

Business & Society

<http://bas.sagepub.com>

Responsible Care: An Assessment

Aseem Prakash

Business Society 2000; 39; 183

DOI: 10.1177/000765030003900204

The online version of this article can be found at:
<http://bas.sagepub.com/cgi/content/abstract/39/2/183>

Published by:

 SAGE Publications

<http://www.sagepublications.com>

On behalf of:



International Association for Business and Society

Additional services and information for *Business & Society* can be found at:

Email Alerts: <http://bas.sagepub.com/cgi/alerts>

Subscriptions: <http://bas.sagepub.com/subscriptions>

Reprints: <http://www.sagepub.com/journalsReprints.nav>

Permissions: <http://www.sagepub.com/journalsPermissions.nav>

Citations (this article cites 25 articles hosted on the
SAGE Journals Online and HighWire Press platforms):
<http://bas.sagepub.com/cgi/content/refs/39/2/183>

Responsible Care: An Assessment

ASEEM PRAKASH

The George Washington University

Responsible Care is a voluntary code of conduct developed, enforced, and monitored by the Chemical Manufacturers Association. Voluntary codes could be designed and enforced by regulators, nonprofit groups, industry associations, and individual firms. They could vary in their scope, focusing on firms around the globe, in a given region, within a country, or in a given industry. This article focuses on Responsible Care's self-regulatory services that pertain to establishing, monitoring, and enforcing industry-wide environmental, health, and safety standards. Employing insights from the club theory, stakeholder theory, institutionalist theory, and the corporate social performance perspective, it examines the demand and supply sides of voluntary codes. Finally, it discusses theoretical implications and the key challenges faced by Responsible Care in the future.

The Chemical Manufacturers Association (CMA) is one of the oldest trade and industry associations in the United States. It was founded in May 1872 when 15 sulphuric acid manufacturers joined together to develop common policies on the safe transportation of their product. Currently, the CMA has 197 members that account for about 90% of the industry's basic chemical output (CMA, 1998a; "Responsible Care: Doing It Right," 1998). Responsible Care is the CMA's key program for improving the industry's image and performance in the areas of environment, health, and safety (EHS). It was launched in Canada in 1985 and in the United States

AUTHOR'S NOTE: This research was financially supported by the Office of the Dean, School of Business and Public Management, The George Washington University. I thank Jennifer Griffin, Daniel Kane, Mark Starik, James Thurman, Steven Wartick, and the three anonymous reviewers for their comments and Jennifer Baka and Rudi Sinaga for their research and editorial assistance. I have greatly benefited from my discussions with managers from Eli Lilly and Company and Baxter International, Inc., and the members of the Private Governance and Private Actors working group convened by the Carnegie Endowment for International Peace. My discussions were based on both semistructured and nonstructured interviews. To maintain confidentiality, I do not identify my sources.



BUSINESS & SOCIETY, Vol. 39 No. 2, June 2000 183-209
© 2000 Sage Publications, Inc.

in 1988. This article examines the program's achievements in the United States only and the challenges it faces in the second decade of its existence.

Responsible Care is a voluntary code of conduct developed, monitored, and enforced by the CMA. Many of its policies are beyond compliance, that is, more stringent than the requirements of extant laws. Voluntary codes could be designed and enforced by regulators, nonprofit groups, industry associations, and individual firms either alone or in some sort of mutual partnership (Labatt & Maclaren, 1998). They could vary in their scope, focusing on firms around the globe, in a given region, within a country, or in a given industry. Voluntary codes and other forms of self-regulatory structures can be found in many industries such as apparel, entertainment, accounting, and advertising. Codes focus on three categories of substantive objectives: setting rates and prices, controlling market entry, or setting common legal, operational, or technological standards (Gupta & Lad, 1983). This article focuses on Responsible Care's self-regulatory services that pertain to establishing, monitoring, and enforcing EHS standards.

The implications of private codes for business strategy and public policy have been debated. Many regulators, citizens, and firms welcome them. Regulators faced with declining budgets are able to implement their mandates to enforce laws at lower costs. Citizens enjoy an increased supply of public goods (that typically governments are expected to provide) without an increased tax burden. Of course, depending on firms' market power, citizens may have to pay higher prices to defray the costs of such public goods.¹ Firms enjoy greater operational flexibility in designing and implementing their programs that rigid governmental regulations often deny them. Their relationship with regulators also becomes less adversarial. Thus, voluntary codes could channelize private interests toward achieving broader societal objectives in a manner from which both the regulators and the regulatees benefit.

Many citizen and activist groups, however, view the codes as private regimes that are outside public scrutiny and that vest too much power with firms. This is not to say that these groups always favor government-sponsored regimes. The public-interest movement, in general, is suspicious of both the regulators and the firms (Vogel, 1995). Unlike its predecessors in the populist and New Deal eras that favored large government bureaucracies to deal with large corporations, the public-interest movement believes that regulators are amenable to "capture" (Stigler, 1971). Hence, they have faith in open and transparent administrative rule-making processes where public groups have statutory rights to provide input and to monitor decision-making processes. Many believe that voluntary codes

do not provide such opportunities to citizen groups. The public-interest movement also favors contestations with the regulatees in the judicial arena because the “common folks” in the jury tend to be more sympathetic to the citizen’s cause. Voluntary codes, however, make laws less adversarial between regulators and firms and hence lessen the recourse to judicial settings.

Insofar as one key motivation for firms to invest in developing and implementing voluntary codes is to reduce governmental regulations, these codes substitute for public law. Nevertheless, most voluntary codes operate in the shadow of the law either by complementing the extant regulations or by being subjected to regulatory oversights. Private law—rules established, monitored, and enforced by private actors to govern their own conduct—can also provide for public accountability. Private interests and citizens’ groups could also jointly develop them. Thus, instead of a blanket support for or opposition to voluntary codes, a careful examination of the motives and processes of their development, monitoring, and enforcement is required. Further, it needs to be understood how their requirements relate to public law and what recourse the regulators and the citizen groups have if they disagree with any aspect of such codes.

In recent years, voluntary programs have gained popularity in the environmental arena.² The Environmental Protection Agency (EPA) has developed a number of initiatives such as Green Lights, 33/50, Project XL, the Common Sense Initiative, and the Great Printer’s Project.³ Many nongovernmental organizations have launched voluntary codes including the Coalition for Environmentally Responsible Economies (CERES) or the Valdez principles and ISO 14000. Not all codes have been warmly embraced by firms. For example, only 13% of the eligible firms joined the EPA’s 33/50 program (D. Sarokin, personal communication, February 11, 1999). Also, the ISO 14000 environmental management system has had low levels of acceptability in the United States vis-à-vis Europe and East Asia (Prakash, 1999).⁴ As of January 1, 1999, 1,542 Japanese, 1,100 German, 950 British, 463 Korean, 400 Swedish, and 398 Taiwanese firms, but only 210 U.S. firms, were ISO 14001 certified (ISO World, 1999). Thus, it is important to examine circumstances under which various kinds of voluntary codes are accepted by firms, regulators, and key stakeholders. This article examines these issues in the context of industry-level environmental codes by drawing learnings from the CMA’s Responsible Care. It employs insights from the theory of clubs (Cornes & Sandler, 1996) to understand the supply side of voluntary codes. It integrates them with the ones from institutional theory, stakeholder theory, and the corporate social performance perspective that explain the demand side of voluntary codes. As emphasized by the demand-side explanations, managerial perceptions

of the pressures from and expectations of external stakeholders impact the valuation of codes' costs and benefits, thereby shaping incentives for firms to construct as well as to subscribe to such codes.

This article has three sections. Section 1 examines club theory, institutional theory, stakeholder theory, and the corporate social performance perspective to understand the demand and supply sides of voluntary codes. Section 2 describes the evolution of Responsible Care and examines its major features. Section 3 identifies theoretical implications of and future challenges for Responsible Care.

Voluntary Codes as Club Goods

Adam Smith's "invisible hand" concept harmonizes individual and collective rationalities. However, market failures such as natural monopolies, externalities, and information asymmetries suggest that individual and group rationality are in partial conflict, indicating collective action dilemmas or social traps (Cross & Guyer, 1980; Hardin, 1968; Olson, 1965; Ostrom, 1990; Platt, 1973). A well-known example is the Prisoners' Dilemma game where pursuing strategies based on narrowly defined individual rationality leads to suboptimal outcomes for both the individual and the group. Conceptually, collective action dilemmas can be traced to the physical and institutional nature of goods and services (henceforth, goods only) in relation to two attributes: excludability and rivalry. Excludability implies that it is technologically feasible and economical for A to exclude B from appropriating benefits once a product has been produced. An absence of excludability creates incentives to "free ride" (Olson, 1965). Rivalry implies that if A consumes a particular unit of a product, B cannot. Overconsumption could degrade rivalrous resources that are non-renewable or if renewable, whose harvest rates exceed their regeneration rates. However, if such rivalrous resources are excludable, their scarcity will lead to higher prices, thereby lowering their consumption. The problem arises when they are nonexcludable because scarcity does not translate into a higher price. Thus, nonexcludability becomes a root cause of market failures.

Products can be classified in four stylized categories: private goods (rival, excludable), public goods (nonrival, nonexcludable), common-pool resources (rival, nonexcludable), and impure public goods (nonrival, excludable) (Ostrom & Ostrom, 1977). Governmental provision of collective goods—public goods, impure public goods, and common-pool resources—is often viewed to be necessary because they are susceptible to market failures (Pigou, 1960). However, market failures can be corrected by other institutional vehicles as well (Coase, 1960; Ostrom, 1990).

Impure public goods, in particular, can be successfully provided by non-governmental organizations (Cornes & Sandler, 1996).⁵ These goods are of two kinds: toll and club. Toll goods such as toll roads and movie theaters are amenable to unitization, that is, consumers reveal their preferences by paying for every additional unit, and a continuous demand schedule for each consumer can be conceptualized. They are provisioned by levying a user toll. In contrast to toll goods, the discrete consumption units of club goods cannot be priced (because it is difficult to estimate their marginal costs) and their collective provision is financed by membership fees (that are based on average costs). Industry-level initiatives such as Responsible Care are examples of club goods because it is impossible to price the discrete units of goodwill benefits they generate. Firms have incentives to pay their membership fees only if such benefits are made excludable. For Responsible Care, the membership fee manifests as implementing new organizational policies that are required by the six codes of conduct (discussed below).

Supply Side of Industry Codes

Voluntary codes such as Responsible Care generate goodwill for the industry. The challenge for industry-level bodies championing these codes is to transform the nonexcludable goodwill benefits to excludable ones (from public goods to club goods). Consequently, to ensure that members do not free ride, the CMA requires them to adopt Responsible Care. Suppose there is an accident in a facility of a CMA member who does not subscribe to Responsible Care. In addition to hurting the member, this accident imposes negative externalities (loss of goodwill) on other firms. This is because the stakeholders may not differentiate CMA members who have adopted Responsible Care from those who have not and direct their wrath only at nonadopters. Thus, the adopters of Responsible Care have incentives to ensure that all CMA members (and nonmembers) subscribe to it.

Industry structure could impact the supply of voluntary codes. The role of dominant firms (in terms of market share, sales, etc.) that gained disproportionately from these codes was instrumental in nudging the CMA members to adopt Responsible Care. In this context, it is instructive to draw on the international regimes literature that examines the evolution of supranational rules, norms, and codes for governing the conduct of state and nonstate actors (Krasner, 1983; Young, 1997). This literature, especially the so-called "hegemonic stability theory," suggests that hegemons (great powers) are necessary for creating and maintaining regimes. Thus,

power and wealth asymmetries among countries are required to create international rules and norms. Hegemons are not altruistic actors. Because they gain disproportionately from regimes by pursuing their self-interest, they create benefits for others as well. The critics of hegemonic stability theory dispute the necessity of hegemons in creating and maintaining regimes (Keohane, 1984). They believe that as long as the benefits of regimes outweigh the costs for states, they have incentives to create international regimes. Further, once established, regimes assume a life of their own and do not necessarily require hegemons for their continuation (for an overview of this debate, see Baldwin, 1993).

In the context of domestic political economy, dominant firms often initiate the establishment of industry standards and codes. Of course, if gains are asymmetric, the smaller firms may not cooperate. Instead of adopting industry codes written by big firms, they may opt for governmental standards (Gupta & Lad, 1983). Responsible Care was championed by the large chemical firms such as Dow and Union Carbide that felt vulnerable to the rising public sentiments against the chemical industry. They undertook the initial steps, first in Canada and then in the United States, to establish it. To create incentives for the smaller firms to support it, they established mechanisms for knowledge transfer, thereby reducing the costs for the smaller firms to adopt this code (discussed below).

Not all big firms are equally vulnerable to stakeholder pressures. It can be hypothesized that firms having strained relationships with key stakeholders, especially regulators, feel more vulnerable.⁶ Union Carbide, because of its association with the Bhopal tragedy, perhaps felt more vulnerable than other large firms. Thus, even among firms with similar structural characteristics, varying assessments about the benefits of self-regulatory codes could be expected. In essence, the issue boils down to whether firm-level heterogeneity in terms of their endowments (e.g., market share, sales) and preferences for voluntary codes (shaped by factors such as expected net benefits and relationships with stakeholders) facilitates or impedes the evolution of such codes.⁷

Developing new rules and codes is impeded by transaction costs (North, 1990). These costs could be reduced if there existed an organization to share information and to develop common principles. On the other hand, an existing organization may be hamstrung by path-dependency (that is, past choices and commitments),⁸ caught up in old paradigms and mindsets and therefore incapable of performing new tasks that the proposed codes require. Consider the debate on incorporating environmental concerns in the international trade regime by suitably modifying the World Trade Organization (WTO). The supporters of this idea argue that

creating a new environmental organization has significant start-up costs including political opposition to establishing new international bureaucracies. Hence, transaction costs may be lower for modifying or enlarging the WTO's agenda to include environmental issues. Others argue that because the WTO is completely immersed in promoting free trade (some of which is viewed by its critics to harm the environment), it has little ability or incentives to reinvent itself. It also lacks credibility to design and to oversee an international environmental regime. Therefore, it is advisable for environmental groups to think in terms of a new environmental organization (for a review of this debate, see Esty, 1994).⁹

In the context of Responsible Care, the presence of the CMA unquestionably reduced transaction costs for the chemical industry to organize collectively to develop an industry-wide code. In the past, the CMA had promoted tougher EHS standards. To minimize accidental spills of corrosive substances, in 1905 the Manufacturing Chemists Association, the CMA's previous incarnation, called for replacing hand-blown glass bottles with iron-molded ones ("Responsible Care: Doing It Right," 1998). Thus, the CMA had some institutional history—a positive path-dependency—of promoting safe and environmentally sound practices.

The objectives of Responsible Care are consistent with the CMA's mandate to serve as the collective voice for most of the chemical industry. Responsible Care has only served to increase the CMA's visibility and credibility as the industry's chief spokesperson. Thus, in addition to the big chemical firms that promoted Responsible Care, the CMA had organizational interests in championing an industry code designed and enforced under its auspices.

Demand Side of Industry Codes

So far, the article has discussed the conditions that facilitate or impede the supply of club goods such as industry codes. The demand side of the equation concerns who demands voluntary codes and why at the industry level. Institutional theory, stakeholder theory, and the corporate social perspective provide useful insights to understand the sources of demand.

Neoclassical economics views the social objective of business is to maximize shareholders' wealth, thereby maximizing national wealth (Friedman, 1970). Thus, it would predict that firms will demand voluntary codes only if they maximize their profits. Firms, individually or collectively, could increase profits by voluntarily designing and adopting environmental codes (Hart, 1995; Shrivastava, 1995; for a critique, see Newton & Harte, 1996; Walley & Whitehead, 1994). These policies could also help

them to preempt and/or to shape environmental regulations that could hurt their profits (Fri, 1992; Khanna & Damon, 1999) and therefore reap first-mover advantages (Nehrt, 1998; Porter & van der Linde, 1995; for a critique, see Rugman & Verbeke, 1998). In particular, championing tough environmental codes could be attractive to firms advanced in environmental technology because they could raise rivals' cost of entry—the assumption being that the higher standards embedded in the new codes will lead to stringent regulations (Barrett, 1991; Prakash, Krutilla, & Karamanos, 1996; Salop & Scheffman, 1983).¹⁰

It is difficult to objectively quantify the benefits and costs of voluntary codes, thereby estimating their equilibrium levels of supply and demand.¹¹ Consequently, managerial perceptions about their usefulness play an important role in influencing firms' decisions to adopt or not adopt, and nonmarket factors often significantly shape managerial perceptions (Prakash, 2000). It is, therefore, important to examine factors, both internal and external to firms, that shape managerial perceptions about benefits and costs.

Institutional theory focuses on the impact of external institutions on firms' policies (Meyer & Scott, 1992; Oliver, 1991; Scott, 1987; Zucker, 1988).¹² It suggests that firms are not profit maximizers; their policies reflect external pressures for legitimacy. Thus, it could be argued that the hostile external climate in the wake of the industrial accidents, notably the Bhopal disaster, and the rising public sentiment against the industry, prompted chemical firms to demand an industry-wide response. Of course, the desire to win back trust and legitimacy was also driven by the industry's instrumental concerns such as preempting or reducing the severity of new laws and regulations. Nevertheless, the signals emanating from the external nonmarket environment were crucial in influencing the pace (adopt a code sooner than later), the extent (industry-wide code), and the character (comprehensive covering key EHS factors) of managerial responses.

The literature on corporate social performance (CSP), responsibility (CSR1), and responsiveness (CSR2) also argues that firms have societal responsibilities that may or may not reinforce the profit objective (Ackerman, 1975; Jones, 1995; Preston & Post, 1975; for a review and critique, see Griffin & Mahon, 1997; Wartick & Cochran, 1985; Wood, 1991; Wood & Jones, 1995). It suggests that firms adopt voluntary codes because they wish to be socially responsible. Although such codes may or may not generate quantifiable profit, managers demand them because they are the "right or ethical things to do."¹³

In a similar vein, stakeholder theory suggests that firms should design policies that take into account the preferences of multiple

stakeholders—stakeholders being “any group or individual who can affect or is affected by the achievement of the organization’s objectives” (Freeman, 1984, p. 46; for a review of the stakeholder literature, see the volume edited by Clarkson, 1998). In the design, monitoring, and enforcement of voluntary codes, firms could involve a wide gamut of stakeholders. Thus, voluntary codes such as Responsible Care could be viewed as an industry-level response to the concerns of multiple stakeholders with regard to EHS issues (Druckrey, 1998).

To summarize, Responsible Care as an industry-wide voluntary code was supplied and demanded due to pressures from the external stakeholders, new levels of environmental awareness among managers, the presence of the CMA, the interests of large firms to develop such a code, and the self-interest of the CMA to perpetuate itself as the leading body that serves the collective interests of the chemical industry. The next section provides an overview of Responsible Care describing its various facets. It examines the CMA’s success in regaining public trust and legitimacy and the challenges it faced in convincing smaller firms to adopt Responsible Care.

RESPONSIBLE CARE: AN OVERVIEW

Historical Backdrop

The 1980s posed many new challenges for the U.S. chemical industry. Its economic performance was impressive in terms of sales, profits, exports, research and development expenditures, and workers’ wages. However, its credibility with regulators and other stakeholders on its EHS performance was eroding. A series of major chemical accidents, notably the 1984 disaster in Union Carbide’s Bhopal facility, reinforced a perception that the chemical industry cannot conduct its operations without harming human health and damaging the environment. In 1985, the leak from Union Carbide’s pesticide plant in Institute, West Virginia, underlined that Bhopal-type tragedies could occur in the United States as well. Consequently, stakeholders, particularly citizen and community groups, demanded stringent regulatory interventions. Industry leaders were concerned that high levels of policy activism would impose sizable costs; command-and-control policies often leave firms with little operational flexibility. There was also a fear that the uncertain external political and economic environments would erode investors’ confidence in the industry’s long-term prospects, thereby hurting its stock prices.

It seems that the chemical industry had almost anticipated a regulatory backlash. In 1983, the U.S. CMA developed a statement of principles on how the chemical industry should conduct its business and relate to its stakeholders. This statement eventually became the basis for developing the Ten Guiding Principles of Responsible Care (see below). In 1985, to introduce public accountability of its activities, the CMA proposed a voluntary program, Community Awareness and Emergency Response (CAER). Eventually, CAER became one of the six Codes of Responsible Care (discussed below). Because many environmental groups saw CAER as a public relations gimmick, the CMA formed the Public Perception Committee composed of top industry executives. This was a precursor of the Executive Leadership Groups, an important feature of Responsible Care. The Public Perception Committee recommended that the CMA launch Responsible Care.

In 1986, the U.S. Congress enacted the Emergency Planning and Community Right-to-Know Act (EPCRA). Section 313 of the EPCRA created the Toxic Release Inventory (TRI) database that gave the public access to facility-specific data on transfers and releases of 320 toxic chemicals into the environment. As a consequence of the information available under the EPCRA, environmental groups and the media began identifying the major emitters in various counties and states. The impact of media reports was severe across the industry; even firms with impeccable safety and environmental records but sizable emissions were now viewed as dangers to public health.¹⁴

Responsible Care was launched in Canada in 1985 and in the United States in 1988. The subsidiaries of U.S. multinational enterprises such as Dow-Canada were early adopters and played a significant role in establishing its legitimacy. Many of Responsible Care's ideas were developed by Dow-Canada in response to the accident in its Sarina facility. Key managers such as Dave Buzelli played important roles in popularizing Responsible Care within the firm.

The idea of launching Responsible Care in the United States is attributed to Robert D. Kennedy, the Chief Executive Officer of Union Carbide. Since 1985, Carbide's Canadian facilities had been implementing a version of Responsible Care. During a review of the Canadian operations, Kennedy was briefed on it. He quickly gauged its potential as an industry-wide program in the United States and took it on himself to convince his peers at the CMA's Public Perception Committee. The committee members agreed with Kennedy, and consequently, the U.S. CMA adopted Responsible Care as its flagship initiative ("Chemical Makers Pin Hope," 1992).

Responsible Care seeks to change the culture of the industry. It is an attempt by the chemical industry to regain public trust by demonstrating that chemical firms are responsible corporate citizens who can self-regulate (Mullins, 1994). Surveys commissioned by the CMA in the 1980s suggested that the public did not trust the industry because chemical firms seldom shared information on their operations, the risks their activities posed to communities, and their plans for dealing with industrial accidents. The industry did not share such information because most managers believed that as long as firms followed laws and regulations, communities and other stakeholders had little right to demand information, often technical, about their internal operations. As Simmons and Wynne (1993) observe:

Fundamental to the identity of the chemicals sector is its sense of being a science-based industry. This is deeply ingrained in the industry's culture and belief about the validity and authority of science These beliefs are reflected in the argument that has been made to legitimate the industry's claim to self-regulation—that *its unmatched knowledge and expertise make the industry's own experts the people best suited to audit and to regulate the environmental effects of its activities.* (p. 218, italics added)

This mindset was clearly counterproductive for the industry, and Responsible Care sought to change the managerial attitudes about the public's right to information about the internal operations of chemical facilities.

Elements of Responsible Care

Three categories of actors have subscribed to Responsible Care: (1) CMA members; (2) nonmember partner companies, particularly those in the transportation sector (railroads, trucking, and barge); and (3) partner associations including the state chemical industry councils and the national associations of firms (such as the Synthetic Organic Chemical Manufacturers Association [SOCMA]) that deal with chemicals. Responsible Care has the following features ("Chemical Makers Pin Hope," 1992):

- Ten *guideline principles* spelling out responsibilities of CMA member firms.
- Six *codes of conduct* that identify more than 100 specific management practices. These codes seek to establish management systems in manufacturing, distribution, and transportation (see below).

- A 15-member *Citizen Advisory Panel* (CAP) consisting of non-CMA members to guide Responsible Care. This panel is expected to sensitize the CMA to public concerns and give input on developing programs that better address these concerns.
- A *requirement* that all the member firms will adopt Responsible Care. Firms are not required to implement all six codes immediately; they can chart their own time frame for implementation.
- Member firms must *annually evaluate* their progress on implementing the six Codes of Responsible Care. This evaluation should be shared with the CMA.
- *Executive Leadership Groups* of senior industry representatives that periodically share their experiences on implementing Responsible Care and identify areas requiring assistance from the CMA.

The six codes of conduct define the scope and the extent of Responsible Care, forming its basic building blocks. Many codes parallel the requirements of governmental regulation reinforcing that private regimes operate under the shadow of the law. Developing industry codes is a technical and a political process. Reflecting these imperatives, the six codes were developed and adopted at different points in time.

The first code, Community Awareness and Emergency Response, was approved on November 6, 1989. It seeks to ensure that firms are adequately prepared to handle emergencies. This is to be achieved by developing and annually testing emergency response programs. This code also requires firms to develop community outreach programs for communicating information on EHS aspects of a facility's operations. A significant chunk of this program pertaining to emergency response is included under EPCRA.

The second code, Pollution Prevention, has two components. The first pertaining to waste releases and practices was approved on April 6, 1990, and the second one on waste management practices was approved on September 5, 1991. Its reporting requirements exceed those of the Superfund Amendment and Reauthorization Act (SARA) of 1986. The objective is to promote pollution prevention and waste minimization programs. Firms are required to document waste generation, to estimate their releases to various media, and to evaluate the potential EHS impacts. As I discuss subsequently, these documentation requirements impose significant costs, thereby creating disincentives for smaller firms to adopt Responsible Care. This code also emphasizes source reduction and includes pollution prevention as an objective at the research and development stage.

The third code, Process Safety, was approved on September 10, 1990. Its objective is to prevent industrial accidents. Firms are expected to develop process safety programs and to document and measure safety performance. It also calls for safety reviews of new or modified facilities

before commissioning them and regular training for employees in safety procedures.

The fourth code, Distribution, was approved on November 5, 1990. It seeks to minimize risks posed by transportation and storage of chemicals to carriers, customers, contractors, employees, and the environment. It requires firms to evaluate risks associated with existing modes of transportation and distribution, to train employees, carriers, and contractors on the regulations and best practices, to regularly review the performance and practices of carriers, and to develop an emergency response plan for dealing with transportation accidents.

The fifth code, Employee Health and Safety, was approved on January 14, 1992. It seeks to protect and promote health and safety of employees and visitors at facilities. Firms are required to review and to develop occupational safety systems, to audit them, and to train employees on health and safety practices. Further, it also requires firms to select vendors and contractors who follow the above guidelines and to audit them. It suffices to note that because most data gathered for this code are collected to meet OSHA's requirements, this code does not impose sizable costs.

The sixth code, Product Stewardship, was approved on April 16, 1992. Its objective is to promote safe handling of chemicals from their initial manufacture to their distribution, sale, and disposal. Firms are required to develop a corporate plan on product stewardship. This is to be accomplished by incorporating EHS concerns in the product and process development stage.

In essence, the six codes require firms to inventory their EHS practices, to develop plans to continually improve them, to communicate them to external stakeholders (especially the local communities), and to train their suppliers to meet similar standards. Because implementing these codes is expensive, requiring specialized structures and personnel, some firms may be reluctant to adopt them. Thomas Hobbes (1967) had noted that covenants without swords are mere words. Thus, it is critical to understand what swords are adopted by the CMA to enforce the Responsible Care covenant. The implication is that if the CMA seeks to regain trust and legitimacy, it needs to establish transparent and effective swords to monitor Responsible Care's implementation and sanction noncompliance.

Attractiveness to Small Firms

Responsible Care creates goodwill benefits for the chemical industry, particularly CMA members. Its credibility will be eroded even if some nonmember chemical firms suffer an industrial accident. The ensuing

public wrath will perhaps be directed at all chemical firms, not selectively excluding CMA members. Data suggests that smaller firms may be more prone to EHS accidents than larger firms ("Responsible Care Program Poses Challenges," 1993). Thus, it is in the CMA's self-interest to ensure that Responsible Care wins large-scale acceptance across the chemical industry, especially among smaller firms.

Responsible Care generates economic benefits of pollution prevention. It might also reduce costs of transportation and insurance ("Responsible Care earns discount," 1997). Roadway Express is willing to offer discounts to firms that can document their efforts in the Product Distribution Code. Some brokers such as Zurich American and United Capitol are giving discounts up to 30% on environmental impairment liability (EIL) premia depending on the level of implementation of Responsible Care. Although most chemical firms do not buy EIL and self-insure themselves, it is a good first step where firms are rewarded in quantifiable terms for implementing Responsible Care ("Responsible Care: Doing It Right," 1998; "Survey Finds Limited Labor Role," 1997).

However, because the requirements of Responsible Care are extensive in relation to its benefits, the smaller firms are reluctant to adopt it. As discussed previously, Responsible Care is a project of large chemical firms that can afford to create specialized structures and employ personnel to implement the six codes. In contrast, the organizational structures of smaller firms typically reflect little functional differentiation; a given employee often wears many hats. There are fewer procedures and relatively less documentation of management systems.

How then does the CMA encourage smaller firms to adopt Responsible Care? The CMA highlights that they could implement Responsible Care incrementally. Smaller firms can also tap into systems developed by the CMA for disseminating information on Responsible Care. The CMA has created a database that identifies firms (and their managers) having expertise in certain Responsible Care Codes and that are willing to share information. It encourages regional networking of firms. It has divided firms into 36 geographic regions where they can form local circles and jointly undertake activities such as community outreach or emergency planning. Consequently, firms can share costs and pool together their talents for delivering higher quality programs ("Responsible Care Program Poses Challenges," 1993).

Smaller firms are often vendors to larger firms. Once Responsible Care becomes a de facto requirement for being a vendor, smaller firms have sufficient incentives to adopt it. This can be interpreted as early adopters (larger firms) choosing standards with which they are comfortable. Thus,

by mandating all members to adopt Responsible Care, the CMA first sought to create a critical user base and then to encourage members to equip their vendors—smaller firms—to adopt Responsible Care.¹⁵

Monitoring and Enforcement

Responsible Care's critics are skeptical of its impact on the industry's culture and functioning. They view it as an attempt by the industry to preempt stringent regulations. Fred Miller of Friends of the Earth views Responsible Care as "the velvet glove around the iron fist . . . industry has a heavy burden of proof to show that it is just not a PR gimmick." ("Chemical Makers Pin Hope," 1992, p. 39). A key reason for this skepticism is that although the CMA mandates that its members adopt Responsible Care, it has weak monitoring and sanctioning mechanisms. Members conduct self-evaluations annually and rate themselves on a 6-point scale: 1 (*no action*), 2 (*evaluating existing practices*), 3 (*developing plans*), 4 (*implementing plans*), 5 (*management practices in place*), and 6 (*reassessing management practices*). The firms are required to report these evaluations to the CMA where a consolidated industry-wide picture can emerge ("New Initiatives Take Aim," 1993; for a sample copy of the self-evaluation form, see CMA, 1998b). These evaluations are, however, not verified by external auditors.¹⁶

The CMA mandates that its members adopt Responsible Care. The corollary is that if a firm does not adopt, it will lose its CMA membership. Critics question the credibility of the expulsion threat because CMA membership is voluntary—in effect, the covenant is without a credible sword. They point out that the CMA has yet to expel a member for non-compliance. In 1993, the SOCMA, the CMA's partner association, expelled Pfister Chemical, Ridgefield, New Jersey, because Pfister declined to adopt Responsible Care. This is the sole example of a firm losing its membership in the CMA or its partner associations (such as the SOCMA) for the nonadoption of Responsible Care ("Responsible Care," 1998a). The CMA admits that expulsion is not a credible threat. However, it does not view this as a problem because it seeks to encourage and equip, not coerce, its members to adopt Responsible Care. Further, it has not encountered serious opposition among members to Responsible Care.¹⁷

There are other criticisms as well with regard to the lack of accountability and verifiability. The CMA has a slogan, "track us, don't trust us," that challenges the stakeholders to assess Responsible Care on its performance and not on their preconceived notions about the chemical

industry. Some groups did take up this challenge. Responsible Care requires firms to share information on their EHS policies. Individuals can call facilities, and the facilities' Responsible Care contacts are expected to return the calls within a week. In 1992, the Public Interest Research Group (PIRG) called 192 facilities in 28 states to ask nine questions on their EHS policies. Forty-two percent of facilities did not respond at all, and only 17% answered all nine questions. PIRG repeated the exercise in 1998 when it called 187 plants in 25 states. More than 75% of facilities were either not willing or not able to share information required by Responsible Care. *Mother Jones* magazine also undertook this exercise and found similar results. Although the CMA identified flaws in the methodologies adopted by PIRG and *Mother Jones*, it undertook a modified version of this exercise and found that facilities were not prompt in sharing information ("Chemical Makers Pin Hope," 1992; "Critics Look for Greater Commitment," 1998).

Under Responsible Care, firms have established more than 315 CAPs throughout the United States. Critics argue that CAPs are inadequate for guiding and monitoring facility-level Responsible Care policies. CAPs may lack credibility because they are set up by firms that they seek to informally regulate. Firms may appoint only the most pliable citizens who also may not have the expertise to analyze complex technical information ("CAER: Jump-Starting Community Outreach," 1998; "Responsible Care," 1998b).

In light of the above criticisms, the CMA sought to strengthen the verification system by instituting external auditing. In 1992, some members proposed Management Systems Verification (MSV). This suggestion was (and still is) opposed by some members who feel that CAPs serve the purpose of external verification. In spite of this opposition, the CMA began implementing MSV in 1996. About 40 of the 197 CMA members have completed the MSV exercise, and another 84 have agreed to it ("Crafting 'new' Responsible Care," 1998). Under this program, firms work with the CMA's contractor, Verrico Associates, to identify one to nine public participants often drawn from CAPs and two verifiers from peer firms. The review team visits corporate headquarters and also inspects at least two preidentified facilities. Verrico is then responsible for compiling a 40 to 50 page report assessing the progress on Responsible Care ("Responsible Care: Doing It Right," 1998). However, against the recommendation of its National Advisory Panel, the CMA decided not to make MSV's findings public. Critics also point out that the MSVs are not a periodic exercise and that the MSV team does not choose which sites it wants to visit.¹⁸

THEORETICAL IMPLICATIONS AND FUTURE CHALLENGES

This article conceptualized Responsible Care as a club good supplied at the industry level (by a nongovernmental actor) and demanded by various key stakeholders, especially environmental and community groups. An examination of Responsible Care has important implications for the theories and perspectives discussed earlier in this article. As suggested by the Hegemonic Stability theory, hegemony is key in supplying collective goods. This is borne out in Responsible Care. Further, due to the influence of big firms in crafting it, Responsible Care requires significant resources and trained personnel that smaller firms are less willing to commit. The CMA has initiated plans to make Responsible Care attractive to smaller firms. Thus, an important learning is that if the rule writers (bigger firms) wish to have their codes accepted by actors that are structurally different (smaller firms), they need to incorporate the concerns of other actors as well. Otherwise, they will have to invest, post facto, in more expensive programs to address the concerns of smaller firms. Thus, this article suggests that club theory needs to go beyond the notions of excludability and rivalry to explain the emergence and sustenance of different types of clubs.

Regime theorists argue that regimes exist because they serve important functions and are demanded by actors who benefit from them. The critics of regime theory—especially the constructivists—point out that this functionalist logic for the establishment and the continuation of regimes is underspecified; norms, rules, and legitimacy are also important (for a review, see Katzenstein, 1996; Sandholtz, 1999).¹⁹ This point is also made by stakeholder theory and institutionalist theory in the context of why firms selectively adopt certain policies. Clearly, the continued distrust about the objectives and impact of Responsible Care among the environmental, labor, and community groups points toward the importance of legitimacy in impacting the efficacy of voluntary codes. This argument is valid for other codes as well, including the one proposed by the apparel industry to monitor the use of child labor. Thus, there is a need to incorporate softer variables such as legitimacy and trust in the actors' calculus of benefits and costs to understand the evolution, the continuation, and the efficacy of voluntary codes.

The stakeholder literature typically focuses on the firm level—dyadic relationship between firms and stakeholders—to provide descriptive, instrumental, and normative explanations for firms to take into account the preferences of multiple stakeholders (Donaldson & Preston, 1995).

Voluntary codes, including Responsible Care, involve exchanges among various stakeholders (for example, not only between firms and environmental groups or between firms and regulators but also between environmental groups and regulators) at multiple levels (firm, industry, country, supranational). On this count, stakeholder theory can be enriched by incorporating multiple levels of analysis at which firms may choose to respond to stakeholder demands. Of course, as discussed previously, collective action dilemmas often impede joint responses. Nevertheless, if firms face demands from similar stakeholders (and attribute similar salience to them, a la Mitchell, Agle, & Wood, 1997) or can exploit opportunities in the market and/or nonmarket environments more efficiently by responding collectively, they should examine the benefits and costs of collective action. Thus, stakeholder theory needs to develop its theoretical apparatus beyond dyadic examinations and focus on complex multiactor, multilevel interactions (Rowley, 1997).

Future Challenges

The CMA faces multiple challenges in redefining the scope of Responsible Care and in communicating its achievements to its stakeholders. The CMA's experience with self-regulation also offers useful learnings for the design and implementation of industry-level voluntary codes. First and foremost, private codes must develop verifiable performance indicators. Responsible Care is process oriented, focusing on EHS management systems at the facility level. Such systems entail substantial investments, but it is difficult to quantify their impact and communicate their contributions to stakeholders. As discussed previously, the CMA has developed an internal rating system to quantify performance levels for various codes. This rating system, however, is not clearly understood by many stakeholders in terms of risk or pollution reductions. As an example of measurable success, the CMA points out that under the EPA's 33/50 program, its members reduced their emissions by 62% between 1988 and 1994, significantly higher than the EPA's target of 50% by 1995 ("Responsible Care: Doing It Right," 1998). However, such achievements cannot be attributed to Responsible Care alone.

The continued public distrust is reflected in the CMA's surveys as well: Only 24% of the public living in the vicinity of chemical facilities believes that the industry protects health and safety, and only 22% say that the industry is accessible and willing to talk to the public ("CAER: Jump-Starting Community Outreach," 1998).²⁰ As the CMA chairman Art Siegel put it in his 1998 annual convention address:

The challenge today is the same we faced 10 years ago: We need to earn the public's trust . . . (to the public) chemical is a dirty word and until we change that basic fact, we will remain defensive. Getting out in front on major public policy issues with a message that resonates with John Q. Public is essential to achieve our goals. ("Earning Public Trust," 1998, p. 8, 40; Same Mission, New Directions, 1998, p. 5)

In the early 1990s, the CMA spent about \$8 million in television advertising to reach out to opinion leaders. This campaign that ran primarily during the news-oriented shows increased the favorable public opinion by about 4%. However, the campaign was discontinued in 1996, and the favorable ratings slipped by 2%. Since then, the CMA has launched a \$2 million per year Strategic Communication Plan to reach out to the communities ("CAER: Jump-Starting Community Outreach," 1998). This is based on the premise that an increased familiarity with the CMA's programs will enhance the public's comfort level about the chemical industry. Thus, the CMA believes that communicating about Responsible Care through a variety of media is critical to increase the industry's trust and legitimacy.

The communication gap exists with internal stakeholders as well. A survey by Brussels-based International Federation of Chemical, Energy, Mine, and General Workers Union reported that about 35% of the respondents belonging to 29 unions across 21 countries were not even aware of Responsible Care in their respective countries. Unions generally viewed this program as a public relations exercise. The involvement of U.S. workers and unions, in particular, is extremely limited ("Labor feels 'left out' of Responsible Care," 1997; "Survey Finds Limited Labor Role," 1997). A similar survey by the International Labor Organization reports that "serious problems persist in the areas of credibility and the involvement of non-management stakeholders . . . input from worker's representative was minor or completely absent" ("One Key to Responsible Care," 1998, p. 17). Clearly, although the CMA has achieved a lot in the area of environmental policy and management, much more needs to be done. To ensure that chemical is not inherently a "dirty word," the chemical industry needs to strengthen its environmental programs, communicate its achievements, and involve key stakeholders in these processes.

Second, once performance indicators have been established, voluntary codes need to create a credible verification system—the swords need to have teeth, and sharp ones. The key reason for the continued distrust of Responsible Care is the lack of independent verifiability of the industry's claims. Although the MSV system is an important step in this direction, many modalities, especially with regard to the use of information gathered

by the audit teams, remain unclear. This is bedeviled by the controversy over attorney-client privileges on environmental audits (Prakash, 1999).

Adding to the distrust is the contradiction between the objective of Responsible Care (especially in relation to generating public trust) and the thrust of lobbying done by the CMA on Capitol Hill. In particular, the CMA is criticized for lobbying the 104th Congress to remove more than 90% of the chemicals from the TRI list (CMA, 1996; "Critics Look for Greater Commitment," 1998). Thus, the CMA needs to ensure a greater coherence between the objectives of Responsible Care and its actions that could weaken environmental laws and regulations.

The third major challenge for any code is to gain acceptance from the key national and international regulatees. For example, the CMA needs to ensure a greater international acceptance of Responsible Care. This program has expanded internationally to 42 countries that represent about 84% of global chemical shipments ("Responsible Care Claims Continued Global Success," 1998). However, not all chemical companies within a given country have adopted Responsible Care. For example, about 50% of Japanese firms, 45% of Malaysian firms, less than 20% of Brazilian firms, and only 17% of Indian firms subscribe to Responsible Care ("Bhopal's Legacy," 1997; "Responsible Care Makes Global Moves," 1997; "Selling Responsibly in Brazil," 1998). This poses two problems for the CMA. First, chemical accidents (that could be prevented by Responsible Care policies) outside the United States can strengthen public misgivings about the safety of industry's operations—Bhopal being an obvious, although tragic, example. A widespread adoption of Responsible Care can reduce the occurrence and severity of accidents. Second, the CMA needs to protect the brand equity of Responsible Care in the light of competition from initiatives such as ISO 14000. Both seek to encourage the adoption of environmental management systems. Responsible Care has a special connotation in the mind of many stakeholders because it signifies the endeavor of the chemical industry to improve its EHS performance. ISO 14000 has no such connotations. Hence, if ISO 14000 becomes the de facto international standard, the chemical industry will lose its distinctive advantage vis-à-vis other industries in terms of claiming long-standing commitments to safer EHS practices.²¹ Of course, from a public policy perspective, codes covering a wider gamut of industries may be preferable over industry-level codes. These generalized codes reduce stakeholders' transaction costs of monitoring and enforcement as well as facilitate an interindustry comparison of CSP.²²

Fourth, to increase their legitimacy, voluntary codes need to become essential elements of broader societal concerns. For example, it is not clear how Responsible Care fits into a road map for environmentally

sustainable economic growth. Although the term *sustainable development* is contentious with no common definition (for a review of this debate, see World Bank, 1992; World Commission on Environment and Development, 1987), the CMA still needs to link this program to a broader societal concern about environmental degradation. The product stewardship code is a good first step, but the industry needs to build on it.

Finally, the scope and the claims of voluntary codes need to be defined and substantiated by solid research. For example, the CMA needs to reassess the ambit of Responsible Care in relation to testing and financing research on the health effects of some chemicals. The chemical industry has been under increasing threat of product deselection, the two notable examples being phthalate plasticizers (used in toys) and polyvinyl chlorides (PVCs). Mattel, the biggest toymaker in the world, has discontinued using the former; and Nike, the leading sports shoemaker, the latter ("Same Mission, New Directions," 1998). Before deciding to deselect, these firms did not undertake scientific studies to assess the health effect of these chemicals. The grim lesson for the CMA is that if it does not produce credible evidence to address the public health fears, many firms will have little choice but to discontinue the use of such chemicals. Thus, the scientific study of allegedly toxic chemicals must become an integral part of the Responsible Care program. These studies should be carried out at the industry level and not at the firm level because the chemical industry faces a collective threat on this issue. Toward this end, in collaboration with the EPA and the Environmental Defense Fund, the CMA launched a voluntary program in October 1998 to test the EHS impact of 2,800 industrial chemicals (high production volume or HPV chemicals). Under this program, the CMA will voluntarily test products, and the EPA will test the remaining products. The tests are scheduled to be completed by the end of 2004 ("Voluntary Chemical Testing Program," 1998).

To conclude, Responsible Care has come a long way in restoring public trust and legitimacy about the chemical industry's EHS policies and practices. However, the industry still has a long way to go. It must acknowledge the deficiencies of Responsible Care and make credible attempts to correct them. It should also graduate out of the bunker mentality and adopt a less tight-fisted approach to sharing information. As a collective body, the CMA faces unique challenges in developing new policies. It has a track record of successfully crafting industry-level voluntary codes and ensuring that its members adopt them. Now in its second decade of existence, Responsible Care has the potential to remain an important part of the CMA's response to various stakeholders, and its past success should not blind the CMA to the future challenges.

NOTES

1. I owe this point to an anonymous reviewer.
2. On cooperative approaches to environmental regulation, see Harrison (1999).
3. For an exhaustive list, see the EPA's (1999) *Directory of Reinvention Projects and Programs*.
4. European countries have also responded differently to voluntary environmental programs. For a comparison of firm-level responses in the United Kingdom, Germany, and the United States, see Kollman & Prakash (2000).
5. The concept of an "impure public good" was popularized by Buchanan (1965), although its application can be found in the works of Tiebout (1956) and Wiseman (1957).
6. On the impact of stakeholder salience on managerial decisions, see Mitchell et al. (1997).
7. For a theoretical discussion on the impact of actor heterogeneity on collective action, see the volume edited by Keohane & Ostrom (1995).
8. Path dependency implies that past decisions impact current and future choices. Hence, it is important to understand the historical contexts within which actors arrive at decisions.
9. The United Nations Environment Programme is not considered appropriate for this task (Esty, 1994).
10. Interestingly, insights neoclassical economics can be employed to argue that voluntary codes preempt stringent standards as well as lead to higher standards. I owe this point to Jennifer Griffin.
11. One could ask: Why bother estimating equilibrium levels if voluntary codes are outside the market domain? As public-choice theory suggests, insights from microeconomics, including the notions of demand, supply, and equilibrium levels, can be usefully applied to understand nonmarket phenomena such as voluntary codes.
Also, I am not suggesting that managerial perceptions matter only because costs and benefits cannot be quantified. Whether managerial perceptions matter or not is not a dichotomous variable. If benefits and costs can be objectively quantified, perceptions about the usefulness of a project may matter less. However, when they cannot be quantified or there is wide divergence with regard to their estimates, managerial perceptions potentially matter more. I have developed this point in greater detail in Prakash (2000).
12. For an institutionalist account of the chemical industry's response to environmental issues, see Hoffman (1997).
13. This point surfaced during my conversations with many managers. Of course, such "right things" could serve the long-term profit objectives as well.
14. On the impact of TRI disclosures on firms strategies, see Arora and Cason (1996), Hamilton (1995), Khanna, Quimio, and Bojilova (1998), and Konar and Cohen (1997).
In 1998, the Environmental Defense Fund launched its Scorecard Website that makes the plant-wise TRI data easily available. In the first week of the launch, there were 2 million hits, clearly demonstrating the public hunger for credible information, and the potentially devastating impact on reputations of firms with significant TRI emissions and releases ("Responsible Care and Performance Goals," 1998).
15. The literature on network externalities and the opportunities and threat faced by early adopters and late adopters is rather vast. Key works include Bessen and Saloner (1988) and Katz and Shapiro (1983).
16. Firms measure Responsible Care's progress by other parameters as well. For the Pollution Prevention Code, the performance could be measured by the Toxic Release Inventory

reports. For the Distribution Code, firms are expected to use Department of Transportation's framework for assessing their performance.

17. This is akin to evaluating a jurisdiction's state of law and order by its prison population. Prison population (absolute numbers as well as per capita) could be low both because citizens do not break laws or because citizens break laws but are not prosecuted.

18. The Canadian Chemical Producers Association is far ahead in this aspect: 72 of its 74 members have completed the verification process. To ensure that members do not backslide, a second round is also proposed ("Responsible Care: Doing It Right," 1998).

19. It can be argued, however, that constructivists substitute one kind of functionalism (benefits-costs) with another (legitimacy and trust). On this subject, see Lake (1999).

20. The U.K.'s Chemical Industry Association reports similar results: 23% viewed industry favorably, 23% viewed unfavorably, and the rest were undecided ("Europe Begins to Measure Performance," 1998).

21. There is a scope for collaborating between the two codes as well. If ISO 14000 can be harmonized with Responsible Care, CMA members could benefit from both voluntary codes. This would also provide much needed external validity to Responsible Care.

ISO 14000 is a bold and complex initiative for self-regulation. As discussed previously, unlike European and Asian firms, U.S. firms have been lukewarm in adopting it. A major reason is the lack of attorney-client privilege granted by the Environmental Protection Agency to ISO 14000 audits. This creates strong disincentives for U.S. firms, given their adversarial relationship with environmental regulators. For a detailed discussion on this subject as well as a comparison between Responsible Care and ISO 14000, see Prakash (1999).

22. I owe this point to an anonymous reviewer.

REFERENCES

- Ackerman, R. W. (1975). *The social challenge to business*. Cambridge, MA: Harvard University Press.
- Arora, S., & Cason, T. N. (1996). Why do firms volunteer to exceed environmental regulations? Understanding participation in EPA's 33/50 program. *Land Economics*, 72, 413-432.
- Baldwin, D. A. (1993). *Neorealism and neoliberalism: The contemporary debate*. New York: Columbia University Press.
- Barrett, S. (1991). Environmental regulations for competitive advantage. *Business Strategy Review*, 2, 1-15.
- Bessen, S. M., & Saloner, G. (1988). *Compatibility standards and the market for telecommunication services*. Santa Monica, CA: Rand.
- Bhopal's legacy. (1997, July 2). *Chemical Week*, 84-85.
- Buchanan, J. M. (1965). An economic theory of clubs. *Economica*, 32, 1-14.
- CAER: Jump-starting community outreach. (1998, July 1). *Chemical Week*, 62-66.
- Chemical makers pin hope on Responsible Care to improve image. (1992, October 5). *Chemical & Engineering News*, 13-39.
- Chemical Manufacturers Association (CMA). (1996). *Fact sheet: Industry questions inventory changes* [Online]. Retrieved January 16, 1998, from the World Wide Web: <http://www.es.epa.gov/techinfo/facts/cma/cma-fs4.html>
- Chemical Manufacturers Association (CMA). (1998a). *CMA to celebrate its 125 anniversary* [Online]. Retrieved January 16, 1998, from the World Wide Web: http://www.cmahq.com/chem_react/chem_react.html

- Chemical Manufacturers Association (CMA). (1998b). *Self evaluation* [Online]. Retrieved January 16, 1998, from the World Wide Web: http://www.cmahq.com/cmapprograms/rc/ele...content_pages/contents_rc_element04.html
- Clarkson, M.B.E. (Ed.). (1998). *The corporation and its stakeholders*. Toronto: University of Toronto Press.
- Coase, R. H. (1960). The problem of social cost. *Journal of Law and Economics*, 3, 1-44.
- Cornes, R., & Sandler, T. (1996). *The theory of externalities, public goods, and club goods*. UK: Cambridge University Press.
- Crafting 'new' Responsible Care. (1998, December 2). *Chemical Week*, 41-44.
- Critics look for greater commitment. (1998, July 1). *Chemical Week*, 39-42.
- Cross, J. G., & Guyer, M. J. (1980). *Social traps*. Ann Arbor: University of Michigan Press.
- Donaldson, T., & Preston, L. E. (1995). The stakeholder theory of the corporation: Concepts, evidence, and implications. *Academy of Management Review*, 20, 65-91.
- Druckrey, F. (1998). How to make business ethics operational: Responsible Care—An example of successful regulation? *Journal of Business Ethics*, 17, 979-985.
- Earning public trust remains top priority. (1998, November 16). *Chemical Market Reporter*, 8, 40.
- Environmental Protection Agency (EPA). (1999). *Directory of reinvention projects and programs* [Online]. Retrieved April 5, 1999, from the World Wide Web: <http://www.epa.gov/reinvent/notebook/index.html>
- Esty, D. C. (1994). *Greening the GATT*. Washington, DC: Institute for International Economics.
- Europe begins to measure performance. (1998, July 1). *Chemical Week*, 111-112.
- Freeman, R. E. (1984). *Strategic management: A stakeholder approach*. Boston: Pittman.
- Fri, R. W. (1992). The corporation as a nongovernmental organization. *Columbia Journal of World Business*, 27, 91-95.
- Friedman, M. (1970, September 13). The social responsibility of business is to increase its profits. *New York Times Magazine*, 32-33, 122-126.
- Griffin, J. J., & Mahon, J. F. (1997). The corporate social performance and corporate financial performance debate: Twenty-five years of incomparable research. *Business & Society*, 36, 5-31.
- Gupta, A. K., & Lad, L. J. (1983). Industry self-regulation: An economic, organizational, and political analysis. *Academy of Management Review*, 8, 416-425.
- Hamilton, J. T. (1995). Pollution as news: Media and stock market reactions to the Toxic Release Inventory data. *Journal of Environmental Economics and Management*, 28, 98-113.
- Hardin, G. (1968). The tragedy of the commons. *Science*, 162, 1243-1248.
- Harrison, K. (1999). Talking with the donkey: Cooperative approaches to environmental protection. *Journal of Industrial Ecology*, 2, 51-72.
- Hart, S. L. (1995). A natural resource-based view of the firm. *Academy of Management Review*, 20, 986-1014.
- Hobbes, T. (1967). *Leviathan*. Oxford: Clarendon Press.
- Hoffman, A. J. (1997). *From heresy to dogma*. San Francisco, CA: New Lexington Press.
- ISO World. (1999). *The number of ISO 14001/EMAS registrations* [Online]. Retrieved January 29, 1999, from the World Wide Web: <http://www.ecology.or.jp/isoworld/english/analy14k.htm>
- Jones, T. M. (1995). Instrumental stakeholder theory: A synthesis of ethics and economics. *Academy of Management Review*, 20, 404-437.
- Katz, M. L., & Shapiro, C. (1983). *Network externalities, competition, and compatibility*. Princeton, NJ: Woodrow Wilson School, Princeton University.

- Katzenstein, P. J. (1996). *The culture of national security*. New York: Columbia University Press.
- Keohane, R. O. (1984). *After hegemony*. Princeton, NJ: Princeton University Press.
- Keohane, R. O., & Ostrom, E. (Eds.). (1995). *Local commons and global interdependence: Heterogeneity and cooperation in two domains*. Thousand Oaks, CA: Sage Publications.
- Khanna, M., & Damon, L. A. (1999). EPA's voluntary 33/50 program: Impact on toxic releases and economic performance of firms. *Journal of Environmental Economics and Management*, 37, 1-25.
- Khanna, M., Quimio, W.R.H., & Bojilova, D. (1998). Toxic release information: A policy tool for environmental protection. *Journal of Environmental Economics and Management*, 36, 243-266.
- Kollman, K., & Prakash, A. (2000). *Cross-national variations in firms' responses to EMS-based environmental regimes*. Working Paper #2000-01, Department of Strategic Management and Public Policy, School of Business and Public Management, The George Washington University, Washington, D.C.
- Konar, S., & Cohen, M. A. (1997). Information as regulation: The effect of community right-to-know laws on toxic emissions. *Journal of Environmental Economics and Management*, 32, 109-124.
- Krasner, S. (Ed.). (1983). *International regimes*. Ithaca, NY: Cornell University Press.
- Labatt, S., & Maclaren, V. W. (1998). Voluntary corporate environmental initiatives: A typology and preliminary investigation. *Environment and Planning C: Government and Policy*, 16, 191-209.
- Labor feels 'left out' of Responsible Care. (1997, December 22). *Chemical & Engineering News*, 9-10.
- Lake, D. A. (1999). Global governance: A relational contracting approach. In A. Prakash & J. A. Hart (Eds.), *Globalization and governance* (pp. 31-53). London: Routledge.
- Meyer, J., & Scott, W. R. (Eds.). (1992). *Organizational environments: Ritual and rationality*. Newbury Park, CA: Sage Publications.
- Mitchell, R. K., Agle, B. R., & Wood, D. J. (1997). Towards a theory of stakeholder salience. *Academy of Management Review*, 22, 853-886.
- Mullins, M. L. (1994). Responsible Care: A case study. In V. K. Rao (Ed.), *Environmental strategies handbook* (pp. 216-229). New York: Macmillan.
- Nehrt, C. (1998). Maintainability of first-mover advantages when environmental regulations differ between countries. *Academy of Management Review*, 23, 77-97.
- New initiatives take aim at safety performance of chemical industry. (1993, November 29). *Chemical & Engineering News*, 12-36.
- Newton, T., & Harte, G. (1996). Green business: Technician kitsch? *Journal of Management Studies*, 34, 75-98.
- North, D. C. (1990). *Institutions, institutional change, and economic performance*. UK: Cambridge University Press.
- Oliver, C. (1991). Strategic responses to institutional processes. *Academy of Management Review*, 16, 145-179.
- Olson, M., Jr. (1965). *The logic of collective action*. Cambridge, MA: Harvard University Press.
- One key to Responsible Care: Better work with labor. (1998, January 5). *Chemical & Engineering News*, 17.
- Ostrom, E. (1990). *Governing the commons*. UK: Cambridge University Press.
- Ostrom, V., & Ostrom, E. (1977). Public goods and public choice. In E. S. Savas (Ed.), *Alternatives for delivering public services* (pp. 7-49). Boulder, CO: Westview.
- Pigou, A. C. (1960). *The economics of welfare*. London: Macmillan.

- Platt, J. (1973). Social traps. *American Psychologist*, 26, 641-651.
- Porter, M., & van der Linde, C. (1995). Toward a new conception of the environment-competitiveness relationship. *Journal of Economic Perspectives*, 9, 97-118.
- Prakash, A. (1999). A new-institutionalist perspective on ISO 14000 and responsible care. *Business Strategy and the Environment*, 8, 322-335.
- Prakash, A. (2000). *Greening the firm: The politics of corporate environmentalism*. UK: Cambridge University Press.
- Prakash, A., Krutilla, K., & Karamanos, P. (1996). Multinational corporations and international environmental policy. *Business and the Contemporary World*, 8, 119-144.
- Preston, L. E., & Post, J. E. (1975). *Private management and public policy: The principle of public responsibility*. Englewood Cliffs, NJ: Prentice Hall.
- Responsible Care. (1998a, July 1). *Chemical Week*, 33-37.
- Responsible Care. (1998b, December 2). *Chemical Week*, 35-38.
- Responsible Care and performance goals. (1998, May 6). *Chemical Week*, 3-4.
- Responsible Care claims continued global success. (1998, October 12). *Chemical Market Reporter*, 33.
- Responsible Care: Doing it right. (1998, October 26). *Chemical & Engineering News*, 15-20.
- Responsible Care earns discount on EIL premium. (1997, July 23). *Chemical Week*, 11.
- Responsible Care makes global moves. (1997, July 14). *Chemical Market Reporter*, 16-17.
- Responsible Care program poses challenges for small firms. (1993, August 9). *Chemical & Engineering News*, 9-14.
- Rowley, T. J. (1997). Moving beyond dyadic ties: A network theory of stakeholder influences. *Academy of Management Review*, 22, 887-911.
- Rugman, A. R., & Verbeke, A. (1998). Corporate strategies and environmental regulations: An organizing framework. *Strategic Management Journal*, 19, 363-375.
- Salop, S. C., & Scheffman, D. T. (1983). Raising rivals' costs. *American Economic Review*, 73, 267-271.
- Same mission, new directions. (1998, December 2). *Chemical Week*, 5.
- Sandholtz, W. (1999). Globalization and the evolution of rules. In A. Prakash & J. A. Hart (Eds.), *Globalization and governance* (pp. 77-102). London: Routledge.
- Scott, W. R. (1987). The adolescence of institutional theory. *Administrative Science Quarterly*, 32, 493-511.
- Selling responsibly in Brazil. (1998, December 2). *Chemical Week*, 44-47.
- Shrivastava, P. (1995). The role of corporation in achieving ecological sustainability. *Academy of Management Review*, 20, 936-960.
- Simmons, P., & Wynne, B. (1993). Responsible Care: Trust, credibility, and environmental management. In K. Fischer & J. Schot (Eds.), *Environmental strategies for industry* (pp. 201-226). Washington, DC: Island Press.
- Stigler, G. (1971). The economic theory of regulation. *Bell Journal of Economics*, 2, 3-21.
- Survey finds limited labor role. (1997, December 24). *Chemical Week*, 27.
- Tiebout, C. M. (1956). A pure theory of public expenditure. *Journal of Political Economy*, 64, 416-424.
- Vogel, D. (1996). *Kindred strangers*. Princeton, NJ: Princeton University Press.
- Voluntary chemical testing program advances Responsible Care. (1998, October 19). *Chemical Market Reporter*, 1, 9.
- Walley, N., & Whitehead, B. (1994, May-June). It's not easy being green. *Harvard Business Review*, 46-51.
- Wartick, S. L., & Cochran, P. L. (1985). The evolution of the corporate social performance model. *Academy of Management Review*, 4, 758-769.

- Wiseman, J. (1957). The theory of public utility pricing—An empty box. *Oxford Economic Papers*, 9, 56-74.
- Wood, D. J. (1991). Corporate social performance revisited. *Academy of Management Review*, 16, 691-718.
- Wood, D. J., & Jones, R. E. (1995). Stakeholder mismatching: A theoretical problem in empirical research in corporate social performance. *International Journal of Organizational Analysis*, 3, 229-267.
- World Bank. (1992). *World development report*. UK: Oxford University Press.
- World Commission on Environment and Development (WCED). (1987). *Our common future*. UK: Oxford University Press.
- Young, O. R. (Ed.). (1997). *Global governance: Drawing insights from the environmental experience*. Cambridge, MA: MIT Press.
- Zucker, L. G. (Ed.). (1988). *Institutional patterns and organization*. New York: Ballinger.

Aseem Prakash is assistant professor of strategic management and public policy at the School of Business and Public Management, The George Washington University. He also serves on the faculty of the Department of Political Science and The Elliott School of International Affairs, The George Washington University. After completing his MBA from the Indian Institute of Management, Ahmedabad, he worked for Procter & Gamble from 1989 to 1992. Subsequently, he received a joint Ph.D. from the Department of Political Science and the School of Public and Environmental Affairs, Indiana University, Bloomington (1993-1997). He is the author of Greening the Firm: The Politics of Corporate Environmentalism (Cambridge University Press, 2000) and coeditor of Globalization and Governance (Routledge, 1999), Coping with Globalization (Routledge, 2000), and Responding to Globalization (Routledge, 2000). His research focuses on two areas: the political economy of environmental issues and the impact of globalization on business and public policy.