better acceptance by responding to public criticisms and by presenting information in alternate ways so as to show the phenomenon described in more than one light.

Such responses are far less suited to defusing criticisms of regulation. An agency defending a regulation uses words and arguments to avoid changing legally binding and expensive commands, and thereby leaves these legal commands in effect. By contrast, an agency defending an information disclosure program with words and arguments proceeds on the same level as the original disclosure, namely on the level of words and arguments. For that reason, the subsequent defense will be very likely to modify the message of the initial disclosure, since both can be read together on the same level. It is far easier, both substantively and in terms of legal procedure, to describe a phenomenon in several different ways than to regulate it so variably.

An agency that changes its presentation, or makes a new one, in response to a public request will reinforce its claim to being a servant of the public. Rather than following its own agenda, it will be responding to the demands of others like a participant in a market. By such a mechanism, both the accuracy and the comprehensiveness of agency disclosure programs should improve as the "marketplace of ideas" performs the function of an economic market. Indeed, one might define "objectivity," in both the scientific and the regulatory sense, as consisting largely in the commitment to take part in such discussions.[110]

Ted Greenwood, *The Myth of Scientific Incompetence of Regulatory Agencies*, 9 SCI., TECH. & HUM. VALUES, 84. 95 (1984), *quoted in* Wagner, *supra* note 85, at 1658 n.158.

[110] For science, see Wagner, *supra* note 85, at 1619 n.21 (quoting THOMAS S. KUHN,

More accurate information should improve the ability of the agency both to take part in a public dialogue and to resist the inevitable counterpressures that oppose any agency initiative. An agency that regularly explains its understanding of data in the areas the agency was created to address will create responsive pressure to improve both substance and presentation style. This will occur more rapidly and more thoroughly than if data were simply disclosed in the form originally provided, without any agency characterization, or used only for such internal purposes as regulation development and research reports. Although judicial review of regulations subjects them to the most exacting form of scrutiny that they normally face,[111] even that review is limited to assuring that the agency's judgment represents an acceptable policy conclusion from the record and is free of gross technical errors.[112] An agency that commits to accurately and usefully instructing others on the meaning of a database must be more persuasive and more flexible than an agency that simply defends its own conclusions as consistent with a lack of arbitrary judgment. Such a change runs against several elements of current agency culture,[113] which means that it has the potential to change our current model of the agency.

Such an evolution toward objectivity might diminish the immediate power of some social cost disclosure programs to motivate changes in conduct. The ability of the congressionally authorized TRI framework to spur such changes rests in part on its implicit tendency to overstate the environmental importance of chemical releases from large sources. Indeed, the program's designers may have made a deliberate choice to emphasize the rhetorical power of the program to produce a particular result over the accuracy of the message conveyed. Accordingly, more attention to hazard, risk, and comparative risk in the presentation of TRI information might reduce its strictly rhetorical power by presenting to the reader more of the factual material needed to evaluate the impact of the releases,

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THE STRUCTURE OF SCIENTIFIC REVOLUTIONS 94 (1970)) to the effect that "[t]here is no standard higher [for scientific truth] than the assent of the relevant community."

[111] *See* William F. Pedersen, Jr., *Formal Records and Informal Rulemaking*, 85 YALE L.J. 38, 45–50 (1975).

[112] "While the [Administrative Procedure Act] mandates a process for public involvement, it provides almost no protections to ensure that agencies will explain the substantive bases for highly complex or technical rulemakings in a way that the lay public can readily understand and challenge." Wagner, *supra* note 85, at 1656.

[113] Reich writes,

> [P]ublic administrators and the public at large often tend to equate administrative effectiveness with active decisionmaking and successful implementation . . . . The nurturing of social learning about public values, on the other hand, is an elusive undertaking . . . . An administrator who tentatively advances several proposals and stirs controversy about them may appear indecisive or indifferent, if not simply ineffectual.

Reich, *supra* note 63, at 1639.

rather than simply suggesting through a big number that releases are too high. Conversely, EPA would assert its adherence to the public interest or civic republican model of an agency precisely by improving the accuracy of the TRI message, despite the lack of an express congressional mandate to do so, and even at the risk of diminishing its immediate impact. On the other hand, a program that disclosed the known facts accurately and responded to criticism might increase the power of its implicit call for change. Even if one social cost disclosure program lost effectiveness, the same steps that decreased the power of that program might increase the power of others.

Finally, and most fundamentally, an agency committed to social cost disclosure programs should be willing to risk some loss in their immediate effectiveness to show that it is not dominated by factional pressures. An accurate presentation of inconvenient data will be unwelcome to those affected, and even more unwelcome if it conveys that information clearly and specifically in an intuitively appealing framework.[114] The inevitability of these challenges reinforces the need for the agency involved to develop the credibility and the public standing necessary to face them. Whether the public trusts an agency greatly influences public acceptance of that agency's judgments.[115] How will the public come to trust an agency if it does not present information within its core competence in a clear, flexible, and useful manner? Conversely, an agency that does communicate effectively, and that improves its performance over time, can expect to build public acceptance for its other acts as well.

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[114] *See* Pildes & Sunstein, *supra* note 62, at 9.

> Vivid and personal information can also be more effective than statistical evidence. [A] study of energy conservation showed that it was not helpful for auditors to point to the cracks around homeowner's doors and to recommend weather-stripping. But striking results followed from a simple statement to the effect the cracks, added together, would equal a hole the size of a basketball, combined with the question: "And if you had a hole that size in your wall, wouldn't you want to patch it up? That's what weather-stripping does."

Id. at 111. If there were a lobby against weather-stripping, it would not be pleased if an agency switched to this more effective means of communication.

[115] "The extent of public trust in various regulatory authorities is a critical, but widely neglected, element in risk regulation." Pildes & Sunstein, *supra* note 62, at 40. "[A] comparative study of environmental policy in Britain and the United States concludes that heightened concern in the United States about environmental risks stems from greater distrust in major social and political institutions, particularly large corporations and government." *Id.* at 41. (The greater trust in European than in American regulatory agencies may not prevail any longer after "mad cow" disease and other recent European food safety scandals.)

B. The Need To Manage Information Will Clarify Agency Goals

At some point, an agency must gather the information it discloses. When it does this by requiring others to provide information, such demands present the traditional questions of justifying the cost, efficiency, and fairness of government regulation.[116] Even though the courts have been lenient in reviewing such requests both in general,[117] and in the particular context of TRI,[118] an agency's power to gather information still will be limited by the tendency of repeated information requests to become oppressive. For that reason, agencies facing increased data disclosure and characterization tasks will be motivated to meet them by reusing information they already possess. This, in turn, will reinforce the power of social cost disclosure programs to increase agency autonomy and independence.

This section will show this by analyzing why basic economic factors require an agency to make multiple use of its information resources to meet data disclosure needs. It describes the damage to the TRI program caused by EPA's inability to use non-TRI data to supplement TRI, and then addresses the scope of the changes in agency practice needed to create such a multiple use capacity.

1. Agency Data and the Economics of Information

Congress imposed the responsibility for reporting TRI emissions not on EPA, but on every source in the TRI system. If EPA followed that original mandate, it would require the releasing sources themselves to report the information needed to fill any gaps in TRI. That approach may be fundamentally unacceptable when the missing information concerns the risks posed by individual chemicals or the proportion of total community risk that they make up. Sources will rarely have the expert knowledge needed for such assessments and will have obvious motives to minimize the significance of their releases. Nor does it make much economic sense for every one of the myriad sources of a given chemical to provide its own assessment of chemical risk.

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[116] Indeed, the Federal Paperwork Reduction Act, 42 U.S.C. § 3505 (1994 and Supp. II 1996), articulates a goal of a 40% reduction in information collection burdens imposed on the public by the year 2001, to be reached in part through elimination of duplication in data requirements and greater use of shared data resources. *See infra* note 122. Although the limit is only a planning goal, and grants no rights to the recipients of agency information collection demands, not even such a planning goal restricts the total cost that federal regulation imposes on the public.

[117] Traditionally, an information request will be upheld if "the inquiry is within the authority of the agency, the demand is not too indefinite and the information sought is reasonably relevant." United States v. Morton Salt Co., 338 U.S. 632, 652 (1950).

[118] *See* Troy Corp. v. Browner, 120 F.3d 277 (D.C. Cir. 1997).

Requiring all sources to report comprehensively on the quantity of their chemical releases to each regulatory program separately would rapidly become unacceptable simply on cost grounds. According to EPA, the annual cost to the affected sources of a major expansion of TRI can exceed $100 million, which is expensive for a pollution reduction measure.[119]

Even though such costs by themselves do not distinguish information collection from traditional commands to reduce pollution, other characteristics of information collection do provide that distinction. Although information requests do not appear as burdensome or stigmatizing as regulations that impose direct control obligations,[120] and almost always have some arguable benefits, such surface impressions do not accurately reflect the potential costs of information programs. For example, a regulatory agency can multiply information collection costs by requiring the reporting source to evaluate the same releases in slightly different ways for multiple different purposes.

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[119] EPA estimated the cost of establishing lower TRI reporting thresholds for PBT chemicals at $126 million for the first year and $70 million annually thereafter. *See* Persistent Bioaccumulative Toxic (PBT) Chemicals; Lowering of Reporting Thresholds for Certain PBT Chemicals; Addition of Certain PBT Chemicals; Amendments to Proposed Addition of a Dioxin and Dioxin-Like Compounds Category; Toxic Chemical Release Reporting; Community Right-to-Know, 64 Fed. Reg. 688, 720 (proposed Jan. 5, 1999) (to be codified at 40 C.F.R. pt. 372). EPA estimated that the cost of adding 313 new chemicals to the TRI list, thereby doubling its length, would be "approximately $99 million in the first year and $49 million each year thereafter." Addition of Certain Chemicals; Toxic Chemical Release Reporting; Community Right-to-Know, 59 Fed. Reg. 61,432, 61,471 (Nov. 30, 1994) (to be codified at 40 C.F.R. pt. 372). EPA estimated the costs of adding facilities in seven new SIC codes to TRI at $226 million in the first year and $143 million annually in later years. *See* Addition of Facilities in Certain Industry Sectors; Revised Interpretation of Otherwise Use; Toxic Release Inventory Reporting; Community Right-to-Know, 62 Fed. Reg. 23,834, 23,890 (May 1, 1997) (to be codified at 40 C.F.R. pt. 372).

[120] EPA has advanced this argument in support of its TRI expansion efforts, saying that because the burden on a chemical of TRI listing is less than the burden of substantive regulation, less justification is required to list it than to regulate it.

> The purpose of [TRI] is not to ban the manufacture or use of a chemical, to restrict releases of the chemical, or to dictate how it should be used or released. As a result, the burden and control [that TRI listing] imposes is significantly less than that imposed by a statute that controls the manufacture, use and/or release of a chemical.

Persistent Bioaccumulative Toxic (PBT) Chemicals; Lowering of Reporting Thresholds for Certain PBT Chemicals; Addition of Certain PBT Chemicals; Community Right-to-Know Toxic Chemical Reporting, 64 Fed. Reg. 58,666, 58,677 (Oct. 29, 1999) (to be codified at 40 C.F.R. pt. 372).

> [T]he Agency believes that as a matter of policy the standard that must be met to require information [for TRI] is less than that required to regulate a chemical under a statute such as the Clean Air Act.

Id. at 58,693.

Conversely, a source generally cannot reduce its environmental releases without either redesigning its process or inserting physical release controls into the process.[121] However, a new need for information about that source or its industry might be met by reanalyzing existing data, or by sampling a fraction of the relevant sources, at a cost far less than would be required to gather the information directly. For these reasons, the opportunities for less (or more) cost-effective achievement of a given goal will be even greater for information collection and disclosure programs than for more traditional pollution control measures.[122]

Achieving an efficient data management and disclosure program will require more attention to internal agency management than would be needed to achieve an efficient program of traditional regulatory commands. While an agency could theoretically create a cost-effective release reduction strategy simply by discovering the optimal pattern of regulatory commands to be issued to others (including the creation of a "pollution market" that would generate that pattern on its own), an effective social cost disclosure agency cannot stand apart from the compliance effort in this manner. It must physically possess most or all of the data at issue, and must continually receive new data. In order to meet its disclosure needs efficiently, such an agency must at least consider repackaging data that is already reported, rather than imposing new reporting demands. To do that, it must select the data to be repackaged and take responsibility for presenting that data to the public in a socially useful form. At present, EPA's failure to perform these tasks effectively greatly hampers our ability to evaluate the performance of our environmental programs and probably increases the costs of environmental data management as well.[123] These basic characteristics of information would

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[121] This may not be true in the limited case where a source finds useful ways to recycle its waste products, but even such recycling can only be achieved once.

[122] Congress has long recognized these characteristics of information programs. The Paperwork Reduction Act requires a government-wide effort to "coordinate, integrate, and to the extent practicable and appropriate, make uniform Federal information resources management policies and practices." 44 U.S.C. § 3501(3) (1994 & Supp. II 1996). *See supra* note 116.

[123] A former Deputy Administrator of EPA reports:

> According to estimates developed under the Paperwork Reduction Act, compliance with EPA reporting, monitoring, and recordkeeping requirements costs the regulated community over $3.5 billion per year. EPA itself spends several hundred million dollars each year on information management functions, and the White House has found that governmentwide expenditures on environmental research and monitoring total $5.5 billion annually. Yet there is widespread agreement that despite this investment, critical information on environmental trends and conditions is either unavailable or virtually impossible to access and interpret. As EPA itself has acknowledged, a facility-by-facility profile of industry's environmental performance cannot be obtained without extracting information from multiple databases that are separately maintained and track environmental releases using methodologies that are confusing and often duplicative or incompatible . . . . A recent study for the respected think tank Resources for the Future . . . bluntly

emerge in any attempt to extend TRI to smaller sources and have already emerged to defeat EPA's attempt to extend TRI coverage to the "criteria" air pollutants.[124]

a. TRI Coverage for Smaller Sources

Any expansion of TRI reporting beyond major facilities would need to avoid imposing a major paperwork burden on small sources. Such a strategy is required to achieve cost-effectiveness and to avoid a politically disastrous backlash of the sort that shaped Congress's initial enactment of TRI.[125] Quantifying emissions from such sources, however, need not require universal reporting. It would be far more efficient to study a sample of individual small sources—for example, gas stations—and to use that information to estimate emissions from the entire category.[126] These projections could be checked by more detailed reviews of individual sources, and perhaps cross-checked for consistency with other data already reported.

Including small sources this way would provide the public with far more accurate and balanced TRI information at an acceptable cost. Further, EPA would have to take an active role in developing and presenting TRI data, contrary to its present practice and the model of the passive agency outlined above.

b. The Limits to Duplicate Reporting for Larger Sources

Even large sources will argue that their current reporting obligations are inefficient and an undue burden. As noted earlier, that argument has already succeeded in defeating the addition of pollutants subject to national ambient air quality standards to TRI. The agency itself prepared

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> concluded that . . . "[t]he system lacks monitoring data to tell whether environmental conditions are getting better or worse; it lacks scientific knowledge about both the causes and the effects of threats to human and environmental health; it lacks information that would tell us which programs are working and which are not."

Robert M. Sussman, *The Government Performance and Results Act and the Future of EPA: A Second Look*, 29 ENVTL. L. REP.: NEWS AND ANALYSIS (ENVTL. L. INST.) 10,347, 10,359–60 (June 1999) (footnotes omitted). *See also* Karkkainen, *supra* note 49 (manuscript at 66–67).

[124] *See supra* note 71.

[125] Indeed, EPA's recent rule lowering reporting thresholds for PBT chemicals exempts food processors from reporting their dioxin emissions, in part because of the "thousands of reports" that could be required. *See* Persistent Bioaccumulative Toxic (PBT) Chemicals, 64 Fed. Reg. at 58,697.

[126] According to EPA, many sources that are required to report under TRI already use this approach. *See* Addition of Facilities in Certain Industry Sectors; Revised Interpretation of Otherwise Use; Toxic Release Inventory Reporting; Community Right-to-Know, 62 Fed. Reg. 23,834, 23,870 (May 1, 1997) (to be codified at 40 C.F.R. pt. 372). For a parallel suggestion, see Karkkainen, *supra* note 49 (manuscript at 245).

the ground for this defeat by its failure to guard against the potential for duplicate reporting to multiply costs unacceptably. Since TRI began, EPA has regularly rejected comments urging it not to expand TRI, but rather to rely on existing databases. EPA has responded that since TRI requires the reporting of data in a slightly different format from other programs, the existing data cannot be used for TRI purposes.[127]

This approach preserves the agency's ability to claim that TRI's message stems entirely from the submissions of the sources themselves, and thus to avoid any activist engagement with the meaning of TRI data. However, it virtually guarantees duplicative and inefficient reporting burdens, and allows opponents of TRI expansion to argue that no such expansion should take place until the agency can show that it can efficiently manage the data that it already collects.[128] EPA's failure to include the criteria pollutants in TRI represents the first success of this argument.

2. *How Data Management Can Help Recreate the Expert Agency*

An agency that supplements the social cost disclosure provided by others with disclosures of its own must decide whether to base that supplement on new data gathered for that purpose, or on reformulations of data that the agency already possesses. Conversely, an agency deciding to gather new data from the public will act efficiently to the extent it plans to use that information for as many different disclosure needs as possible. To minimize the costs of data gathering, an agency should therefore assess the relation of all the information it possesses to each of its disclosure needs, and also assess how many of those disclosure needs each new item of information gathered might meet.

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[127] When EPA added seven new reporting categories to TRI in 1997, it addressed the possible use of other databases as an alternative to the expansion as follows:

> TRI data cannot be replicated using these sources . . . [T]hese other data collections differ in the information collected, chemical and facility coverage, applicable various thresholds and reporting frequencies, and how the data are reported. The definitional consistency provided by TRI creates important advantages over any data system that might be assembled from non-TRI sources . . . . Therefore, EPA has concluded that . . . these [various] reporting requirements do not duplicate or conflict with each other.

Addition of Facilities in Certain Industry Sectors, 62 Fed. Reg. at 23,884. This analysis seems to assume that an information collection request can be justified simply by showing that it has *some* benefit, even if it overlaps other requirements, and that the alternative of reusing existing data to provide almost the same benefit at much less cost need not be rigorously considered.

[128] However, the EPA official in charge of the TRI program responds that the existence of TRI has prevented EPA from issuing a number of new data collection requests even if it has not led to the elimination of many old requirements. The programs in question elected to rely on TRI data instead. *See* Interview with Susan Hazen, *supra* note 100.

This Part suggests organizing these disclosure needs along a "disclosure spectrum." The disclosure spectrum makes clear that an agency cannot perform even the seemingly mundane task of data management without a clear conception of its mission and the goals it is authorized to pursue.

a. The Disclosure Spectrum and its Dynamics

Legislatures create regulatory agencies to address social problems through collective action, such as regulation, on the assumption that individual or voluntary actions will not address those problems satisfactorily. Such agencies must decide what goals to pursue, must measure their progress in addressing them, must issue and justify regulations, and must enforce the regulations they have issued. The agency will use and generate information to perform each of these tasks. At each level, however, both the types of information required and the uses that will be made of it will be different.

Sometimes agencies compile and issue information on social costs that could suggest a change in their basic goals and priorities.[129] However, the very magnitude of those changes will often make voluntary or short-term action an unlikely response. Indeed, new governmental institutions and mechanisms of action will often be needed to address the new problem. Because general information is usually adequate to discuss such general reforms, the debate on such new goals and institutions can and should proceed with general or aggregated information without breaking down the consequences for each particular potentially affected entity.

Once goals and mechanisms to achieve them have been established, agencies can collect and issue more specific information on their progress toward them. Despite our regulatory system's lack of emphasis on goals, EPA does compile and issue a yearly report on attainment of air and water quality standards.[130] The likelihood that such reports will lead to short-term collective action will be greater than when fundamental change is suggested, since a regulatory framework aimed at achieving those standards will already exist.

The next stage will be regulation itself. Although the issuance of regulations is not per se information disclosure, today the establishment of any significant regulation is always supported by extensive public disclosure of data and analysis.[131] Here, the information will be directly tied

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[129] EPA did this in the late 1980s when it issued a report reflecting the consensus of EPA senior staff that the less important environmental problems generally received more attention from the regulatory system than the more important problems. *See* EPA, UNFINISHED BUSINESS: A COMPARATIVE ASSESSMENT OF ENVIRONMENTAL PROBLEMS (1987). *See also* Pildes & Sunstein, *supra* note 60, at 18. This was also the effect of the Surgeon General's Report in the 1950s linking smoking and lung cancer.

[130] *See* CAA § 312, 42 U.S.C. § 7612 (1994); CWA § 516, 33 U.S.C. § 1375 (1994).

[131] *See* Thomas O. McGarity, *Some Thoughts on "Deossifying" the Rulemaking Process*, 41 DUKE L.J. 1385, 1412–19 (1992).

to the relevant characteristics of the industry or area being regulated. Any broader implications will need to be extracted from it.

Finally, information showing that an individual entity violates the law will have immediate consequences for that entity, but few self-evident implications beyond that.

We can tie together these various types of information needs by arranging them on a disclosure spectrum, along which the magnitude of the collective action involved is inversely correlated to the ease of taking it. This spread along a spectrum distinguishes such disclosure requirements from regulatory commands, which generally divide cleanly into what is permitted and what is forbidden. The further up the disclosure spectrum we move, the more general the information demands become; the further down it we move, the more we need information targeted at a particular regulated entity.

The information gathered for some function low on the disclosure spectrum—like enforcement or regulation—will rarely be confined by its nature to that downspectrum use. Detailed downspectrum information collected to write or enforce a regulation may also contain a more general message that can inform debate on goals or measure progress toward goals already established. Information developed for a general debate is less likely to be applicable to some downspectrum regulatory function, since it will lack the particularity needed to justify controls on a particular set of sources, or a judgment that a particular entity is violating the law. However, regulatory agencies have a comparative advantage in compiling and disclosing precisely these detailed stores of downspectrum information.

Labeling of individual products to guide consumer choice and regulatory enforcement should be entered on the regulation portion of the disclosure spectrum. The rule or legislation that establishes such a program will determine whether to require a label on a particular product or activity,[132] the exact nature of the caution to be conveyed,[133] and the ex-

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[132] Even when such a label simply displays information of clear and direct relevance to the consumer, such as the energy efficiency of an appliance, the government's decision to require the display of that information rather than something else represents an implicit decision to encourage the purchase of energy-efficient appliances. Under recent proposals aimed more directly at enlisting consumer ideological preferences, products could be labeled as "environmentally friendly" if they were produced in an environmentally friendly manner, even if the product itself did not differ from its competitors in any material way. Such programs will present difficult problems of line drawing and product characterization similar to those discussed in the body of the Article. What basis of comparison does the labeler select in deciding whether one product is more environmentally friendly than another? For example, is a label on the "greenest" vacuum cleaner misleading if it does not mention that a broom or a carpet sweeper would be far more environmentally benign? *See generally* Grodsky, *supra* note 37, at 162. For a discussion of analogous problems in tire safety labeling, see BREYER, *supra* note 39.

[133] Although the ostensible purpose of the label may be to assist public choice, only a little information can be conveyed in a short label. Those space limits, and the fact that consumers will know that the wording of the label reflects a government decision ostensi-

tent of compliance costs to be imposed on the regulated. Thereafter, the actual operation of the program will increase the agency's information base and change its information management problems to the same extent and in the same manner as the operation of a regulatory program, and no further.[134] Moreover, labeling programs are largely confined to giving individuals the information they need to make informed private decisions. Any debates on social policy that are triggered will likely address the somewhat narrow question of whether the labeling regulation should be amended to better achieve this purpose.[135]

Social cost disclosure programs map less clearly onto a single spectrum point. They often resemble substantive control requirements (and labeling) in that they are established by rulemaking, impose significant compliance costs, and convey a restricted message. However, agencies can (and are beginning to) operate such programs without a regulatory underpinning and without imposing direct costs on the regulated.[136] All such programs will also tend to evolve toward greater nuance and complexity in the message they convey. Such programs can perform several spectrum functions simultaneously, serving as quasi-regulatory incentives to change conduct, as measures of progress, and as spurs for a general debate on goals.

Many problems will move along the disclosure spectrum over time. An issue can move from being an item of public debate, through legislation, to the establishment of regulations, and then to their enforcement.[137]

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bly for their benefit, makes the exact formulation of the words used of particular importance. *See* W. KIP VISCUSI, PRODUCT-RISK LABELING: A FEDERAL RESPONSIBILITY 9, 25, 61(1993) (arguing that the "hazard warning" required by Proposition 65 is far too alarmist for the risks involved). Of course, those who favored even stricter action against the labeled product might favor such rhetorical overstatement to reduce its consumption. *See supra* note 45 (discussing Proposition 65).

[134] The labeling of individual products will not itself return any new information to the agency, just as the installation of substantive controls on pollution does not by itself return such information. Once the labeling program has taken effect, its operation can be evaluated and its consequences assessed. That is equally true for more traditional regulatory control programs. In both cases the evaluation would take place in the same manner—through an assessment from outside the program of its successes and failures.

[135] The disclosure spectrum exists in part because the difficulty of creating the collective action mechanisms to address new social costs increases in proportion to the difference between those new social costs and social costs that are being regulated already. That, in turn, affects the type of information needed for public debate on those new social costs. Because the mechanism for action—the individuals being addressed—already exists when disclosure programs aim at individual choice, the logic of the disclosure spectrum does not apply as strongly to such programs as it does for programs applied to social costs. So, for example, the Surgeon General's report on smoking could lead to a reduction in smoking even without the creation of any mechanisms to implement it. However, in any case where the benefits of an action do not accrue almost entirely to the individual involved (as they do in the case of smoking), an appeal for individual action by itself will not maximize social benefits. Collective action mechanisms will be needed, and the logic of the disclosure spectrum will continue to apply.

[136] *See infra* text accompanying notes 175–182.

[137] For example, at present the environmental effects and dangers of "endocrine dis-

Similarly, problems not addressed by social cost disclosure can also occupy more than one spectrum point simultaneously. Enforcement of regulations can co-exist with public debate on whether the program that authorizes them should be reformed or abolished.

Social cost disclosure programs, in particular, will evolve in this manner for two reasons. First, they will move under the pressures toward fuller and more objective disclosure described earlier. Second, the substantive reaction to a social cost disclosure program should change its shape more quickly and directly than regulation changes.

A traditional pollution control program must generally continue in legal effect indefinitely, though perhaps in altered form, in order to ensure permanence to the original reductions. However, the original justification for a social cost disclosure program might change after it has operated for a few years. Perhaps the original disclosure will lead to compelled or voluntary reductions in releases. Alternatively, the disclosure program may fail the test of the marketplace of ideas and produce no effect.

In the first case, the disclosure program may need to shift slightly downspectrum towards the compliance assurance model in order to support the new regulatory commands and verify the claimed reductions.[138] Verification may be needed even if the social cost disclosure program leads to voluntary action that forestalls any formal regulation. In the second case, it should arguably either go out of existence, or shift upspectrum into a more general program that provides material for general debate on social goals.[139]

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rupters" are addressed solely by a research program. At some point, should the evidence prove troublesome, but not conclusive, the research program might evolve into a release disclosure program under which releasers of these chemicals would have to report with much greater particularity on their releases, but would not be subject to any regulatory requirements. Should the evidence get even more solid, mandatory regulation might apply.

[138] In one particular instance of such evolution, a release disclosure program might lay the foundation for the adoption of a market-based approach to release reduction. Traditional regulations generally specify a short-term "not to exceed" limit for environmental releases. Monitoring to enforce such a standard need only be precise enough to determine whether the source is under or over the prescribed limit. Such a regulatory program can function without either having or generating accurate information on total releases.

Most economic incentive systems, by contrast, impose limits on the total quantity of releases. Quantifying emissions in this manner requires measurement of exact release rates over time. For that reason, a market-based system will directly or indirectly generate more accurate information on total releases than a traditional regulatory system. Conversely, accurate information on total releases paves the way for adoption of a market-based approach by establishing one of the foundations it will need.

[139] Any social cost disclosure program will probably have its biggest impact in the first few years of its existence. That might justify relaxing the requirements of that program over time as their cost-effectiveness waned, unless technical advances produced a corresponding reduction in the cost of providing the data. Moreover, as a topic demonstrably wanes in public priority, information supplied regarding it would take public attention away from issues that need that attention more. Accordingly, even where cost reductions justify keeping the original reporting requirements in effect, over time we can still expect the agency to publicize the data less intensively, or to issue it in a more aggregated up-

b. The Disclosure Spectrum and Agency Goals

An agency that successfully tailored its disclosure efforts to the position their subject occupied on the disclosure spectrum would need both a full command of the information contained in its various databases and the ability to vary its presentation with circumstances. It would also need a sense of the strength of its mandate to address those disclosure subjects. A weak mandate might only support calling the issue to public attention through use of existing information. A stronger mandate might support information gathering or even a social cost disclosure program. In the strongest case, the agency would move directly to regulation.

The necessary connection between information disclosure and the goals that an agency is authorized to pursue means that agency mastery of the disclosure spectrum would have benefits beyond making information management possible. More focused attention to defining agency goals and better documentation of their achievement would increase the ability of the agency to resist interest group pressure under a public interest model. In a broader civic republican perspective, the essence of self-government can be found in a continuing dialogue among the various segments of the body politic in order to generate a shared concept of the common good.[140] We impoverish that dialogue if we allow such central institutions as our regulatory agencies to withdraw from it. To some extent, agency participation in that dialogue is implicit in the very act of regulation or disclosure. An agency that conducts a rulemaking will help shape public perceptions by the topics it decides to address, the way it presents the issues involved, the groups it listens to, and the arguments it finds persuasive.[141] Disclosure of information more clearly marks out an area where the discloser thinks public debate should take place and the factors that debate should consider.[142] Indeed, the potential for social cost disclosure programs to power dialogue represents what is really new about them.

A general policy of active disclosure will leave unanswered specific questions of whether a particular topic area or a particular method of presenting information falls within the agency's mandate to inform the pub-

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spectrum form.

[140] *See* Cass R. Sunstein, *Beyond the Republican Revival*, 97 YALE L.J. 1539, 1548–49, 154 (1988). *See also* Seidenfeld, *supra* note 5, at 1529–30.

[141] Reich writes,

> Regardless even of his subjective intention to act as a neutral medium through which public preferences are expressed in the absence of direct voting, the public administrator will in fact shape public values. His and our failure to acknowledge this important role leads to decisions that may not reflect what the public would have chosen had the public actually *deliberated* about them.

Reich, *supra* note 63, at 1631.

[142] *See id.* at 1626–27.

lic. But by specifically addressing such questions, an agency can learn the answer by experience. By asserting and defending the right to address a given topic systematically, organizationally, and objectively, the agency acts in a softer and less threatening manner than if it were to propose legally binding commands. The extent to which that information disclosure claim is accepted or rejected will help determine whether it is a proper topic for regulatory or legislative action. In other words, information disclosure programs present an agency with the chance to speak to the merits and overcome special interest pressures that more traditional regulatory programs do not provide.

V. Social Cost Disclosure Programs and the Burden of Proof in the Social Dialogue

This Article has argued that social cost disclosure programs based on information that regulated entities provide will need to be supplemented by other information. It has also described the benefits that might follow if the agency itself performed that task. But why should the administering agency necessarily receive this assignment? Turning once more to TRI as an example, why should EPA be responsible for filling the program's gaps? The response that society has already tasked EPA with addressing analogous problems by regulation and that EPA already possesses some of the information that would be disclosed may create some presumption in EPA's favor. But this is hardly compelling.

We can respond more analytically by asking which of our social institutions can most efficiently fill these gaps, and which will find its performance most improved by being required to fill them.[143] However, before we can embark on this analysis, we must first ask where and how agencies should be improving their capacity to provide socially useful information. To answer that question, we begin at the other end, by exploring the degree to which the task of providing more comprehensive information should be assigned to the sources themselves.

Both TRI and California's Proposition 65 demonstrate that the requirement to disclose unfavorable data about one's conduct provides a powerful motive to either correct that conduct, or to take the steps necessary to become free from the disclosure obligation.[144] Requiring sources to disclose their releases is a method of requiring them to internalize, if only in the realm of information, the external costs that these releases

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[143] In a similar manner, the burden of producing information in regulatory proceedings is often assigned to the party most able to produce it on the theory that this will produce the most accurate data at the least cost. *See* John W. Strong, McCormick on Evidence § 337 (5th ed. 1999).

[144] It is for that reason that TRI listing has led to dramatic release reductions, while Proposition 65 has led to unprecedented voluntary development of information on the risk characteristics of covered chemicals. *See supra* notes 43 and 47.

may impose on society. Such required admissions against their interest also give any high release estimate instant credibility. Both factors increase the pressure on reporting institutions to reduce releases.[145]

These same benefits of private disclosure could extend to information other than chemical releases. ED has argued that many potentially dangerous chemicals produced in high volume lack basic hazard information. ED has suggested that the companies that manufacture or import such chemicals should be required to publicly disclose that information. That in turn, ED argues, would create an incentive for such companies to provide the missing information.[146] This campaign has resulted in an agreement between EPA and the companies involved for voluntary chemical testing.[147] ED attributes the willingness of the industry to collaborate to their concern about adverse TRI-type publicity if they did not.[148]

However, only an obligation to disclose relatively simple facts can effectively be forced on the polluters in this manner. Making companies disclose the quantities of toxic or presumptively toxic materials they release fits easily within that logic. Similarly, ED's suggestion to require companies to develop hazard information on chemicals assumes that the types of data needed for each chemical can be readily identified and that the data can be generated through accepted procedures by any competent researcher.[149]

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[145] EPA's TRI program manager believes that the dramatic reductions in releases from TRI facilities can be attributed at least in part to the inability of these facilities to contest the validity of data that they themselves reported. She also believes that facility "ownership" of their TRI reports has led those facilities to substantially upgrade the statistical quality of their TRI reports over time, even though they have no legal obligation to do so. *See* Interview with Susan Hazen, *supra* note 100.

[146] ED contends that at least 71% of the approximately 3000 chemicals manufactured in, or imported into, the United States in quantities greater than one million pounds per year lack a full set of basic hazard assessment information. ED reached that figure by concluding, based on sampling, that 71% of such chemicals that are already listed for regulation or evaluation under major environmental laws lack such information. 51% of such chemicals that are listed in TRI also lack such information. *See* ENVIRONMENTAL DEFENSE FUND, *supra* note 46, at 15.

[147] *See* Chemical Right-to-Know Initiative, 64 Fed. Reg. 64,036 (Nov. 22, 1999).

[148] The ability of ED to

> use the internet to quickly spotlight top polluters based on TRI data has probably had its greatest impact on a related Environmental Defense/EPA campaign related to getting companies to commit to conduct basic toxicity testing on high production volume chemicals. In this case, the threat of potential stigmatization for poor environmental performance in an area essentially unrelated to TRI changed the entire bargaining dynamic. Where the chemical industry had previously obstructed regulatory efforts to impose . . . testing requirements, it suddenly became very concerned that its entire "responsible care" campaign would be undercut by a disclosure effort that could demonstrate the industry lacked the data to demonstrate the safety of its chemical management practices.

E-mail from William S. Pease, *supra* note 100.

[149] The ED report asserts that an international consensus has already developed a model of what should be included in preliminary screening tests for high-volume chemi-

Other TRI tasks, however, are not simple. They include integrating data on releases of NAAQS pollutants with TRI (including emissions from small sources) and characterizing the risks of different TRI releases. In each of these cases burden of proof arguments and arguments based on incentives for better performance support assigning the data characterization task to EPA.

A. Integrating NAAQS Pollutants with TRI

Since EPA already collects comprehensive data on emissions of NAAQS pollutants, compelling efficiency arguments support requiring the agency to integrate the public disclosure of this information with disclosure of TRI releases. The most obvious objection—that the agency lacks the will or the management capacity to make such multiple use of its databases—fails the second test for assigning such burdens. If EPA lacks the capacity to perform that socially useful function, then the TRI precedent tells us that one potent remedy might be to assign EPA responsibility that would force it to develop such a capacity.

B. Including Small Source Releases in TRI

EPA is best situated to address the inclusion of small source releases. Because individual TRI reporting is impractical for small sources, the tools for projecting small source releases from limited data needs to be developed and applied. No private institution in our society possesses this information or a strong incentive to create it, while EPA already undertakes such projections where they are relevant to its regulatory tasks.[150] In addition, most private institutions would have a motive to distort such projections. Large sources would be tempted to overestimate the contribution of small sources, and small sources would be tempted to underestimate it. The task of making such projections is complex, which means that the accuracy of conclusions is debatable. Hence, enforcement liability would not deter the influence of self-interest on conclusions as effectively as it does for reporting of release quantities by large sources.

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cals. The only thing currently missing is the chemical industry's commitment to act. *See* ENVIRONMENTAL DEFENSE FUND, *supra* note 46, at 3.

The report also states that this minimum screening information set "generally does *not* include enough data to conduct a comprehensive health risk assessment. It is only a starting point, and it is no substitute for the risk assessment that is called for under most major toxic chemical control laws." *Id.* at 13.

[150] For example, EPA many years ago developed the general model for projecting the air emissions from auto traffic, and has refined it ever since. EPA's Web site gives a history of the MOBILE model since 1978, the current model, MOBILE 5, and reports on the development of its two succeeding versions, MOBILE 6 and MOBILE 7. *See* EPA, *EPA/OTAQ (OMS) Vehicle & Engine Emission Modeling Software (MOBILE5, PART5 . . .), at* http://www.epa.gov/oms/models.htm (last visited Nov. 30, 2000) (on file with the *Harvard Environmental Law Review*).

For all these reasons, EPA should be required to sponsor creation of the tools for predicting releases from small sources, either generally or in particular areas.

EPA could be forced to take on these responsibilities by legislation forbidding the agency to release TRI data from major sources unless it was accompanied by an estimate of the releases from smaller, non-TRI sources. This would not necessarily require the agency to apply the tools itself. EPA might undertake its own projections only to the extent that no other acceptable intermediate institution existed to perform the job, and retire from the field as soon as a successor was ready. This default approach reflects the pattern followed for many years in water pollution and hazardous waste regulation, in which the federal government has run the program only until the states are ready to take it over.[151] With the prospect of federally promulgated release estimates, intermediate institutions, like trade associations or local governments, might prefer to assume the responsibility of providing such estimates on behalf of their members or residents. The assumption of the reporting obligation by these entities might create both ownership of the data and pressure to correct any problems it discloses, just as TRI has created incentives for large sources to reduce the emissions they report.[152] In that manner, extension of TRI reporting to small sources might create intermediate institutions able to deal with the vexing problem of the substantive control of such sources.[153]

C. Characterizing the Risk of TRI Releases

EPA has spent more time and effort than any other single American institution on compiling and reviewing assessments of the health and environmental effects of chemicals in the environment. Over the years, EPA has developed an entire mechanism for combining scientific knowledge with policy considerations and using the combination to characterize the risks of chemicals in support of regulatory decisions.[154] EPA is also the

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[151] *See* CWA § 402, 33 U.S.C. § 1342 (1994); Solid Waste Disposal Act § 3006, 42 U.S.C. § 6926 (1994).

[152] The incentive would probably not be as strong for such intermediate reporters as for major sources because the reporting entity would have far less responsibility for the releases in the first case than in the second. By definition, no single entity would be responsible for the aggregate releases of many small sources. However, such reporting would still make voluntary action by the covered group more likely by making the prospect of new regulatory controls more immediate if releases were not reduced.

[153] As noted above, such sources make up an increasing and relatively poorly controlled proportion of the inventory of environmental releases. *See supra* note 53.

[154] For general descriptions, *see* Hornstein, *supra* note 62, and Wagner, *supra* note 85. Science cannot answer regulatory questions, not just because those questions involve value choices, but also because scientific evaluations themselves almost always rest on imperfect data. The methods used to project from that data to the relevant conclusion will always contain an element of policy judgment. The classic example involves deciding what

only central source of information on the environmental impacts of those chemicals. Under burden of proof analysis, EPA should therefore receive the responsibility for characterizing the health and environmental effects of TRI chemicals,[155] together with their impacts on air and water quality, and for comparing those impacts to the impacts of other pollutants. EPA could fulfill this obligation either by its own direct action, or by sponsoring the development of the tools that other actors could use to do this.[156]

Individual, simple, and readily enforceable elements of this task might be assigned to private entities, as ED has suggested. Most characterizations, however, will require complex evaluations—often of data concerning a particular locality—where private entities will have clear incentives to yield to self-interest.[157] The same arguments of appropriate social role that support assigning the characterization of small sources to EPA also support assigning EPA the responsibility for characterizing environmental impacts.

This obligation might lead to the overall improvement of agency cost-benefit analysis. Agencies have been much criticized for not making clear the policy judgments and uncertainties hidden in such analyses.[158]

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significance to attach to test results showing that high levels of a chemical cause cancer in rats, when there is no direct evidence of effects on humans and human exposure levels are low. *See* Wagner, *supra* note 85, at 1625–27.

[155] The approach suggested here would not require EPA to characterize all elements of TRI releases. For example, it would not support requiring EPA to address the costs or technical feasibility of controlling TRI chemicals. Although one might argue that generating such information lies within EPA's mandate, it does not lie as close to the agency's basic mission as the requirement to characterize the dangers and harms of environmental pollutants. While EPA is clearly the best repository of information on those dangers and harms, individual industries and companies are better placed to address the possible ways in which their emissions might be controlled. Here too, exposing those projections to public review would work to increase their accuracy.

[156] Such an approach would also be economically efficient. Because the effects of a given pollutant are generally the same everywhere, it makes sense for knowledge concerning that pollutant's effects to be generated or assembled at one central point and made openly available, as opposed to requiring each local jurisdiction to generate that knowledge itself. *See* Esty, *supra* note 73, at 614–15.

[157] According to an expert on Proposition 65 employed by ED:

> A number of limitations are evident in the communication process established by Proposition 65. For example, the companies responsible for exposures issue the warnings. Those companies may not have credibility with the public. Because they have clear incentives to minimize health risk information, these companies usually issue generic warnings that provide no information on the magnitude of the risk or on what preventive responses the public could take. In addition, the companies usually choose the channel of communication . . . that most strictly limits the extent of the disclosure.

William S. Pease, *Chemical Hazards and the Public's Right to Know*, ENVIRONMENT, December 1991, at 12, 19 (footnote omitted).

[158] *See* Hornstein, *supra* note 62, at 584–627; Wagner, *supra* note 85, at 1628–50; Lisa Heinzerling, *Regulatory Costs of Mythic Proportions*, 107 YALE L.J. 1981, 2068–69 (1998).

Yet even the fiercest critics recognize the potential value of cost-benefit analysis once its limitations have been exposed and evaluated, and often call for increased public scrutiny to accomplish that result.[159] Requiring EPA to disclose its detailed evaluation of chemical impacts as part of its TRI reporting would accept those suggestions and expose some key elements of any such analysis to permanent and institutionalized scrutiny.

D. Summary

In discharging the new functions described above, EPA might provoke public skepticism about the accuracy of its release or environmental impact characterizations. But if these new functions are properly assigned to EPA, the prospect of initial skepticism is not a valid objection to that assignment. Indeed, TRI at present falls far short of its potential precisely because it effectively dispenses EPA from any really challenging role in making it work.

VI. The Impact of Social Cost Disclosure on Substantive Regulation

In theory, agency success in its social cost disclosure efforts should lead to changes in the substantive regulatory system by triggering a public dialogue about the nature of the problems that the agency is authorized to address. Since information and public discussion are the raw materials from which legislative and regulatory goals are made, such a dialogue can serve as a stage setting, or even a dress-rehearsal, for changes in the regulatory system itself.

How then might the systematic use of social cost disclosure affect the scope of federal regulation? And how might it change the manner in which those regulations are applied, and the goals they seek to achieve? Each of these question will be addressed in turn, once again using TRI as an example. The issues that TRI makes publicly visible have the potential to clarify some of the most important current questions of substantive environmental and regulatory policy.

A. TRI and the Scope of Federal Regulation

To date, the main detectable TRI impact has been to increase the amount of federal regulation. TRI reports showing large uncontrolled air releases of TRI chemicals provided much ammunition for proponents of

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[159] *See* Hornstein, *supra* note 62, at 632–33 ("The better answer to the question 'how safe is safe?' may be the improved question: 'how good is the social dialogue on safety?'"). *See also* Heinzerling, *supra* note 158, at 2068–70 (admitting the useful role of quantification in regulatory decision-making as long as its limitations are appreciated and simple tables are not used to summarize complex and multi-factored problems).

the new, tighter standards for "hazardous air pollutant" control that Congress enacted in 1990.[160]

In the long run, however, TRI and other social cost disclosure programs should reduce the extent of federal regulation. Congress added TRI to a regulatory system that imposed control burdens on essentially all air and water pollutants and solid wastes released by major sources and on the flow of toxic chemicals. Many of those targeted releases cause all or almost all their damage within the boundaries of their local community. To the extent that TRI succeeds in empowering communities to reach informed decisions about regulation of such releases, it weakens the arguments for any federal trumping or duplicating that decision by national controls. Even if we concede some national interest in declining national releases of TRI chemicals, TRI disclosures still weaken the case for federal regulation whenever they lead to release reductions that would not have happened otherwise. Such reductions reduce the marginal value of the federal regulations that would otherwise have been needed to achieve them, and thus raise the question of whether the federal interest is strong enough to support a rule whose benefits have been reduced.[161]

TRI therefore provides new material and a more concrete setting for the debate on the proper role of federal environmental regulation that has already begun. Such regulation is sometimes justified as reducing transaction costs by replacing a multitude of local decisions by a single national command. But the provision of TRI data reduces the transaction costs of local regulation by a different route. Federal regulation is often supported as a precautionary step in the face of uncertain data—but that simply begs the question of which level of government should make the precautionary decision. National controls are claimed necessary to avoid a "race to the bottom" as states compete in relaxing pollution controls to attract business. But recent studies have cogently questioned the theoretical and empirical bases of this claim when states have the data to make their own decisions.[162] Where pollution has spill-over effects beyond the local community, exclusive reliance on local decisions cannot be justified. Using this argument, however, requires distinctions between

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[160] *See* 136 CONG. REC. 36,057 (1990) (statement of Sen. Durenberger). *See also* Karkkainen, *supra* note 49 (manuscript at 124).

[161] More specifically, the federal regulations will become completely superfluous if TRI reductions go beyond their requirements in every particular instance. The only argument for retaining them will then become the need for insurance against a change of heart at the local level. If TRI reductions fall short of the federal command to some extent, they still will reduce the relative value of that federal rule- -thus raising the question of whether the original justification still is good enough to support a regulation whose benefits now have become much smaller.

[162] *See* Richard L. Revesz, *Rehabilitating Interstate Competition: Rethinking the "Race-to-the-Bottom" Rationale for Federal Environmental Regulation*, 67 N.Y.U. L. REV. 1210 (1992).

those pollutants that do generate spillovers and those that dissipate or degrade quickly and do not.[163]

Such deregulatory conclusions have not been widely drawn from TRI data, in part, because the purpose of TRI has been more regulatory than informative. These conclusions would be increasingly likely to arise if TRI became more objective and the presentation of its data more nuanced by following the evolutionary track described above.

B. TRI and the Demise of "One Size Fits All" Regulation

A reduction in federal regulation of TRI chemicals would be consistent with continued declines in TRI releases to the extent that voluntary controls and state regulation filled the gaps instead. Such a disclosure approach could lead to gains in the efficiency of state and local control programs that could more than compensate for any direct loss in release reduction from the absence of federal controls.

The absence of a national prescription, combined with the ability to compare reductions in TRI releases over time in different geographic areas, would give states and local communities the freedom to develop different approaches to TRI release reduction and the ability to compare the results. This, in turn, would establish a market-like system in which the most effective approaches could be quickly identified and widely adopted. Much current commentary celebrates the virtues of a decentralized, experimental approach to regulatory policy.[164] The natural operations of social cost disclosure programs like TRI would help make such approaches a reality.

Greater reliance on information disclosure could also increase the flexibility of federal regulation. In the commercial world, products gen-

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[163] *See* Esty, *supra* note 73, at 579.

[164] The most ambitious of these efforts outlines an approach called "deliberative polyarchy," under which the federal government would largely withdraw from issuing direct regulatory commands and would instead define broad goals for state and local governments to pursue. The federal government would require documentation of the success and failure of those efforts, and would arrange for the exchange of results among the participants. The net effect, the authors hope, would be market-like competition in which the successful experiments would become increasingly adopted. *See* Dorf & Sabel, *supra* note 49.

This Article contends that a social cost disclosure program can function as the natural prelude to such a "polyarchic" devolution of substantive authority by developing the tools for both defining a national goal and measuring the success of states or other "polyarchic" actors in pursuing it. So, for example, a truly comprehensive and informative TRI could be used to determine the success of states in reducing the exposure of their citizens to hazardous substances.

Indeed, the examples of practical areas that the Dorf & Sabel article give for such polyarchic devolution could almost uniformly serve as areas that might be well adapted to social cost disclosure programs. Examples include TRI itself, *see id.* at 375–79, improving nuclear power plant operations by systematic analysis of safety incidents, *see id.* at 371–73, and measures to improve education and highway safety, *see id.* at 342, 431–32, 434.

erally are test marketed before any decision on full production, and are manufactured to provide potential customers a range of choices.[165] However, regulatory programs generally avoid pilot projects even when they would fit the nature of the problem well,[166] and are famously inflexible to local circumstances. Although EPA has announced a new willingness to allow individual sources to experiment with individualized regulatory approaches, the results to date have been disappointing.[167]

A fully developed information disclosure system would assist the development of such approaches by giving the administering agency a greater ability to assess the results of individual efforts, and thus to determine whether they present improvements. To the extent the agency had confidence in its ability to undertake these assessments, it would be more likely to authorize such experiments.

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[165] According to one survey, best-performing companies "are experimenters supreme. Instead of allowing 250 engineers and marketers to work on a new product in isolation for 15 months, they form bands of 5 to 25 and test ideas out on a customer, often with inexpensive prototypes, within a matter of weeks." THOMAS J. PETERS & ROBERT H. WATERMAN, JR., IN SEARCH OF EXCELLENCE 14 (1982). According to another survey:

> Visionary companies make some of their best moves by experimentation, trial and error, opportunism, and—quite literally—accident. What looks *in retrospect* like brilliant foresight and preplanning was often the result of "Lets just try a lot of stuff and keep what works."

JAMES C. COLLINS & JERRY I. PORRAS, BUILT TO LAST 9 (1994).

[166] To pick the most prominent example, the National Highway Traffic Safety Administration during the 1970s rejected a suggestion by General Motors that air bags be test-marketed on a large sample of vehicles to see how they worked prior to any decision regarding full production, even though by accepting that suggestion the agency would have broken the united front that the industry was presenting against the air bag. *See* TERRY L. MASHAW & DAVID L. HARFST, THE STRUGGLE FOR AUTO SAFETY 206, 250–51 (1990).

[167] The most prominent of these efforts is "Project XL," which allows regulated entities to submit environmental control plans that do not conform to the standard regulatory requirements, so long as it achieves "superior" environmental performance and the results are documented. *See* Regulatory Reinvention (XL) Pilot Projects, 60 Fed. Reg. 27,282 (May 23, 1995). According to one study,

> While the EPA set an initial goal of fifty projects, as of the end of 1997, only seven XL projects had been finally approved; three were listed by the EPA as "facilitated," but not yet final; nine had reached the intermediate "development" stage; and thirty XL proposals had been rejected or withdrawn for a variety of reasons.

Dorf & Sabel, *supra* note 49, at 384 (footnotes omitted).

That failure, according to Dorf & Sabel, has been caused in part by the lack of any legal authority for the program. Lack of legal authority has led to the slogan, "If it isn't illegal, it isn't XL." The insistence by EPA and environmental groups on a high degree of "superior" performance before a project will be approved has also contributed. Dorf & Sabel also place major blame on the lack of any defined standards for approving these projects, which makes the consideration of each individual proposal process-heavy and contentious. *See id.* at 384–85.

C. TRI and the Goals of Regulation

A social cost disclosure program will inevitably generate pressures for a more comprehensive and nuanced discussion of the problems it addresses. But since a "problem" is by definition the potential target of regulatory action, a more comprehensive and nuanced description of a problem would also suggest the need for a more comprehensive and nuanced design of the substantive regulatory programs that address it. The dialogic nature of social cost disclosure programs can help directly to overcome the fragmentation and goal-free nature of the regulatory system described earlier.[168]

For example, more sophisticated regulations might aim at reducing the human health risk from all pollution releases, rather than simply reducing the quantity of emissions from major sources. A fully developed TRI could remove one critical obstacle to the success of this often-recommended approach. To succeed, such a program would need a way to measure success or failure in reducing such risks. A program for disclosure of aggregate pollution risks could provide such measuring mechanisms. Moreover, it could do this before the substantive regulatory program even existed, and without the added burden of attaching immediate regulatory consequences to the measuring mechanisms.

VII. Paths to Reform

A. The Reform Record to Date

The pressures described above have begun to affect TRI administration. EPA has inserted numerous qualitative disclaimers in its more recent TRI reports cautioning the reader that TRI does not cover all chemicals or all releases and that a quantitative "amounts released" report does not necessarily reflect risk.[169] EPA has also provided some estimate of TRI chemical toxicity and environmental fate.[170] One report even includes a brief and unpublicized discussion showing how small TRI releases look in comparison to releases of organic air pollutants from

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[168] The authors of a landmark study on government reform devote much of their discussion to the central need to define the goals that a government agency is trying to accomplish as a necessary prerequisite to efforts that are either efficient or effective. *See* Osborne & Gaebler, *supra* note 91, at 108–65.

[169] *See* EPA, 1996 Toxics Release Inventory: Public Data Release—Ten Years of Right-to-Know 9–10, 19 (1998) [hereinafter "1996 TRI Public Data Release"]; EPA, 1997 Toxics Release Inventory 1-6 to 1-7 (1999) [hereinafter "1997 TRI Public Data Release"].

[170] *See* 1996 TRI Public Data Release, *supra* note 169, at 33–49; 1997 TRI Public Data Release, *supra* note 169, at 2-9 to 2-11.

small, non-TRI sources[171] and releases from fertilizer and pesticide use.[172] Finally, EPA has promulgated lower reporting thresholds for the first time for a defined class of chemicals.[173] However, despite intense pressure from its own advisory committees,[174] EPA has not made risk assessment an affirmative part of TRI. Nor has EPA moved toward the quantitative inclusion of releases from small sources or releases of NAAQS pollutants.

This equivocal history does not fully reflect the influences moving both EPA and the regulatory system in the directions already described. Other social cost disclosure programs that have grown up since TRI have provided a more objective view of data than TRI and have involved the agency more directly in its presentation. The factors discussed above therefore appear to be operating even more strongly on programs that took effect since TRI was established than on TRI itself.

For instance, Congress in 1996 required public water supply systems to report annually to their customers the extent of contamination in the water.[175] The law requires the report to explain both the potential contamination of bottled water,[176] and that the presence of contaminants in

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[171] *See* 1996 TRI PUBLIC DATA RELEASE, *supra* note 169, at 52 (explaining that most TRI chemicals are classified as "volatile organic compounds" ("VOC"), and that EPA's statistics on air quality trends showed total national 1996 VOC emissions of 38.2 billion pounds, while total VOC emissions reported to TRI were 2.6% of that total).

[172] *See id.* at 50–52. The report states that "TRI reported releases [of nitrogen compounds] make up approximately 1.8% of the total amount of nitrogen [and 0.5% of the total amount of phosphate] applied as fertilizer in the United States during 1996." *Id.* at 50. It also states that about a billion pounds of chemicals manufactured specifically for use as pesticides were used in the United States in 1995, *see id.* at 51, almost none of which was reported on TRI. *See id.* at 52. By comparison, total "releases" of all TRI chemicals in 1996 amounted to 2.43 billion pounds. *See id.* at 91.

The 1997 Report watered down the statements summarized in this and the preceding footnote into a generic and innocuous caution that TRI does not cover all chemicals and source categories. *See* 1997 TRI PUBLIC DATA RELEASE, *supra* note 169, at 1–6.

[173] The rule drastically lowers reporting thresholds for PBT chemicals. However, since it only covers sources that are already in TRI for some other reason and not all sources of these chemicals, it will be unlikely to provide an accurate picture of releases of these chemicals. *See* Persistent Bioaccumulative Toxic (PBT) Chemicals; Lowering of Reporting Thresholds for Certain PBT Chemicals; Addition of Certain PBT Chemicals; Amendments to Proposed Addition of a Dioxin and Dioxin-Like Compounds Category; Toxic Chemical Release Reporting; Community Right-to-Know, 64 Fed. Reg. 688 (proposed Jan. 5, 1999) (to be codified at 40 C.F.R. pt. 372).

[174] *See BNA Advisory Panel Will Soon Recommend Improvements to Toxic Release Inventory*, 29 Env't. Rep. (BNA) No. 19, at 930, 931 (Sept. 4, 1998).

[175] *See* Safe Drinking Water Act ("SDWA"), 42 U.S.C. § 300g-3(c) (1994 & Supp. II 1996). Although this requirement might be viewed as simply a label on the water, it also has strong elements of social cost disclosure in that many readers will likely be motivated to pressure the water system to change its conduct rather than to change their water supply. EPA's implementing regulation makes this explicit by saying that the required reports "can promote dialogue between consumers and their drinking water utilities, and can encourage consumers to become more involved in decisions which may affect their health." National Primary Drinking Water Regulations: Consumer Confidence Reports, 63 Fed. Reg. 44,512, 44,512 (Aug. 19, 1998) (to be codified at 40 C.F.R. pts. 141 and 142).

[176] *See* SDWA, 42 U.S.C. § 300g-3(c)(4)(A).

unbottled drinking water does not necessarily indicate a health risk.[177] EPA developed its implementing regulations through careful study of different wording formulations to convey an accurate impression of risk to the public.[178] In addition to this evident concern for objectivity, the legislation also gave EPA a role in expanding on the disclosure message by requiring drinking water reports to refer the reader to an EPA hotline for further details.[179] Communities are also allowed to supplement the required disclosure with their own additional information.[180]

Other EPA initiatives make use of the agency's own data. The most ambitious, called "Surf Your Watershed,"[181] "looks at a variety of indicators that point to whether rivers, lakes, streams, wetlands and coastal areas are ecologically well, or ailing, and whether activities on the surrounding lands that affect our waters are placing them at risk."[182] "Surf Your Watershed" will eventually measure the environmental health of every river basin in the country against some thirty specific environmental indicators, including measures of ecological damage caused by dams, farms, and urban sprawl. Such a presentation at least implicitly suggests that dams, farms, and urban sprawl should be regulated to control environmental damage. It therefore represents a claim by EPA, invoking its own authority and not supporting legislation, to provide the public with accurate data on an environmental issue of major policy importance and political sensitivity.

B. Encouraging the Evolution of Social Cost Disclosure

Despite these positive developments, TRI's relatively slow progress toward self-reform suggests the need for two additional explicit rules of conduct to assist the evolution of social cost disclosure programs. First, agencies should formally claim the right to present information of social relevance to the public through systematic and organized programs.

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[177] *See id.* § 300g-3(c)(4)(B)(vi).

[178] In developing the rule, EPA convened and relied on both a "meeting of a panel of experts in public health and communication of risk-related information" and "four focus groups . . . to test various alternatives for the definitions of [key terms] and to gauge the public's reaction to health effects statements." National Primary Drinking Water Regulations: Consumer Confidence Reports, 63 Fed. Reg. at 44,513. EPA also used the focus groups to evaluate examples of actual drinking water reports. *Id.*

[179] *See id.* EPA's final rule preamble states that it plans to add the reports in question to its drinking water Web site, http://www.epa.gov/safewater. This site provides educational background on many of the report's terms and concepts, offers resources such as fact sheets on drinking water regulations and the potential health effects of each regulated contaminant, and provides e-mail and telephone links so that consumers can get answers to individual questions. *Id.* at 44,521–22.

[180] *See* SDWA, 42 U.S.C. 300g-3(c)(4)(B).

[181] EPA, *EPA's Surf Your Watershed*, *at* http://www.epa.gov/surf2 (last visited Nov. 30, 2000) (on file with the *Harvard Environmental Law Review*).

[182] EPA, *Introduction: Index of Watershed Indicators*, *at* http://www.epa.gov/iwi (last visited Nov. 30, 2000) (on file with the *Harvard Environmental Law Review*).

Agencies should do this while also recognizing their responsibility to do so objectively and efficiently. Such a claim, which is implicit in each individual social cost disclosure program, will become more firmly established if asserted on a general basis.

Second, Congress should consider extending to government agencies the same forced disclosure approach that has worked well as applied to private persons. To pick some obvious examples, EPA might be required to include a statement on each TRI report that the majority of toxic releases came from sources not included in TRI, unless it could calculate and disclose a more specific estimate of small source releases in a particular case. Or EPA might be forbidden to rely on a risk assessment of a particular chemical for regulatory purposes unless it has also made that estimate part of its TRI disclosure.[183] Because all such approaches would require the agency to exercise judgment both in developing the data in question and in putting it forward, they would endorse the more self-defining agency advocated earlier.

VIII. Conclusion

Despite the sometimes excessive claims of its advocates, information disclosure by itself cannot cure the problems of lack of goals and rigid, passive agencies that characterize our regulatory system. As EPA's TRI experience illustrates, our current approach to information disclosure often reflects those weaknesses.

Instead, information disclosure should increase the ability of agencies to reform themselves rather than reforming the agencies directly, or making them irrelevant. It should increase agencies' ability to clarify their goals and to seek approval of new goals from the larger public. Such goals will be easier to suggest and to refine through information disclosure than when the direct imposition of new regulatory burdens is at issue. Agency efforts to make their data collection and disclosure activities economically rational also will lead directly to goal clarification. The publicizing of agency efforts to articulate their goals and manage their data should improve agency performance in these areas, just as the

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[183] The agency should remain free to also disclose other approaches as well, since disclosure, as we have seen, differs from regulation precisely in its ability to present more than one alternative approach on an equal footing. *See supra* text accompanying note 110.

Wagner, *supra* note 85, at 1706–08, suggests that agencies be required to disclose the full range of risk assumptions considered at the time they promulgate regulatory decisions. However, social cost disclosure programs may provide a more nurturing forum for such disclosure. An agency trying to justify a regulatory decision faces pressures to slant its presentation of the reasoning that an agency engaged in social cost disclosure does not face. Put another way, an agency undertaking social cost disclosure can provide the alternative assumptions to the public without any endorsement of one or the other and with a full explanation of their respective advantages and disadvantages. By contrast, if a regulatory decision has been based on one analysis out of a range, the agency will feel pressure to endorse the analysis that most supports it.

publicizing of toxic chemical releases has spurred those responsible to reduce them.

As agency goals are clarified, information disclosure can contribute to attaining those goals more effectively and efficiently. Publicizing the sources of a socially undesirable activity can reduce its extent faster and less intrusively than reliance on a regulatory approach. The very success of that alternative method should also allow the reduction of regulatory requirements—particularly at the federal level—to reflect the new capabilities, created by information disclosure, of states and local communities to address these issues on their own.