

STAKEHOLDERS AND ENVIRONMENTAL MANAGEMENT PRACTICES: AN INSTITUTIONAL FRAMEWORK



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Despite burgeoning research on companies' environmental strategies and environmental management practices, it remains unclear why some firms adopt environmental management practices beyond regulatory compliance. This paper leverages institutional theory by proposing that stakeholders – including governments, regulators, customers, competitors, community and environmental interest groups, and industry associations – impose coercive and normative pressures on firms. However, the way in which managers perceive and act upon these pressures at the plant level depends upon plant- and parent-company-specific factors, including their track record of environmental performance, the competitive position of the parent company and the organizational structure

of the plant. Beyond providing a framework of how institutional pressures influence plants' environmental management practices, various measures are proposed to quantify institutional pressures, key plant-level and parent-company-level characteristics and plant-level environmental management practices. Copyright © 2004 John Wiley & Sons, Ltd and ERP Environment.

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INTRODUCTION

Why do some firms adopt environmental management practices that go beyond regulatory compliance? Is the adoption of these practices driven by potential performance outcomes or by institutional pressures? Some research has analysed specific factors external to the firm that drive the adoption of environmental strategies such as regulation and competitive forces (Aragón-Correa, 1998; Christmann, 2000; Dean and

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Brown, 1995; Delmas, 2003; Hart, 1995; Nehrt, 1996, 1998; Russo and Fouts, 1997; Sharma and Vredenburg, 1998), and pressure from non-governmental organizations (Lawrence and Morell, 1995). Other research has looked at the role of the characteristics of the firm to explain the adoption of 'beyond compliance' strategies. This includes the influence of organizational context and design (Ramus and Steger, 2000; Sharma, 2000; Sharma *et al.*, 1999) and organizational learning (Marcus and Nichols, 1999). Other analyses have focused on the individual or managerial level, examining the role of leadership values (Egri and Herman, 2000), and managerial attitudes (Cordano and Frieze, 2000; Sharma, 2000; Sharma, *et al.*, 1999). While each has provided a piece of the puzzle, there is still a lack of understanding of the conditions under which these various rationales matter to explain the adoption of practices beyond regulatory compliance at the plant level. In a rare exception, Gunningham, Kagan, and Thornton (2003) examined the external and internal pressures that drive firms to improve their environmental performance beyond regulatory compliance in the pulp and paper industry. As recently pointed out, 'our understanding of factors that foster strong environmental management practices within a firm, particularly with operations at the plant level, still remains limited' (Klassen, 2001, p. 257). This paper offers a perspective that not only evaluates the relative influences of external stakeholders exerting institutional pressures on firms, but also depicts how firm characteristics and organizational structure as well as industry effects moderate these pressures. Beyond providing a framework of how institutional pressures influence a plant's environmental management practices, various measures are proposed to quantify institutional pressures, key plant-level and parent-company-level characteristics and plant-level environmental management practices.

The institutional sociology framework emphasizes the importance of regulatory, normative and cognitive factors that affect firms'

decisions to adopt a specific organizational practice, above and beyond the practice's technical efficiency. Institutional theory emphasizes legitimation processes and the tendency for institutionalized organizational structures and procedures to be taken for granted, regardless of their efficiency implications (Hoffman and Ventresca, 2002). However, the institutional perspective does not address the fundamental issue of business strategy: why do organizations subject to the same level of institutional pressure pursue different strategies? Building on the institutional framework, we argue that firms adopt heterogeneous sets of environmental management practices because they interpret these pressures differently due to plant and parent company characteristics. In our model, managers of different plants are subject to the same level of institutional pressures but they are expected to perceive these pressures differently due to disparities in their parent companies' organizational structure, strategic position and financial and environmental performance. This difference between 'objective' and 'perceived' pressure leads to different calculations and responses. The adoption of environmental management practices by firms varies therefore not only due to different levels of institutional pressures but also because of the organizational process that transforms objective pressures into perceived pressures.

To be tested empirically, this comprehensive framework of the drivers of the adoption of environmental management practices necessitates an empirical approach that combines both existing publicly available databases, as well as original data from a survey questionnaire at the plant level. Publicly available databases can provide information on 'objective pressures' while the survey questionnaire can give information about the perception of pressure and the actions taken in response. The combination of these sources of information allows the evaluation of the difference between objective and perceived pressures and the resulting adoption of environmental management practices.



INSTITUTIONAL THEORY

Institutional theory emphasizes the role of social and cultural pressures imposed on organizations that influence organizational practices and structures (Scott, 1992). DiMaggio and Powell (1983) argue that managerial decisions are strongly influenced by three institutional mechanisms – coercive, mimetic and normative isomorphism – that create and diffuse a common set of values, norms and rules to produce similar practices and structures across organizations that share a common organizational field (DiMaggio and Powell, 1983). An organizational field is defined as ‘those organizations that . . . constitute a recognized area of institutional life: key suppliers, resource and product consumers, regulatory agencies and other organizations that produce similar services or products (DiMaggio and Powell, 1983, p. 148).

Jennings and Zandbergen (1995) were amongst the first to apply institutional theory to explain firms’ adoption of environmental management practices. They argue that because coercive forces – primarily in the form of regulations and regulatory enforcement – have been the main impetus of environmental management practices, firms throughout each industry have implemented similar practices. Consistent with most institutional theorists, Jennings and Zandbergen claim that firms that share the same organizational field are affected in similar ways by institutional forces that emanate from them. They cite the examples of how the Three Mile Island crisis undermined the legitimacy of all firms in the US nuclear power industry, and how the discovery that chlorofluorocarbons (CFCs) depleted stratospheric ozone undermined the legitimacy of manufacturing and using those products, and quickly led to institutional coercive forces via the establishment of the Montreal Protocol to phase out the manufacture of CFCs. Delmas (2002) proposed an institutional perspective to analyse the drivers of the adoption of the ISO 14001 environmental management system

(EMS) international standard in Europe and in the United States. She described how the regulatory, normative and cognitive aspects of the institutional environment within a specific country affect the costs and potential benefits of ISO 14001 adoption, and therefore explain differences in adoption rates across countries. Other researchers have explored how companies operating in different organizational fields are subject to different institutional pressures. As a result, different practices become commonplace. For example, distinct levels of coercive pressures are exerted upon different industries, which may lead to different environmental strategies (Milstein *et al.*, 2002).

While such studies examine dynamic and cross-industry institutional forces, they avoid the question more fundamental to strategic management: why do organizations within the same organizational field pursue different strategies, despite experiencing isomorphic institutional pressures? In other words, how might institutional forces lead to heterogeneity, rather than homogeneity, within an industry? Hoffman (2001) argues that while organizations do not simply react to the pressures dictated by the organizational field, they also do not act completely autonomously without the influence of external bounds. Institutional and organizational dynamics are tightly linked. A few researchers have begun to investigate this question empirically (D’Aunno *et al.*, 2000; Levy and Rothenberg, 2002).

Levy and Rothenberg (2002) describe several mechanisms by which institutionalism can encourage heterogeneity. First, they argue that institutional forces are transformed as they permeate an organization’s boundaries because they are filtered and interpreted by managers according to the firm’s unique history and culture. Second, they describe how an institutional field may contain conflicting institutional pressures that require prioritization by managers. Third, they describe how multinational and diversified organizations operate within several institutional fields – at both the societal and organizational levels –

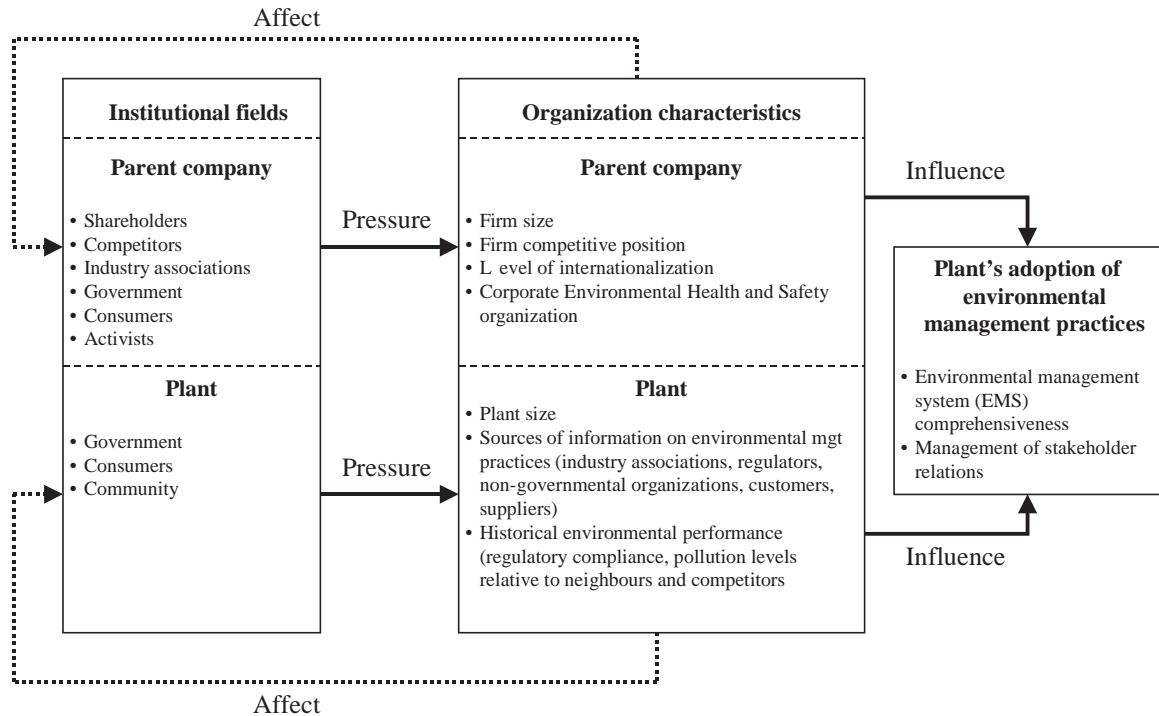


Figure 1. A model of institutional pressures moderated by parent company and plant characteristics

which expose them to different sets of institutionalized practices and norms.

D'Aunno *et al.* (2000) explore the circumstances under which organizations are more likely to abandon institutionalized structures or practices in favour of new ones, such as by diversifying into new services. They find that market forces (proximity to competitors), institutional forces (poor compliance with government regulations, being a member of a multidivisional firm) and mimicry of changes observed in other organizational fields each encourage strategic change that diverges from institutional norms.

We hypothesize that organizational structure, strategic positioning and performance will affect how firms perceive institutional pressures and how they decide to respond. Individuals in organizations focus on different aspects of the firm's external and internal environments, depending on the cognitive frame through which they view the world (Hoffman, 2001). Cognitive frames are mental representa-

tions individuals use to interpret and make sense of their world. Frames can come to be collectively held within organizations, especially through the influence of the organizational leader (Barr *et al.*, 1992; Weick and Roberts, 1993).

Institutional pressures

In this section, we describe a model that links institutional pressures to organizational characteristics to explain the adoption of environmental management practices at the plant level. Figure 1 illustrates our model.

This figure shows that plant-level managers' perceptions of institutional pressures are a function of stakeholders' actions but are moderated by the organizational characteristics of the plant and the parent company as well as the strategic positioning of the parent company. We describe how these coercive and normative pressures can affect the adoption of environmental management practices by



plants. We focus on a subset of the institutional actors identified by Hoffman (2001) whom we believe are most likely to directly influence environmental practices at the plant level: governments, customers, competitors, community and environmental interest groups, and industry associations. The actors we focus upon are important to consider when assessing a firm's environmental performance (Lober, 1996).

Government pressures

Perhaps the most obvious stakeholders that influence firms' adoption of environmental practices are various government bodies. Legislation authorizes agencies to promulgate and enforce regulations, a form of coercive power. Many researchers have focused on the influence of enforced legislation and regulations on firms' environmental practices (Carraro *et al.*, 1996; Delmas, 2002; Majumdar and Marcus, 2001; Rugman and Verbeke, 1998). In particular, Delmas (2002) found that governments play an important role in firms' decision to adopt ISO 14001. First, governments can act as a coercive force by sending a clear signal of their endorsement of ISO 14001 by, for example, enhancing the reputation of adopters. Second, government can facilitate adoption by reducing information and search costs linked to the adoption of the standard by providing technical assistance to potential adopters. In this paper, we refer to political pressure as the level of political support for broader or more stringent regulations. Regulatory pressure represents the extent to which regulators threaten to or actually impede a company's operations based on their environmental performance.

Customer and competitive pressures

In addition to government actors, firms may facilitate coercive and mimetic isomorphism. For example, multinationals are widely recognized as key agents in the diffusion of practices across national borders by transmitting orga-

nizational techniques to subsidiaries and other organizations in the host country (Arias and Guillen, 1998). Firms may also mimic practices that successful leading firms have adopted. In addition, firms respond to customer requirements. The customer-supplier relationship is perhaps the primary mechanism through which quality management standards have diffused (Anderson *et al.*, 1999). Several studies have found that firms that adopted environmental management practices were motivated by customer concerns. A survey of the largest Canadian firms showed that customer pressure was the second most cited source of pressure to adopt an environmental management plan, after government pressure (Henriques and Sadorsky, 1996). Khanna and Anton (2002) found that US companies that sell final goods adopt more comprehensive EMSs than companies that sell intermediate goods. This suggests that retail consumers exert more pressure on companies to adopt environmental management practices than commercial and industrial customers. Christmann and Taylor (2001) showed that customers in developed countries have influenced companies in China to improve their environmental compliance and adopt the ISO 14001 EMS standard.

Community and environmental interest group pressures

Local communities can also impose coercive pressure on companies through their vote in local and national elections, via environmental activism within environmental non-government organizations (NGOs) and by filing citizen lawsuits. Several studies have found that company decisions to adopt environmental management practices are influenced by the desire to improve or maintain relations with their communities. Henriques and Sadorsky (1996) surveyed 700 firms in 1992. These firms indicated that community group pressure influenced them to adopt an environmental plan. Florida and Davison (2001) investigated why facilities had adopted



EMSs and instituted pollution prevention programmes. They found that the adoption of these programmes was positively correlated with firms' active engagement with community stakeholders (Florida and Davison, 2001). Another study based on a survey of ISO 14001 certified companies across 15 countries found that one of the strongest motivating factors to pursue certification was the desire to be a good neighbour (Raines, 2002).

Some communities may be better able than others to encourage plants to adopt environmental practices. Communities with larger minority populations, lower incomes and less education have greater exposure to toxic emissions (Arora and Cason, 1999; Brooks and Sethi, 1997; Khanna and Vidovic, 2001). Some researchers have begun examining whether socioeconomic community characteristics are associated with plants' decisions to adopt environmental management practices. One study examined facility-level adoption of a United States Environmental Protection Agency (US EPA) voluntary programme, and found that adoption was more likely in communities with higher median household income (Khanna and Vidovic, 2001).

Greater declines in toxic emissions have been observed among plants located in communities with higher voting rates (Hamilton, 1999) and in states with higher membership in environmental interest groups (Maxwell *et al.*, 2000). Maxwell *et al.* (2000) assert that higher environmental interest group membership levels indicate a community's pro-environmental stance and greater propensity to use these organizations to lobby for more stringent regulation. As such, the authors conclude that higher membership rates provide a credible threat of increased regulation, which in turn drives firms to self-regulate.

Many of the firms studied by Lawrence and Morell (1995), especially the larger ones, were motivated to improve their environmental performance by their concern over 'environmental organizations that had aggressively publicized firms' lapses in environmental

responsibility' (Lawrence and Morell, 1995, p. 111). There are many examples where companies have amended their environmental practices in response to environmental group pressures (Baron, 2003). For instance, after Mitsubishi Corporation was subject to a protracted consumer boycott led by the Rainforest Action Network (RAN), Mitsubishi announced it would no longer use old-growth forest products (World Rainforest Movement, 1998).

Industry pressure

Institutional researchers have argued that organizations are more likely to mimic the behaviour of other organizations that are tied to them through networks (Guler *et al.*, 2002). Several studies have found that industry associations have motivated firms to adopt environmental management practices. Kollman and Prakash (2002) examined why the United Kingdom, Germany and the United States have such different rates of EMS certification. They found that the decision of whether to pursue certification, and which standard to certify against (ISO 14001 or the European Union's Eco-Audit and Management Scheme), was strongly influenced by stakeholder pressures from industry associations in addition to regional chambers of commerce, suppliers and regulators.

Market concentration within an industry may also affect the rate of diffusion of environmental management practices. If an industry is dominated by a few big players that require their suppliers to adopt particular environmental management practices, this is likely to lead to a greater diffusion of these practices than if the industry were more fragmented. This is a major reason why automotive suppliers in the United States have adopted similar quality and environmental practices.

Interactions

The interaction between these institutional pressures is likely to moderate their individual influence on company practices. For example,



the pressure from environmental groups may encourage the formulation of more stringent regulations. This, in turn, can induce industry leaders to encourage laggard firms to adopt environmental practices. Similarly, following its chemical disaster in Bhopal in 1984, Union Carbide along with other large chemical companies faced mounting public pressure for more stringent safety and environmental regulations. In response, the chemical industry developed and promoted a set of environment, health and safety (EHS) management practices – the Responsible Care programme – to chemical industry associations in Canada and the United States (King and Lenox, 2000; Prakash, 2000).

The moderating effects of firm characteristics

Within the same industry, firms may be subjected to different levels of institutional pressures. For example, multinational corporations are often held to higher standards for social and environmental responsibility than national companies because they are subject to the additional pressure of stakeholders from foreign countries (Zyglidopoulos, 2002). Furthermore, the visibility of leading firms often subjects them to more pressure. For example, social and environmental activists have targeted Nike, McDonald's, Starbucks and Home Depot in part because of their market leadership position (Roberts, 2003; Rowley and Berman, 2000). Furthermore, firms with historically poor environmental records are often subjected to more scrutiny by their local communities and regulators. Thus, multinational companies, market leaders and firms with poor environmental records may have more to gain by developing sophisticated mechanisms to anticipate and manage external pressures.

PERCEPTION OF PRESSURE

Firm and plant characteristics can affect not only the level of institutional pressure exerted on a plant, but also how plant managers per-

ceive institutional pressures. This is important because, even if institutional pressures were exerted at the same level on two plants, these two plants might well perceive and respond differently.

First, institutional pressures are exerted at various levels of a firm. For example, community pressures are often directly targeted at a particular plant, while shareholder pressures target the corporate level. Second, organizations channel these institutional pressures to different subunits, each of which frames these pressures according to their typical functional routines (Hoffman, 2001). For example, legal departments interpret pressures in terms of risk and liability, public affairs does so in terms of company reputation, environmental affairs in terms of ecosystem damage and regulatory compliance and sales departments in terms of potential lost revenues. Consequently, the pressure is managed according to the cultural frame of the unit that receives it: as an issue of either regulatory compliance, human resource management, operational efficiency, risk management, market demand or social responsibility (Hoffman, 2001). One implication of this process is that the internal organization of the firm matters because it influences how institutional pressures are perceived. Plant managers may perceive these external pressures more intensively (and respond to them accordingly) in firms where they have more open channels of communications with the immediate receptor of pressures (corporate functional areas responsible for finance, law, strategy, communication and the environment).

Information sources may also play a role in cultural framing. Environmental managers may learn about management practices from a variety of sources. For example, a plant may learn in an industry association meeting about a pending boycott of a competitor because of its environmental performance. The source from which managers obtain their information on existing environmental management practices can also influence their decisions to adopt environmental management practices.



A firm's historical environmental performance may also influence both how managers perceive stakeholder pressures and how they respond to them. Managers in firms whose reputations have suffered from pollution accidents may be more sensitive to environmental issues than those in other companies (Prakash, 2000). After major accidents, firms may rearrange their organizational structure to prevent recurrences and to facilitate more rapid responses. Such reorganizations may also begin actively engaging with those stakeholders from whom the firm expects more scrutiny (e.g. regulators, environmental activities). These reorganizations may also occur within competing firms if heightened institutional pressures spill beyond the firm that experienced the accident. For example, the disclosure of environmental information in the annual reports of oil companies increased significantly in the years following the Exxon Valdez oil spill (Patten, 1992).

FIRM RESPONSES TO INSTITUTIONAL PRESSURES

Firms can adopt various types of environmental management practice in response to institutional pressures. These can be based on (i) environmental strategies of conformance that focus on complying with regulations and adopting standard industry practices or (ii) voluntary environmental strategies that seek to reduce the environmental impacts of operations beyond regulatory requirements (Sharma, 2000). Voluntary strategies involve creative problem solving and collaborative interactions with stakeholders (Sharma and Vredenburg, 1998). For example, firms adopting voluntary approaches can implement EMS elements by creating an environmental policy, developing a formal training programme or instigating routine environmental auditing. In addition, management can choose to have the comprehensiveness of their EMS validated by a third party by pursuing ISO 14001 certifica-

tion. Management can also convey the importance of environmental management by including it as a criterion in employee performance evaluations (Nelson, 2002).

Companies can also seek to improve relations with regulators and signal a proactive environmental stance by participating in government or industry sponsored voluntary programmes. Indeed, the US EPA, some industry associations and several NGOs have recently created voluntary standards to provide incentives for firms to go beyond minimal regulatory requirements. For example, the US EPA has developed several voluntary agreements between governmental agencies and firms to encourage technological innovation or reduce pollution while providing relief from particular procedural requirements (Delmas and Terlaak, 2001). Industry programmes include Responsible Care and Sustainable Slopes (King and Lenox, 2000; Rivera and de Leon, 2003). NGO programmes include the Natural Step and the Global Reporting Initiative Guidelines (Bradbury and Clair, 1999; Hedberg and von Malmberg, 2003).

Companies can also work directly with customers and suppliers to improve their environmental performance. Furthermore, they may engage in 'systematic communication, consultation and collaboration with their key stakeholders...[and] host stakeholder forums and establish permanent stakeholder advisory panels at either the corporate level, the plant level, or to address a specific issue' (Nelson, 2002, p. 18).

MEASURES OF STAKEHOLDER PRESSURES AND FIRM AND INDUSTRY CHARACTERISTICS

The first step toward empirically testing the framework presented in this article is developing measures of the framework's constructs. This section proposes many such measures, grounded in the literature whenever possible. Many stakeholder pressures can be measured



through publicly available data sources, though in a few cases internal company information may be significantly more accurate (e.g. customer pressure). The perception of stakeholder pressure can also be assessed through a survey questionnaire addressed to managers (Henriques and Sadosky, 1996). We suggest that relying on both publicly available databases and a survey would enable researchers to assess differences between 'objective pressures' (measured by the former) and 'perceived pressures' (measured by the latter). In addition, data on plant-level environmental management practices are not publicly available, suggesting the need for a survey approach to capture this information.

Measuring political and regulatory pressure

Regulatory pressure could be measured using the number of regulatory inspections conducted at a plant and firm over the past several years, the number of compliance violations found and enforcement actions taken against the plant and firm over the past several years (Kassinis and Vafeas, 2002; Khanna and Anton, 2002). The firm's historic compliance record could also be measured using the number of its sites that are on the National Priority List (Freedman and Stagliano, 2002). Political pressure could be measured based on interest group ratings of politicians such as Congressional members' 'National Environmental Scorecard' values published annually by the League of Conservation Voters (Hamilton, 1997; Kassinis and Vafeas, 2002; Viscusi and Hamilton, 1999; Welch, *et al.*, 2000) and by the number of state-level environmental policy initiatives (Hall and Kerr, 1991; Welch *et al.*, 2000).

Measuring customer and competitive pressure

As described above, customer demands may stimulate coercive isomorphism, while competitor actions may be a source of mimetic isomorphism. Coercive pressures from customers could be measured based on the extent to

which the facility's customers consider environmental management or performance in selecting suppliers. Pressure toward mimetic isomorphism exerted on a plant could be measured by the extent to which the plant perceives that its competitors have adopted an EMS.

Measuring community and environmental interest group pressure

Community pressure can be measured using several indicators, including propensity for collective action, environmental attitudes, demographics and complaints. Because communities with a higher propensity for collective action are likely to be capable of exerting greater institutional pressure on local plants, various proxies for a community's propensity for collective action could be employed. First, voter turnout in a recent election cycle could be used to indicate the likelihood that a community expresses its interests to politicians (Arora and Cason, 1999; Hamilton, 1993, 1999). Second, community environmental activism could be measured using the proportion of the population proximate to each plant (Andrews, 1998; Kassinis and Vafeas, 2002) or within the plant's state (Maxwell *et al.*, 2000; Welch *et al.*, 2000; Wickle, 1995) who are members of major environmental and conservation organizations. Third, a community's propensity to file lawsuits against plants based on environmental issues could be estimated based on the proportion of a plant's proximate community who are environmental lawyers (Delmas, 2003). Public attitudes towards the environment could be assessed using large-scale surveys that include sufficiently narrow geographic detail about the respondents, such as the General Social Survey (Mazur and Welch, 1999; Welch *et al.*, 2000), or surveys of opinions regarding a trade-off between environment and jobs, or whether environmental regulations are too stringent or too lenient (Burns *et al.*, 2002).

Community demographics may also matter. The fact that communities with lower income,



less education and greater proportions of minorities are often exposed to more pollution may be due to plants' perceiving such communities as possessing less institutional power. Community demographics data including income, race, education and population density in the United States are available from the US Census Bureau and have been used in several studies to examine the influence of communities on organizations' environmental practices (see, e.g., Arora and Cason, 1999; Hamilton, 1993).

Finally, one could measure community pressure directly via the number of complaints they lodge about a plant's environmental performance (e.g. odours, noise, air or water pollution) or aesthetic appearance. Such complaints may be registered either with regulators or directly with the plant.

Measuring industry pressure

Two relevant dimensions of industry pressure that could be measured are the industry's posture toward the environment and a plant's relative position within its industry. To assess the former, one could use the proportion of firms within an industry that have adopted environmental management programmes about which there is publicly available information, such as ISO 14001. One could also examine the market share of each industry represented by companies touted on various 'best company' lists such as *Fortune* magazine's 'America's most admired companies' and '100 best companies to work for', Harris Interactive's 'Harris-Fombrun reputation quotient', or *Business Ethics* magazine's 'Best corporate citizens' (Brown and Perry, 1994; Fombrun and Shanley, 1990; Fryxell and Wang, 1994; Kim, 2000; Rowe *et al.*, 2003).

In addition to using 'objective measures of these stakeholder pressures, one could also assess directly how these pressures were perceived by managers. Through a survey questionnaire, Henriques and Sadorsky (1996) asked firms to rank the impact of various

stakeholder pressures on their adoption of an environmental plan. Their list of stakeholders included customers, suppliers, shareholders, government's regulations and neighbourhood community.

Measuring the moderating effects of firm characteristics

Market leadership could be measured by the market share, revenues or brand reputation of the plant's parent company. The latter could be assessed using various published rating systems described above. A firm's historical environmental record could be measured using the sum of environmental compliance violations and resulting penalties accrued over the preceding years at all of its plants (Kassinis and Vafeas, 2002; Khanna and Anton, 2002; Russo and Fouts, 1997).

Measuring environmental management practices

Some environmental management practices can be obtained from government and commercial databases. For example, the US EPA can provide listings of participants in its voluntary programmes such as Green Lights, Climate Wise, Waste Wise and Energy Star. A database of organizations in the US that have been certified to the ISO 14001 Environmental Management System is commercially available from QSU Publishing Company. A list of organizations registered to the Eco-Management and Audit Scheme is available from the European Union.

Additional firm-level characteristics about large US companies' environmental organization, programmes, policies and indicators are available from various surveys and analyses in the Investor Responsibility Research Center's Corporate Environmental Profiles Database and KLD Research and Analytics' SOCRATES database. However, detailed environmental management practices at the plant level are seldom available from the aforementioned sources, suggesting that a survey of plants may



be the only way to obtain data at this more refined level.

CONCLUSIONS

This paper provides a model that describes how stakeholders, including regulators, customers, activists, local communities and industry associations, impose institutional pressures on plants and their parent companies. We also suggest how a variety of plant and parent company factors moderate how managers perceive and act upon these pressures. Moderating factors include historical environmental performance, the competitive position of the parent company and the organizational structure of the plant.

Our approach complements institutional theory as it suggests that both institutional pressures and organizational characteristics influence organizations to adopt environmental management practices. Firm and plant characteristics are viewed as moderating factors because they are expected to magnify or diminish the influence of institutional pressures. While testing our model in both the American and international contexts presents an opportunity for future research, we have proposed numerous measures to facilitate this. Although there are empirical studies analysing the impact of coercive pressures (such as government pressure) on firm strategies, the field is open to empirical studies investigating the role of normative pressures on firm strategies.

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